



# **Milestones Guidebook for Residents and Fellows**

June 2017

Dinchen Jardine, MD  
Jessica Deslauriers, MD  
Sophia C. Kamran, MD  
Nickalus Khan, MD  
Stanley Hamstra, PhD  
Laura Edgar, EdD

## Table of Contents

<b>Topic</b>	<b>Page(s)</b>
Introduction .....	1
Summary Recommendations for Residents and Fellows .....	2
Competency-Based Medical Education.....	3-4
Milestones – The 5 Ws.....	5-6
Assessment for Residents and Fellows.....	7-8
Resident/Fellow Feedback .....	9-12
Milestone Reports Available in ADS.....	13
Other Resources .....	14

## INTRODUCTION

Welcome to the first edition of the *Milestones Guidebook for Residents and Fellows!*

The Next Accreditation System (NAS), launched in 2013 and now fully implemented for all ACGME-accredited institutions and programs in all specialties, brings the concept of a continuous improvement process to graduate medical education. The Milestones, which this Guidebook explains, provide specific competency descriptions for each progressive step along the developmental pathway within a specialty or subspecialty of medicine. They are a fundamental component of the NAS, and understanding them can help you develop your own curricular pathways in order to reach your own personal professional goals.

This guidebook was written by the resident and fellow members of the ACGME's Council of Review Committee Residents (CRCR), based on the *Milestones Guidebook* for programs, to provide a learner perspective on what the Milestones represent and how they might be used to facilitate progress throughout training. The goal was to give the background and purpose in a succinct format that could be easily understood and referenced by a busy resident or fellow. We hope that understanding the purpose and intent behind the Milestones will help other residents and fellows improve their ability to ask for and receive better feedback, will facilitate mentoring and coaching within programs, and will help all residents and fellows to progress to becoming the best possible physician.

Thank you for taking the time to read this guidebook and for engaging in the process of improving your own education. We welcome any feedback on this guidebook or on the Milestones in general. E-mail [milestones@acgme.org](mailto:milestones@acgme.org) with feedback or questions.

Dink Jardine, MD  
Chair, ACGME Council of Review Committee Residents 2015-2017

### Acknowledgements:

We would like to thank Eric Holmboe, MD and Nicholas Yaghmour, MPP for their guidance and assistance with this project.

## **SUMMARY RECOMMENDATIONS FOR RESIDENTS AND FELLOWS**

1. Be sure to review your specialty Milestones on an ongoing basis, especially at the start of each academic year, to deepen your understanding of the Milestones to help in your own professional development.
2. Perform a self-assessment twice a year around the same time your program's Clinical Competency Committee (CCC) meets.
3. Review and compare your self-assessment with the CCC Milestone ratings with your program director, faculty advisor, or mentor.
4. Write an individualized learning plan at least twice a year, and discuss it with your program director, faculty advisor, or mentor.

## COMPETENCY-BASED MEDICAL EDUCATION (CBME)

Competency-based education and/or training has been around since the 1920s in business and industry, and since the 1960s as part of a teacher education reform movement.<sup>1</sup> CBME was first promoted for widespread use in a report to the World Health Organization in 1978. The report stated, “The output of a CBME program is a health professional who can practice at a defined level of proficiency to meet local needs.”<sup>2</sup>

CBME is a foundational element of the NAS. The focus of the NAS is continuous quality improvement and innovation through CBME.<sup>3,4</sup>

### What is CBME?

CBME measures the progression toward specific competencies (including the knowledge, skills, and attitudes within them). The CBME system promotes progressive development of a competency (e.g., competence in the care of pediatric neonates).

Additionally, CBME allows for longitudinal assessment of the learner and provides feedback, coaching, and adjustments structured to the learning plan.<sup>5,6</sup> Table 1 below compares the traditional medical educational model to CBME.

