Supplemental Guide:
Pediatric Urology

ACGME

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Milestones Supplemental Guide

This document provides additional guidance and examples for the Pediatric Urology 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 on the Resources page of the Milestones section of the ACGME website.

Patient Care 1: Patient Evaluation and Decision Making **Overall Intent:** To efficiently obtain and synthesize the history, physical exam, and collateral patient data to develop an appropriate management plan	
Milestones	**Examples**
	All examples relate to a child with recurrent urinary tract infections
Level 1 *Obtains and performs developmentally appropriate history and physical exam*	● Obtains and performs a history and physical exam for a child with a urinary tract infection ● Identifies risk factors and comorbidities, particularly bowel function ● Identifies genital abnormalities ● Confirms the diagnosis of urinary tract infection based on urinalysis, urine culture and symptoms ● Differentiates between symptomatic and asymptomatic bacteriuria
Level 2 *Selects and interprets diagnostic testing*	● Obtains a catheterized urine specimen when needed ● Recognizes contaminated urine specimens, and repeats when needed ● Understands the significance of a bag urine specimen ● Orders appropriate radiographic imaging ● Interprets renal/bladder ultrasounds and voiding cystourethrograms
Level 3 *Develops a plan to manage patients with straightforward conditions*	● Develops a plan for a child with a normal physical exam and renal ultrasound ● Develops a behavior modification plan for bladder and bowel dysfunction ● Understands the need to manage diet and benefits of probiotics ● Knows when antibiotic treatment and prophylaxis are warranted
Level 4 *Develops a plan to manage patients with complex conditions and adapts plan for changing clinical situation*	● Manages recurrent pyelonephritis when associated with congenital uropathy ● Appropriately treats symptomatic breakthrough urinary tract infections
Level 5 *Develops a clinical pathway for the management of patients with complex conditions*	● Integrates novel intervention into management plan following standard management
Assessment Models or Tools	● Clinical case discussion assessment ● Direct observation ● End-of-rotation evaluation ● Medical record (chart) audit ● Multisource feedback ● Observed structured clinical examination (OSCE) ● Simulation
Curriculum Mapping	●
Notes or Resources	● American Urological Association (AUA). Guidelines. https://www.auanet.org/guidelines. 2021. ● AUA University. AUA Urology Core Curriculum. https://auau.auanet.org/core. 2021.

	● AUA University. Update Series Volume. https://auau.auanet.org/courses/published?title=Update%20Series%20Volume&order=title&sort=desc. 2021. ● Wein AJ, Kavoussi LR, Partin AW, Peters CA. *Campbell-Walsh Urology*. 11th ed. Philadelphia, PA: Elsevier; 2015. ISBN:978-1455775675.

Patient Care 2: Peri-Procedural Care **Overall Intent:** To safely provide comprehensive pre-operative, intra-operative, and post-operative management of patients, including physiologic alterations and complications	
Milestones	**Examples**
Level 1 *Describes how changes in normal physiology may lead to peri-procedural alterations and complications*	● Selects appropriate pre-operative antibiotics ● Identifies appropriate fluids (type and rate) for resuscitation of pediatric patients post-operatively ● Avoids use of nonsteroidal anti-inflammatory drugs (NSAIDs) in high-risk patients
Level 2 *Accurately and reliably gathers and reports clinical information pertaining to common peri-procedural alterations and complications*	● Identifies abnormal vital signs and/or urine output in pediatric patients post-operatively ● Recognizes concerning findings during abdominal or wound examination
Level 3 *Identifies and prioritizes tasks necessary for management of peri-procedural alterations and complications*	● Orders appropriate work-up of post-operative fever ● Effectively troubleshoots malfunctioning tubes and drains after reconstructive procedure ● Recognizes signs and symptoms of post-operative urine leak
Level 4 *Proactively recognizes potential risk factors for complications and implements measures to prevent or mitigate them*	● Assures patients have appropriate bowel regimen post procedure including on discharge ● Considers the potential need for ongoing prophylactic antibiotics, particularly in the setting of indwelling tubes or drains ● Includes regular skin checks and offloading as part of routine care in patients with limited mobility (including spica cast or Bryant's traction)
Level 5 *Coordinates input from multiple specialties and/or manages multiple scenarios simultaneously*	● Communicates with pain management service regarding needs for pain medications both pre- and post-operatively ● Manages hemorrhagic cystitis in a patient after bone marrow transplant ● Coordinates multidisciplinary care for patients after exstrophy closure
Assessment Models or Tools	● Clinical case discussion assessment ● Direct observation ● End-of-rotation evaluation ● Medical record (chart) audit ● Multisource feedback ● OSCE ● Simulation
Curriculum Mapping	●
Notes or Resources	● AUA. Guidelines. https://www.auanet.org/guidelines. 2021. ● AUA University. AUA Urology Core Curriculum. https://auau.auanet.org/core. 2021. ● AUA University. Update Series Volume. https://auau.auanet.org/courses/published?title=Update%20Series%20Volume&order=title&sort=desc. 2021.

	● Taneja S, Shah O. *Complications of Urologic Surgery*. 5th ed. Philadelphia, PA: Elsevier; 2017. ISBN:9780323392426. ● Wein AJ, Kavoussi LR, Partin AW, Peters CA. *Campbell-Walsh Urology*. 11th ed. Philadelphia, PA: Elsevier; 2015. ISBN:978-1455775675.

