



CCCs – Structure and Function

Readers' Guide

The abstracts in this document are organized by year of publication (in descending order). Readers with a particular interest in a subject may use the search function in the PDF to quickly find topics of their choosing. Please note that since the following content comes from a variety of sources, there may be variations in style and spelling. For official ACGME terminology and terminology usage, refer to the ACGME Glossary of Terms.

Background:

In 2013, the Next Accreditation System (NAS) was implemented by 7 core specialties which required residency programs to collect Milestones data during the 2012-2013 academic year. Programs were required to form a clinical competency committee (CCC) to evaluate residents using the Milestones framework and to report their trainees' Milestones assessments to the ACGME. While the CCCs play an important role in Milestones reporting, the ACGME has allowed each program flexibility in structuring its own CCC. Still, all resident assessments go through the CCC before being reviewed by the program director.

Primary purpose of a CCC

The primary purpose of a CCC is to make decisions as a group on residents' performance and report them to the ACGME. CCCs make recommendations to program directors through structured discussions at least twice a year. There are many ways to structure an effective CCC. Identifying a single protocol for structure and development may be challenging. The ACGME's CCC Guidebook for programs offers practical advice for effectively using CCCs.

What's in the literature?

- Understanding CCC processes
- Validity evidence pertaining to response process of CCC members when assigning Milestone ratings
- Investigate whether CCCs were consistent in applying Milestone ratings

How the literature can address some of these questions:

- How do I run an effective CCC?
- How to develop internal consistency within CCCs?
- How to facilitate training of new CCC members?
- What are the benefits of a shared mental model?
- How to identify struggling learners?

ACGME Milestones in the Real World: A Qualitative Study Exploring Response Process Evidence

Maranich AM, Hemmer PA, Uijtdehaage S, Battista A. J Grad Med Educ. 2022 Apr;14(2):201-209. doi: 10.4300/JGME-D-21-00546.1. Epub 2022 Apr 14. PMID: 35463179; PMCID: PMC9017262.

BACKGROUND:

Since the Accreditation Council for Graduate Medical Education (ACGME) introduced the Milestones in 2013, the body of validity evidence supporting their use has grown, but there is a gap with regard to response process.

OBJECTIVE:

The purpose of this study is to qualitatively explore validity evidence pertaining to the response process of individual Clinical Competency Committee (CCC) members when assigning Milestone ratings to a resident.

METHODS:

Using a constructivist paradigm, we conducted a thematic analysis of semi-structured interviews with 8 Transitional Year (TY) CCC members from 4 programs immediately following a CCC meeting between November and December 2020. Participants were queried about their response process in their application of Milestone assessment. Analysis was iterative, including coding, constant comparison, and theming.

RESULTS:

Participant interviews identified an absence of formal training and a perception that Milestones are a tool for resident assessment without recognizing their role in program evaluation. In describing their thought process, participants reported comparing averaged assessment data to peers and time in training to generate Milestone ratings. Meaningful narrative comments, when available, differentiated resident performance from peers. When assessment data were absent, participants assumed an average performance.

CONCLUSIONS:

Our study found that the response process used by TY CCC members was not always consistent with the dual purpose of the Milestones to improve educational outcomes at the levels of residents and the program.

Better Decision-Making: Shared Mental Models and the Clinical Competency Committee

Edgar L, Jones MD Jr, Harsy B, Passiment M, Hauer KE. J Grad Med Educ. 2021 Apr;13(2 Suppl):51-58. doi: 10.4300/JGME-D-20-00850.1. Epub 2021 Apr 23. PMID: 33936533; PMCID: PMC8078083.

BACKGROUND:

Shared mental models (SMMs) help groups make better decisions. Clinical competency committees (CCCs) can benefit from the development and use of SMMs in their decision-making as a way to optimize the quality and consistency of their decisions.

OBJECTIVE:

We reviewed the use of SMMs for decision making in graduate medical education, particularly their use in CCCs.

METHODS:

In May 2020, the authors conducted a narrative review of the literature related to SMMs. This review included the SMM related to teams, team functioning, CCCs, and graduate medical education.

RESULTS:

The literature identified the general use of SMMs, SMMs in graduate medical education, and strategies for building SMMs into the work of the CCC. Through the use of clear communication and guidelines, and a shared understanding of goals and expectations, CCCs can make better decisions. SMMs can be applied to Milestones, resident performance, assessment, and feedback.

CONCLUSIONS:

To ensure fair and robust decision-making, the CCC must develop and maintain SMMs through excellent communication and understanding of expectations among members.

Linking Workplace-Based Assessment to ACGME Milestones: A Comparison of Mapping Strategies in Two Specialties

Kelleher M, Kinnear B, Wong SEP, O'Toole J, Warm E. *Teach Learn Med.* 2020 Apr-May;32(2):194-203. doi: 10.1080/10401334.2019.1653764. Epub 2019 Sep 18.

CONSTRUCT:

The construct that is assessed is competency in Pediatrics and Internal Medicine residency training. Background: The Accreditation Council for Graduate Medical Education (ACGME) created milestones to measure learner progression toward competence over time but not as direct assessment tools. Ideal measurement of resident performance includes direct observation and assessment of patient care skills in the workplace. Residency programs have linked these concepts by mapping workplace-based assessments to the milestones of ACGME subcompetencies. Mapping is a subjective process, and little is known about specific techniques or the resulting consequences of mapping program-specific assessment data to larger frameworks of competency.

APPROACH:

In this article, the authors compare and contrast the techniques used to link workplace-based assessments called Observable Practice Activities (OPAs) to ACGME subcompetencies in two large academic residency programs from different specialties (Internal Medicine and Pediatrics).

Descriptive analysis explored the similarities and differences in the assessment data generated by mapping assessment items to larger frameworks of competency.

RESULTS:

Each program assessed the core competencies with similar frequencies. The largest discrepancy between the two subspecialties was the assessment of Medical Knowledge, which Internal Medicine assessed twice as often. Pediatrics also assessed the core competency Systems-based Practice almost twice as often as Internal Medicine. Both programs had several subcompetencies that were assessed more or less often than what appeared to be emphasized by the blueprint of mapping. Despite using independent mapping processes, both programs mapped each OPA to approximately three subcompetencies.

