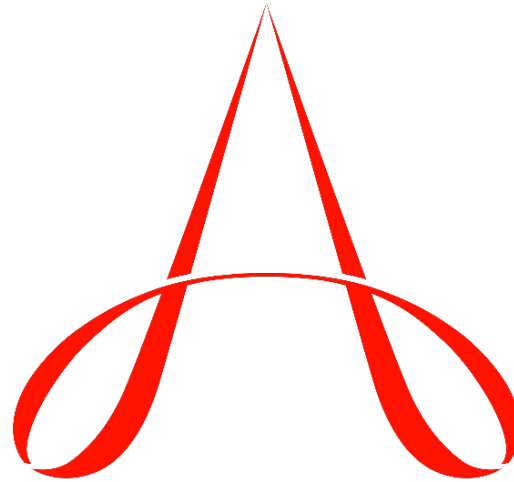




Supplemental Guide: Neonatal-Perinatal Medicine



ACGME

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Milestones Supplemental Guide

This document provides additional guidance and examples for the Neonatal-Perinatal Medicine Milestones. This is not designed to indicate any specific requirements for each level, but to provide insight into the thinking of the Milestone Work Group.

Included in this document is the intent of each Milestone and examples of what a Clinical Competency Committee (CCC) might expect to be observed/assessed at each level. Also included are suggested assessment models and tools for each subcompetency, references, and other useful information.

Review this guide with the CCC and faculty members. As the program develops a shared mental model of the Milestones, consider creating an individualized guide (Supplemental Guide Template available) with institution-/program-specific examples, assessment tools used by the program, and curricular components.

Additional tools and references, including the Milestones Guidebook, Clinical Competency Committee Guidebook, and Milestones Guidebook for Residents and Fellows, are available at the end of this document as well as on the [Resources](#) page of the Milestones section of the ACGME website.

Patient Care 1: Neonatal and Maternal History	
Overall Intent: To gather neonatal and maternal history with the appropriate level of detail and focus	
Milestones	Examples
Level 1 <i>Gathers information following a template</i>	<ul style="list-style-type: none"> • Uses outside records to complete the electronic health record (EHR) templated history • Gathers information for an incoming admission using a transport template
Level 2 <i>Adapts the template to filter and prioritize pertinent positives and negatives or missing data</i>	<ul style="list-style-type: none"> • Identifies that the maternal hepatitis B status is missing and seeks information from the obstetrical team • Gathers missing information from an outside hospital for an infant transported into the facility
Level 3 <i>Gathers and synthesizes the history for uncomplicated or typical presentations</i>	<ul style="list-style-type: none"> • Synthesizes newborn history for a transferred patient who failed critical congenital heart disease (CCHD) screening and is now in respiratory distress • Incorporates history from the parents and available medical records for a baby who returns to the emergency department with an elevated bilirubin • Incorporates some social determinants of health or other social screening questions when performing history
Level 4 <i>Gathers and synthesizes the history, including protected family health information, for complicated or atypical presentations</i>	<ul style="list-style-type: none"> • Incorporates a detailed but related social history including history of maternal substance use or lack of access to formula that could be contributing to the patient’s poor feeding • Synthesizes history of a maternal history of fetal hiccups for a newborn with suspected inborn error of metabolism
Level 5 <i>Synthesizes and reappraises the history, incorporating subtle clues for potentially rare presentations</i>	<ul style="list-style-type: none"> • Interviews parents individually to elicit information on sexually transmitted infection risk factors after a positive syphilis test when obstetric history was negative • Develops a familial pedigree that determines an inheritance pattern for a presumed genetic syndrome
Assessment Models or Tools	<ul style="list-style-type: none"> • Direct observation • Multisource feedback • Verbal presentations on bedside rounds
Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • The American Board of Pediatrics (ABP). Entrustable Professional Activities for Neonatal-Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • Behforouz HL, Drain PK, Rhatigan JJ. Rethinking the social history. <i>NEJM</i>. 2014; 371(14):1277-9. • Bennett, RL. Family health history: the first genetic test in precision medicine. <i>Med Clin N Am</i>. 2019; 103:957-966.

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Patient Care 2: Physical Exam	
Overall Intent: To gather objective information, recognizing normal and abnormal physical findings attending to the patients gestational age and clinical status and considering information gleaned from patient history	
Milestones	Examples
Level 1 <i>Performs a physical examination based on a template</i>	<ul style="list-style-type: none"> • Performs a complete physical examination using the standard newborn exam template, notes jaundiced sclera in an infant with darker skin tone • While writing the history and physical, notices that the template in EHR includes red reflex so they return to the bedside to perform red reflex exam • Examines an infant without taking into consideration the current state of desaturation
Level 2 <i>Performs a complete physical examination and identifies variants and abnormal findings</i>	<ul style="list-style-type: none"> • Recognizes a posterior ear pit during the exam of an infant admitted for possible sepsis • Identifies single palmar crease in an infant admitted for murmur
Level 3 <i>Adapts the physical examination based on gestational age, patient status, and clinical acuity, and interprets findings to build a differential diagnosis</i>	<ul style="list-style-type: none"> • Clusters exam during nursing hands on care time for a 28-week gestation infant and pauses when infant begins desaturating • Generates a differential diagnosis based on exam findings of scalp bogginess and evaluates for a fluid wave to assess for possible subgaleal hemorrhage
Level 4 <i>Synthesizes and reappraises information gathered via the physical examination to narrow the differential diagnoses</i>	<ul style="list-style-type: none"> • Narrows the differential to CHARGE syndrome (Colobomas, Heart defects, nasal choanae Atresia, development Restriction, Genitourinary abnormalities, Ear and hearing anomalies) versus VACTERL (Vertebral anomaly, imperforate Anus atresia, Cardiac anomalies, Tracheoesophageal fistula, Renal anomalies, Limb anomalies) for a patient with multiple congenital anomalies by conducting a detailed examination • For an infant with complete atrioventricular canal defect, anticipates physiologic changes and conducts serial exams over time to look for over circulation
Level 5 <i>Detects and integrates subtle physical examination findings to distinguish nuances among competing diagnoses</i>	<ul style="list-style-type: none"> • Examines patient with a rash, incorporates history, other portions of the physical examination, and pertinent literature to diagnose acrodermatitis enteropathica due to congenital zinc deficiency
Assessment Models or Tools	<ul style="list-style-type: none"> • Case presentations • Chart/medical record audit • Direct observation • Multisource feedback
Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • Jones, Lyons K, Crandall Jones M, Del Campo M. <i>Smith's recognizable patterns of human malformation</i>. 8th ed. Elsevier Health Sciences, 2021.

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- Stanford Medicine. Photo gallery of common newborn anomalies <https://med.stanford.edu/newborns/professional-education/photo-gallery.html>. Accessed 2022.
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Patient Care 3: Organization and Prioritization of Patient Care Overall Intent: To organize and appropriately prioritize patient needs to optimize outcomes	
Milestones	Examples
Level 1 <i>Organizes patient care for an individual patient</i>	<ul style="list-style-type: none"> • Notices and manages jaundice in a dark-skinned infant • Only focuses on a single patient with high acuity
Level 2 <i>Organizes patient care responsibilities for multiple patients</i>	<ul style="list-style-type: none"> • Reviews labs in the order listed in the EHR, rather than in order of patient acuity • Assigns team members their roles for the resuscitation of twins
Level 3 <i>Prioritizes and delegates the simultaneous care of patients; triages urgent and emergent issues</i>	<ul style="list-style-type: none"> • Prioritizes intubating a patient with severe hypercarbia before weaning the ventilator on a stable patient • Delegates one practitioner to remain in the unit with a recently extubated patient while attending an emergent delivery in the main operating room
Level 4 <i>Efficiently prioritizes and delegates patient care responsibilities, maintains situational awareness, and anticipates urgent and emergent issues</i>	<ul style="list-style-type: none"> • Organizes team members and prioritizes task completion to manage multiple patients simultaneously patient with a tension pneumothorax, notification of imminent pre-term delivery, a new transport request, and a patient with bilious emesis • Maintains situational awareness while mobilizing resources, delegating roles, and anticipating stabilization needs for an overnight delivery of 29-week gestation triplets
Level 5 <i>Serves as a role model and coach for balancing patient care responsibilities and unit needs</i>	<ul style="list-style-type: none"> • After initial stabilization of severely growth-restricted 24-week gestation twins, facilitates clinical debriefing with resuscitation team and then arranges for transfer of a stable patient to address high census • Recognizes acuity, volume of patients in the unit, and limited staffing is beyond the ability of team to provide safe care and calls for a backup attending and communicates with the charge nurse to obtain additional staffing
Assessment Models or Tools	<ul style="list-style-type: none"> • Direct observation • Multisource feedback • Self-assessment • Simulation
Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • ABP. Entrustable Professional Activities for Subspecialties. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2021. • Coolen E, Draaisma, J, Loeffen J. Measuring situation awareness and team effectiveness in pediatric acute care by using the situation global assessment technique. <i>Eur J Pediatr</i> 2019;178, 837-850. https://doi.org/10.1007/s00431-019-03358-z. • O'Dea CL, Lorch SA, Cicero M, Buchanan N, Holes RL, French HM. Evaluation of Prioritization Skills in Neonatology Fellowship Trainees. AAP National Conference and Exhibition; San Diego, 2014.