Patient Care 3: Endoscopic Procedures **Overall Intent:** To perform endoscopic procedures safely and efficiently	
Milestones	**Examples**
Level 1 *Prepares pediatric patients and equipment for endoscopic procedures*	● Explains differences and limitations between offset Deflux © scope and other pediatric cystoscopic equipment ● Correctly assembles endoscopic equipment ● Appropriately positions patient with pressure points padded and limbs situated ergonomically ● Appropriately covers nonessential parts of the body from direct ionizing radiation
Identifies anatomic and safety differences between pediatric and adult populations	● Describes ALARA (“as low as reasonably achievable”) principle ● Discusses the effects of ionizing radiation on children, particularly regarding malignancy risk
Level 2 *Independently performs diagnostic pediatric lower tract endoscopic procedures*	● Visualizes entire surface of bladder during cystoscopy ● Monitors radiation exposure of the patient and team during the procedure
Identifies urethral and ureteral abnormalities during endoscopic procedures	● Identifies urethral abnormalities such as posterior urethral valves and prostatic utricle ● Identifies ureteral orifice abnormalities such as ectopic ureteral orifice, ureterocele
Level 3 *Independently performs simple diagnostic upper tract and lower tract therapeutic endoscopic procedures*	● Safely performs: ○ Diagnostic ureteroscopy ○ Retrograde ureteropyelogram and JJ stent placement ○ Subureteric injection of bulking agent ○ Transurethral incision of ureterocele ○ Transurethral resection of posterior urethral valves
Selects ureteroscope and stent size for individual patients and plans for assistive devices to perform endoscopic procedures	● Selects appropriately sized endoscopic equipment ● Uses available formula to determine appropriate stent size ● Anticipates additional equipment needed for procedure
Level 4 *Independently performs complex endoscopic procedures*	● Appropriately manages intra-operative endoscopic complications (e.g., defective stone basket) ● Safely performs: ○ Percutaneous nephrolithotomy in adolescent patient ○ Ureteroscopic stone extraction ○ Ureteroscopy in very young child

Selects endoscopic assistive devices in a cost-effective manner and effectively troubleshoots during the procedure	● Considers the various disposable products that can be used for one procedure and how to use them efficiently to cut down on cost to patient
Level 5 *Independently performs complex endoscopic procedures in a patient with challenging anatomy* *Identifies a novel use of available tools*	● Safely performs: ○ Ureteroscopy in horseshoe or crossed ectopic kidney ○ Percutaneous nephrolithotomy in young child ● Manages a severely encrusted ureteral stent ● Obtains percutaneous renal access
Assessment Models or Tools	● Clinical case discussion assessment ● Direct observation ● End-of-rotation evaluation ● Medical record (chart) audit ● Multisource feedback ● Simulation ● Surgical skills assessment tool
Curriculum Mapping	●
Notes or Resources	● AUA University. AUA Urology Core Curriculum. https://auau.auanet.org/core. 2021. ● AUA University. Surgical Video Library. https://auau.auanet.org/node/25250. 2021. ● Smith D, Preminger G, Badlani GH, Kavoussi LR. *Smith's Textbook of Endourology*. 4th ed. Hoboken, NJ: Wiley Blackwell; 2019. ISBN:978-1-119-24516-2.

Patient Care 4: Open Procedures (Abdominal or Rectoperineal) **Overall Intent:** To competently and independently perform simple and complex open urologic procedures	
Milestones	**Examples**
Level 1 *Describes various published techniques available for open procedures*	● Describes multiple techniques for performing ureteral reimplantation and risks/benefits of each ● Describes options for urinary diversion in infant with posterior urethral valves and possible indications for each
Level 2 *Anticipates the steps of the procedure and actively assists*	● Actively assists in common open procedures (hernia/hydrocele repair, orchiopexy, ureteral reimplant) but requires some prompting ● Demonstrates awareness of anatomic relationships and exercises caution to avoid common complications (e.g., avoids injury to vas deferens during mobilization of the ureter in a boy)
Level 3 *Performs simple open procedures with good tissue handling and identifies the need for deviation in the surgical plan*	● Performs major steps of hernia/hydrocele repair, orchiopexy, or ureteral reimplant in a single system with minimal prompting ● Chooses surgical instrumentation that is appropriate to tissue type and is conscious of tissue handling (e.g., exercises caution when handling ureter, does not pick up ilioinguinal nerve) ● Identifies when an appendix is not suitable for creating a continent catheterizable channel
Level 4 *Performs complex open procedures and executes deviation in the surgical plan when needed*	● Performs major steps of infant (open) pyeloplasty, re-operative ureteral reimplant or bladder augmentation with minimal prompting ● Carries out psoas hitch, Boari flap, or ureteroureterostomy when there is inadequate ureteral length for ureteral reimplantation ● Creates continent catheterizable channel from alternate bowel segment when appendicovesicostomy is not feasible
Level 5 *Performs procedures incorporating surgical innovations*	● Efficiently and effectively performs a procedure using a previously created surgical tool in a new way ● Creates a new tool for use in a surgical procedure
Assessment Models or Tools	● Clinical case discussion assessment ● Crowdsourcing assessment of surgical skills ● Direct observation ● End-of-rotation evaluation ● Multisource feedback ● Objective structured assessment of technical skills (OSATS) ● Simulation ● Surgical skills assessment tool
Curriculum Mapping	●

Notes or Resources	● AUA University. Surgical Video Library. https://auau.auanet.org/node/25250. 2021. ● Smith J, Howards S, Preminger G, Dmochowski R. *Hinman's Atlas of Urologic Surgery*. 4th ed. Philadelphia, PA: Elseview; 2018. ISBN:978-0-12-801648-0. ● Wein AJ, Kavoussi LR, Partin AW, Peters CA. *Campbell-Walsh Urology*. 11th ed. Philadelphia, PA: Elsevier; 2015. ISBN:978-1455775675.