CONCLUSIONS:

Mapping workplace-based assessments to the ACGME subcompetencies allowed each program to see the whole of their curricula in ways that were not possible before and to identify existing curricular and assessment gaps. Although each program used similar assessment tools, the assessment data generated were different. The lessons learned in this work could inform other programs attempting to link their own workplace-based assessment elements to ACGME subcompetencies.

Comparison of Male and Female Resident Milestone Assessments During Emergency Medicine Residency Training: A National Study

Santen SA, Yamazaki K, Holmboe ES, Yarris LM, Hamstra SJ. Acad Med. 2020 Feb;95(2):263-268. doi: 10.1097/ACM.0000000000002988.

PURPOSE:

A previous study found that milestone ratings at the end of training were higher for male than female residents in emergency medicine (EM). However, that study was restricted to a sample of 8 EM residency programs, and used individual faculty ratings from milestone reporting forms that were designed for use by the program's Clinical Competency Committee (CCC). The objective of this study was to investigate whether similar results would be found when examining the entire national cohort of EM milestone ratings reported by programs after CCC consensus review.

METHOD:

This study examined longitudinal milestone ratings for all EM residents (n = 1,363; 125 programs) reported to the Accreditation Council for Graduate Medical Education every 6 months from 2014- 2017. A multilevel linear regression model was used to estimate differences in slope for all subcompetencies, and predicted marginal means between genders were compared at time of graduation.

RESULTS:

There were small but statistically significant differences between males' and females' increase in ratings from initial rating to graduation on 6 of the 22 subcompetencies. Marginal mean comparisons at time of graduation demonstrated gender effects for 4 patient care subcompetencies. For these subcompetencies, males were rated as performing better than females; differences ranged from 0.048 to 0.074 milestone ratings.

CONCLUSIONS:

In this national dataset of EM resident milestone assessments by CCCs, males and females were rated similarly at the end of their training for the majority of subcompetencies. Statistically significant but small absolute differences were noted in 4 patient care subcompetencies.

Understanding Assessment Systems for Clinical Competency Committee Decisions: Evidence from a Multisite Study of Psychiatry Residency Training Programs

Lloyd RB, Park YS, Tekian A, Marvin R. Acad Psychiatry. 2019 Dec 23. doi: 10.1007/s40596-019-01168-x.

OBJECTIVE:

This multisite study examines how clinical competency committees in Psychiatry synthesize resident assessments to inform milestones decisions to provide guidelines that support their use.

METHODS:

The study convened training directors and associate training directors from three psychiatry residency programs to examine decision-making processes of clinical competency committees. Annual resident assessments for one second year and one third year resident were used in a mock clinical competency committee format to assign milestones for two consecutive reporting periods. The committees reflected on the process and rated how the assessment tools impacted the assessment of milestones and evaluated the overall process. The authors compared reliability of assessment between the mock committees and examined both reliability of end of rotation assessments and their composite scores when combined with clinical skills evaluations.

RESULTS:

End of rotation evaluations were the most informative tool for assigning milestones and clarifying discrepancies in performance. In particular, the patient care and medical knowledge competencies were the easiest to rate, while the systems-based practice and practice-based learning and improvement were the most difficult. Reliability between committees was low although higher number of available evaluations improved reliability in decision-making.

CONCLUSIONS:

The results indicate that the medical knowledge and patient care competencies are the easiest to rate and informed most by end of rotation evaluations and clinical skills examinations. Other evaluation tools may better capture performance on specific sub-competencies beyond workplace-based assessment, or it may be helpful to reconsider the utility of how individual sub-competencies are evaluated.

How Well Do Core Faculty Understand The Emergency Medicine Milestones?

Sorge R, Li-Sauerwine S, Fernandez J, Hern G. West J Emerg Med. 2019 Dec 19;21(1):160-162. doi: 10.5811/westjem.2019.11.44289.

INTRODUCTION:

It is unclear how emergency medicine (EM) programs educate core faculty about the use of milestones in competency-based evaluations. We conducted a national survey to profile how programs educate core faculty regarding their use and to assess core faculty's understanding of the milestones.

METHODS:

Our survey tool was distributed over six months in 2017 via the Council of Emergency Medicine Residency Directors (CORD) listserv. Responses, which were de-identified, were solicited from program directors (PDs), assistant/associate program directors (APDs), and core faculty. A single response from a program was considered sufficient.

RESULTS:

Our survey had a 69.7% response rate (n=140/201). 62.9% of programs reported educating core faculty about the EM Milestones via the distribution of physical or electronic media. Although 82.6% of respondents indicated that it was important for core faculty to understand how the EM Milestones are used in competency-based evaluations, respondents estimated that 48.6% of core faculty possess "fair or poor" understanding of the milestones. Furthermore, only 50.7% of respondents felt that the EM Milestones were a valuable tool.

CONCLUSION:

These data suggest there is sub-optimal understanding of the EM Milestones among core faculty and disagreement as to whether the milestones are a valuable tool.

A National Study of Longitudinal Consistency in ACGME Milestone Ratings by Clinical Competency Committees: Exploring an Aspect of Validity in the Assessment of Residents' Competence

Hamstra SJ, Yamazaki K, Barton MA, Santen SA, Beeson MS, Holmboe ES. Acad Med. 2019 Oct;94(10):1522-1531. doi: 10.1097/ACM.0000000000002820.

PURPOSE:

To investigate whether clinical competency committees (CCCs) were consistent in applying milestone ratings for first-year residents over time or whether ratings increased or decreased.

METHOD:

Beginning in December 2013, the ACGME initiated a phased-in requirement for reporting milestones; emergency medicine (EM), diagnostic radiology (DR), and urology (UR) were among the earliest reporting specialties. The authors analyzed CCC milestone ratings of first-year residents from 2013-2016 from all ACGME-accredited EM, DR, and UR programs for which they had data. The number of first-year residents in these programs ranged from 2,838 to 2,928 over this time period. The program-level average milestone rating for each subcompetency was regressed onto the time of observation using a random coefficient multilevel regression model.

RESULTS:

National average program-level milestone ratings of first-year residents decreased significantly over the observed time period for 32 of the 56 subcompetencies examined. None of the other subcompetencies showed a significant change. National average in-training examination scores for each of the specialties remained essentially unchanged over the time period, suggesting differences between the cohorts was not likely an explanatory factor.

