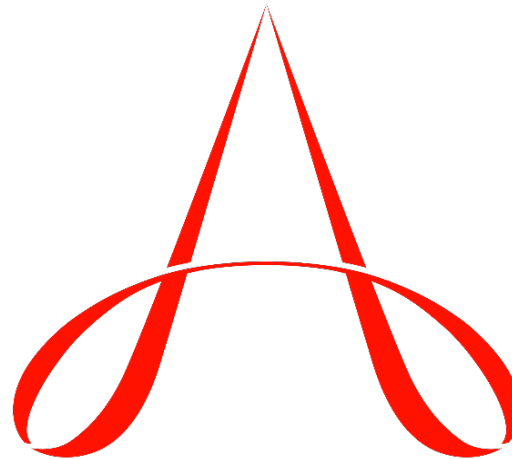# Medical Toxicology Milestones

The Accreditation Council for Graduate Medical Education

ACGME

Implementation: July 2022

Second Revision: September 2021

First Revision: December 2013

Medical Toxicology Milestones

The Milestones are designed only for use in evaluation of fellows in the context of their participation in ACGME-accredited residency or fellowship programs. The Milestones provide a framework for the assessment of the development of the fellow in key dimensions of the elements of physician competency in a specialty or subspecialty. They neither represent the entirety of the dimensions of the six domains of physician competency, nor are they designed to be relevant in any other context.

Medical Toxicology Milestones

Work Group

The ACGME would like to thank the following organizations for their continued support in the development of the Milestones:

American Board of Emergency Medicine

American Board of Preventive Medicine

ACGME Review Committee for Emergency Medicine

ACGME Review Committee for Preventive Medicine

Understanding Milestone Levels and Reporting

This document presents the Milestones, which programs use in a semi-annual review of fellow performance, and then report to the ACGME. Milestones are knowledge, skills, attitudes, and other attributes for each of the ACGME Competencies organized in a developmental framework. The narrative descriptions are targets for fellow performance throughout their educational program.

Milestones are arranged into levels. Tracking from Level 1 to Level 5 is synonymous with moving from novice to expert fellow in the specialty or subspecialty. For each reporting period, the Clinical Competency Committee will review the completed evaluations to select the milestone levels that best describe each learner's current performance, abilities, and attributes for each subcompetency.

These levels *do not* correspond with post-graduate year of education. Depending on previous experience, a junior fellow may achieve higher levels early in the educational program just as a senior fellow may be at a lower level later in the educational program. There is no predetermined timing for a fellow to attain any particular level. Fellows may also regress in achievement of their milestones. This may happen for many reasons, such as over scoring in a previous review, a disjointed experience in a particular procedure, or a significant act by the fellow.

Selection of a level implies the fellow substantially demonstrates the milestones in that level, as well as those in lower levels (see the diagram on page vi).

Additional Notes

Level 4 is designed as a graduation *goal* but *does not* represent a graduation *requirement*. Making decisions about readiness for graduation and unsupervised practice is the purview of the program director. Furthermore, Milestones 2.0 include revisions and changes that preclude using Milestones as a sole assessment in high-stakes decisions (i.e., determination of eligibility for certification or credentialing). Level 5 is designed to represent an expert fellow whose achievements in a subcompetency are greater than the expectation. Milestones are primarily designed for formative, developmental purposes to support continuous quality improvement for individual learners, education programs, and the specialty. The ACGME and its partners will continue to evaluate and perform research on the Milestones to assess their impact and value.

Examples are provided for some milestones within this document. Please note: the examples are not the required element or outcome; they are provided as a way to share the intent of the element.

Some milestone descriptions include statements about performing independently. These activities must occur in conformity to ACGME supervision guidelines as described in the Program Requirements, as well as to institutional and program policies. For example, a fellow who performs a procedure independently must, at a minimum, be supervised through oversight.

A Supplemental Guide is also available to provide the intent of each subcompetency, examples for each level, assessment methods or tools, and other available resources. The Supplemental Guide, like examples contained within the Milestones, is designed only to assist the program director and Clinical Competency Committee, and is not meant to demonstrate any required element or outcome.