Patient Care 5: Genital Reconstruction **Overall Intent:** To perform genital reconstruction safely and efficiently	
Milestones	**Examples**
Level 1 *Describes various published techniques available for reconstruction*	● Describes options for reconstruction of glanular, distal, proximal, and scrotal hypospadias ● Understands the significance of chordee release and can explain various etiologies and treatment options ● Describes when simple and complex scrotoplasty is required ● Is aware of alternative tissue for use of urethral construction
Level 2 *Anticipates the steps of the procedure and actively assists*	● Assists without verbal direction ● Describes the next step
Level 3 *Performs routine genital procedures with good tissue handling and identifies the need for deviation from the surgical plan*	● Adheres to good tissue handling that maintains tissue integrity ● Maintains the vascularity of tissue ● Degloves penile shaft ● Performs basic maneuvers to correct chordee ● Recognizes when the planned approach must be altered because of severe chordee
Level 4 *Performs complex genital procedures and deviates from the surgical plan when needed*	● Releases severe chordee using concepts for dorsal plication or ventral grafting of corpora ● Performs maximal proximal corporal dissection and corporal rotation to reduce penile torsion ● Proceeds with complex scrotal reconstruction with reduction of bifid appearance and establishment of penoscrotal differentiation ● Transitions from tubularized urethral plate to an onlay of preputial tissue when indicated ● Knows when to transition to a staged repair when a primary repair was anticipated
Level 5 *Performs procedures incorporating surgical innovations*	● Has skills needed to correct the hypospadias “cripple” ● Harvests, prepares, and uses buccal epithelium
Assessment Models or Tools	● Clinical case discussion assessment ● Crowdsourcing assessment of surgical skills ● Direct observation ● End-of-rotation evaluation ● Medical record (chart) audit ● Multisource feedback ● OSATS ● Surgical skills assessment tool
Curriculum Mapping	●
Notes or Resources	● To achieve Level 4, it includes planning, tissue handling, and performance

Patient Care 6: Minimally Invasive Procedures (Laparoscopic and Robotic) **Overall Intent:** To competently navigate minimally invasive techniques to provide safe and effective patient care	
Milestones	**Examples**
Level 1 *Prepares pediatric patients and equipment for minimally invasive procedures*	● Properly positions, drapes, and preps patient to maintain sterile field ● Properly adjusts robotic console and table height for optimized ergonomics
Level 2 *Actively assists and performs portions of the minimally invasive procedure*	● Holds camera steadily during laparoscopic procedure ● Exposes ureteropelvic junction for pyeloplasty, with assistance ● Maintains correct depth perception and force of tissue manipulation
Level 3 *Performs low complexity minimally invasive procedures with good tissue handling and identifies need for deviation in the surgical plan or conversion to open approach*	● Independently performs first stage Fowler-Stephens laparoscopic orchiopexy ● Independently exposes ureteropelvic junction for pyeloplasty
Level 4 *Performs complex minimally invasive procedures and deviates from the surgical plan when needed*	● Independently performs second stage Fowler-Stephens laparoscopic orchiopexy or single stage laparoscopic orchiopexy ● Independently completes laparoscopic or robotic pyeloplasty
Level 5 *Performs procedures incorporating surgical innovations*	● Completes a robotic bladder neck reconstruction
Assessment Models or Tools	● Clinical case assessment ● Crowdsourcing assessment of surgical skills ● Direct observation ● End-of-rotation evaluation ● Global Evaluative Assessment of Robotic Skills ● Multisource feedback ● Simulation ● Surgical skills assessment tool ● Virtual skills simulator
Curriculum Mapping	●
Notes or Resources	● Fundamentals of Laparoscopic Surgery. https://www.flsprogram.org/. 2021. ● Virtual skills simulator

Medical Knowledge 1: Clinical Medical Knowledge **Overall Intent:** To demonstrate comprehensive knowledge, including guidelines, of the full spectrum of urologic diseases, treatments, and populations	
Milestones	**Examples**
Level 1 *Demonstrates knowledge of anatomy and physiology of the genitourinary tract as it relates to pediatric patients*	● Demonstrates knowledge of the anatomy of the inguinal canal ● Demonstrates knowledge of normal bladder physiology and how this is reflected in urodynamic studies ● Demonstrates knowledge of the anti-reflux mechanism
Level 2 *Demonstrates knowledge of pathophysiology and treatments of simple conditions, including guidelines*	● Describes the pathophysiology and treatment of kidney stones in pediatric patients ● Describes the treatment of undescended testis ● Describes the pathophysiology and treatment of vesicoureteral reflux
Level 3 *Demonstrates knowledge of pathophysiology and treatments of complex conditions, taking individual patient factors into consideration (e.g., contributing bowel and bladder dysfunction, familial preferences)*	● Discusses indications for initiation of clean intermittent catheterization in a patient with spina bifida ● Demonstrates knowledge of neonatal management of a patient with posterior urethral valves ● Describes literature findings as they relate to treatment of adolescent varicocele and the limitations of available data
Level 4 *Demonstrates knowledge of the full spectrum of congenital conditions, including rare diseases, controversies, and evolving treatment practices*	● Demonstrates knowledge of malignant risk and fertility potential in a patient with mixed gonadal dysgenesis ● Discusses differing viewpoints of staged versus complete primary repair for exstrophy
Level 5 *Advances understanding of pathophysiology or clinical care pathways in pediatric urology*	● Performs basic science research that alters our understanding of pediatric urologic conditions ● Performs clinical research that alters the way in which pediatric urology patients are cared
Assessment Models or Tools	● AUA Self-assessment study program ● Case-based discussion assessment ● Direct observation ● End-of-rotation evaluations ● Mock oral examination ● Multisource feedback
Curriculum Mapping	●
Notes or Resources	● AUA. AUA Inside Tract Podcast. https://www.auanet.org/podcast. 2021. ● AUA. Guidelines. https://www.auanet.org/guidelines. 2021. ● AUA University. AUA Urology Core Curriculum. https://auau.auanet.org/core. 2021. ● Fisher JD, PachaT, Santucci RA. *Urology In-Service and Board Review - The Essential and Concise Study Guide*. Corpus Christi, TX: BMED Press LLC; 2013. ISBN:978-0982749838.