CONCLUSIONS:

The findings indicate that CCCs tend to become more stringent or maintain consistency in their ratings of beginning residents over time. One explanation for these results is that CCCs may become increasingly comfortable in assigning lower ratings when appropriate. This finding is consistent with an increase in confidence with the milestones rating process and the quality of feedback it provides. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

Rising to the Challenge: Residency Programs' Experience With Implementing Milestones- Based Assessment

Dzara K, Huth K, Kesselheim JC, Schumacher DJ. J Grad Med Educ. 2019 Aug;11(4):439-446. doi: 10.4300/JGME-D-18-00717.1.

BACKGROUND:

Changes to assessment efforts following the shift to milestones-based assessment in the ACGME Next Accreditation System have not been fully characterized.

OBJECTIVE:

This study describes themes in initial milestones-based assessment practices with the goal of informing continued implementation and optimization of milestones-based assessment.

METHODS:

Semistructured interviews were conducted with 15 residency program leaders in 6 specialties at 8 academic medical centers between August and December 2016. We explored what was retained, what was added, and what was changed from pre-milestones assessment efforts. We also examined the perceived impact of the shift to milestones-based assessment on the programs. Thematic analysis began after the first 5 interviews and ended once thematic sufficiency was reached. Two additional authors reviewed the codes, offered critical input, and informed the formation and naming of the final themes.

RESULTS:

Three themes were identified: (1) program leaders faced challenges to effective implementation; (2) program leaders focused on adaptability and making milestones work in what felt like a less than ideal situation for them; and (3) despite challenges, program leaders see value and utility in their efforts to move to milestones-based assessment. We describe a number of strategies that worked for programs during the transition, with perceived benefits acknowledged.

CONCLUSIONS:

While adaptation to milestones has occurred and benefits are noted, negative impacts and challenges (eg, perceived lack of implementation guidance and faculty development resources) persist. There are important lessons learned (eg, utilizing implementation experiences formatively to improve curricula and assessment) in the transition to milestones-based assessment.

Ability of Ophthalmology Residents to Self-Assess Their Performance through Established Milestones

Srikumaran D, Tian J, Ramulu P, Boland MV, Woreta F, Wang KM, Mahoney N. J Surg Educ. 2019 Jul - Aug;76(4):1076-1087. doi: 10.1016/j.jsurg.2018.12.004. Epub 2019 Mar 5.

OBJECTIVES:

Accurate self-assessment is an important aspect of practice-based learning and improvement and a critical skill for resident growth. The Accreditation Council for Graduate Medical Education mandates semiannual milestones assessments by a clinical competency committee (CCC) for all ophthalmology residents. There are six core competencies: patient care (PC), medical knowledge, systems-based practice, practice-based learning and improvement, professionalism, and interpersonal communication skills. These competencies are assessed by the milestones rubric, which has detailed behavioral anchors and are also used for trainee self-assessments. This study compares resident self-assessed (SA) and faculty CCC milestones scores.

DESIGN:

Residents completed milestones self-assessments prior to receiving individual score reports from the CCC. Correlation coefficients were calculated comparing the SA and CCC scores. In addition, statistical models were used to determine predictors of disparities and differences between the SA and CCC scores.

SETTING:

Wilmer Eye Institute, Johns Hopkins Hospital.

PARTICIPANTS:

Twenty-one residents in the Wilmer Ophthalmology Residency program from July 2014 to June 2016.

RESULTS:

Fifty-seven self-assessments were available for the analysis. For each resident's first assessment, SA and CCC scores were strongly correlated ($r \geq 0.6$ and $p < 0.05$) for four milestones, and not correlated for the remaining 20 milestones. In multivariable models, the SA and CCC scores are less disparate for medical knowledge and systems-based practice competencies compared to practice-based learning and improvement. Higher year of training, PC and professionalism competencies were predictive of statistically significant resident overestimation of scores relative to the CCC. In addition, higher CCC scores predicted statistically significant lower SA-CCC disparities and differences. SA-CCC differences did not lower to a significant extent with repeated assessments or modification to the end-of-rotation evaluation forms.

CONCLUSIONS:

Self-assessments by ophthalmology residents are not well-correlated with faculty assessments, emphasizing the need for improved and frequent timely feedback. Residents have the greatest difficulty self-assessing their professionalism and PC competency. In general, senior residents and underperforming residents have more inaccurate self-assessments.

Some Assembly Required: Tracing the Interpretative Work of Clinical Competency Committees

Pack R, Lingard L, Watling CJ, Chahine S, Cristancho SM. Med Educ. 2019 Jul;53(7):723-734. doi: 10.1111/medu.13884. Epub 2019 Apr 30.

OBJECTIVES:

This qualitative study describes the social processes of evidence interpretation employed by Clinical Competency Committees (CCCs), explicating how they interpret, grapple with and weigh assessment data.

METHODS:

Over 8 months, two researchers observed 10 CCC meetings across four postgraduate programmes at a Canadian medical school, spanning over 25 hours and 100 individual decisions. After each CCC meeting, a semi-structured interview was conducted with one member. Following constructivist grounded theory methodology, data collection and inductive analysis were conducted iteratively.

RESULTS:

Members of the CCCs held an assumption that they would be presented with high-quality assessment data that would enable them to make systematic and transparent decisions. This assumption was frequently challenged by the discovery of what we have termed 'problematic evidence' (evidence that CCC members struggled to meaningfully interpret) within the catalogue of learner data. When CCCs were confronted with 'problematic evidence', they engaged in lengthy, effortful discussions aided by contextual data in order to make meaning of the evidence in question. This process of effortful discussion enabled CCCs to arrive at progression decisions that were informed by, rather than ignored, problematic evidence.

CONCLUSIONS:

Small groups involved in the review of trainee assessment data should be prepared to encounter evidence that is uncertain, absent, incomplete, or otherwise difficult to interpret, and should openly discuss strategies for addressing these challenges. The answer to the problem of effortful processes of data interpretation and problematic evidence is not as simple as generating more data with strong psychometric properties. Rather, it involves grappling with the discrepancies between our interpretive frameworks and the inescapably subjective nature of assessment data and judgement.

Should Objective Structured Clinical Examinations Assist the Clinical Competency Committee in Assigning Anesthesiology Milestones Competency?