Patient Care 4: Clinical Reasoning	
Overall Intent: To gather and analyze patient information to develop and communicate a diagnostic and therapeutic plan	
Milestones	Examples
Level 1 <i>Uses pattern recognition to formulate a broad differential diagnosis</i>	<ul style="list-style-type: none"> • Identifies tachypneic, grunting 36-week gestation infant, places the patient on continuous positive airway pressure (CPAP), and reports to attending that the pre-term infant likely has respiratory distress syndrome (RDS), transient tachypnea of the newborn (TTN), or pneumonia • Uses anchoring as a strategy to identify most patient diagnoses and does not broaden the differential to include less frequent diagnoses thus increasing error
Level 2 <i>Develops illness scripts and formulates a holistic patient assessment</i>	<ul style="list-style-type: none"> • Identifies tachypneic, grunting 36-week gestation infant, places the patient on CPAP, and reports the infant likely has RDS, but because the FiO2 is 0.5 suggests obtaining a chest radiograph, blood gas, and pre- and post-ductal pulse oximetry • For a jittery infant with prenatal opiate exposure, formulates an assessment that includes opiate withdrawal, seizures, hypoglycemia, and metabolic derangements
Level 3 <i>Refines illness scripts, while using strategies to identify cognitive bias</i>	<ul style="list-style-type: none"> • Reappraises the assessment of a full-term infant with respiratory distress not improving on CPAP, and considers the infant likely has RDS, pneumonia, or TTN, and broadens the differential to include persistent pulmonary hypertension of the newborn (PPHN) and congenital cardiac disease • When a chest radiograph does not support the diagnosis of RDS in an infant with respiratory distress, recognizes the potential for anchoring bias and deliberately considers alternative diagnoses
Level 4 <i>Reappraises illness scripts in real time while using strategies to minimize cognitive bias</i>	<ul style="list-style-type: none"> • Recognizes a lack of clinical improvement after intubation and surfactant administration in a 36-week gestation infant, initiates discussion that potential rare disorders of surfactant deficiency should be considered • Reappraises an infant undergoing treatment for neonatal opiate withdrawal syndrome (NOWS), who develops lethargy, metabolic acidosis, and poor feeding to consider rare inborn errors of metabolism in addition to overmedication
Level 5 <i>Serves as a role model in clinical reasoning and strategies to minimize cognitive bias</i>	<ul style="list-style-type: none"> • Facilitates genetic testing for rare disorders of surfactant deficiency in a 36-week gestation infant with progressive respiratory failure while balancing the need for extracorporeal membrane oxygenation (ECMO) with family goals of care • Synthesizes patient information and solicits team input to consider rare diagnoses while modeling the clinical reasoning process for learners
Assessment Models or Tools	<ul style="list-style-type: none"> • Case-based discussions • Direct observation • Multisource feedback • Simulation

Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine Subspecialty. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • Horbar JD, Edwards EM, Ogbolu Y. Our responsibility to follow-through for NICU infants and their families. <i>Pediatrics</i> 2020;146(6). • Norman GR et al. The causes of errors in clinical reasoning: Cognitive biases, knowledge deficits, and dual process thinking. <i>Academic Medicine</i> 2017;92(1):23-29 • Saposnik G, Redelmeier D, Ruff CC, Tobler PN. Cognitive biases associated with medical decisions: a systematic review. <i>BMC Med Inform Decis Mak</i>. 2016 Nov 3;16(1):138. doi: 10.1186/s12911-016-0377-1. PMID: 27809908; PMCID: PMC5093937. • Schumacher DJ, Englander R, Hicks PJ, Carraccio C, Guralnick S. Domain of competence: Patient care. <i>Academic Pediatrics</i>. 2014;14(2) Supp:S13-S35. https://pubmed.ncbi.nlm.nih.gov/24602619/. • Society to Improve Diagnosis in Medicine. Clinical Reasoning Toolkit https://www.improvediagnosis.org/clinicalreasoning/. Accessed 2022. • Thammasitboon S, Cutrer WB. Diagnostic decision-making and strategies to improve diagnosis. <i>Curr Probl Pediatr Adolesc Health Care</i>. 2013 Oct;43(9):232-41. • University of Iowa Department of Internal Medicine Clinical Reasoning. https://medicine.uiowa.edu/internalmedicine/education/master-clinician-program/students/clinical-and-diagnostic-reasoning. Accessed 2022.

Patient Care 5: Disease Management in Neonatal Care	
Overall Intent: To independently assess and manage critically ill patients	
Milestones	Examples
Level 1 <i>Develops and implements care plans for patients with a low level of acuity/complexity</i>	<ul style="list-style-type: none"> • Creates and executes care plan for a late preterm infant with hypoglycemia • Formulates and manages a care plan for a late preterm infant with respiratory failure requiring CPAP
Level 2 <i>Develops and implements care plans for patients with a high level of acuity/complexity</i>	<ul style="list-style-type: none"> • Creates and executes care plan for evolving pulmonary hypertension in an infant with meconium aspiration syndrome • Formulates and manages a care plan for an infant with severe anemia, born to a mother recently immigrated from Nigeria, and orders blood smear to be reviewed by a hematopathologist
Level 3 <i>Coordinates and implements multidisciplinary care plans for patients with a high level of acuity/complexity</i>	<ul style="list-style-type: none"> • Collaborates with cardiology, cardiovascular surgery, palliative care, and family members to manage heart failure in a patient with trisomy 18 and a large ventricular septal defect (VSD) • Identifies acute pneumoperitoneum in an unstable pre-term infant and coordinates care between surgery, anesthesia, and nursing to prepare for emergent surgery
Level 4 <i>Manages patients with multiple levels of acuity/complexity while anticipating future needs and minimizing long-term consequences</i>	<ul style="list-style-type: none"> • Promotes early extubation, optimal nutrition, and family-centered care for extremely preterm infants to decrease rates of bronchopulmonary dysplasia • Recognizes and mitigates family transportation barriers so they can provide kangaroo care, while maximizing non-pharmacologic comfort measures to optimize neurodevelopmental outcomes
Level 5 <i>Role models and coaches others in the management of patients requiring complex multidisciplinary care, while anticipating future needs and minimizing long-term complications</i>	<ul style="list-style-type: none"> • Supports colleagues with moral distress caring for an infant with uncertain long-term prognosis whose family has requested heroic measures; identifies a medical home for the infant upon discharge • Coaches a junior fellow through the care, communication, and management of an infant being decannulated from ECMO due severe intracranial hemorrhage and aids in the development of a long-term care plan
Assessment Models or Tools	<ul style="list-style-type: none"> • Direct observation • Multisource feedback • Simulation
Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • ABP. Entrustable Professional Activities for Subspecialties. https://www.abp.org/content/entrustable-professional-activities-subspecialties). Accessed 2022. <p>Note: Use the neonatal-perinatal medicine-specific entrustable professional activities.</p>

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- Harrison H. The principles for family-centered neonatal care. *Pediatrics*. 1993 Nov;92(5):643-50. PMID: 8414850.

Patient Care 6: Procedures

Overall Intent: To safely and competently perform procedures, manage complications, and obtain family consent

Milestones	Examples
<p>Level 1 <i>Performs simple procedures with assistance</i></p> <p><i>Recognizes common complications</i></p>	<ul style="list-style-type: none"> ● Places umbilical venous catheter (UVC) with assistance ● Obtains consent and explains potential common complications using an interpreter for a family whose preferred language is Spanish ● Recognizes oral trauma following an intubation attempt ● During a UVC placement, tightens a loose umbilical tie in response to excessive bleeding
<p>Level 2 <i>Performs complex procedures with assistance</i></p> <p><i>Recognizes uncommon complications</i></p>	<ul style="list-style-type: none"> ● Consents family and places a chest tube in a 32-week gestation infant with a pneumothorax with assistance ● Recognizes a pulmonary hemorrhage following surfactant administration in an extremely preterm infant ● Recognizes that the UVC has passed through a patent foramen ovale based on evaluation of a chest radiograph
<p>Level 3 <i>Performs complex procedures</i></p> <p><i>Anticipates, recognizes, and manages common complications</i></p>	<ul style="list-style-type: none"> ● Directs appropriate administration of adenosine and leads the cardioversion for an infant with unstable supraventricular tachycardia ● Anticipates and corrects electrolyte disturbances during exchange transfusion for an infant with glucose-6-phosphate dehydrogenase (G6PD) deficiency and hyperbilirubinemia
<p>Level 4 <i>Adapts technique based on patient acuity and anatomy</i></p> <p><i>Anticipates, recognizes, and manages uncommon complications</i></p>	<ul style="list-style-type: none"> ● Places a laryngeal mask airway in a 32-week gestation infant with Pierre Robin sequence after unsuccessful intubation attempt ● Recognizes signs of pericardial effusion after a peripherally inserted central catheter (PICC) line placement and performs a pericardiocentesis
<p>Level 5 <i>Is recognized as a procedural expert</i></p>	<ul style="list-style-type: none"> ● Obtains emergency central access after multiple failed attempts by others in an infant with uncompensated septic shock ● Consistently assists colleagues in intubation and managing patients with critical airways
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Multisource feedback ● Simulation
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> ●
<p>Notes or Resources</p>	<ul style="list-style-type: none"> ● Individuals may achieve competence in procedures at different rates, and this milestone is intended to capture the overall skills.

- **Simple procedures:** lumbar punctures (LPs), peripheral arterial line (PAL), peripheral intravenous line (PIV), needle thoracentesis, umbilical venous catheter (UVC), umbilical arterial catheter (UAC), uncomplicated endotracheal intubation.
- **Complex procedures:** cardioversion, chest tube insertion, exchange transfusion, intraosseous (IO), difficult airway endotracheal intubation, pericardiocentesis, peripherally inserted central catheter (PICC), point of care ultrasound (POCUS) assisted procedures, procedures in the setting of significant patient instability.
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- Clara H. Song, Agnes Choi, Brooke Roebuck, Douglas Dannaway, Michael Anderson; Real-time, Media-enhanced Feedback Improves Neonatal Intubation Skills. *Pediatrics* May 2018; 142 (1_Meeting Abstract): 234. 10.1542/peds.142.1MA3.234
- MacDonald, Mhairi G., Jayashree Ramasethu, and Khodayar Rais-Bahrami. *Atlas of procedures in neonatology*. Lippincott Williams & Wilkins, 2012.
- OPENPediatrics Procedural videos: <https://www.youtube.com/user/OPENPediatrics>. Accessed 2022.

Patient Care 7: Emergency Stabilization	
Overall Intent: To identify critically ill infants and lead multidisciplinary team through patient stabilization in the delivery room and neonatal intensive care unit (NICU)	
Milestones	Examples
Level 1 <i>Identifies unstable patients and performs basic interventions</i>	<ul style="list-style-type: none"> ● Identifies abnormal vital signs in patients with varying gestational ages and calls other team members to assist ● Implements effective positive pressure ventilation (PPV) in a patient with prolonged apnea and oxygen desaturation
Level 2 <i>Identifies patients with acute deterioration and initiates advanced resuscitation measures</i>	<ul style="list-style-type: none"> ● Identifies tension pneumothorax in an intubated patient with acute bradycardia and performs urgent needle decompression ● Implements neonatal resuscitation program (NRP) for a depressed infant due to cord prolapse, including PPV, intubation, chest compressions, UVC placement, and epinephrine administration
Level 3 <i>Leads resuscitations, including critical decision making and anticipates next steps</i>	<ul style="list-style-type: none"> ● Acts as team leader during resuscitation of a depressed infant due to cord prolapse and anticipates potential need for therapeutic hypothermia ● Leads resuscitation for an infant with congenital diaphragmatic hernia and verbalizes candidacy for ECMO and consults appropriate subspecialty teams
Level 4 <i>Integrates family and support services while leading resuscitations</i>	<ul style="list-style-type: none"> ● Leads team during a resuscitation and uses strategies to optimize communication including role clarity, closed-loop communication, and creating a shared mental model ● Explores the family’s cultural beliefs and rituals prior to cessation of a prolonged resuscitation ● Integrates family presence and care preferences in resuscitations, using social workers, child life services, chaplaincy, and direct communication with families
Level 5 <i>Coaches others to lead resuscitations while integrating family and support services</i>	<ul style="list-style-type: none"> ● Engages in the design, implementation, and evaluation of resuscitation protocols, checklists, and clinical practice guidelines ● Initiates and facilitates clinical debriefing following a difficult resuscitation ● Ensures that family members receive emotional support during an unexpected code event by collaborating with social workers, nurses, and a chaplain
Assessment Models or Tools	<ul style="list-style-type: none"> ● Direct observation ● Multisource feedback ● Simulation
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● Agency for Healthcare Research and Quality (AHRQ). TeamSTEPPS: Team Performance Observation Tool. https://www.ahrq.gov/teamstepps/instructor/reference/tmpot.html. Accessed 2021.