	● Pocket Guide to Urology. http://www.pocketguidetourology.com/. 2021. ● Wein AJ, Kavoussi LR, Partin AW, Peters CA. *Campbell-Walsh Urology*. 11th ed. Philadelphia, PA: Elsevier; 2015. ISBN:978-1455775675.

Medical Knowledge 2: Clinical Reasoning **Overall Intent:** To use sound reasoning and data synthesis skills for safe clinical decision making	
Milestones	**Examples**
	All examples relate to neonatal hydronephrosis
Level 1 *Integrates patient-specific information to generate an appropriate working diagnosis*	● Identifies newborns with clinically relevant hydronephrosis ● Investigates antenatal history and developmental abnormalities ● Recognizes neonatal renal insufficiency
Level 2 *Provides a prioritized differential diagnosis using supporting rationale*	● Develops a differential diagnosis including of upper and lower urinary tract etiologies ● Understands when temporary urinary diversion (urethral/percutaneous) is required
Level 3 *Independently synthesizes clinical information to inform diagnosis and therapy in simple cases and adapts based on a patient's clinical course and additional data*	● Orders appropriate imaging studies to define anatomy ● Understands when sedation would be required for computerized tomography (CT)/magnetic resonance (MR) imaging ● Orders labs recognizing the importance of timing and the maternal influence on the results ● Understands the limitation of neonatal renal function on the renal scintigraphy
Level 4 *Independently synthesizes clinical information to inform diagnosis and therapy in complex cases, recognizing sources of error*	● Recognizes when to proceed with bedside percutaneous drainage of the bladder ● Appropriately manages hydroureteronephrosis when urethral drainage does not improve the clinical status
Level 5 *Teaches others to recognize sources of diagnostic error*	● Helps more junior residents understand the influence of time in relation to birth when assessing hydronephrosis due to physiologic dehydration within the first 24-48 hours of life ● Helps more junior residents appreciate the maternal influence on neonatal renal function ● Helps more junior residents understand the limitations of urodynamics in infants and young children
Assessment Models or Tools	● Clinical case discussion assessment ● Direct observation ● End-of-rotation evaluation ● Medical record (chart) audit ● Mock oral examination ● Multisource feedback ● OSCE
Curriculum Mapping	●

Notes or Resources	● AUA University. AUA Urology Core Curriculum. https://auau.auanet.org/core. 2021. ● Nguyen HT, Benson CB, Bromley B, et al. Multidisciplinary consensus on the classification of prenatal and postnatal urinary tract dilation (UTD classification system). *Journal of Pediatric Urology*. 2014;10(6):P982-998. https://www.jpurol.com/article/S1477-5131(14)00310-6/fulltext. 2021. ● Society for Fetal Urology (SFU). Grading Hydronephrosis Grading System and Mobile Web App. http://www.sfu-urology.org/sfu-grading-hydronephrosis-grading-system-and-mobile-web-app/. 2021.

Medical Knowledge 3: Complex Care in Medical Management **Overall Intent:** To demonstrate comprehensive knowledge of medical management for pediatric patients with chronic genitourinary conditions	
Milestones	**Examples**
Level 1 *Understands long-term ramifications of urinary tract, renal function, gastrointestinal function, and reproductive health* *Demonstrates basic knowledge of embryology and physiologic changes with aging in the genitourinary system*	● Identifies the metabolic, gastrointestinal, and reproductive impact of augmentation cystoplasty and bladder neck reconstruction on adults who underwent the surgery as children ● Describes changes in bladder and renal function from childhood to adulthood in patients with posterior urethral valves, myelodysplasia, and bladder exstrophy
Level 2 *Identifies role of other specialists to achieve goals of care* *Describes initial treatment options for patients born with genitourinary conditions requiring long-term care*	● Develops a list of specialists and their roles needed in the multidisciplinary care of children with myelodysplasia ● Identifies management options in newborn with posterior urethral valves
Level 3 *Engages with other specialists for comprehensive care* *Lists care requirements for pediatric patients with chronic genitourinary conditions as they age and grow*	● Requests consultations from appropriate specialists in children with bladder exstrophy, myelodysplasia, posterior urethral valves, or detrusor sphincter dyssynergia ● Engages in discussion with pediatric anesthesia regarding potential medical issues prior to such surgeries as augmentation cystoplasty or bladder exstrophy closure ● Interacts with intensive care unit (ICU) staff members and other specialists in care of child following augmentation cystoplasty or exstrophy closure ● Assists with development of long-term care plan for patients with neurogenic bladder dysfunction
Level 4 *Actively contributes to the medical and psychological well-being of patients with complex conditions* *Identifies potential complications and long-term adult needs for patients with chronic genitourinary conditions arising in childhood*	● Counsels preadolescent patients with severe hypospadias, bladder exstrophy or detrusor sphincter dyssynergia, and their families on sexual development and sexual health during adolescence and adulthood ● Refers patients to mental health professionals to discuss concerns of body image, sexual performance, and self-esteem ● Discusses penile function and long-term success of penile and urethral reconstruction for chordee and hypospadias