Rebel A, DiLorenzo A, Nguyen D, Horvath I, McEvoy MD, Fragneto RY, Dority JS, Rose GL, Schell RM. *Anesth Analg*. 2019 Jul;129(1):226-234. doi: 10.1213/ANE.0000000000004120.

BACKGROUND:

With the integration of Objective Structured Clinical Examinations into the Anesthesiology primary board certification process, residency programs may choose to implement Objective Structured Clinical Examinations for resident skill assessment. The aim of this study was to evaluate Objective Structured Clinical Examination-based milestone assessment and compare with Clinical Competency Committee milestone assessment that is based purely on clinical evaluations.

METHODS:

An annual Objective Structured Clinical Examination event was used to obtain milestone assessment of clinical anesthesia year 0-clinical anesthesia year 3 residents for selected milestones in patient care, professionalism, and interpersonal/communication skills. The Objective Structured Clinical Examination scenarios were different for each training level. The Clinical Competency Committee evaluated each resident semiannually based on clinical evaluations of resident performance. The Clinical Competency Committee milestone assessments from 2014 to 2016 that were recorded closest to the Objective Structured Clinical Examination event (± 3 months) were compared to the Objective Structured Clinical Examination milestone assessments. A total of 35 residents were included in this analysis in 3 different training cohorts: A (graduates 2016, $n = 12$); B (graduates 2017, $n = 10$); and C (graduates 2018, $n = 13$). All residents participated in Objective Structured Clinical Examinations because their clinical anesthesia year 0 year and Clinical Competency Committee milestone data had been reported since December 2014.

RESULTS:

Both assessment techniques indicated a competency growth proportional to the length in training. Despite limited cumulative statistics in this study, average trends in the Objective Structured Clinical Examination-Clinical Competency Committee relationship indicated: (1) a good proportionality in reflecting competency growth; (2) a grade enhancement associated with Clinical Competency Committee assessment, dominated by evaluations of junior residents (clinical anesthesia year 0- clinical anesthesia year 1); and (3) an expectation bias in Clinical Competency Committee assessment, dominated by evaluation of senior residents (clinical anesthesia year 2-clinical anesthesia year 3).

CONCLUSIONS:

Our analysis confirms the compatibility of the 2 evaluation methods in reflecting longitudinal growth. The deviation of Objective Structured Clinical Examination assessments versus Clinical Competency Committee assessments suggests that Objective Structured Clinical Examinations may be providing additional or different information on resident performance. Educators might consider using both assessment methods to provide the most reliable and valid competency assessments during residency.

Use of Emergency Department Pharmacists in Emergency Medicine Resident Milestone Assessment

Bedy SC, Goddard KB, Stille JAW, Sampson CS. West J Emerg Med. 2019 Mar;20(2):357-362. doi: 10.5811/westjem.2018.10.37958. Epub 2018 Dec 5.

INTRODUCTION:

The use of competency-based milestones for emergency medicine (EM) was mandated by the Accreditation Council for Graduate Medical Education in 2013. However, clinical competency committees (CCC) may lack diverse, objective data to assess these new competencies. To remedy the lack of objective data when assessing the pharmacotherapy sub-competency (PC5) we introduced a unique approach that actively involves departmental clinical pharmacists in determining the milestone level achieved by the resident.

METHODS:

Our pharmacists assess the pharmacotherapy knowledge of the residents through multiple methods: direct observation of orders, communication with the residents while performing patient care within the emergency department (ED), and real-time chart review. This observation occurs informally on a daily basis in the ED and is incorporated into the routine work of the pharmacist. The pharmacists use the PC5 sub-competency as their standard evaluation tool in this setting to keep all assessments consistent.

RESULTS:

Since our residency program introduced pharmacist assessment of resident pharmacotherapy knowledge, the CCC has conducted seven biannual meetings. Of the 120 separate PC5 sub-competency assessments made during those meetings there was 100% agreement between the pharmacist's assessment and the CCC's final assessment of the trainee. A survey of the CCC members concluded that the pharmacists' assessments were useful and aided in accurate resident evaluation.

CONCLUSION:

The use of ED pharmacists in assessing the pharmacotherapy sub-competency provides important information used in resident assessment of the PC5 milestone.

Assessment Methods and Resource Requirements for Milestone Reporting by an Emergency Medicine Clinical Competency Committee

Goyal N, Folt J, Jaskulka B, Baliga S, Slezak M, Schultz LR, Vallee P. Med Educ Online. 2018 Dec;23(1): 1538925. doi: 10.1080/10872981.2018.1538925.

BACKGROUND:

The Accreditation Council for Graduate Medical Education (ACGME) introduced milestones for Emergency Medicine (EM) in 2012. Clinical Competency Committees (CCC) are tasked with assessing residents on milestones and reporting them to the ACGME. Appropriate workflows for CCCs are not well defined.

OBJECTIVE:

Our objective was to compare different approaches to milestone assessment by a CCC, quantify resource requirements for each and to identify the most efficient workflow.

DESIGN:

Three distinct processes for rendering milestone assessments were compared: Full milestone assessments (FMA) utilizing all available resident assessment data, Ad-hoc milestone assessments (AMA) created by multiple expert educators using their personal assessment of resident performance, Self-assessments (SMA) completed by residents. FMA were selected as the theoretical gold standard. Intraclass correlation coefficients were used to analyze for agreement between different assessment methods. Kendall's coefficient was used to assess the inter-rater agreement for the AMA.

RESULTS:

All 13 second-year residents and 7 educational faculty of an urban EM Residency Program participated in the study in 2013. Substantial or better agreement between FMA and AMA was seen for 8 of the 23 total subcompetencies (PC4, PC8, PC9, PC11, MK, PROF2, ICS2, SBP2), and for 1 subcompetency (SBP1) between FMA and SMA. Multiple AMA for individual residents demonstrated substantial or better interobserver agreement in 3 subcompetencies (PC1, PC2, and PROF2). FMA took longer to complete compared to AMA (80.9 vs. 5.3 min, $p < 0.001$).

CONCLUSIONS:

Using AMA to evaluate residents on the milestones takes significantly less time than FMA. However, AMA and SMA agree with FMA on only 8 and 1 subcompetencies, respectively. An estimated 23.5 h of faculty time are required each month to fulfill the requirement for semiannual reporting for a residency with 42 trainees.