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- American Academy of Pediatrics (AAP). Organization of Neonatal Training Program Directors National Neonatology Simulation Curriculum. <https://www.aap.org/en/community/aap-sections/sonpm/ontpd/educational-resources/>. Accessed 2022.
- VITALTalk. <https://www.vitaltalk.org/>. Accessed 2022

Patient Care 8: Discharge from the Neonatal Intensive Care Unit	
Overall Intent: To identify patient readiness and coordinate discharge planning according to medical complexity	
Milestones	Examples
Level 1 <i>Identifies patient readiness and prepares the patient for discharge</i>	<ul style="list-style-type: none"> ● Identifies discharge readiness when late pre-term infant is feeding by mouth, gaining weight, has a stable temperature in open crib without alarms ● Prepares and reviews discharge instructions with family and ensures appropriate outpatient follow-up
Level 2 <i>Makes discharge decisions for patients with low-complexity needs and addresses family resources</i>	<ul style="list-style-type: none"> ● Works with case management to secure resources such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) ● Communicates with pediatrician and family about the necessity of an outpatient ophthalmology appointment for regressing retinopathy of prematurity
Level 3 <i>Partners with the patient’s family in discharge planning and provides education for a patient with moderate complexity needs, while anticipating and coordinating multidisciplinary follow-up care</i>	<ul style="list-style-type: none"> ● Organizes family education and home nursing for an infant with severe bronchopulmonary dysplasia and home oxygen ● Writes a letter of necessity for available home electricity for infant with gastrostomy tube pump feeding for a family with economic hardship
Level 4 <i>Partners with the patient’s family in discharge planning and provides education for a patient with high-complexity needs, while anticipating and coordinating multidisciplinary follow-up care</i>	<ul style="list-style-type: none"> ● Educates and partners with family of infant with myelomeningocele and ventriculo-peritoneal shunt, who lives in a rural area, to ensure appropriate multidisciplinary follow-up, and ensures home supplies are ordered and caregiver training is provided
Level 5 <i>Role models partnering with patients’ families in discharging and providing education for patients with high-complexity needs</i>	<ul style="list-style-type: none"> ● Role models partnering with a family with low trust of the medical community for safe discharge of an infant with a gastrostomy tube who needs a medical home ● Builds a discharge pathway for infants with tracheostomy considering long-term ventilation management, family education and other multidisciplinary requirements
Assessment Models or Tools	<ul style="list-style-type: none"> ● Clinical evaluations ● Direct observation ● Multisource evaluations
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine Subspecialty. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. ● Horbar JD, Edwards EM, Ogbolu Y. Our responsibility to follow through for NICU infants and their families. <i>Pediatrics</i> (2020) 146 (6): e20200360. https://doi.org/10.1542/peds.2020-0360

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Medical Knowledge 1: Neonatal-Perinatal Medical Knowledge	
Overall Intent: To demonstrate medical and scientific knowledge and apply it to the care of patients	
Milestones	Examples
Level 1 <i>Demonstrates basic knowledge of normal maternal-fetal and neonatal physiology</i>	<ul style="list-style-type: none"> ● Explains normal fetal to neonatal physiologic transition ● Educates parents about anticipated development of oral feeding skills in a pre-term infant
Level 2 <i>Demonstrates knowledge of maternal-fetal and neonatal pathophysiology</i>	<ul style="list-style-type: none"> ● Explains the complications associated with abnormal fetal to neonatal physiologic transition ● Educates parents about risks of aspiration with oral feedings in an infant with trisomy 21 ● Explains how social determinants of health influence medical decisions
Level 3 <i>Applies knowledge of pathophysiology of common and typical conditions to guide patient care</i>	<ul style="list-style-type: none"> ● Sets and discusses appropriate oxygen saturation targets on rounds to optimize oxygen delivery in a patient with persistent pulmonary hypertension ● Pursues otolaryngology airway evaluation for an infant with trisomy 21 and stridor during feeding ● Uses a social determinants of health framework to maximize patient care in a family suffering from housing and food insecurity
Level 4 <i>Integrates knowledge of pathophysiology of complicated and atypical conditions to guide patient care</i>	<ul style="list-style-type: none"> ● Arranges for lung biopsy and genetic testing for an infant with pulmonary hypertension with prolonged course who is not responsive to standard therapeutic interventions ● Arranges for a swallow study with esophagram to evaluate for tracheoesophageal (TE) fistula in an infant with trisomy 21, feeding difficulties, and progressive tachypnea
Level 5 <i>Is recognized as an expert in maternal-fetal and neonatal pathophysiology</i>	<ul style="list-style-type: none"> ● Advises colleagues regarding the use of additional agents in an infant with pulmonary hypertension who has not responded to standard therapies ● Leads a work group in the development of clinical guidelines related to antibiotic stewardship, balancing the risks and benefits of treating suspected late onset sepsis while minimizing the risk of necrotizing enterocolitis
Assessment Models or Tools	<ul style="list-style-type: none"> ● Direct observation (e.g., clinical rounds) ● In-training examination ● Multisource feedback ● Simulation
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● ABP. Entrustable Professional Activities for Neonatal Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. ● Englander R, Carraccio C. Domain of competence: Medical knowledge. <i>Academic Pediatrics</i>. 2014;14(2)Supp:S36-S37. https://www.sciencedirect.com/science/article/abs/pii/S1876285913003240.

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- Textbooks

Medical Knowledge 2: Diagnostic Evaluation	
Overall Intent: To order diagnostic tests and subspecialty consultations (if appropriate), tailoring the evaluation to patient complexity, severity of illness, and the most likely diagnosis(es); to interpret results accurately within the context of the clinical picture	
Milestones	Examples
Level 1 <i>Demonstrates knowledge of diagnostic evaluations</i>	<ul style="list-style-type: none"> • Reports the results of a lumbar puncture without interpretation for an infant undergoing rule out sepsis evaluation • Considers racial and socioeconomic disparities to minimize bias in ordering drug screen testing
Level 2 <i>Demonstrates knowledge of risks, benefits, indications, and alternatives to common diagnostic evaluations</i>	<ul style="list-style-type: none"> • Compares the use, risks, and limitations of head ultrasound, brain MRI, and head CT for an infant with suspected intracranial hemorrhage
Level 3 <i>Applies knowledge of diagnostic evaluations based on risks, benefits, indications, alternatives, and limitations to patient care</i>	<ul style="list-style-type: none"> • Constructs a stepwise diagnostic evaluation for an infant with hypoglycemia and suspected hyperinsulinism in consultation with endocrinology • Acknowledges the differences in how rashes present in infants with various skin tones and adjusts diagnostic evaluation accordingly
Level 4 <i>Applies knowledge of diagnostic evaluations, including pre-test probability, to prioritize testing to achieve high-value care</i>	<ul style="list-style-type: none"> • Discusses the creation of prioritized, cost-conscious diagnostic plan for a pre-term infant with direct hyperbilirubinemia, including ordering an abdominal ultrasound prior to ordering molecular genetic testing to evaluate for mutations in the UGT1A1 gene for Crigler-Najjar syndrome given a low pre-test probability • Prioritizes a stepwise diagnostic plan to help reduce costs for a family that does not have health insurance
Level 5 <i>Role models diagnostic evaluation that achieves high-value care</i>	<ul style="list-style-type: none"> • Respected by colleagues in ability to partner with families to build a diagnostic plan that is cost-effective and aligns with family goals and values • Advocates on a systemic level to revise urine drug screen testing to reduce racial and socioeconomical bias in testing
Assessment Models or Tools	<ul style="list-style-type: none"> • Clinical evaluations • Direct observation • Multisource feedback • Simulation
Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • Bowen JL. Educational strategies to promote clinical diagnostic reasoning. <i>NEJM</i>. 2006; 355:2217-25.

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Systems-Based Practice 1: Patient Safety	
Overall Intent: To engage in the analysis and management of patient safety events, including relevant communication with patients, families, and health care professionals	
Milestones	Examples
<p>Level 1 <i>Demonstrates knowledge of common patient safety events</i></p> <p><i>Demonstrates knowledge of how to report patient safety events</i></p>	<ul style="list-style-type: none"> • Lists common patient safety events such as patient misidentification or medication errors • Identifies potential for medication errors for twins due to name confusion • Locates “patient safety reporting system” or “patient safety hotline” as ways to report safety events
<p>Level 2 <i>Identifies system factors that lead to patient safety events</i></p> <p><i>Reports patient safety events through institutional reporting systems (simulated or actual)</i></p>	<ul style="list-style-type: none"> • Identifies EHR default timing of orders as “routine” (without changing to “stat”) may lead to delays in antibiotic administration time for sepsis • Reports delayed antibiotic administration time using the appropriate mechanism • Recognizes the importance of reporting “near misses”
<p>Level 3 <i>Participates in analysis of patient safety events (simulated or actual)</i></p> <p><i>Participates in disclosure of patient safety events to families (simulated or actual)</i></p>	<ul style="list-style-type: none"> • Participates in department morbidity and mortality presentations • Participates in root cause analyses (mock or actual) • Participates in a quality improvement project aimed at reducing racial disparities in maternal and/or neonatal care • With the support of an attending or risk management team member, participates in the disclosure of a medication order error to a family
<p>Level 4 <i>Conducts analysis of patient safety events and offers error prevention strategies (simulated or actual)</i></p> <p><i>Discloses patient safety events to patients’ families (simulated or actual)</i></p>	<ul style="list-style-type: none"> • Leads a simulated or actual root cause analysis related to a patient fall from a crib and develops action plan as part of a system of quality improvement • Following consultation with risk management and other team members, independently discloses a medication error to a patient’s family with mistrust in the medical system and makes suggestions to unit leadership on how to minimize the risks of future events
<p>Level 5 <i>Actively engages teams and processes to modify systems to prevent patient safety events</i></p> <p><i>Role models or mentors others in the disclosure of patient safety events</i></p>	<ul style="list-style-type: none"> • Leads a multidisciplinary team to develop a discharge checklist to ensure tasks completion and transitions of care while mitigating cultural and racial biases which may impact perception of readiness for discharge • Performs a team-evaluation after a “near miss” event and identifies areas of improvement • Coaches others through disclosing difficult patient safety events
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> • Case-based discussion • Direct observation