Table 1. A comparison of Traditional vs. Competency Based Medical Education

Variable	Traditional Educational Model	CBME
Driving force for curriculum	Knowledge acquisition	Knowledge application
Driving force for process	Teacher	Learner
Path of learning	Hierarchal	Non-hierarchal
Responsibility of content	Teacher	Teacher and student
Goal of educational encounter	Knowledge acquisition	Knowledge application
Type of assessment tool	Single assessment measure (e.g., test)	Multiple assessment measures (e.g., direct observation)
Assessment tool	Proxy	Authentic (mimics real profession)
Setting for evaluation	Removed	In clinical and professional settings
Timing of assessment	Emphasis on summative	Emphasis on formative
Program completion	Fixed time	Variable time

Adapted from Carraccio, 2002<sup>7</sup>

## How does CBME relate to my medical education?

CBME is based on a core set of six general competencies developed by the ACGME and the American Board of Medical Specialties (ABMS) in 1999. The Core Competencies are:

- Patient Care and Procedural Skills
- Medical Knowledge
- Practice-based Learning and Improvement
- Interpersonal and Communication Skills
- Professionalism
- Systems-based Practice

Under the umbrella of each competency area are specialty (or subspecialty)-specific Milestones. Each medical specialty developed its own set of Milestones to guide the learning and assessment of its learners through the Core Competencies.

This Milestones system focuses on resident/fellow education and competency (specific to the individual) rather than time served in training.

## Some important facts that residents should know about the Milestones

- Focus on competency and a pathway to expertise
- Emphasize knowledge application rather than just knowledge acquisition
- Are specialty-specific
- Focus more on the learner, and are more individualized (“learner-centric”)
- Allow for better feedback, coaching, and adjustments to learning plans to ensure all graduates are prepared for unsupervised practice
- Evaluation reflects a real-world observation and consists of a “portfolio” of assessment tools

## References

1. Elam, S., Performance-based teacher education: What is the state of the art? Retrieved from <https://eric.ed.gov/?id=ED058166> June 14, 2017
2. McGaghie, W. Competency-based curriculum development in medical education: An introduction. Retrieved from <https://eric.ed.gov/?id=ED168447> June 14, 2017. Nasca TJ, Philibert I, Brigham T, Flynn TC. The next GME accreditation system--rationale and benefits. *The New England journal of medicine*. Mar 15 2012;366(11):1051-1056.
4. Weiss KB, Bagian JP, Nasca TJ. The clinical learning environment: the foundation of graduate medical education. *JAMA*. Apr 24 2013;309(16):1687-1688.
5. Kogan JR, Holmboe E. Realizing the promise and importance of performance-based assessment. *Teaching and learning in medicine*. 2013;25 Suppl 1:S68-74.
6. Holmboe ES, Sherbino J, Long DM, Swing SR, Frank JR. The role of assessment in competency-based medical education. *Medical teacher*. 2010;32(8):676-682.
7. Carraccio C, Wolfsthal SD, Englander R, Ferentz K, Martin C. Shifting paradigms: from Flexner to competencies. *Acad Med*. May 2002;77(5):361-367.

## MILESTONES – THE 5 Ws

### Who?

Milestones were developed by Working Groups composed of key stakeholders in each specialty. Working Groups included residents and fellows, members of the ACGME Review Committees, program directors, and representatives of the applicable American Board of Medical Specialties board and specialty societies. Resident and fellow input has been an integral part of Milestones development.

### What?

Milestones are learning trajectories highlighting significant points in resident and fellow development to assess learner competency in six key areas of medical education: Patient Care; Medical Knowledge; Professionalism; Interpersonal and Communication Skills; Practice-based Learning and Improvement; and Systems-based Practice. Milestones sets include five levels of development, ranging from a beginning learner to an aspirational level of development. Level 4, typically designed to represent competency in most but not all specialties, describes the knowledge, skills, or attitudes that a resident or fellow should achieve by the time of graduation. Note that a few specialties have used different titles for the Milestones levels, but the intent is similar.