Program Director Perceptions of Usefulness of the Accreditation Council for Graduate Medical Education Milestones System for Urology Resident Evaluation

Sebesta EM, Cooper KL, Badalato GM. Urology. 2018 Nov 8. pii: S0090-4295(18)31132-4. doi: 10.1016/j.urology.2018.10.042.

OBJECTIVES:

To assess the application and perceived usefulness of the Accreditation Council for Graduation Medical Education (ACGME) Milestones system for resident evaluation among urology program directors (PDs).

METHOD:

We conducted an online survey of 133 urology PDs. The survey addressed several domains: (1) demographic information, (2) logistics and implementation of the faculty Clinical Competency Committee (CCC) meetings, and (3) perceived overall effectiveness and usefulness of the Milestones assessments.

RESULTS:

Eighty-eight responses were obtained (66% response rate). A total of 42/88 programs (48%) described the Milestones as very or somewhat unhelpful in resident evaluation, with a comparable proportion (44%) responding Milestones assessments never or almost never accurately distinguished between residents. Respondents felt higher scores on all domains of the Milestones were completely or somewhat uncorrelated to higher inservice exam scores (58%), with a smaller fraction (49%) deeming they were not predictive of board passage rates. Overall, 30% of respondents answered neutrally as to whether they felt the Milestones format has led to better resident formative feedback, and 35% were neutral as to the implications of this system toward promoting professional development.

CONCLUSIONS:

The ACGME Milestones system for resident evaluation was initiated to create a uniform competency- based assessment system; however, a sizable proportion of urology PDs in our cohort did not find the Milestones system helpful or accurate in assessing residents or predicting future successes. Given the Milestones system is still in its infancy, the utility of this system within urology has yet to be fully assessed.

Influence of Clinical Competency Committee Review Process on Summative Resident Assessment Decisions

Schumacher DJ, King B, Barnes MM, Elliott SP, Gibbs K, McGreevy JF, Del Rey JG, Sharma T, Michelson C, Schwartz A; Members of the APPD LEARN CCC Study Group. *J Grad Med Educ.* 2018 Aug;10(4):429-437. doi: 10.4300/JGME-D-17-00762.1.

BACKGROUND:

Clinical Competency Committees (CCCs) are charged with making summative assessment decisions about residents.

OBJECTIVE:

We explored how review processes CCC members utilize influence their decisions regarding residents' milestone levels and supervisory roles.

METHODS:

We conducted a multisite longitudinal prospective observational cohort study at 14 pediatrics residency programs during academic year 2015-2016. Individual CCC members biannually reported characteristics of their review process and Accreditation Council for Graduate Medical Education milestone levels and recommended supervisory role categorizations assigned to residents. Relationships among characteristics of CCC member reviews, mean milestone levels, and supervisory role categorizations were analyzed using mixed-effects linear regression, reported as mean differences with 95% confidence intervals (CIs), and Bayesian mixed-effects ordinal regression, reported as odds ratios (ORs) and 95% credible intervals (CrIs).

RESULTS:

A total of 155 CCC members participated. Members who provided milestones or other professional development feedback after CCC meetings assigned significantly lower mean milestone levels (mean 1.4 points; CI -2.2 to -0.6; $P < .001$) and were significantly less likely to recommend supervisory responsibility in any setting (OR = 0.23, CrI 0.05-0.83) compared with CCC members who did not. Members recommended less supervisory responsibility when they reviewed more residents (OR = 0.96, 95% CrI 0.94-0.99) and participated in more review cycles (OR = 0.22, 95% CrI 0.07-0.63).

CONCLUSIONS:

This study explored the association between characteristics of individual CCC member reviews and their summative assessment decisions about residents. Further study is needed to gain deeper understanding of factors influencing CCC members' summative assessment decisions.

Milestone Ratings and Supervisory Role Categorizations Swim Together, But Is the Water Muddy?

Schumacher DJ, Bartlett KW, Elliott SP, Michelson C, Sharma T, Garfunkel LC, King B, Schwartz A; APPD LEARN CCC Study Group. Acad Pediatr. 2018 Jun 18. pii: S1876- 2859(18)30374-7. doi: 10.1016/j.acap.2018.06.002.

OBJECTIVE:

This single-specialty, multi-institutional study aimed to determine 1) the association between milestone ratings for individual competencies and average milestone ratings (AMRs) and 2) the association between AMRs and recommended supervisory role categorizations made by individual clinical competency committee (CCC) members.

METHODS:

During the 2015-16 academic year, CCC members at 14 pediatric residencies reported milestone ratings for 21 competencies and recommended supervisory role categories (may not supervise, may supervise in some settings, may supervise in all settings) for residents they reviewed. An exploratory factor analysis of competencies was conducted. The associations among individual competencies, the AMR, and supervisory role categorizations were determined by computing bivariate correlations. The relationship between AMRs and recommended supervisory role categorizations was examined using an ordinal mixed logistic regression model.

RESULTS:

Of the 155 CCC members, 68 completed both milestone assignments and supervision categorizations for 451 residents. Factor analysis of individual competencies controlling for clustering of residents in raters and sites resulted in a single-factor solution (cumulative variance: 0.75). All individual competencies had large positive correlations with the AMR (correlation coefficient: 0.84-0.93), except for two professionalism competencies (Prof1: 0.63 and Prof4: 0.65). When combined across training year and time points, the AMR and supervisory role categorization had a moderately positive correlation (0.56).

CONCLUSIONS:

This exploratory study identified a modest correlation between average milestone ratings and supervisory role categorization. Convergence of competencies on a single factor deserves further exploration, with possible rater effects warranting attention.

The Effect and Use of Milestones in the Assessment of Neurological Surgery Residents and Residency Programs

Conforti LN, Yaghmour NA, Hamstra SJ, Holmboe ES, Kennedy B, Liu JJ, Waldo H, Selden NR. *J Surg Educ.* 2018 Jan - Feb;75(1):147-155. doi: 10.1016/j.jsurg.2017.06.001. Epub 2017 Jun 22.

OBJECTIVES:

The purpose of this study was to determine the effect of the Accreditation Council for Graduate Medical Education Milestones on the assessment of neurological surgery residents. The authors sought to determine the feasibility, acceptability, and utility of this new framework in making judgments of progressive competence, its implementation within programs, and the influence on curricula. Residents were also surveyed to elicit the effect of Milestones on their educational experience and professional development.