	<ul style="list-style-type: none"> ● Guided reflection ● Multisource feedback ● Simulation
Curriculum Mapping	●
Notes or Resources	<ul style="list-style-type: none"> ● ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. ● Institute of Healthcare Improvement. http://www.ihp.org/Pages/default.aspx. Accessed 2020. ● Singh R, Naughton B, Taylor JS, et al. A comprehensive collaborative patient safety residency curriculum to address the ACGME core competencies. <i>Med Educ</i>. 2005;39(12):1195-204. https://pubmed.ncbi.nlm.nih.gov/16313578/. ● Institute for Healthcare Improvement. Open School: Patient Safety Curriculum. http://www.ihp.org/education/IHIOpenSchool/Courses/Pages/2019-IHI-Open-School-Patient-Safety-Curriculum.aspx. Accessed 2019

Systems-Based Practice 2: Quality Improvement	
Overall Intent: To understand and implement quality improvement methodologies to improve patient care	
Milestones	Examples
Level 1 <i>Demonstrates knowledge of basic quality improvement methodologies and metrics</i>	<ul style="list-style-type: none"> ● Recognizes a fishbone diagram ● Describes components of a “Plan-Do-Study-Act” cycle
Level 2 <i>Describes local quality improvement initiatives (e.g., community vaccination rate, infection rate, smoking cessation)</i>	<ul style="list-style-type: none"> ● Explains initiative to increase breast feeding rates in the NICU and after discharge ● Describes an initiative to improve timely hepatitis B vaccination in the NICU
Level 3 <i>Participates in local quality improvement initiatives</i>	<ul style="list-style-type: none"> ● Participates in an ongoing interdisciplinary project to improve breastfeeding rates for infants from populations with historically low breastfeeding rates ● Collaborates on a project to improve discharge efficiency
Level 4 <i>Demonstrates the skills required to identify, develop, implement, and analyze a quality improvement project</i>	<ul style="list-style-type: none"> ● Develops and implements a quality improvement project to facilitate timely extubation including building a key driver diagram, developing a SMART (Specific, Measurable, Actionable, Realistic, Time-based) aim, collecting data, and monitoring the outcome and balancing measures ● In developing a quality improvement project, considers team biases and social determinants of health in patient population
Level 5 <i>Creates, implements, and assesses quality improvement initiatives at the institutional or community level</i>	<ul style="list-style-type: none"> ● Spearheads a quality improvement project to improve compliance with recommendations for palivizumab (Synagis) administration rates in collaboration with the county health department and shares results through a formal presentation to community leaders ● Consistently engages in quality improvement to increase vaccination rates
Assessment Models or Tools	<ul style="list-style-type: none"> ● Direct observation ● Poster or other presentation ● Multisource evaluation ● Team evaluations
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. ● The American Academy of Pediatrics: EQIPP QI Basics Course. https://eqipp.aap.org/qi-basics/home. Accessed 2022. ● Bright Futures. QI Office System Tools. https://brightfutures.aap.org/quality-improvement/Pages/QI-Office-System-Tools-.aspx. Accessed 2020. ● Gupta M, Kaplan H. Using statistical process control to drive improvement in neonatal care: a practical introduction to control charts. <i>Clinics in perinatology</i>. 2017;44(3):627-644.

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Systems-Based Practice 3: System Navigation for Patient-Centered Care – Coordination of Care Overall Intent: To effectively navigate the health care system including the interdisciplinary team and other care providers; to adapt care to a specific patient population to ensure high-quality patient outcomes	
Milestones	Examples
Level 1 <i>Lists the various interprofessional individuals involved in the patient’s care coordination</i>	<ul style="list-style-type: none"> ● Identifies the team members and roles, including physical, respiratory, and occupational therapists and social workers for a patient with complex congenital heart disease ● Identifies access to care and insurance coverage as social determinants of health and engages social work and care coordination specialist to proactively navigate challenges
Level 2 <i>Coordinates care of patients in routine clinical situations, incorporating interprofessional teams with consideration of patient and family needs</i>	<ul style="list-style-type: none"> ● Organizes follow-up appointments, including primary care practitioner, neurodevelopmental follow-up clinic, and consulting subspecialists for a former 27-week infant requiring home oxygen ● Uses interpreter services for families to ensure that they can participate in shared decision making regarding the timing of tracheotomy and gastrostomy tube
Level 3 <i>Coordinates care of patients in complex clinical situations, effectively utilizing the roles of interprofessional teams, and incorporating patient and family needs and goals</i>	<ul style="list-style-type: none"> ● Collaborates with the social worker to coordinate outpatient care and subspecialty follow-up for a patient with trisomy 21 who resides in a rural area with limited transportation options ● Recognizes that people from historically marginalized communities may have additional barriers to access care, and requests social work or case manager support in finding community resources ● Coordinates transition to comfort care in collaboration with nursing, spiritual care services, respiratory therapy, and palliative care, and facilitates extubation at the end of life
Level 4 <i>Coordinates interprofessional, patient-centered care among different disciplines and specialties, actively assisting families in navigating the health-care system</i>	<ul style="list-style-type: none"> ● Coordinates and leads a family meeting to include appropriate subspecialists, physical therapist/occupational therapist, nutrition, child life, mental health resources, and spiritual care services prior to shared decision making with the family of a critically ill patient
Level 5 <i>Coaches others in interprofessional, patient-centered care coordination</i>	<ul style="list-style-type: none"> ● Mentors others about home health services for medically complex children, ensuring the inclusion of a discussion about health care disparities ● Coaches and mentors colleagues through a multidisciplinary team meeting of a child with complex health care needs
Assessment Models or Tools	<ul style="list-style-type: none"> ● Direct observation and entrustable professional activities ● Multisource feedback ● Simulation ● Review of discharge planning documentation
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● AAP. Care Coordination Resources. https://www.aap.org/en/practice-management/care-delivery-approaches/care-coordination-resources/ Accessed 2022.

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Systems-Based Practice 4: System Navigation for Patient-Centered Care – Transitions in Care Overall Intent: To effectively navigate the health delivery system during transitions of care to ensure high-quality patient outcomes	
Milestones	Examples
Level 1 <i>Uses a standard template for transitions of care/hand-offs</i>	<ul style="list-style-type: none"> • When handing off to colleagues on a night shift, reads from a hand-off template, provides relevant context, and suggests contingency plans upon request
Level 2 <i>Adapts a standard template, recognizing key elements for safe and effective transitions of care/hand-offs in routine clinical situations</i>	<ul style="list-style-type: none"> • Routinely uses a standardized hand-off tool for a stable patient, verbalizes an understanding of active problems, and provides basic contingency plans • Discusses a discharge of an infant with an uncomplicated course with the primary care physician
Level 3 <i>Performs safe and effective transitions of care/hand-offs in complex clinical situations, and ensures closed-loop communication</i>	<ul style="list-style-type: none"> • Performs the hand-off of care for an infant born at 24 weeks gestation with a course complicated by severe bronchopulmonary dysplasia (BPD) and severe intraparenchymal hemorrhage to the primary care physician with a succinct summary, a timeline for outpatient follow-up and repeat testing, with clearly delineated responsibilities • Ensures that a comprehensive discharge summary is distributed to all relevant follow-up practitioners
Level 4 <i>Performs and advocates for safe and effective transitions of care/hand-offs within and across health care delivery systems</i>	<ul style="list-style-type: none"> • Proactively seeks out colleagues who will be caring for patients over holiday weekend to discuss overarching plans for patients and convey contingency plans • Provides a thorough yet efficient handoff for an infant born at 23 weeks gestation with complex health care needs and includes the patient’s cultural preferences and social needs to the outpatient pediatrician
Level 5 <i>Coaches others in improving transitions of care within and across health care delivery systems to optimize patient outcomes</i>	<ul style="list-style-type: none"> • Develops and implements a standardized preoperative handoff tool to reduce postoperative hypothermia
Assessment Models or Tools	<ul style="list-style-type: none"> • Direct observation • Multisource feedback • Simulation • Review of sign-out tools, use and review of checklists
Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • GotTransition. Clinician Education & Resources. https://www.gottransition.org/resources-and-research/clinician-education-resources.cfm. Accessed 2020. • I-PASS. I-PASS Materials. http://www.ipassstudygroup.com/materialsrequest. Accessed 2020.

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Systems-Based Practice 5: Population and Community Health	
Overall Intent: To promote and improve health across communities and populations through patient care and advocacy including public education and elimination of structural racism	
Milestones	Examples
Level 1 <i>Demonstrates awareness of population and community health needs and disparities</i>	<ul style="list-style-type: none"> ● Identifies social determinants of health, such as poverty and structural racism ● Identifies that infants discharged to foster care are at risk for adverse childhood experiences
Level 2 <i>Identifies specific population and community health needs and disparities; identifies local resources</i>	<ul style="list-style-type: none"> ● Screens families for depression and housing insecurity ● Discusses food insecurity and identifies the nearest WIC office
Level 3 <i>Uses local resources effectively to meet the needs and reduce health disparities of a patient population and community</i>	<ul style="list-style-type: none"> ● Consistently refers families to WIC program and early intervention services as needed ● Promotes the local resources and programs aimed at eliminating structural racism and improving health disparities in collaboration with social work and other support services ● Organizes mental health resources for positive postpartum depression screen
Level 4 <i>Adapts practice to provide for the needs of and reduce health disparities of a specific population</i>	<ul style="list-style-type: none"> ● Acknowledges systemic racism impacts rates of prematurity and partners with families of historically marginalized backgrounds to improve access to post-natal care ● Uses trauma-informed approach to discuss breast/chest-feeding with a parent undergoing gender-affirming care
Level 5 <i>Advocates at the local, regional, or national level for populations and communities with health care disparities</i>	<ul style="list-style-type: none"> ● Partners with a community organization working to increase breastmilk feeding at discharge, especially in communities with historically lower rates of breast feeding ● Participates in longitudinal discussions with local, state, or national government policy makers to eliminate structural racism and reduce health disparities
Assessment Models or Tools	<ul style="list-style-type: none"> ● Direct observation ● Multisource feedback ● Narrative reflection ● Portfolio assessment ● Participation in health equity quality improvement project
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● AAP. Advocacy. https://services.aap.org/en/advocacy/. Accessed 2020. ● AAP. Bright Futures: Promoting Lifelong Health for Families and Communities. https://www.aap.org/en/practice-management/bright-futures Accessed 2022. ● ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine Subspecialty. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. ● Blankenburg R, Poitevien P, Gonzalez del Rey J, et al. Dismantling racism: Association of Pediatric Program Directors' commitment to action. <i>Acad Pediatr</i>. 2020 November-December; 20(8): 1051-1053. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7450251/