Level 5 *Advocates locally and nationally for psychological well-being and collaborative care of chronic conditions* *Develops clinical curriculum related to care transition from child to adulthood for chronic genitourinary conditions*	● Works with local chapters or national organizations (Society of Urodynamics, Female Pelvic Medicine & Urogenital Reconstruction, SUGR, AUA, American Academy of Pediatrics, American Academy of Family Physicians) to develop or contribute to existing advocacy positions impacting on patients with complex medical conditions ● Participates in advocacy conferences ● Collaborates with other specialists to develop a curriculum or protocols for transitional care for children with myelodysplasia to adult care
Assessment Models or Tools	● Clinical case discussion assessment ● Direct observation ● End-of-rotation evaluation ● Medical record (chart) audit ● Multisource feedback
Curriculum Mapping	●
Notes or Resources	● AUA. Guidelines. https://www.auanet.org/guidelines. 2021. ● AUA University. AUA Urology Core Curriculum. https://auau.auanet.org/core. 2021. ●

Systems-Based Practice 1: Patient Safety and Quality Improvement (QI) **Overall Intent:** To engage in the analysis and management of patient safety events, including relevant communication with patients, families, and health care professionals; to conduct a QI project	
Milestones	**Examples**
Level 1 *Participates in basic patient safety initiatives (e.g., time-outs, handwashing protocols)* *Demonstrates knowledge of basic quality improvement methodologies and metrics*	● Lists patient misidentification or medication errors as common patient safety events ● Describes how to report errors in your local environment ● Describes importance of surgical checklist, including time-out
Level 2 *Identifies and reports patient safety events* *Describes and participates in local quality improvement initiatives (e.g., multimodal analgesics, antibiotic stewardship, hospital acquired infection)*	● Identifies that lack of hand sanitizer dispenser at each clinical exam room may lead to increased infection rates ● Reports on breakdowns of sterile processing that could harm patients ● Summarizes protocols resulting in decreased spread of catheter-associated urinary tract infection
Level 3 *Participates in analysis of patient safety events (simulated or actual) and offers strategies to prevent future events* *Identifies potential areas for team or local quality improvement initiatives*	● Presents patient safety event at morbidity and mortality conference ● Participates in project identifying root cause of retained ureteral stent
Level 4 *Actively engages care team to prevent patient safety events* *Demonstrates the skills required to develop, implement, and analyze a quality improvement project*	● Collaborates with a multidisciplinary team to analyze and decrease risk of catheter-associated urinary tract infection or surgical site infections ● Designs and carries out a local QI project to increase patient compliance or provide additional educational materials for patients
Level 5 *Enacts systemic changes to prevent patient safety events by affecting processes* *Creates, implements, and assesses quality improvement initiatives at the institutional or community level*	● Assumes a leadership role at the departmental or institutional level to improve patient safety ● Conducts a simulation for disclosing patient safety events ● Designs and carries out a regional or national QI project to appropriately use imaging in the management of hydronephrosis

Assessment Models or Tools	● Direct observation ● E-module multiple choice tests ● Local patient safety event reporting ● Medical record (chart) audit ● Multisource feedback ● Resident portfolio ● Simulation
Curriculum Mapping	●
Notes or Resources	● AUA. Quality Improvement Summit. https://www.auanet.org/education/educational-calendar/quality-improvement-summit. 2021. ● AUA University. AUA Urology Core Curriculum. https://auau.auanet.org/core. 2021. ● Institute of Healthcare Improvement. http://www.ihi.org/Pages/default.aspx. 2021

Systems-Based Practice 2: System Navigation for Patient-Centered 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 *Advocates for quality patient care and identifies potential barriers to care* *Performs safe and effective transitions of care/hand-offs in routine clinical situations*	● Identifies that care is delivered through multidisciplinary team members for pediatric patients with complex conditions ● Identifies that patients with different backgrounds may have different needs ● Lists the essential components of sign-out, care transition, and hand-offs
Level 2 *Demonstrates knowledge of local resources available for optimizing care delivery and coordination* *Performs safe and effective transitions of care/hand-offs in complex clinical situations*	● Appropriately coordinates translation services for patients and provides patient materials that are sensitive to patient background ● Routinely uses sign-out effectively for a stable patient
Level 3 *Coordinates care of patients in routine clinical situations, considering potential barriers to care including health needs , language differences, and family circumstances* *Supervises safe and effective transitions of care/hand-offs of junior team members*	● Coordinates a plan with the social worker to initiate home health care for patients starting clean intermittent catheterization or stomal care ● Works with patients to provide affordable medications and treatments ● Supervises safe hand-offs when transferring a patient to the ICU
Level 4 *Coordinates multidisciplinary care of patients in complex clinical situations by incorporating local resources into the plan (e.g., social worker to identify additional home resources)* *Resolves conflicts in transitions of care between teams*	● Leads coordination of care for patients without insurance or means to access care ● Effectively manages times when volume of work outpaces available resources
Level 5 *Designs innovative care coordination strategies for optimizing health care outcomes, taking into consideration populations with specific health care needs*	● Helps to develop a novel multidisciplinary clinic