DESIGN, SETTING, AND PARTICIPANTS:

In 2015, program leadership and residents from 21 neurological surgery residency programs participated in an online survey and telephone interview in which they reflected on their experiences with the Milestones. Survey data were analyzed using descriptive statistics. Interview transcripts were analyzed using grounded theory.

RESULTS:

Response themes were categorized into 2 groups: outcomes of the Milestones implementation process, and facilitators and barriers. Because of Milestones implementation, participants reported changes to the quality of the assessment process, including the ability to identify struggling residents earlier and design individualized improvement plans. Some programs revised their curricula based on training gaps identified using the Milestones. Barriers to implementation included limitations to the adoption of a developmental progression model in the context of rotation block schedules and misalignment between progression targets and clinical experience. The shift from time-based to competency-based evaluation presented an ongoing adjustment for many programs. Organized preparation before clinical competency committee meetings and diverse clinical competency committee composition led to more productive meetings and perceived improvement in promotion decisions.

CONCLUSIONS:

The results of this study can be used by program leadership to help guide further implementation of the Milestones and program improvement. These results also help to guide the evolution of Milestones language and their implementation across specialties.

Thresholds and Interpretations: How Clinical Competency Committees Identify Pediatric Residents with Performance Concerns

Schumacher DJ, Michelson C, Poynter S, Barnes MM, Li ST, Burman N, Sklansky DJ, Thoreson L, Calaman S, King B, Schwartz A; APPD LEARN CCC Study Group, Elliott S, Sharma T, Gonzalez Del Rey J, Bartlett K, Scott-Vernaglia SE, Gibbs K, McGreevy JF, Garfunkel LC, Gellin C, Frohna JG. *Med Teach*. 2018 Jan;40(1):70-79. doi: 10.1080/0142159X.2017.1394576.

BACKGROUND:

Clinical competency committee (CCC) identification of residents with performance concerns is critical for early intervention.

METHODS:

Program directors and 94 CCC members at 14 pediatric residency programs responded to a written survey prompt asking them to describe how they identify residents with performance concerns. Data was analyzed using thematic analysis.

RESULTS:

Six themes emerged from analysis and were grouped into two domains. The first domain included four themes, each describing a path through which residents could meet or exceed a concern threshold: 1) written comments from rotation assessments are foundational in identifying residents with performance concerns, 2) concerning performance extremes stand out, 3) isolated data points may accumulate to raise concern, and 4) developmental trajectory matters. The second domain focused on how CCC members and program directors interpret data to make decisions about residents with concerns and contained 2 themes: 1) using norm- and/or criterion-referenced interpretation, and 2) assessing the quality of the data that is reviewed.

CONCLUSIONS:

Identifying residents with performance concerns is important for their education and the care they provide. This study delineates strategies used by CCC members across several programs for identifying these residents, which may be helpful for other CCCs to consider in their efforts.

A Multicenter Prospective Comparison of the Accreditation Council for Graduate Medical Education Milestones: Clinical Competency Committee vs. Resident Self-Assessment

Watson RS, Borgert AJ, O Heron CT, Kallies KJ, Sidwell RA, Mellinger JD, Joshi AR, Galante JM, Chambers LW, Morris JB, Josloff RK, Melcher ML, Fuhrman GM, Terhune KP, Chang L, Ferguson EM, Auyang ED, Patel KR, Jarman BT. *J Surg Educ.* 2017 Nov - Dec;74(6):e8-e14. doi: 10.1016/j.jsurg.2017.06.009. Epub 2017 Jun 27.

OBJECTIVE:

The Accreditation Council for Graduate Medical Education requires accredited residency programs to implement competency-based assessments of medical trainees based upon nationally established Milestones. Clinical competency committees (CCC) are required to prepare biannual reports using the Milestones and ensure reporting to the Accreditation Council for Graduate Medical Education. Previous research demonstrated a strong correlation between CCC and resident scores on the Milestones at 1 institution. We sought to evaluate a national sampling of general surgery residency programs and hypothesized that CCC and resident assessments are similar.

DESIGN:

Details regarding the makeup and process of each CCC were obtained. Major disparities were defined as an absolute mean difference of ≥ 0.5 on the 4-point scale. A negative assessment disparity indicated that the residents evaluated themselves at a lower level than did the CCC. Statistical analysis included Wilcoxon rank sum and Sign tests.

SETTING:

CCCs and categorical general surgery residents from 15 residency programs completed the Milestones document independently during the spring of 2016.

RESULTS:

Overall, 334 residents were included; 44 (13%) and 43 (13%) residents scored themselves ≥ 0.5 points higher and lower than the CCC, respectively. Female residents scored themselves a mean of 0.08 points lower, and male residents scored themselves a mean of 0.03 points higher than the CCC. Median assessment differences for postgraduate year (PGY) 1-5 were 0.03 (range: -0.94 to 1.28), -0.11 (range: -1.22 to 1.22), -0.08 (range: -1.28 to 0.81), 0.02 (range: -0.91 to 1.00), and -0.19 (range: -1.16 to 0.50), respectively. Residents in university vs. independent programs had higher rates of negative assessment differences in medical knowledge (15% vs. 6%; $P = 0.015$), patient care (17% vs. 5%; $P = 0.002$), professionalism (23% vs. 14%; $P = 0.013$), and system-based practice (18% vs. 9%; $P = 0.031$) competencies. Major assessment disparities by sex or PGY were similar among individual competencies.

CONCLUSIONS:

Surgery residents in this national cohort demonstrated self-awareness when compared to assessments by their respective CCCs. This was independent of program type, sex, or level of training. PGY 5 residents, female residents, and those from university programs consistently rated themselves lower than the CCC, but these were not major disparities and the significance of this is unclear.

How Do Clinical Competency Committees Use Different Sources of Data to Assess Residents' Performance on the Internal Medicine Milestones? A Mixed Methods Pilot Study

Ekpenyong A, Baker E, Harris I, Tekian A, Abrams R, Reddy S, Park YS. Med Teach. 2017 Oct;39(10): 1074-1083. doi: 10.1080/0142159X.2017.1353070. Epub 2017 Jul 25.