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Systems-Based Practice 6: Physician Role in Health Care Systems	
Overall Intent: To understand the physician’s role in health systems science to optimize patient care delivery, including cost-conscious care	
Milestones	Examples
Level 1 <i>Engages with families and other providers in discussions about cost-conscious care and key components of the health care delivery system</i>	<ul style="list-style-type: none"> ● Considers that insurance coverage, or lack of coverage, can affect prescription drug cost for individual patients ● Identifies that one’s own implicit biases can contribute to disparities and less-than-optimal care
Level 2 <i>Identifies the relationships between the delivery system and cost-conscious care and the impact on the patient care</i>	<ul style="list-style-type: none"> ● Considers how patient’s insurance status may contribute to medication adherence ● Incorporates cost considerations when developing a feeding plan
Level 3 <i>Discusses the need for changes in clinical approaches based on evidence, outcomes, and cost-effectiveness to improve care for patients and families</i>	<ul style="list-style-type: none"> ● Evaluates whether ordering a respiratory viral panel will change management ● Adapts plan to minimize costs and provides appropriate care for an uninsured family
Level 4 <i>Advocates for the promotion of safe, quality, and high-value care</i>	<ul style="list-style-type: none"> ● Ensures services and access to pediatric subspecialty care for a patient with sequelae from hypoxic-ischemic encephalopathy and limited community resources ● Implements a project to minimize costly readmissions
Level 5 <i>Coaches others to promote safe, quality, and high-value care across health care systems</i>	<ul style="list-style-type: none"> ● Raises awareness of Choosing Wisely campaign to reduce unnecessary diagnostic testing ● Leads team members in conversations around health disparities and their long-term effects
Assessment Models or Tools	<ul style="list-style-type: none"> ● Direct observation ● Multisource feedback ● Patient safety conference ● Participation in multidisciplinary patient care discussions/conferences
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes and Resources	<ul style="list-style-type: none"> ● ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine Subspecialty. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. ● Choosing Wisely. American Academy of Pediatrics: Ten Things Physicians and Patients Should Question. https://www.choosingwisely.org/societies/american-academy-of-pediatrics/. Accessed 2020. ● Solutions for Patient Safety. Hospital Resources. https://www.solutionsforpatientsafety.org/for-hospitals/hospital-resources/. Accessed 2020.

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Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice Overall Intent: To incorporate and apply evidence to individual patients and patient populations	
Milestones	Examples
Level 1 <i>Develops an answerable clinical question and demonstrates how to access available evidence, with guidance</i>	<ul style="list-style-type: none"> Identifies the question “What is the appropriate evaluation and treatment for necrotizing enterocolitis (NEC)?”, and needs guidance to create a searchable question Uses general medical resources such as UptoDate to search for answers Accesses available evidence using unfiltered resources, retrieving a broad array of related information
Level 2 <i>Independently articulates clinical question and accesses available evidence</i>	<ul style="list-style-type: none"> Independently identifies the focused, answerable question, “What is the difference between medical and surgical NEC?” Uses PubMed to differentiate between medical and surgical NEC by describing the development of the modified Bell’s staging criteria
Level 3 <i>Locates and applies the evidence, integrated with patient preference, to the care of patients</i>	<ul style="list-style-type: none"> Obtains, appraises, and applies evidence to recognize benefits and risks of drain placement versus exploratory laparotomy for surgical NEC Locates and applies evidence for the impact of social disparities on clinical outcomes of patients with NEC Applies evidence and family preferences for a long-term feeding plan
Level 4 <i>Critically appraises and applies evidence, even in the face of uncertainty and conflicting evidence to guide care tailored to the individual patient</i>	<ul style="list-style-type: none"> Routinely seeks out, applies, and integrates new evidence to the care of individual patients or populations to change or update their clinical practice Reviews the literature the weighs redirection of care for a patient with NEC totalis compared to long-term parenteral nutrition as a bridge to intestinal transplant
Level 5 <i>Coaches others to critically appraise and apply evidence for complex patients</i>	<ul style="list-style-type: none"> Role models and coaches others in creating efficient and effective search strategies to answer clinical questions Serves as a resource for team members who are considering potential care plans for a patient with multiple congenital anomalies and a complicated post-natal course Leads a team to develop an evidence based clinical pathway for babies with necrotizing enterocolitis
Assessment Models or Tools	<ul style="list-style-type: none"> Direct observation Presentation evaluation Research portfolio Participation in quality improvement project
Curriculum Mapping	<ul style="list-style-type: none">
Notes or Resources	<ul style="list-style-type: none"> ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine Subspecialty. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022.

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Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth Overall Intent: To continuously improve patient care based on self-evaluation and lifelong learning	
Milestones	Examples
Level 1 <i>Participates in feedback sessions</i> <i>Develops personal and professional goals, with assistance</i>	<ul style="list-style-type: none"> ● Attends scheduled feedback sessions and develops short-term professional and personal goals with program leadership ● Acknowledges own implicit/explicit biases and develops a goal to address with a mentor
Level 2 <i>Demonstrates openness to feedback and performance data</i> <i>Designs a learning plan based on established goals, feedback, and performance data, with assistance</i>	<ul style="list-style-type: none"> ● Acknowledges faculty member concerns about incomplete plans during rounds and identifies areas for improvement ● Creates a learning plan to explore one’s own biases and how they impact interprofessional relationships, with the help of a mentor
Level 3 <i>Seeks and incorporates feedback and performance data episodically</i> <i>Designs and implements a learning plan by analyzing and reflecting on the factors which contribute to gap(s) between performance expectations and actual performance</i>	<ul style="list-style-type: none"> ● Identifies personal difficulty performing a lumbar puncture and arranges to spend time in the simulation lab to improve skills ● Develops a learning plan to mitigate one’s own biases after recognizing implicit biases that affected care for an infant with a transgender parent
Level 4 <i>Seeks and incorporates feedback and performance data consistently</i> <i>Adapts a learning plan using long-term professional goals, self-reflection, and performance data to measure its effectiveness</i>	<ul style="list-style-type: none"> ● Seeks additional education to meet a personal goal of improved counseling for breast feeding mothers and reviews available data on local rates of breastmilk at discharge to evaluate impact on patient care ● Actively seeks out education to learn about bystander culture after receiving feedback on a missed opportunity to intervene on a microaggression
Level 5 <i>Role models and coaches others in seeking and incorporating feedback and performance data</i> <i>Demonstrates continuous self-reflection and coaching of others on reflective practice</i>	<ul style="list-style-type: none"> ● Develops and implements implicit bias training curriculum for colleagues and staff members ● Leads a group reflection on barriers and opportunities to improve human milk feeding rates at discharge
Assessment Models or Tools	<ul style="list-style-type: none"> ● Direct observation ● Review of learning plan

	<ul style="list-style-type: none"> ● Multisource feedback
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine Subspecialty. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. ● Burke AE, Benson B, Englander R, Carraccio C, Hicks PJ. Domain of competence: practice-based learning and improvement. <i>Acad Pediatr</i>. 2014;14: S38-S54. https://www.academicpedsjnl.net/article/S1876-2859(13)00333-1/fulltext. ● Davis B, Baggett KM, Patterson AL, Feil EG, Landry SH, Leve C. Power and efficacy of maternal voice in neonatal intensive care units: implicit bias and family-centered care. <i>Matern Child Health J</i>. 2022 Apr;26(4):905-912. doi: 10.1007/s10995-021-03199-z. Epub 2021 Jun 23. PMID: 34160758. ● Horbar JD, Edwards EM, Greenberg LT, Profit J, Draper D, Helkey D, Lorch SA, Lee HC, Phibbs CS, Rogowski J, Gould JB, Firebaugh G. Racial segregation and inequality in the neonatal intensive care unit for very low-birth-weight and very preterm infants. <i>JAMA Pediatr</i>. 2019 May 1;173(5):455-461. doi: 10.1001/jamapediatrics.2019.0241. PMID: 30907924; PMCID: PMC6503514. ● Lockspeiser TM, Li STT, Burke AE, et al. In pursuit of meaningful use of learning goals in residency: A qualitative study of pediatric residents. <i>Acad Med</i>. 2016;91(6):839-846. https://pubmed.ncbi.nlm.nih.gov/26630605/. ● Lockspeiser TM, Schmitter PA, Lane JL, Hanson JL, Rosenberg AA, Park YS. Assessing residents' written learning goals and goal writing skill: validity evidence for the learning goal scoring rubric. <i>Academic Medicine</i>. 2013;88(10):1558-1563. https://journals.lww.com/academicmedicine/fulltext/2013/10000/Assessing_Residents_Written_Learning_Goals_and.39.aspx.