Leads in the design and implementation of improved transitions of care	● Develops a protocol to improve transitions to long-term care facilities
Assessment Models or Tools	● Direct observation ● Medical record (chart) audit ● Multisource feedback ● OSCE ● Review of sign-out tools, use and review of checklists ● Rotation evaluation
Curriculum Mapping	●
Notes or Resources	● CDC. Population Health Training. https://www.cdc.gov/pophealthtraining/whatis.html. 2021. ● Kaplan KJ. In pursuit of patient-centered care. http://tissuepathology.com/2016/03/29/in-pursuit-of-patient-centered-care/#axzz5e7nSsAns. 2021. ● Skochelak SE, Hawkins RE, Lawson LE, Starr SR, Borkan JM, Gonzalo JD. *AMA Education Consortium: Health Systems Science*. 1st ed. Philadelphia, PA: Elsevier; 2016. https://commerce.ama-assn.org/store/ui/catalog/productDetail?product_id=prod2780003. 2021. ● Starmer, AJ, Spector ND, Srivastava R, et al. I-pass, a mnemonic to standardize verbal handoffs. *Pediatrics*. 2012;129(2):201-204. https://pediatrics.aappublications.org/content/129/2/201?sso=1&sso_redirect_count=1&nfstatus=401&nftoken=00000000-0000-0000-0000-000000000000&nfstatusdescription=ERROR%3a+No+local+token. 2021.

Systems-Based Practice 3: Physician Role in Health Care Systems **Overall Intent:** To understand the physician's role in the complex health care system and how to optimize the system to improve patient care and health system performance	
Milestones	**Examples**
Level 1 *Understands different types of physician practices and the basic differences/benefits and liabilities associated with each (e.g., private practice versus academic, solo practitioner versus group practice)*	● Discusses the advantages and disadvantages of various employment models ● Discusses practice options with mentor as they align with career goals
Describes basic health payment systems (e.g., government, private, public, uninsured care) and practice models	● Identifies that the type of health plan coverage may impact care ● Describes the differences associated with caring for patients with preferred provider organization (PPO) versus health maintenance organization (HMO) versus public insurance
Level 2 *Demonstrates use of information technology required for medical practice (e.g., electronic health record, documentation required for billing and coding)*	● Uses appropriate documentation to capture patient complexity ● Identifies that notes must meet coding requirements ● Understands the unique challenges and benefits associated with electronic health records (EHR)s
Describes how components of a complex health care system are interrelated and how this impacts patient care	● Explains that ordering extraneous tests or use of unnecessary supplies in the operating room impacts overall health care costs ● Understands and describes how inappropriate consultation of other services during an inpatient stay affects the delivery of health care across the hospital
Level 3 *Identifies basic needs for effective transition to practice (e.g., information technology, legal, billing and coding, financial)*	● Demonstrates effective billing practices; understands effective billing ● Understands the core elements of employment contracts
Discusses how individual practice affects the broader system performance (e.g., length of stay, readmission rates, clinical efficiency)	● Recognizes the importance of timely discharge processes on hospital length of stay and access to care for other patients ● Tracks operative complications/readmissions with an eye toward improving personal practice ● Explains the importance of efficiently seeing patients in the clinic
Level 4 *Describes core administrative knowledge needed for transition to independent practice (e.g., cost/billing effectiveness)*	● Proactively compiles procedure log in anticipation of applying for hospital privileges ● Understands how to optimize billing practice within current guidelines

Manages various components of the complex health care system to provide efficient and effective patient care (e.g., patient payment models, insurance)	● Works collaboratively to improve patient assistance resources for a patient with a recent extensive surgery and limited resources ● Incorporates value-based principles in managing patients
Level 5 *Analyzes professional requirements in preparation for practice (e.g., contract negotiations, malpractice insurance, government regulation, compliance)* *Advocates for or leads systems change that enhances high-value, efficient, and effective patient care*	● Leads a practice management conference for residents ● Provides a lecture on payment models ● Improves informed consent process for non-English-speaking patients ● Works with community or professional organizations to advocate for health care access
Assessment Models or Tools	● Direct observation ● Medical record (chart) audit ● Multisource feedback ● Patient satisfaction data ● Portfolio ● Rotation evaluation ● Formal billing courses
Curriculum Mapping	●
Notes or Resources	● Agency for Healthcare Research and Quality (AHRQ). Measuring the Quality of Physician Care. https://www.ahrq.gov/professionals/quality-patient-safety/talkingquality/create/physician/challenges.html. 2021. ● AHRQ. Major Physician Performance Sets. https://www.ahrq.gov/professionals/quality-patient-safety/talkingquality/create/physician/measurementsets.html. 2021. ● American Board of Internal Medicine. QI/PI Activities. http://www.abim.org/maintenance-of-certification/earning-points/practice-assessment.aspx. 2021. ● AUA. AUA Coding Resources. https://www.auanet.org/practice-resources/coding-and-reimbursement/coding-resources-and-information/aua-coding-resources. 2021. ● The Commonwealth Fund. Health System Data Center. http://datacenter.commonwealthfund.org/?_ga=2.110888517.1505146611.1495417431-1811932185.1495417431#ind=1/sc=1. 2021. ● Dzau VJ, McClellan M, Burke S, et al. Vital directions for health and health care: Priorities form a national academy of medicine initiative. *JAMA*. 2017;317(14):1461-1470. https://nam.edu/vital-directions-for-health-health-care-priorities-from-a-national-academy-of-medicine-initiative/. 2021. ● The Kaiser Family Foundation. www.kff.org. 2021.