Milestone Description: Template				
Level 1	Level 2	Level 3	Level 4	Level 5
What are the expectations for a beginning resident/fellow?	What are the milestones for a resident/fellow who has advanced over entry, but is performing at a lower level than expected at mid-residency/fellowship?	What are the key developmental milestones mid-residency/fellowship?  What should a resident be able to do well in the realm of the specialty at this point?	What does a graduating resident/fellow look like?  What additional knowledge, skills, and attitudes have they obtained?  Are they ready for certification?	Stretch Goals – exceeds expectations

### Where?

Milestones are utilized by all ACGME-accredited programs to provide added guidance to help ensure all graduating residents and fellows from these programs have achieved a high level of competence in the six key clinical domains.

### When?

In 2009, the ACGME began transitioning to the NAS, a system that incorporated a competency-based medical education model to help produce physicians prepared to practice medicine in the 21<sup>st</sup> century. In concert with the ideals of the CBME model, the Milestones were developed to provide programs with a structured framework of specific

outcomes for each Core Competency. By 2015, all specialties and subspecialties were using Milestones data to guide learner development.

**Why?**

Milestones define the essential competencies within each specialty, making assessments more meaningful and applicable to the practice of medicine. As the Milestones are used by all ACGME-accredited programs, this helps to ensure graduates are able to effectively provide high-quality care for patients.

Milestones also provide individualized formative feedback, which enables residents and fellows to progress through competency development at different rates throughout their graduate medical education programs. This creates the opportunity for longitudinal development and allows residents, fellows, and faculty members to create learning plans that focus on Milestones achievement and individual professional development. Through self-assessment and reflection of their skills using the Milestones constructs, residents and fellows actively participate in their own learning and assessment.

The Purpose and Function of Milestones

<b>Constituency or Stakeholder</b>	<b>Purpose/Function</b>
Residents and Fellows	<ul style="list-style-type: none"> <li>• Provide a descriptive roadmap for training</li> <li>• Increased transparency of performance requirements</li> <li>• Encourage informed self-assessment and self-directed learning</li> <li>• Facilitate better feedback to the resident or fellow</li> <li>• Encourage self-directed feedback seeking behaviors</li> </ul>
Residency and Fellowship Programs	<ul style="list-style-type: none"> <li>• Guide curriculum and assessment tool development</li> <li>• Provide a meaningful framework for the Clinical Competency Committee (e.g., help create shared mental model of evaluation)</li> <li>• Provide more explicit expectations of residents and fellows</li> <li>• Support better systems of assessment</li> <li>• Enhance opportunity for early identification of under-performers</li> </ul>
ACGME	<ul style="list-style-type: none"> <li>• Accreditation – enables continuous monitoring of programs and lengthening of site visit cycles</li> <li>• Public Accountability – report at an aggregated national level on competency outcomes</li> <li>• Community of practice for evaluation and research, with focus on continuous improvement</li> </ul>
Certification Boards	<ul style="list-style-type: none"> <li>• Enable research to improve educational programs</li> </ul>



## ASSESSMENT FOR RESIDENTS AND FELLOWS

### Why Assessment Matters

Assessments are used both for giving feedback (formative assessment) and for making decisions about progression to the next level of training (summative assessment). Both types of assessment are important. Formative assessment provides information for giving feedback to the resident/fellow during training. Summative assessment is necessary for helping the program director make the right decision about how and when the resident/fellow should progress through the program.

Historically, the only aspects of competency that were assessed in a valid and reliable way were Medical Knowledge and Patient Care skills. Assessment of Patient Care was often *ad hoc* and limited – it depended on the ability of a faculty member to observe the resident or fellow in the busy clinical environment. It also depended on the availability of easy-to-use assessment tools and/or the ability of the faculty to reflect on the resident's or fellow's competency in comparison to some reference standard.

Typically, faculty members and other health care professionals used a norm-referenced standard for assessing residents and fellows, i.e., “*Does this resident (fellow) look like other residents (fellows) at this stage of training?*” However, this has the potential to introduce bias. A better way is to develop a set of agreed-upon specialty criteria by which to compare residents' and fellows' performance at any time during their training. This is where the six Core Competencies, the subcompetencies, and the Milestones come in.

Each specialty and subspecialty has developed a set of tools that faculty members and other health care professionals use to assess residents' and fellows' competence in the six Core Competencies.