Professionalism 1: Professional Behavior	
Overall Intent: To demonstrate ethical and professional behaviors and promote these behaviors in others and to use appropriate resources to manage professional dilemmas	
Milestones	Examples
<p>Level 1 <i>Identifies expected professional behaviors and potential triggers for lapses</i></p> <p><i>Identifies the value and role of neonatology as a vocation/career</i></p>	<ul style="list-style-type: none"> ● Is usually at the hospital in advance of shift but when arriving late to morning rounds, identifies this lapse, and immediately apologizes to team ● Acknowledges the importance of neonatologists in informing NICU families as well as the broader public about the importance of vaccinations
<p>Level 2 <i>Demonstrates professional behavior with occasional lapses</i></p> <p><i>Demonstrates accountability for patient care as a neonatologist, with guidance</i></p>	<ul style="list-style-type: none"> ● Asks a colleague for feedback on post-call interactions with staff members and colleagues after self-reflecting on a tendency to be curt when tired ● When asked to fill out paperwork for a family no longer under their care, ensures appropriate care team receives family request for timely completion
<p>Level 3 <i>Maintains professional behavior in increasingly complex or stressful situations</i></p> <p><i>Fully engages in patient care and holds oneself accountable</i></p>	<ul style="list-style-type: none"> ● Maintains a respectful tone when called repeatedly for mildly abnormal patient labs during a busy night in the NICU ● Takes concrete steps to build a therapeutic alliance with the family, despite a difficult family meeting
<p>Level 4 <i>Recognizes situations that may trigger professionalism lapses and intervenes to prevent lapses in self and others</i></p> <p><i>Exhibits a sense of duty to patient care and professional responsibilities</i></p>	<ul style="list-style-type: none"> ● Models respect and compassion for patients and promotes the same from colleagues by actively calling out positive professional behavior ● Volunteers to pitch in and assist colleagues on another team with seeing patients when the acuity is high ● Speaks up in the moment when observing discriminatory behavior within the health care team and uses appropriate reporting mechanisms to address the issue at a systems level
<p>Level 5 <i>Models professional behavior and coaches others when their behavior fails to meet professional expectations</i></p> <p><i>Extends the role of the neonatologist beyond the care of patients by engaging with the community, specialty, and medical profession as a whole</i></p>	<ul style="list-style-type: none"> ● Guides a learner who has been late numerous times by assessing the learner’s well-being, helping to create a plan, and follows up to ensure the learner can enact the plan ● Undertakes professional development activities to better understand and address micro-aggressions in the workplace and models the strategies learned in the clinical environment
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Global evaluation

	<ul style="list-style-type: none"> ● Multisource feedback ● Oral or written self-reflection
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● Below are resources that define professionalism and seek to focus it on what key knowledge, skills, and attitudes are required to ensure public trust and promote integrity within the profession. It is important to note a historical context in which the informal and formal assessment of “professionalism” has extended beyond these ideals to negatively impact the careers of women, LGBTQ people, and underrepresented minorities in medicine. Explicitly, examples of this have included the way in which women, BIPOC learners, and LGBTQ learners have been targeted for certain forms of self-expression of racial, ethnic, or gender identity. The assessment of professionalism should seek to be anti-racist and eliminate all forms of bias. ● Abdel Hameid D. Professionalism 101 for Black physicians. <i>N Engl J Med.</i> 2020;383(5):e34. doi:10.1056/NEJMp2022773 ● ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. ● ABP. Teaching, Promoting, and Assessing Professionalism Across the Continuum: A Medical Educator’s Guide. https://www.abp.org/professionalism-guide. Accessed 2020. ● Osseo-Asare A, Balasuriya L, Huot SJ, et al. Minority resident physicians' views on the role of race/ethnicity in their training experiences in the workplace. <i>JAMA Network Open.</i> 2018;1(5):e182723. Published 2018 Sep 7. doi:10.1001/jamanetworkopen.2018.2723. ● Paul DW Jr, Knight KR, Campbell A, Aronson L. Beyond a moment - reckoning with our history and embracing antiracism in medicine [published online ahead of print, 2020 Jul 28]. <i>N Engl J Med.</i> 2020;10.1056/NEJMp2021812. doi:10.1056/NEJMp2021812.

Professionalism 2: Ethical Principles	
Overall Intent: To recognize and address or resolve common and complex ethical dilemmas or situations	
Milestones	Examples
Level 1 <i>Demonstrates knowledge of the ethical principles underlying informed consent, surrogate decision making, advance directives, confidentiality, error disclosure, stewardship of limited resources, and related topics</i>	<ul style="list-style-type: none"> ● Explains ethical principles involved in informed consent to the resident ● Discloses error of patient receiving incorrectly labeled breastmilk to a Spanish-speaking family with an interpreter
Level 2 <i>Applies ethical principles in common situations</i>	<ul style="list-style-type: none"> ● Articulates how the principle of “do no harm” applies to a patient who may not need intubation even though it would provide a learning opportunity ● Articulates how principle of justice applies to advocating for lactation support for an infant’s caregiver who is experiencing homelessness
Level 3 <i>Analyzes complex situations using ethical principles to address conflict/controversy; seeks help when needed to manage and resolve complex ethical situations</i>	<ul style="list-style-type: none"> ● Offers treatment options for a critically ill infant with an inborn error of metabolism and consistently honors the family’s values ● Advocates for a mother in a drug treatment program to maintain custody of her infant, although other members of the care team express bias and skepticism
Level 4 <i>Manages and seeks to resolve ethical dilemmas using appropriate resources (e.g., ethics consultations, literature review, risk management/legal consultation)</i>	<ul style="list-style-type: none"> ● Uses institutional resources, including social work and risk management, when a parent wishes to leave the hospital against medical advice with an infant who has faltering growth on oral feeds ● Reviews legal and medical guidelines for care of an infant who has severe anemia and parents who do not agree to a blood transfusion
Level 5 <i>Called upon by others to consult in cases of complex ethical dilemmas; identifies and seeks to address system-level factors that induce or exacerbate</i>	<ul style="list-style-type: none"> ● Leads a family meeting and provides a consistent, supportive approach for parents who are experiencing significant moral distress over differing goals of care for an infant with severe neurologic injury ● Identifies disparities in care around end-of-life decision making for non-English-speaking families, and creates monthly staff conferences to promote equitable care
Assessment Models or Tools	<ul style="list-style-type: none"> ● Direct observation ● Global evaluation ● Multisource feedback ● Simulation
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. 2022. ● American Medical Association (AMA). Ethics. https://www.ama-assn.org/delivering-care/ama-code-medical-ethics. Accessed 2020.

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Professionalism 3: Accountability/Conscientiousness	
Overall Intent: To take responsibility for one’s own actions and the impact on patients and other members of the health care team	
Milestones	Examples
Level 1 <i>Performs tasks and responsibilities, with prompting</i>	<ul style="list-style-type: none"> ● Responds to reminders from program administrator to complete work hour logs ● Responds to feedback on incomplete handoffs by more consistently using a hand-off template ● Uses a phone interpreter to call a patient's father back when reminded by the bedside nurse
Level 2 <i>Performs tasks and responsibilities in a timely manner in routine situations</i>	<ul style="list-style-type: none"> ● Completes annual training modules on hand hygiene by specified due date without reminders ● Completes the patient care tasks assigned on rounds and closes the loop on completion with the team ● Responds to pages, calls, and requests for bedside presence in a timely manner during a call shift
Level 3 <i>Performs tasks and responsibilities in a thorough and timely manner in complex or stressful situations</i>	<ul style="list-style-type: none"> ● Identifies multiple competing demands when caring for patients, triages tasks and appropriately delegates other tasks to ensure all issues get addressed ● Stabilizes newborn and writes a thorough transfer summary for a patient with complex cardiac disease prior to urgent transfer to the cardiac intensive care unit
Level 4 <i>Coaches others to ensure tasks and responsibilities are completed in a thorough and timely manner in complex or stressful situations</i>	<ul style="list-style-type: none"> ● Supervises residents and works collaboratively with advanced practice providers, delegating tasks appropriately, and ensures that all tasks are completed for safe and thorough patient care while supporting the autonomy and learning of others, during the delivery and admission of extremely low birth weight (ELBW) twin infants
Level 5 <i>Creates strategies to enhance others’ ability to efficiently complete tasks and responsibilities</i>	<ul style="list-style-type: none"> ● Creates a shared template for consistent documentation of the Sarnat exam and guidelines for care of patients with hypoxic ischemic encephalopathy (HIE) ● Creates a system to ensure all eligible patients get their retinopathy of prematurity (ROP) examinations at the correct time and creates a shared order set and nursing instructions for the requisite eye drops
Assessment Models or Tools	<ul style="list-style-type: none"> ● Compliance with deadlines and timelines ● Direct observation ● Global evaluations ● Multisource feedback
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022.

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Professionalism 4: Well-Being	
Overall Intent: To identify resources to manage and improve well-being	
Milestones	Examples
Level 1 <i>Recognizes the importance of addressing personal and professional well-being</i>	<ul style="list-style-type: none"> ● Acknowledges the emotional impact of participating in a difficult resuscitation and how this may affect the approach to patients seen the same day ● Discusses the importance of a personal and professional mentor ● Recognizes that personal stress may require a change in clinical schedule
Level 2 <i>Describes institutional resources that are meant to promote well-being</i>	<ul style="list-style-type: none"> ● Identifies mental health resources, affinity groups, social gatherings, meditation apps, faculty advising, mentoring resources as well-being resources ● Meets with program director to discuss parental leave, the Family Medical Leave Act and potential lactation needs when expecting a child
Level 3 <i>Recognizes institutional and personal factors that impact well-being</i>	<ul style="list-style-type: none"> ● Validates and openly discusses that working in the neonatal intensive care unit (NICU) is stressful and recognizes the potential impact on well-being ● Identifies additional stress that may be experienced for those of traditionally marginalized groups
Level 4 <i>Describes interactions between institutional and personal factors that impact well-being</i>	<ul style="list-style-type: none"> ● Recognizes that the two-week night rotation is negatively impacting learners with families, and proposes a plan to mitigate the tension between personal and professional demands ● Recognizes how microaggressions from team members impact performance, wellness, and engagement in patient care
Level 5 <i>Coaches and supports colleagues to optimize well-being at the team, program, or institutional level</i>	<ul style="list-style-type: none"> ● Leads organizational efforts to address clinician well-being ● Leads a team debrief after a stressful, busy shift; shares how the shift impacted them and how they plan to decompress ● Develops an affinity group to provide support for self and others to explore impact of microaggressions and biases
Assessment Models or Tools	<ul style="list-style-type: none"> ● Direct observation ● Individual interview ● Self-assessment and personal learning plan
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● This subcompetency is not intended to evaluate a fellow’s well-being, but to ensure each fellow has the fundamental knowledge of factors that impact well-being, the mechanisms by which those factors impact well-being, and available resources and tools to improve well-being. Wellness planning and improvement is not incorporated to provide a nonjudgemental environment ● ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022.