	● The Kaiser Family Foundation. Topic: Health Reform. https://www.kff.org/topic/health-reform/. 2021.

Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice **Overall Intent:** To incorporate evidence and patient values into clinical practice	
Milestones	**Examples**
Level 1 *Demonstrates how to access available evidence*	● Identifies evidence-based guidelines for undescended testes and vesicoureteral reflux assessment
Level 2 *Articulates clinical questions to guide evidence-based care*	● Identifies and discusses potential evidence-based treatment options for a patient with primary nocturnal enuresis
Level 3 *Integrates best available evidence with patient preferences to guide care*	● Obtains, discusses, and applies evidence for the treatment of a child with hydronephrosis
Level 4 *Tailors patient care in the setting of conflicting or absent evidence*	● Accesses and applies the primary literature to identify surgical treatment options for congenital adrenal hyperplasia
Level 5 *Coaches others to critically appraise and apply evidence for patients with complex conditions*	● Leads clinical teaching on application of best practices in critical appraisal of cytoreductive nephrectomy in a patient with metastatic kidney cancer ● Develops pain management pathways to decrease opioid use as part of a team
Assessment Models or Tools	● Direct observation ● EHR review ● Presentation evaluation ● Rotation evaluations
Curriculum Mapping	●
Notes or Resources	● AUA. Guidelines. https://www.auanet.org/guidelines. 2021. ● AUA University. AUA Update Series Volume. https://auau.auanet.org/courses/published?title=Update%20Series%20Volume&order=title&sort=desc. 2021. ● National Institutes of Health (NIH). PubMed Online Training. https://www.nlm.nih.gov/bsd/disted/pubmedtutorial/cover.html. 2021.

Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth **Overall Intent:** To seek clinical performance information with the intent to improve care; to reflect on all domains of practice, personal interactions, and behaviors, including impact on colleagues and patients; to develop clear goals and objectives for improvement	
Milestones	**Examples**
Level 1 *Accepts feedback from faculty members* *Establishes goals for personal and professional development*	● Identifies gaps in surgical skills ● Seeks feedback from patients, families, and patient care team members ● Sets a SMART (specific, measurable, attainable, realistic, time-bound) personal practice goal of improving knowledge of vesicoureteral reflux
Level 2 *Uses feedback from all members of the team to improve performance* *Monitors progress towards goals and directs efforts accordingly*	● Identifies the impact of personal anxiety on fine motor skills ● Assesses time-management skills and how it impacts timely completion of clinic notes and literature reviews ● When prompted, develops an education plan for improved personal understanding of vesicoureteral reflux
Level 3 *Integrates feedback and adjusts behaviors in real time to improve performance* *Integrates practice data to revise goals*	● Uses standardized assessment tools to inform refinement of surgical technique ● Completes a focused literature review prior to patient encounters ● Incorporating feedback, completes a personal curriculum to refine their personal understanding of vesicoureteral reflux
Level 4 *Seeks out specific feedback to further improve performance* *Uses performance data to measure readiness for independent clinical practice*	● Routinely records own robotic procedures to analyze and improve technical skills ● Routinely debriefs with the attending and other team members to optimize patient care ● Performs a self-directed chart audit of their evaluation of prenatal hydronephrosis
Level 5 *Coaches others to integrate feedback and improve performance* *Coaches others to incorporate performance data*	● Leads others through reflective/deliberate practice ● Assists urology residents and students in developing their individualized learning plans
Assessment Models or Tools	● Direct observation ● End-of-rotation evaluations ● Simulation ● Video review
Curriculum Mapping	●

Notes or Resources	● AUA University. Update Series Volume. https://auau.auanet.org/courses/published?title=Update%20Series%20Volume&order=title&sort=desc. 2021. ● CSAT assessment ● C-SATS. Global Evaluative Assessment of Robotic Skills (GEARS). https://www.csats.com/gears. 2021. ● Learning by Doing: A Guide to Teaching and Learning Methods. https://thoughtsmostlyaboutlearning.files.wordpress.com/2015/12/learning-by-doing-graham-gibbs.pdf. 2021. ● OSAT assessment ● O'Sullivan P, Aronson L, Chittenden E, Niehaus B, Learman L. Reflective ability rubric and user guide. *MedEdPORTAL*. 2010;6:8133. https://doi.org/10.15766/mep_2374-8265.8133. 2021.