PURPOSE:

This study examines how Clinical Competency Committees (CCCs) synthesize assessment data to make judgments about residents' clinical performances.

METHODS:

Between 2014 and 2015, after four six-month reporting periods to the Accreditation Council for Graduate Medical Education (ACGME), 7 of 16 CCC faculty at Rush University Medical Center completed questionnaires focused on their perspectives about rating residents on their achievement of the milestones and participated in a focus group. Qualitative data were analyzed using grounded theory. Milestones ratings for two six-month ACGME reporting cycles (n = 100 categorical residents) were also analyzed.

RESULTS:

CCC members weighted resident rotation ratings highest (weight = 37%), followed by faculty rotation comments (weight = 27%) and personal experience with residents (weight = 14%) for making judgments about learner's milestone levels. Three assessment issues were identified from qualitative analyses: (1) "design issues" (e.g. problems with available data or lack thereof); (2) "synthesis issues" (e.g. factors influencing ratings and decision-making processes) and (3) "impact issues" (e.g. how CCC generated milestones ratings are used).

CONCLUSIONS:

Identifying factors that affect assessment at all stages of the CCC process can contribute to improving assessment systems, including support for faculty development for CCCs. Recognizing challenges in synthesizing first and second-hand assessment data is an important step in understanding the CCC decision-making process.

Ensuring Resident Competence: A Narrative Review of the Literature on Group Decision Making to Inform the Work of Clinical Competency Committees

Hauer KE, Cate OT, Boscardin CK, Iobst W, Holmboe ES, Chesluk B, Baron RB, O'Sullivan PS. J Grad Med Educ. 2016 May;8(2):156-64. doi: 10.4300/JGME-D-15-00144.1.

INTRODUCTION:

The expectation for graduate medical education programs to ensure that trainees are progressing toward competence for unsupervised practice prompted requirements for a committee to make decisions regarding residents' progress, termed a clinical competency committee (CCC). The literature on the composition of these committees and how they share information and render decisions can inform the work of CCCs by highlighting vulnerabilities and best practices.

OBJECTIVE:

We conducted a narrative review of the literature on group decision making that can help characterize the work of CCCs, including how they are populated and how they use information.

METHODS:

English language studies of group decision making in medical education, psychology, and organizational behavior were used.

RESULTS:

The results highlighted 2 major themes. Group member composition showcased the value placed on the complementarity of members' experience and lessons they had learned about performance review through their teaching and committee work. Group processes revealed strengths and limitations in groups' understanding of their work, leader role, and information-sharing procedures. Time pressure was a threat to the quality of group work.

CONCLUSIONS:

Implications of the findings include the risks for committees that arise with homogeneous membership, limitations to available resident performance information, and processes that arise through experience rather than deriving from a well-articulated purpose of their work. Recommendations are presented to maximize the effectiveness of CCC processes, including their membership and access to, and interpretation of, information to yield evidence-based, well-reasoned judgments.

How Do Emergency Medicine Residency Programs Structure their Clinical Competency Committees? A Survey

Doty CI, Roppolo LP, Asher S, Seamon JP, Bhat R, Taft S, Graham A, Willis J. Acad Emerg Med. 2015 Nov;22(11):1351-4. doi: 10.1111/acem.12804. Epub 2015 Oct 16.

BACKGROUND:

The Accreditation Council for Graduate Medical Education (ACGME) recently has mandated the formation of a clinical competency committee (CCC) to evaluate residents across the newly defined milestone continuum. The ACGME has been nonproscriptive of how these CCCs are to be structured in order to provide flexibility to the programs.

OBJECTIVES:

No best practices for the formation of CCCs currently exist. We seek to determine common structures of CCCs recently formed in the Council of Emergency Medicine Residency Directors (CORD) member programs and identify unique structures that have been developed.

METHODS:

In this descriptive study, an 18-question survey was distributed via the CORD listserv in the late fall of 2013. Each member program was asked questions about the structure of its CCC. These responses were analyzed with simple descriptive statistics.

RESULTS:

A total of 116 of the 160 programs responded, giving a 73% response rate. Of responders, most (71.6%) CCCs are chaired by the associate or assistant program director, while a small number (14.7%) are chaired by a core faculty member. Program directors (PDs) chair 12.1% of CCCs. Most CCCs are attended by the PD (85.3%) and selected core faculty members (78.5%), leaving the remaining committees attended by any core faculty. Voting members of the CCC consist of the residency leadership either with the PD (53.9%) or without the PD (36.5%) as a voting member. CCCs have an average attendance of 7.4 members with a range of three to 15 members. Of respondents, 53.1% of CCCs meet quarterly while 37% meet monthly. The majority of programs (76.4%) report a system to match residents with a faculty mentor or advisor. Of respondents, 36% include the resident's faculty mentor or advisor to discuss a particular resident. Milestone summaries (determination of level for each milestone) are the primary focus of discussion (93.8%), utilizing multiple sources of information.

CONCLUSIONS:

The substantial variability and diversity found in our CORD survey of CCC structure and function suggest that there are myriad strategies that residency programs can use to match individual program needs and resources to requirements of the ACGME. Identifying a single protocol for CCC structure and development may prove challenging.

Pathology Milestones: Assessing Clinical Competency by Committee

Klutts JS, Guerin LA, Bruch LA, Firchau DJ, Knudson CM, Rosenthal NS, Samuelson MI, Jensen CS, Delwiche JL, Krasowski MD. Acad Pathol. 2015 Oct 29;2(4):2374289515614003. doi: 10.1177/2374289515614003.

ABSTRACT:

All Accreditation Council for Graduate Medical Education accredited pathology residency training programs are now required to evaluate residents using the new Pathology Milestones assessment tool. Similar to implementation of the 6 Accreditation Council for Graduate Medical Education competencies a decade ago, there have been challenges in implementation of the new milestones for many residency programs. The pathology department at the University of Iowa has implemented a process that divides the labor of the task in rating residents while also maintaining consistency in the process. The process is described in detail, and some initial trends in milestone evaluation are described and discussed. Our experience indicates that thoughtful implementation of the Pathology Milestones can provide programs with valuable information that can inform curricular changes.

Navigating the Next Accreditation System: A Dashboard for the Milestones

Johna S, Woodward B. Perm J. 2015 Fall;19(4):61-3. doi: 10.7812/TPP/15-041.