- ACGME. Well-Being Tools and Resources. <https://dl.acgme.org/pages/well-being-tools-resources>. Accessed 2022.
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Interpersonal and Communication Skills 1: Family-Centered Communication	
Overall Intent: To establish a therapeutic relationship with families, tailor communication to the needs of families, and effectively navigate difficult/sensitive conversations	
Milestones	Examples
<p>Level 1 <i>Demonstrates respect and attempts to establish rapport</i></p> <p><i>Attempts to adjust communication strategies based upon family expectations</i></p>	<ul style="list-style-type: none"> ● Introduces self and team members, clarifies roles, identifies the family’s relationship to the patient, clarifies pronouns for family members, and engages everyone in discussion regarding the infant’s plan of care ● Ensures privacy when discussing substance use disorder with a parent ● Minimizes use of jargon during prenatal consult
<p>Level 2 <i>Establishes a therapeutic relationship in straightforward encounters</i></p> <p><i>Adjusts communication strategies as needed to mitigate barriers and meet family expectations</i></p>	<ul style="list-style-type: none"> ● Elicits parental concerns to prioritize and set an agenda for family update ● Asks about and uses appropriate pronouns for patient and family members ● Schedules interpreter services for a Spanish-speaking family rather than rely on extended family members to assist with interpretation of medical information
<p>Level 3 <i>Establishes a culturally competent and therapeutic relationship in most encounters</i></p> <p><i>Communicates with sensitivity and compassion, elicits family values, and acknowledges uncertainty and conflict</i></p>	<ul style="list-style-type: none"> ● Discusses the recent incarceration of a parent while promoting trust, respect, and understanding by using non-judgmental language and empathy ● Recognizes that mispronouncing a patient’s name, especially one of a different ethnicity, might be experienced as a microaggression; recognizes the error and apologizes to the patient and seeks to correct the mistake by reinforcing the correct pronunciation ● Discusses treatment options and outcomes with family considering a gastrostomy tube with sensitivity to the family’s cultural concerns about medical devices
<p>Level 4 <i>Establishes a therapeutic relationship in straightforward and complex encounters, including those with ambiguity and/or conflict</i></p> <p><i>Uses shared decision making with family to make a personalized care plan</i></p>	<ul style="list-style-type: none"> ● Continues to partner with parents who refuse immunizations, providing empathic listening, addressing misinformation, and reviewing risks/benefits to assuage these concerns in a manner that engages rather than alienates the family ● While maintaining trust, engages family of a child with medical complexity along with other members of the multi-specialty care team in determining family wishes and expectations regarding resuscitative efforts in the event of an acute deterioration
<p>Level 5 <i>Mentors others to develop positive therapeutic relationships</i></p>	<ul style="list-style-type: none"> ● Acts as a mentor for disclosing bad news to a family ● Consults with case management, nursing staff members, and palliative care physicians (or other consulting services) prior to discharge of a medically and socially complex infant,

<p><i>Models and coaches others in family-centered communication</i></p>	<p>even if all members cannot attend a scheduled meeting in-person with the family and care team</p> <ul style="list-style-type: none"> • Models and coaches others in difficult family-centered conversations
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> • Direct observation • Kalamazoo Essential Elements Communication Checklist (Adapted) • Skills needed to Set the state, Elicit information, Give information, Understand the patient, and End the encounter (SEGUE) • Standardized patients
<p>Curriculum Mapping</p>	<ul style="list-style-type: none"> •
<p>Notes or Resources</p>	<ul style="list-style-type: none"> • ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • Association of American Medical Colleges MedEdPortal Anti-racism in Medicine Collection https://www.mededportal.org/anti-racism. Accessed 2020. • Benson BJ. Domain of competence: Interpersonal and communication skills. <i>Acad Ped</i>. 2014;14(2 Suppl):S55-S65. https://pubmed.ncbi.nlm.nih.gov/24602649/ • Laidlaw A, Hart J. Communication skills: an essential component of medical curricula. Part I: Assessment of clinical communication: AMEE Guide No. 51. <i>Med Teach</i>. 2011;33(1):6-8. https://www.tandfonline.com/doi/full/10.3109/0142159X.2011.531170. • National LGBTQIA+ Health and Education Center https://www.lgbtqihealtheducation.org/. • Symons, AB., Swanson A., McGuigan D. et al. A tool for self-assessment of communication skills and professionalism in residents. <i>BMC Med Educ</i> 2009;9(1). https://doi.org/10.1186/1472-6920-9-1. • VITALTalks https://www.vitaltalk.org/ Accessed 2022

Interpersonal and Communication Skills 2: Interprofessional and Team Communication Overall Intent: To communicate effectively with the health care team, including consultants, nurses, advanced practice providers, learners, and all other colleagues	
Milestones	Examples
Level 1 <i>Respectfully requests a consultation, with guidance</i> <i>Identifies the members of the interprofessional team</i>	<ul style="list-style-type: none"> ● Requests a cardiology consult for a patient with a new arrhythmia, with input from attending about level of urgency and timing ● Introduces and describes the contribution of each team member in the delivery room to the patient’s parents/guardian and obstetrics team
Level 2 <i>Clearly and concisely requests consultation by communicating patient information</i> <i>Participates within the interprofessional team</i>	<ul style="list-style-type: none"> ● Describes the recent history of central line placement in a patient who has a new-onset fever when requesting a consultation from the infectious disease team ● Sends a message to the dietician of a patient with metabolic disease to discuss the protein restriction and verify any changes needed prior to discharge
Level 3 <i>Formulates a specific question for consultation and tailors communication strategy</i> <i>Uses bi-directional communication within the interprofessional team</i>	<ul style="list-style-type: none"> ● Consults infectious disease to discuss duration of antibiotics for a patient with a peritoneal dialysis catheter and concern for peritonitis ● Uses closed-loop communication to ensure delivery of a specialized infant formula ● Asks other members of the health care team to repeat back recommendations to ensure understanding
Level 4 <i>Coordinates consultant recommendations to optimize patient care</i> <i>Facilitates interprofessional team communication</i>	<ul style="list-style-type: none"> ● Initiates a practitioner meeting, including subspecialists, to develop shared care plan for a patient with 22q11.2 deletion syndrome and bronchopulmonary dysplasia ● Leads interprofessional rounds, engaging all members of the care team ● Recognizes a microaggression from a colleague in discussion of a patient of a different racial background and readily addresses it
Level 5 <i>Maintains a collaborative relationship with referring providers that maximizes adherence to practice recommendations</i> <i>Coaches others in effective communication within the interprofessional team</i>	<ul style="list-style-type: none"> ● Conducts an in-depth case review, and respectfully provides reeducation to referring physician about indications for and timing of therapeutic hypothermia ● Mediates conflict resolution between members of the health care team
Assessment Models or Tools	<ul style="list-style-type: none"> ● Direct observation ● Global assessment ● Multi-source feedback ● Simulation

Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • American Association of Colleges of Osteopathic Medicine. Interprofessional Education Collaborative Expert Panel. Core Competencies for Interprofessional Collaborative Practice: Report of an Expert Panel. Washington, D.C.: Interprofessional Education Collaborative; 2011. https://www.aacom.org/docs/default-source/insideome/ccrpt05-10-11.pdf?sfvrsn=77937f97_2. • ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. • ACAPT. NIPEC Assessment Resources and Tools. https://acapt.org/about/consortium/national-interprofessional-education-consortium-(nipec)/nipec-assessment-resources-and-tools. 2020 • AMA. Delivering Care: Ethics. https://www.ama-assn.org/delivering-care/ethics. Accessed 2022. • Dehon E, Simpson K, Fowler D, Jones A. Development of the faculty 360. <i>MedEdPORTAL</i>. 2015;11:10174. http://doi.org/10.15766/mep_2374-8265.10174. • Fay D, Mazzone M, Douglas L, Ambuel B. A validated, behavior-based evaluation instrument for family medicine residents. <i>MedEdPORTAL</i>. 2007. https://www.mededportal.org/doi/10.15766/mep_2374-8265.622. • François J. Tool to assess the quality of consultation and referral request letters in family medicine. <i>Can Fam Physician</i>. 2011;57(5):574–575. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3093595/. • Green M, Parrott T, Cook G., Improving your communication skills. <i>BMJ</i>. 2012;344:e357. https://www.bmj.com/content/344/bmj.e357. • Henry SG, Holmboe ES, Frankel RM. Evidence-based competencies for improving communication skills in graduate medical education: a review with suggestions for implementation. <i>Med Teach</i>. 2013;35(5):395-403. https://www.tandfonline.com/doi/full/10.3109/0142159X.2013.769677. • Roth CG, Eldin KW, Padmanabhan V, Freidman EM. Twelve tips for the introduction of emotional intelligence in medical education. <i>Med Teach</i>. 2019;41(7):1-4. https://www.tandfonline.com/doi/full/10.1080/0142159X.2018.1481499.

Interpersonal and Communication Skills 3: Communication within Health Care Systems Overall Intent: To effectively and accurately document and communicate using a variety of tools and methods	
Milestones	Examples
<p>Level 1 <i>Records accurate information in the patient record</i></p> <p><i>Identifies the importance of and responds to multiple forms of communication (e.g., in-person, electronic health record (EHR), telephone, email)</i></p>	<ul style="list-style-type: none"> ● Ensures that notes are edited to accurately reflect the infant’s current status and plan when copy paste/forward function is used ● Completes death documentation and calls to notify referring physician of patient death
<p>Level 2 <i>Records accurate and timely information in the patient record</i></p> <p><i>Selects appropriate method of communication, with prompting</i></p>	<ul style="list-style-type: none"> ● Removes biased and stigmatized language of “denies use of marijuana” and replaces it with “doesn’t use marijuana” in daily progress note ● Writes timely procedure note after adjusting umbilical lines ● Calls nurse with request for urgent labs after being reminded that the chat function in the EHR may be missed
<p>Level 3 <i>Concisely documents updated, prioritized, diagnostic and therapeutic reasoning in the patient record</i></p> <p><i>Aligns type of communication with message to be delivered (e.g., direct and indirect) based on urgency and complexity</i></p>	<ul style="list-style-type: none"> ● Completes concise documentation for a patient with metabolic acidosis which reflects complex clinical thinking and planning ● Orders blood transfusion through EHR and follows-up with direct phone call to blood bank after clinical situation becomes more urgent
<p>Level 4 <i>Documents diagnostic and therapeutic reasoning, including anticipatory guidance</i></p> <p><i>Demonstrates exemplary written and verbal communication</i></p>	<ul style="list-style-type: none"> ● Documentation is consistently accurate, organized, and concise; reflects complex clinical reasoning and frequently incorporates contingency planning ● Distills information from multiple sources into a clear and easily understood note about patient care goals
<p>Level 5 <i>Models and coaches others in documenting diagnostic and therapeutic reasoning</i></p> <p><i>Coaches others in written and verbal communication</i></p>	<ul style="list-style-type: none"> ● Leads teams by modeling a range of effective tools and methods of communication that fit the context of a variety of clinical encounters ● Provides mid-rotation feedback on presentation skills and inclusion of therapeutic reasoning in clinical notes
<p>Assessment Models or Tools</p>	<ul style="list-style-type: none"> ● Direct observation ● Multisource feedback

	<ul style="list-style-type: none"> ● Simulation
Curriculum Mapping	<ul style="list-style-type: none"> ●
Notes or Resources	<ul style="list-style-type: none"> ● ABP. Entrustable Professional Activities for Neonatal-Perinatal Medicine. https://www.abp.org/content/entrustable-professional-activities-subspecialties. Accessed 2022. ● Benson BJ. Domain of competence: Interpersonal and communication skills. <i>Acad Ped</i>. 2014;14(2 Suppl):S55-S65. ● Bierman JA, Hufmeyer KK, Liss DT, Weaver AC, Heiman HL. Promoting responsible electronic documentation: validity evidence for a checklist to assess progress notes in the electronic health record. <i>Teach Learn Med</i>. 2017 Oct-Dec;29(4):420-432. ● Haig, K.M., Sutton, S., Whittington, J. SBAR: a shares mental model for improving communications between clinicians. <i>Jt Comm J Qual Patient Saf</i>. 2006 Mar;32(3):167-75. https://pubmed.ncbi.nlm.nih.gov/16617948/. ● Starmer, Amy J., et al. I-pass, a mnemonic to standardize verbal handoffs. <i>Pediatrics</i>. 2012;129.2:201-204. https://pubmed.ncbi.nlm.nih.gov/22232313/.