Supplemental Guides and other resources are available on the Milestones page of each specialty section of the ACGME website. On www.acgme.org, choose the applicable specialty under the "Specialties" menu then select the "Milestones" link in the lower navigation bar.

The diagram below presents an example set of milestones for one sub-competency in the same format as the ACGME Report Worksheet. For each reporting period, a fellow's performance on the milestones for each sub-competency will be indicated by selecting the level of milestones that best describes that fellow's performance in relation to those milestones.

Patient Care 1: Clinical Reasoning: Differential Diagnosis

Level 1	Level 2	Level 3	Level 4	Level 5
Identifies a patient's problem with a potential toxicologic cause	Synthesizes all available data, including interview, physical examination findings, and preliminary laboratory data, to define the differential diagnosis	Modifies and refines evidence-based differential diagnosis based upon clinical course and data, and avoids premature closure	Recognizes toxicological presentations and/or conflicting diagnostic results that deviate from common patterns and require more complex decision-making	Develops guidelines or algorithms/protocols used for education and guidance for trainees or poison specialists

Comments:

Not Yet Completed Level 1 ☐
Not Yet Assessable ☐

Selecting a response box in the middle of a level implies that milestones in that level and in lower levels have been substantially demonstrated.

Selecting a response box on the line in between levels indicates that milestones in lower levels have been substantially demonstrated as well as some milestones in the higher.

Patient Care 1: Clinical Reasoning: Differential Diagnosis

Level 1	Level 2	Level 3	Level 4	Level 5
Identifies a patient's problem with a potential toxicologic cause	Synthesizes all available data, including interview, physical examination findings, and preliminary laboratory data, to define the differential diagnosis	Modifies and refines evidence-based differential diagnosis based upon clinical course and data, and avoids premature closure	Recognizes toxicological presentations and/or conflicting diagnostic results that deviate from common patterns and require more complex decision-making	Develops guidelines, algorithms, or protocols used for education and guidance of learners, clinicians, or poison specialists
☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Not Yet Completed Level 1 ☐

Not Yet Assessable ☐

Patient Care 2: Ordering and Interpreting Studies				
Level 1	Level 2	Level 3	Level 4	Level 5
Orders diagnostic testing based on patient presentation	Interprets diagnostic testing in the evaluation of toxicologic disease	Orders advanced and ancillary diagnostic testing based on the pre-test probability of disease and the likelihood of test results altering management	Interprets advanced, ancillary, and forensic diagnostic testing	Develops and validates diagnostic testing processes or protocols

Comments:

Not Yet Completed Level 1 ☐

Not Yet Assessable ☐

Patient Care 3: Management Plan and Treatment				
Level 1	Level 2	Level 3	Level 4	Level 5
Formulates initial treatment plans for patient's with [straightforward toxicologic conditions	Formulates comprehensive treatment plans for patient's with straightforward toxicologic conditions	Formulates comprehensive treatment plans for patient's with complex toxicological conditions	Implements interdisciplinary team for patient's with complex toxicological conditions	Develops novel management strategies for poisonings

Comments:

Not Yet Completed Level 1 ☐
Not Yet Assessable ☐

Patient Care 4: Substance Use and Withdrawal				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes substance use disorders (SUD) and withdrawal syndromes	Formulates treatment plan for patients with straightforward SUD and withdrawal syndromes	Initiates treatment of patients with complex SUD and withdrawal syndromes	Selects therapies based on prior treatment response, co-morbidities, resources, and patient preference	Establishes a holistic treatment pathway involving institutional and community resources
☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Not Yet Completed Level 1   ☐
Not Yet Assessable   ☐

Medical Knowledge 1: Pathophysiology of Poisoning				
Level 1	Level 2	Level 3	Level 4	Level 5
Discusses basic concepts of biochemistry, physiology, and pharmacology	Describes basic toxicologic mechanisms and pathophysiology	Explains advanced toxicologic mechanisms and pathophysiology	Demonstrates knowledge of the mechanisms of complex and rare toxicological conditions	Demonstrates expertise through publishing or invited lectureship about toxicologic pathophysiology, and its epidemiologic associations
☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Not Yet Completed Level 1   ☐