Each specialty has a unique set of subcompetencies under each of the Core Competency domains. Ideally, every rater, whether a faculty member or another health care professional, should be in a position to observe residents and fellows in the clinical setting, and to rate their competency according to objective criteria for each subcompetency.

### The Process of Assessment

Each program has a CCC that collates and reviews all assessments for every resident or fellow in the program to produce a judgment (i.e., rating) on each milestone. The CCC must meet twice a year to discuss the ratings for each resident or fellow. In addition to ratings from physician raters who supervise residents' and fellows' work, it is recommended that the CCC obtain multi-source feedback assessments (i.e., 360-degree evaluations) – these are ratings obtained from nurses, social workers, patients, program coordinators, and others with whom the resident or fellow may have interacted during a rotation. This provides a more complete picture of areas (competency domains, skills) that may be more difficult to assess, such as communication and professionalism skills.

### **The Importance of Self-Assessment**

It is critical that residents and fellows have strong insight into their knowledge and skills as compared to assessment from others. To help with this, residents and fellows can perform self-assessments and compare these to results of other assessments. One efficient way to do this every six months is to complete a self-assessment using the Milestones. These results can then be compared with the results from the CCC meetings. A useful method for self-assessment is to examine the various subcompetencies and milestones for a given specialty, and determine whether those paragraphs accurately describe your perception of personal competency at a given point in training.

### **The Resident's/Fellow's Role in the Assessment Process**

If a resident or fellow feels that raters or preceptors are not taking the time to observe his/her performance in each of the subcompetencies established for the specialty, he/she should ask the supervising physician or program director to provide feedback and assess his/her performance. This kind of feedback, especially if initiated by the learner, can help residents and fellows develop their skills in a meaningful and productive manner.

## RESIDENT/FELLOW FEEDBACK

Feedback is crucial for resident education, as well as for implementation of the Milestones. The Milestones allow residents and fellows to develop action plans to improve their knowledge and skills over time, working together with their advisors.

*Remember, feedback is an **ACTIVE** process  
both for those **GIVING** the feedback and for those **RECEIVING** it.*

Features of high quality feedback<sup>1</sup>

Feature	Evaluator	Learner
Timeliness	Feedback should be given in a <i>timely</i> fashion, and at a point when the recipient would be able to implement corrective behavior, or learn from the feedback.	As a recipient, <i>timeliness</i> is key in order to recognize weaknesses and be able to improve before it is too late. ASK for feedback in a <i>timely</i> manner in order to ensure it doesn't get too late to implement corrective behavior.
Specificity	Feedback is most useful when it is <i>specific</i> . The milestones can help guide specific feedback. General feedback, such as "you are doing a great job" or "you should read more," is not helpful for directed learning or professional development.	PREPARE for a feedback session. REFLECT honestly on yourself, and ask SPECIFIC questions about your performance. The Milestones can guide your questions.
Balance	Feedback should have a good <i>balance</i> of both "positive" terms and "corrective" terms, without one dominating the other. Deliver feedback with empathy in mind.	If the deliverer of feedback is giving too much positive or negative feedback, probe him or her with questions about what you could do better, or things that you did well.
Recipient feedback/reflection	It is important during a feedback session to allow time for the recipient to process and reflect on the feedback throughout the session.	As an <i>ACTIVE</i> recipient, you should reflect on what was told in order to create an "action plan" together with those <i>DELIVERING</i> the feedback.
ACTION plans	It is important to create and develop an ACTION plan in a feedback session. Set goals for the recipient, give timelines, and follow-up!	As a recipient, set your own goals and timelines for yourself. Check in frequently with your advisors to ensure you are on the right track to meet your goals.

## 1. Types of Feedback

- a. **Formal feedback.** Formal feedback is the most easily recognized type of feedback. It can be structured and often uses a formal evaluation method, such as an end-of-rotation form. Formal feedback often occurs at specified intervals (e.g., mid-rotation, end-of-rotation). This type of feedback can be thorough and may last 15-20 minutes or longer.
- b. **Informal feedback.** Informal feedback is not always as obvious as formal feedback. This type of feedback is given or asked for in the moment. This type of feedback only takes a few minutes and is often specific to a particular skill or patient encounter.