Interpersonal and Communication Skills 4: Complex Communication with Patients' Families around Serious News Overall Intent: To sensitively and effectively communicate about serious illness with patients' families	
Milestones	Examples
Level 1 <i>Delivers serious news and prognostic information to a patient's family</i>	<ul style="list-style-type: none"> • Shares prognostic information to a family whose infant has a new diagnosis of trisomy 21 • Counsels a family expecting a 30-week infant on the likely NICU management and length of stay
Level 2 <i>Delivers serious news to a patient's family while assessing what a patient's family understands about the clinical condition</i>	<ul style="list-style-type: none"> • Uses open-ended questions to determine what the family understands about their infant's diagnosis of hypoxic-ischemic encephalopathy • Assesses a family's preference for "big picture" versus "numbers-based" prognostic information
Level 3 <i>Delivers serious news and prognostic information while adjusting communication based on the patient's family's understanding about the clinical situation</i>	<ul style="list-style-type: none"> • Notes and responds to the emotional cues of guilt and fear during prenatal counseling for an infant at 22 weeks gestation • Pauses and provides empathic support for a parent who shows signs of being overwhelmed during a conversation about potential tracheostomy placement
Level 4 <i>Tailors communication of serious news to a patient's family based on the patient's family's needs and preferences and the degree of clinical uncertainty</i>	<ul style="list-style-type: none"> • Leads a family meeting with multiple subspecialists and parents who have differing goals of care and navigates shared decision making • Notices subtle emotional cues during medical error disclosure conversation and uses multiple strategies to respond with empathy
Level 5 <i>Role models empathic communication of serious news and serves as a peer resource for others</i>	<ul style="list-style-type: none"> • Assists colleagues in navigating challenging family and team dynamics for an infant with trisomy 18 who is not a candidate for cardiac repair • Is sought out by colleagues for assistance in preparing for delivery of difficult news
Assessment Models or Tools	<ul style="list-style-type: none"> • Direct observation • Standardized patient communication testing scenarios in simulation
Curriculum Mapping	<ul style="list-style-type: none"> •
Notes or Resources	<ul style="list-style-type: none"> • Back AL, Arnold RM, Tulskey JA. <i>Mastering Communication with Seriously Ill Patients: Balancing Honesty with Empathy and Hope</i>. 1st ed. New York, NY: Cambridge University Press; 2009. • Batton DG; Committee on Fetus and Newborn. Clinical report--Antenatal counseling regarding resuscitation at an extremely low gestational age. <i>Pediatrics</i>. 2009 Jul;124(1):422-7. doi: 10.1542/peds.2009-1060. PMID: 19564329. • Center to Advance Palliative Care. https://www.capc.org/. Accessed 2020. • Levetown M, American Academy of Pediatrics Committee on Bioethics. Communicating with children and families: from everyday interactions to skill in conveying distressing information. <i>Pediatrics</i>. 2008;121(5):e1441-1460. https://pediatrics.aappublications.org/content/121/5/e1441.long.

- Shaw DJ, Davidson JE, Smilde RI, Sondoozi T, Agan D. Multidisciplinary team training to enhance family communication in the ICU. *Crit Care Med*. 2014;42(2):265-271. https://journals.lww.com/ccmjournal/Abstract/2014/02000/Multidisciplinary_Team_Training_to_Enhance_Family.4.aspx.
- VITALtalk. <https://www.vitaltalk.org/>. Accessed 2022.

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To help programs transition to the new version of the Milestones, the original Milestones 1.0 have been mapped to the new Milestones 2.0; it is indicated if subcompetencies are similar between versions. These are not exact matches but include some of the same elements. Not all subcompetencies map between versions. Inclusion or exclusion of any subcompetency does not change the educational value or impact on curriculum or assessment.

Milestones 1.0	Milestones 2.0
PC1: Provide transfer of care that ensures seamless transitions	SBP4: System Navigation for Patient-Centered Care – Transitions in Care
PC2: Make informed diagnostic and therapeutic decisions that result in optimal clinical judgement	PC1: Neonatal and Maternal History PC2: Physical Exam PC4: Clinical Reasoning MK2: Diagnostic Evaluation
PC3: Develop and carry out management plans	PC5: Disease Management in Neonatal Care PC8: Discharge from the Neonatal Intensive Care Unit ICS1: Family-Centered Communication
PC4: Provide appropriate role modeling	PBLI2: Reflective Practice and Commitment to Personal Growth
	PC3: Organization and Prioritization of Patient Care
	PC6: Procedures
	PC7: Emergency Stabilization
MK1: Locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems	MK1: Neonatal-Perinatal Medical Knowledge PBLI1: Evidence Based and Informed Practice
SBP1: Work effectively in various health care delivery settings and systems relevant to their clinical specialty	SBP3: System Navigation for Patient Centered Care – Coordination of Cre SBP6: Physician Role in Health Care Systems
SBP2: Coordinate patient care within the health care system relevant to their clinical specialty	SBP3: System Navigation for Patient Centered Care – Coordination of Care SBP4: System Navigation for Patient-Centered Care – Transitions in Care SBP5: Population and Community Health ICS1: Family-Centered Communications ICS2: Interprofessional and Team Communication
SBP3: Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care as appropriate	SBP5: Population and Community Health SBP6: Physician Role in Health Care Systems

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SBP4: Work in inter-professional teams to enhance patient safety and improve patient care quality	SBP1: Patient Safety ICS2: Interprofessional and Team Communication
SBP5: Participate in identifying system errors and implementing potential systems solutions	SBP1: Patient Safety SBP2: Quality Improvement
PBLI1: Identifying strengths, deficiencies, and limits to one's knowledge and expertise	PBLI1: Evidence Based and Informed Practice PBLI2: Reflective Practice and Commitment to Personal Growth
PBLI2: Systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement	SBP2: Quality Improvement PBLI2: Reflective Practice and Commitment to Personal Growth
PBLI3: Use information technology to optimize learning and care delivery	PBLI1: Evidence Based and Informed Practice PBLI2: Reflective Practice and Commitment to Personal Growth ICS3: Communication within Health Care Systems
PBLI4: Participate in the education of patients, families, students, residents, fellows, and other health professionals	SBP5: Population and Community Health PBLI1: Evidence Based and Informed Practice ICS1: Family-Centered Communications
PROF1: Professional Conduct: High standards of ethical behavior which includes maintaining appropriate professional boundaries	PROF1: Professional Behavior PROF2: Ethical Principles
PROF2: Trustworthiness that makes colleagues feel secure when one is responsible for the care of patients	PBLI1: Evidence Based and Informed Practice PROF1: Professional Behavior PROF3: Accountability/Conscientiousness ICS1: Family-Centered Communications
PROF3: Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system/environment with the ultimate intent of improving care of patients	ICS2: Interprofessional and Team Communication ICS3: Communication within Health Care Systems PROF2: Ethical Principles PROF3: Accountability/Conscientiousness
PROF4: The capacity to accept that ambiguity is part of clinical medicine and to recognize the need for and to utilize appropriate resources in dealing with uncertainty	PROF2: Ethical Principles ICS1: Family-Centered Communication PBLI1: Evidence Based and Informed Practice
	PROF4: Well-Being
ICS1: Communicate effectively with physicians, other health professionals, and health-related agencies	ICS2: Interprofessional and Team Communication ICS3: Communication within Health Care Systems
ICS2: Work effectively as a member or leader of a health care team or other professional group	ICS2: Interprofessional and Team Communication PBLI2: Reflective Practice and Commitment to Personal Growth PROF3: Accountability/Conscientiousness

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ICS3: Act in a consultative role to other physicians and health professionals	PC4: Clinical Reasoning ICS2: Interprofessional and Team Communication ICS3: Communication within Health Care Systems
	ICS4: Complex Communication with Patients' Families around Serious News

Available Milestones Resources

Milestones 2.0: Assessment, Implementation, and Clinical Competency Committees Supplement, 2021 - <https://meridian.allenpress.com/jgme/issue/13/2s>

Milestones Guidebooks: <https://www.acgme.org/milestones/resources/>

- *Assessment Guidebook*
- *Clinical Competency Committee Guidebook*
- *Clinical Competency Committee Guidebook Executive Summaries*
- *Implementation Guidebook*
- *Milestones Guidebook*

Milestones Guidebook for Residents and Fellows: <https://www.acgme.org/residents-and-fellows/the-acgme-for-residents-and-fellows/>

- *Milestones Guidebook for Residents and Fellows*
- *Milestones Guidebook for Residents and Fellows Presentation*
- *Milestones 2.0 Guide Sheet for Residents and Fellows*

Milestones Research and Reports: <https://www.acgme.org/milestones/research/>

- *Milestones National Report*, updated each fall
- *Milestones Predictive Probability Report*, updated each fall
- *Milestones Bibliography*, updated twice each year

Developing Faculty Competencies in Assessment courses - <https://www.acgme.org/meetings-and-educational-activities/courses-and-workshops/developing-faculty-competencies-in-assessment/>

Assessment Tool: Direct Observation of Clinical Care (DOCC) - <https://dl.acgme.org/pages/assessment>

Assessment Tool: Teamwork Effectiveness Assessment Module (TEAM) - <https://team.acgme.org/>

Improving Assessment Using Direct Observation Toolkit - <https://dl.acgme.org/pages/acgme-faculty-development-toolkit-improving-assessment-using-direct-observation>

Remediation Toolkit - <https://dl.acgme.org/courses/acgme-remediation-toolkit>

Learn at ACGME has several courses on Assessment and Milestones - <https://dl.acgme.org/>