Not Yet Assessable   ☐

Medical Knowledge 2: Population Exposure

Level 1	Level 2	Level 3	Level 4	Level 5
Identifies major routes of exposure among the human population [LN]	Identifies sources of environmental exposures to chemical, physical, and biological hazards for defined populations	Describes individual factors that impact susceptibility to adverse health effects from environmental exposures	Recommends methods of monitoring and reducing adverse environmental health effects for population	Uses data to characterize effects of exposure of a local population based on comparison with other populations

Comments:

Not Yet Completed Level 1 ☐

Not Yet Assessable ☐

Medical Knowledge 3: Laboratory and Clinical Testing				
Level 1	Level 2	Level 3	Level 4	Level 5
Selects ancillary testing needed to assess an acute exposure	Interprets the results of ancillary testing for an exposure incorporating the pharmacokinetics of the xenobiotic	Compares the analytical modalities, including appropriateness, limitations, and methodology	Demonstrates knowledge of advanced analytical and clinical testing, including alternative matrices	Develops protocols for advanced and alternative clinical testing
☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐

Comments:
Not Yet Completed Level 1 ☐
Not Yet Assessable ☐

Medical Knowledge 4: Substance Use and Withdrawal				
Level 1	Level 2	Level 3	Level 4	Level 5
Discusses the relevant terminology of substance use, addiction, and withdrawal	Describes the biological basis, pharmacokinetics, and toxicokinetics of psychoactive and addictive substances	Explains the basis of treatments, both pharmacological and non-pharmacological, for patients with SUD and withdrawal	Identifies the systems-related issues that interfere with identification, analysis, and treatment of substance use and withdrawal	Develops protocols or curriculum for the management of patients with SUD or withdrawal
☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Not Yet Completed Level 1 ☐

Not Yet Assessable ☐

Medical Knowledge 5: Occupational Medicine/Occupational Toxicology

Level 1	Level 2	Level 3	Level 4	Level 5
Identifies occupational hazards	Identifies relevant agencies and their role in risk assessment, mitigation, and education	Explains the core principles of occupational safety, risk assessment and communication, and hazard controls	Demonstrates the principles of occupational safety, risk assessment, and hazard control to patients or populations	Applies core principles of risk assessment and hierarchy of controls to reduce risks from safety hazards to patients or populations

☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Not Yet Completed Level 1   ☐

Not Yet Assessable   ☐

Systems-Based Practice 1: Patient Safety				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of common patient safety events	Identifies system factors that lead to patient safety events	Participates in analysis of patient safety events (simulated or actual)	Conducts analysis of patient safety events and offers error prevention strategies (simulated or actual)	Actively engages teams and processes to modify systems for preventing patient safety events
Demonstrates knowledge of how to report patient safety events	Reports patient safety events through institutional reporting systems (simulated or actual)	Participates in group disclosure of patient safety events to patients and patient families (simulated or actual)	Discloses patient safety events to patients and patient families (simulated or actual)	Acts as a role model and/or mentor for others in the disclosing of patient safety events

<div style="text-align:center">☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐</div>

Comments:

Not Yet Completed Level 1 ☐

Systems-Based Practice 2: Quality Improvement				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of basic quality improvement methodologies and metrics	Describes local quality improvement initiatives (e.g., consultation efficiency, testing turnaround times)	Participates in local quality improvement initiatives	Demonstrates the skills required for identifying, developing, implementing, and analyzing a quality improvement project	Creates, implements, and assesses quality improvement initiatives at the institutional or community level

Comments:

Not Yet Completed Level 1   ☐

Systems-Based Practice 3: System Navigation for Patient-Centered Care

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of care coordination	Coordinates care of patients in routine clinical situations effectively using the roles of the interprofessional team members	Coordinates care of patients in complex clinical situations effectively using the roles of their interprofessional team members	Role models effective coordination of patient-centered care among different disciplines and specialties	Analyzes the process of care coordination and leads in the design and implementation of improvements
Identifies key elements for safe and effective transitions of care and hand-offs	Performs safe and effective transitions of care/hand-offs in routine clinical situations	Performs safe and effective transitions of care/hand-offs in complex clinical situations	Role models and advocates for safe and effective transitions of care/hand-offs	Improves quality of transitions of care within and across health care delivery systems to optimize patient outcomes
☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Not Yet Completed Level 1   ☐