## 2. Barriers to Feedback

- a. **Evaluator.** Time constraints, as well as limited understanding about expected level of competence for the one receiving feedback are common barriers for feedback. Many evaluators are uncomfortable giving negative feedback due to potential consequences. This is important to keep in mind when you give feedback to students or junior residents or when a faculty member is giving feedback to you.
  - i. **How to work around this.** As the evaluator, it is your duty to give feedback! It is important, despite busy schedules, to set aside some time to actively give feedback, whether formal or informal. If there isn't a lot of time, informal feedback can be sufficient. If negative feedback must be given, balance negative feedback with positive feedback. Practice giving negative feedback to colleagues or other trusted individuals.
- b. **Residents and fellows.** Similarly, time constraints, as well as discomfort in seeking out feedback from a particular evaluator, all contribute to barriers to feedback. Residents and fellows may also feel that they are "bothering" the evaluator by asking for the feedback.
  - i. **How to work around this.** Be an active learner and take charge of your education. Ask for time for feedback. Self-reflect and come prepared with specific questions to take ownership of the feedback session, which will take the pressure off the evaluator and his/her time.

### 3. How to Receive or Seek Out Feedback

- a. **Self-reflect.** Take time for critical self-reflection and identify personal weaknesses.
- b. **Develop “Active” Questions.**

#### How to Seek Feedback

Vague- <b>AVOID!</b>	More specific	Even better	Other examples
How am I doing?	What should I do differently to improve my technique in X?  OR What can I do differently next time to improve my presentation?	How can I make this presentation more concise?	What suggestions do you have on how I can improve on X?  I have a goal of X- what do you recommend to ensure I achieve goal X?

- c. **Ask early!** Be sure to ask for feedback early and often. It can also be sought after you feel you have completed a major milestone, large presentation, or performed something you have not performed before.

### 4. How to Give Feedback

- a. As a resident or fellow, there are many instances when you will need to give feedback, either to a medical student, or to a junior resident. It is therefore important to understand how to give feedback effectively.
- b. **Do your research.** Ensure you understand the role of the person you are evaluating. You do not want to have specific expectations for someone who isn't yet expected to be able to do those things; similarly you don't want to miss any crucial expectations of the person you are evaluating. Take time to reflect on his/her performance. If you know that you are expected to evaluate someone, it may be helpful to make a physical or mental checklist of his/her performance over time, so that you can refer back when it is time to give feedback.
- c. **Give feedback early.** Just as you appreciate early feedback and identification of weaknesses so that you can improve, try to similarly give early feedback to the person you are evaluating to allow them enough time to correct their behavior.
- d. **Set aside quiet, uninterrupted time.** No one likes to give or receive feedback in a public area. Ensure that the area is private, and try to minimize interruptions as much as possible.
- e. **Use techniques that you have admired in role models who have given you critical and useful feedback.** Perhaps you really appreciated one mentor who gave a “balance” of positive and negative honest feedback.

- f. **Provide guidance or tips when delivering negative feedback.** If you are delivering negative feedback, ensure that the person you are evaluating has time to reflect. It is often difficult for people to hear negative feedback, and even more difficult for people to take the negative feedback and use it in a useful manner. Provide guidance, tips, or action items on how to improve or correct behavior. This can maximize the success of the feedback session and your impact on the person you are evaluating.

#### References

1. Skeff K and Stratos G. Feedback. Stanford Clinical Teaching Program. Accessed at [http://sfdc.stanford.edu/clinical\\_teaching.html](http://sfdc.stanford.edu/clinical_teaching.html). March 8, 2017.