INTRODUCTION:

In July 2014, all residency programs accredited by the Accreditation Council for Graduate Medical Education (ACGME) were enrolled in a new system called the Next Accreditation System. Residency programs may not be clear on how best to comply with these new accreditation requirements. Large amounts of data must be collected, evaluated, and submitted twice a year to the council's Web-based data collection system. One challenge is that the new "end-of-rotation" evaluations must reflect specialty-specific milestones, on which many faculty members are not well versed. Like other residency programs, we tried to address the challenges using our local resources.

METHODS:

We used our existing electronic goals and objectives for each rotation coupled with appropriate end-of- rotation evaluations reflecting the specialty-specific milestones through a process of editing and mapping.

RESULTS:

Data extracted from these evaluations were added to an interactive dashboard that also contained evaluations on additional program-specific modifiers of residents' performance. A resident's final overall performance was visually represented on a plot graph. The novel dashboard included features to save evaluations for future comparisons and to track residents' progress during their entire training. It proved simple to use and was able to reduce the time needed for each resident evaluation to 5 to 10 minutes.

CONCLUSION:

This tool has made it much easier and less challenging for the members of our Clinical Competency Committee to start deliberation about each resident's performance.

Reviewing Residents' Competence: A Qualitative Study of the Role of Clinical Competency Committees in Performance Assessment

Hauer KE, Chesluk B, Iobst W, Holmboe E, Baron RB, Boscardin CK, Cate OT, O'Sullivan PS. Acad Med. 2015 Aug;90(8):1084-92. doi: 10.1097/ACM.0000000000000736.

PURPOSE:

Clinical competency committees (Milestones: a rapid assessment method for the Clinical Competency Committee).

INTRODUCTION:

Educational milestones are now used to assess the developmental progress of all U.S. graduate medical residents during training. Twice annually, each program's Clinical Competency Committee (CCC) makes these determinations and reports its findings to the Accreditation Council for Graduate Medical Education (ACGME). The ideal way to conduct the CCC is not known. After finding that deliberations reliant upon the new milestones were time intensive, our internal medicine residency program tested an approach designed to produce rapid but accurate assessments.

MATERIAL AND METHODS:

For this study, we modified our usual CCC process to include pre-meeting faculty ratings of resident milestones progress with in-meeting reconciliation of their ratings. Data were considered largely via standard report and presented in a pre-arranged pattern. Participants were surveyed regarding their perceptions of data management strategies and use of milestones. Reliability of competence assessments was estimated by comparing pre-/post-intervention class rank lists produced by individual committee members with a *master* class rank list produced by the collective CCC after full deliberation.

RESULTS:

Use of the study CCC approach reduced committee deliberation time from 25 min to 9 min per resident ($p < 0.001$). Committee members believed milestones improved their ability to identify and assess expected elements of competency development ($p = 0.026$). Individual committee member assessments of trainee progress agreed well with collective CCC assessments.

CONCLUSIONS:

Modification of the clinical competency process to include pre-meeting competence ratings with in-meeting reconciliation of these ratings led to shorter deliberation times, improved evaluator satisfaction and resulted in reliable milestone assessments.

Implementation of Nephrology Subspecialty Curricular Milestones

Yuan CM, Prince LK, Oliver JD 3rd, Abbott KC, Nee R. Am J Kidney Dis. 2015 Jul;66(1):15-22. doi: 10.1053/j.ajkd.2015.01.020. Epub 2015 Mar 12.

ABSTRACT:

Beginning in the 2014-2015 training year, the US Accreditation Council for Graduate Medical Education (ACGME) required that nephrology Clinical Competency Committees assess fellows' progress toward 23 subcompetency "context nonspecific" internal medicine subspecialty milestones. Fellows' advancement toward the "ready for unsupervised practice" target milestone now is tracked in each of the 6 competencies: Patient Care, Medical Knowledge, Professionalism, Interpersonal Communication Skills, Practice-Based Learning and Improvement, and Systems-Based Practice. Nephrology program directors and subspecialty societies must define nephrology-specific "curricular milestones," mapped to the nonspecific ACGME milestones. Although the ACGME goal is to produce data that can discriminate between successful and underperforming training programs, the approach is at risk to produce biased, inaccurate, and unhelpful information. We map the ACGME internal medicine subspecialty milestones to our previously published nephrology-specific milestone schema and describe entrustable professional activities and other objective assessment tools that inform milestone decisions. Mapping our schema onto the ACGME subspecialty milestone reporting form allows comparison with the ACGME subspecialty milestones and the curricular milestones developed by the American Society of Nephrology Program Directors. Clinical Competency Committees may easily adapt and directly translate milestone decisions reached using our schema onto the ACGME internal medicine subspecialty competency milestone-reporting format.

A Systematic Approach toward Building a Fully Operational Clinical Competency Committee

French JC, Dannefer EF, Colbert CY. J Surg Educ. 2014 Nov-Dec;71(6):e22-7. doi: 10.1016/j.jsurg.2014.04.005. Epub 2014 May 28.

BACKGROUND:

The Accreditation Council for Graduate Medical Education has offered minimal guidelines for the creation and implementation of clinical competency committees (CCCs). As surgical residency programs may differ greatly in terms of size and structure, requirements that are too specific throughout the process could place some programs at a great disadvantage.

OBJECTIVE:

The purpose of this article is to address some of the common considerations all surgery residency programs will face. The creation of standard operating procedures for the CCCs will allow each committee to develop internal consistency, improve productivity, maintain efficiency and quality control, facilitate training of new committee members, and cross-train other faculty and residents on the key processes to provide transparency.

METHODS:

This article offers recommendations on the 3 key areas of CCC implementation: the prereview, resident milestone review, and the postreview processes. Specific components related to shifting culture, committee membership and terms, assessing available evidence, and review dissemination are outlined, and example scenarios are provided throughout the article.

CONCLUSION:

With the implementation of CCCs and the milestones project, residency programs have an opportunity to improve the overall quality of decision making regarding residents' promotion to the next training level or independent practice. CCCs will undoubtedly be confronted with numerous challenges, as they implement the milestones project and are faced with the need to make multiple changes. Therefore, implementing milestones should be viewed as a goal to be accomplished over the long term.