Systems-Based Practice 4: Population Health

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of population and community health needs	Identifies specific population and community health needs for their local population	Uses local resources effectively to meet the needs of a patient population and community	Participates in changing and adapting practice to provide for the needs of specific populations	Leads innovations and advocates for populations and communities with specific health care needs

Comments:

Not Yet Completed Level 1

Systems-Based Practice 5: Physician Role in Health Care Systems

Level 1	Level 2	Level 3	Level 4	Level 5
Identifies key components of the complex health care system (e.g., hospital, skilled nursing facility, finance, personnel, technology)	Describes how components of a complex health care system are interrelated, and how this impacts patient care	Discusses how individual practice affects the broader system (e.g., length of stay, readmission rates, clinical efficiency)	Manages various components of the complex health care system to provide efficient and effective patient care and the transition of care	Advocates for or leads systems change that enhances high value, efficient, and effective patient care, and the transition of care
Describes basic health payment systems (e.g., government, private, public, uninsured care), including practice models	Delivers care with consideration of each patient's payment model (e.g., insurance type)	Engages patients in shared decision making, informed by each patient's payment model	Advocates for patient care needs with consideration of the limitations of each patient's payment model	Participates in health policy advocacy activities

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Comments:

Not Yet Completed Level 1   ☐

Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access and use available evidence and incorporate patient preferences and values to the care of a routine patient	Articulates clinical questions and considers patient preferences and values to guide evidence-based care	Locates and applies the best available evidence, integrated with patient preference, to the care of complex patients	Critically appraises and applies evidence even in the face of uncertainty and conflicting evidence to guide care, tailored to the individual patient	Coaches others to critically appraise and apply evidence for complex patients, and/or participates in the development of guidelines

Comments:

Not Yet Completed Level 1

Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates an openness to receiving performance data (feedback and other input)	Demonstrates an openness to receiving performance data and uses it to develop personal and professional goals	Seeks and accepts performance data for developing personal and professional goals	Using performance data, continually improves and measures the effectiveness of one's personal and professional goals	Acts as a role model for the development of personal and professional goals
Demonstrates awareness that there may be gaps between expectations and actual performance	Identifies the factors that contribute to the gap(s) between expectations and actual performance	Analyzes and reflects on the factors that contribute to gap(s) between expectations and actual performance	Analyzes, reflects on, and institutes behavioral change(s) to narrow the gap(s) between expectations and actual performance	Coaches others on reflective practice

☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Not Yet Completed Level 1   ☐

Professionalism 1: Professional Behavior and Ethical Principles

Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates professional behavior in routine situations and in reporting professionalism lapses	Identifies and describes potential triggers and takes responsibility for professionalism lapses	Exhibits professional behavior in complex and/or stressful situations	Sets apart those situations that might trigger professionalism lapses and intervenes to prevent them in oneself and others	Coaches others when their behavior fails to meet professional expectations
Demonstrates knowledge of the ethical principles underlying patient care	Analyzes straightforward situations using ethical principles	Analyzes complex situations using ethical principles, and recognizes the need to seek help in managing and resolving them	Uses appropriate resources for managing and resolving ethical dilemmas	Identifies and addresses system-level factors that either induce or exacerbate ethical problems or impede their resolution

☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Not Yet Completed Level 1   ☐

Professionalism 2: Accountability/Conscientiousness				
Level 1	Level 2	Level 3	Level 4	Level 5
Takes responsibility for failure to complete tasks and responsibilities, identifies potential contributing factors, and describes strategies for ensuring timely task completion in the future	Performs tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations	Performs tasks and responsibilities in a timely manner with appropriate attention to detail in complex or stressful situations	Recognizes situations that may impact others' ability to complete tasks and responsibilities in a timely manner	Proactively develops and implements strategies to ensure that the needs of patients, teams, and systems are met

Comments:

Not Yet Completed Level 1   ☐

Professionalism 3: Self-Awareness and Well-Being				
Level 1	Level 2	Level 3	Level 4	Level 5
With assistance, recognizes the status of one's personal and professional well-being	Independently recognizes the status of one's personal and professional well-being and engages in help-seeking behaviors	With assistance, proposes a plan to optimize one's personal and professional well-being	Independently develops a plan to optimize one's personal and professional well-being	Coaches others when their emotional responses or level of knowledge/skills fail to meet professional expectations
☐	☐	☐	☐	☐	☐	☐	☐	☐

Comments:

Not Yet Completed Level 1   ☐

This subcompetency is not intended to evaluate a fellow's well-being. Rather, the intent is to ensure that each fellow has the fundamental knowledge of factors that affect well-being, the mechanisms by which those factors affect well-being, and available resources and tools to improve well-being.

Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication

Level 1	Level 2	Level 3	Level 4	Level 5
Uses language and non-verbal behavior to reflect respect and establish rapport while accurately communicating one's own role within the health care system	Establishes a therapeutic relationship in straightforward encounters with patients using active listening and clear language	Establishes a therapeutic relationship in challenging patient encounters	Easily establishes therapeutic relationships with patients, regardless of the complexity of cases	Acts as a mentor to others in situational awareness and critical self-reflection with the aim of consistently developing positive therapeutic relationships and minimizing communication barriers
Identifies common barriers to effective communication (e.g., language, disability)	Identifies complex barriers to effective communication (e.g., health literacy, cultural differences, technology)	When prompted, reflects on biases, while attempting to minimize communication barriers	Independently recognizes biases of patients, while attempting to proactively minimize communication barriers	Develops educational programs or services that address bias or communication strategies.
With insight gained through an assessment of the patient's/patient's family's expectations coupled with an understanding of their health status and treatment options, adjusts one's communication strategies	Organizes and initiates communication with a patient/patient's family by clarifying expectations and verifying one's understanding of the clinical situation	With guidance, sensitively and compassionately delivers medical information to patients, elicits patient's/patient's family's values, learns their goals and preferences, and acknowledges uncertainty and conflict	Independently uses shared decision making with a patient/patient's family to align their values, goals, and preferences with potential treatment options and ultimately to achieve a personalized care plan	Acts as a role model to exemplify shared decision making in communication with patients/patients' families that embodies various degrees of uncertainty/conflict

Comments:

Not Yet Completed Level 1 ☐

Interpersonal and Communication Skills 2: Interprofessional and Team Communication

Level 1	Level 2	Level 3	Level 4	Level 5
Respectfully requests a consultation	Clearly and concisely requests a consultation or other resources for patient care	Integrates recommendations made by various members of the health care team to optimize patient care	Acts as a role model for flexible communication strategies, i.e., those strategies that value input from all health care team members and that resolve conflict when needed	
Uses language that reflects the values all members of the health care team	Communicates information effectively with all health care team members	Engages in active listening to adapt to the communication styles of the team	Uses effective communication to lead or manage health care teams	Acts as a role model for communication skills necessary to lead or manage health care teams
Receives feedback in a respectful manner	Solicits feedback on performance as a member of the health care team	Communicates concerns and provides feedback to peers and learners	Communicates feedback and constructive criticism to superiors	In complex situations, facilitates regular health care team-based feedback

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Comments:

Not Yet Completed Level 1   ☐

Interpersonal and Communication Skills 3: Communication within Health Care Systems

Level 1	Level 2	Level 3	Level 4	Level 5
Accurately documents information in the patient's record and safeguards the patient's personal health information	Demonstrates organized diagnostic and therapeutic reasoning through the patient record in a timely manner	Concisely reports diagnostic and therapeutic reasoning in the patient record	Communicates clearly, concisely, and contemporaneously in an organized written form, including anticipatory guidance	Models feedback to improve others' written communication
Communicates through appropriate channels as required by institutional policy (e.g., patient safety reports, cell phone/pager use)	Respectfully communicates concerns about the system	Uses appropriate channels to offer clear and constructive suggestions for improving the system	Initiates difficult conversations with appropriate stakeholders to improve the system	Facilitates dialogue regarding systems issues among larger community stakeholders (e.g., institution, the health care system, and/or the field)

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Comments:

Not Yet Completed Level 1   ☐