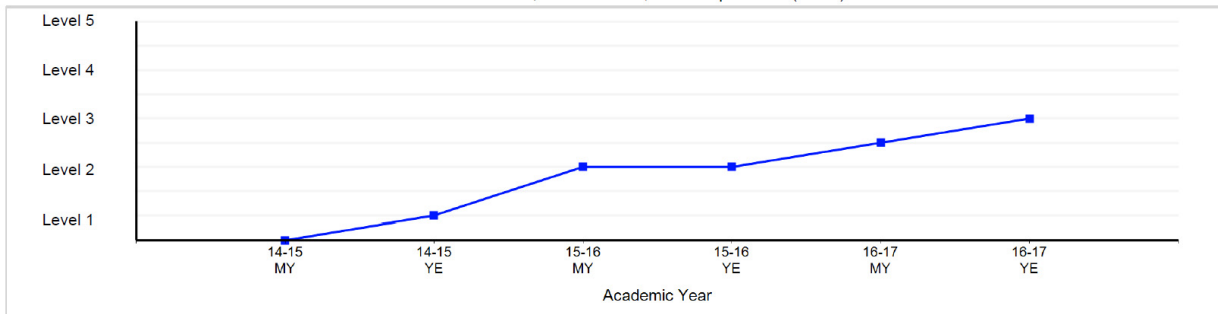
## MILESTONE REPORTS AVAILABLE IN ADS

When the program director submits the Milestone evaluations twice each year, he or she can also download several reports on resident/fellow Milestone data. These reports may be provided to you as a stand-alone evaluation, or in conjunction with your semiannual evaluation. The examples below are from a third-year anesthesiology resident.

### Report 1: Resident Milestone Trends

This report includes a graph showing the individual's progression for each subcompetency.

Patient Care - Patient Care 1: Pre-anesthetic Patient Evaluation, Assessment, and Preparation (PC-1)



### Report 2: Resident Milestone Summary

This report provides a snapshot of the individual's most recent evaluation for each subcompetency.

Interpersonal and Communication Skills

	Level 1 Not Yet Achieved	Level 1	Level 2	Level 3	Level 4	Level 5
a). Interpersonal Communication Skills 1: Communication with patients and families						●
b). Interpersonal Communication Skills 2: Communication with other professionals					●	
c). Interpersonal Communication Skills 3: Team and leadership skills						●

### Report 3: Resident Milestone Evaluation

This report provides the text of the Milestone level assigned for each subcompetency. When an individual's evaluation is between levels, only the lower level is displayed (Example: In Patient Care 8, below, the resident is between Levels 4 and 5, so only Level 4 is text is included).

<b>7 Patient Care</b>	<b>Patient Care 7: Acute, chronic, and cancer-related pain consultation and management</b>
<p><b>Dr. Name is at Level 4.</b></p> <p>Acts as consultant for acute pain management to junior residents and other health care providers with conditional independence.</p> <p>Consults with non-anesthesiologist specialists regarding pain management as appropriate.</p> <p>Recognizes treatment failures and obtains appropriate consultations, including with a pain medicine specialist.</p>	
<b>8 Patient Care</b>	<b>Patient Care 8: Technical skills: Airway management</b>
<p><b>Dr. Name is between Level 4 and Level 5.</b></p> <p>Identifies and corrects problems and complications associated with airway management (e.g., hypoxemia during one-lung ventilation, airway hemorrhage) with conditional independence.</p> <p>Manages all airways, including under special situations (e.g., trauma, patients with tracheostomies, loss of airway), with conditional independence.</p>	

## OTHER RESOURCES

The ACGME provides many resources for residents and faculty members, and new resources are developed regularly. Please visit the Milestones section of the ACGME website to review available resources and tools.

Currently-available resources include:

➤ *Milestones Guidebook*

The *Milestones Guidebook* was written to aid with programs' understanding of the Milestones. Included in it is a look back at how and why the Milestones were created, tips for implementation, and ideas for giving better feedback.

➤ *Clinical Competency Committee Guidebook*

The *Clinical Competency Committee Guidebook* was designed for all stakeholders, and includes information and practical advice regarding the structure, implementation, function, and utility of a well-functioning CCC.

➤ *First ACGME Milestones Annual Report*

This report is a snapshot of Milestones ratings from June 2016 for core specialties. It is intended to highlight both central tendencies and meaningful variation within and across specialties.