Professionalism 1: Professional Behavior and Ethical Principles **Overall Intent:** To recognize and address lapses in ethical and professional behavior, demonstrate ethical and professional behaviors, and use appropriate resources for managing ethical and professional dilemmas	
Milestones	**Examples**
Level 1 *Demonstrates professional behavior in routine situations and knows how to report professionalism lapses* *Demonstrates knowledge of ethical principles underlying shared decision making and patient confidentiality*	● Understands that substance abuse impairs judgment ● Can verbalize the institutional process for reporting impaired physicians ● Knows how to access appropriate graduate medical education (GME) resources and other hospital employee assistance programs ● Recognizes and respects the importance of confidentiality in the sign-out process ● Respects patient autonomy by not performing unnecessary procedures for learning purposes
Level 2 *Demonstrates insight into personal triggers for professionalism lapses and develops mitigation strategies* *Analyzes straightforward situations using ethical principles*	● Ensures adequate sleep before a complex surgery ● Has awareness of anger issues and knows how to obtain management support ● Conveys discomfort when performing unfamiliar tasks and declines to continue without supervision
Level 3 *Demonstrates professional behavior in complex or stressful situations* *Seeks help in managing and resolving complex ethical situations*	● Appropriately responds to a distraught family member following an event of sexual abuse ● After noticing a colleague's inappropriate social media post, reviews policies related to posting of content, and seeks guidance
Level 4 *Recognizes and intervenes in situations to prevent professionalism lapses in oneself and others* *Recognizes and uses appropriate resources for managing and resolving ethical dilemmas (e.g., ethics consultations, literature review)*	● Seeks out personal assistance when needed ● Proactively assumes tasks of a more junior resident who is fatigued to ensure they are able to get adequate rest ● Advocates for members of the care team when bias is witnessed ● Seeks ethics consult for gonad removal for a patient with disorders of sexual differentiation
Level 5 *Coaches others when their behavior fails to meet professional expectations*	● Develops a peer coaching program to guide others when behavior fails to meet professional expectations, and creates a performance improvement plan to prevent recurrence

Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their resolution	● Partners with program director to design and implement vendor interaction policy
Assessment Models or Tools	● Direct observation ● Mock oral examination or written self-reflection ● Multisource feedback ● Rotation evaluation ● Simulation
Curriculum Mapping	●
Notes or Resources	● American Medical Association. Ethics. https://www.ama-assn.org/delivering-care/ama-code-medical-ethics. 2021. ● American Board of Internal Medicine, ACP-ASIM Foundation, European Federation of Internal Medicine. Medical professionalism in the new millennium: A physician charter. *Ann Intern Med*. 2002;136:243-246. http://abimfoundation.org/wp-content/uploads/2015/12/Medical-Professionalism-in-the-New-Millenium-A-Physician-Charter.pdf. 2021. ● AUA. Code of Ethics. https://www.auanet.org/myaua/aua-ethics/code-of-ethics. 2021. ● Byyny RL, Paauw DS, Papadakis M, Pfeil S. *Medical Professionalism Best Practices: Professionalism in the Modern Era*. Menlo Park, CA: Alpha Omega Alpha Medical Society; 2017. https://alphaomegaalpha.org/pdfs/Monograph2018.pdf. 2021. ● Levinson W, Ginsburg S, Hafferty FW, Lucey CR. *Understanding Medical Professionalism*. 1st ed. McGraw-Hill Education; 2014. ISBN:978-0071807432.

Professionalism 2: Administrative Tasks **Overall Intent:** To take responsibility for one's actions and the impact on patients and other members of the health care team	
Milestones	**Examples**
Level 1 *Performs tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations*	● Reports punctually to assigned clinical and educational duties ● Responds promptly to reminders from program administrator to complete work-hour logs ● Timely attendance at conferences ● Timely completion of end-of-rotation evaluations
Level 2 *Performs tasks and responsibilities in a timely manner with appropriate attention to detail in complex and stressful situations*	● Completes administrative tasks, safety modules, case logs, and licensing requirements by specified due date ● Before going out of town, completes tasks in anticipation of lack of computer access while traveling
Level 3 *Delegates and oversees tasks to medical students and residents that results in efficient management of clinical activities and enhances education*	● Assigns medical students and residents to faculty members and operative cases providing an equal, unbiased opportunity for all based on their level of training and ability ● Notifies attending of multiple competing demands on-call, appropriately triages tasks, and asks for assistance from other residents or faculty members as needed
Level 4 *Recognizes situations that may impact others' ability to complete tasks and responsibilities in a timely manner and proposes solutions*	● Manages resident schedules and provides adjustments when a resident is out (illness or vacation) ● Implements an administrative process for resident responsibilities for upcoming visiting professor event
Level 5 *Develops systems to enhance others' ability to efficiently complete administrative tasks and responsibilities*	● Develops automated reminder system to notify others of upcoming deadlines
Assessment Models or Tools	● Case log review ● Compliance with deadlines and timelines ● Direct observation ● Multisource feedback ● Rotation evaluations ● Self-evaluations and reflective tools
Curriculum Mapping	●
Notes or Resources	● AUA. Code of Ethics. https://www.auanet.org/myaua/aua-ethics/code-of-ethics. 2021 ● Code of conduct from fellow/resident institutional manual ● Expectations of residency program regarding accountability and professionalism

Professionalism 3: Well-Being **Overall Intent:** To identify and mitigate personal and professional stressors that affect well-being of self and others	
Milestones	**Examples**
Level 1 *With assistance, recognizes status of personal and professional well-being*	● Acknowledges own response to patient's adverse outcome ● Completes a well-being questionnaire
Level 2 *Independently recognizes status of personal and professional well-being*	● Seek out support from peers or mentors to discuss patient's adverse outcome ● Participates in divisional or departmental wellness initiatives
Level 3 *Identifies how well-being impacts the team's performance*	Recognizes acute wellness needs within the team and creates accommodations to benefit team performance
Level 4 *Independently develops a plan to optimize personal and professional well-being*	● Manages professional obligations to permit time for personal wellness, rest, and enriching personal relationships ● Independently organizes team wellness event
Level 5 *Coaches others when emotional responses do not meet professional expectations*	● Reaches out to a team member who appears to be struggling and offers resources and guidance
Assessment Models or Tools	● Direct observation ● Group discussions ● Individual interview or meeting with mentor ● Rotation evaluation ● Self-assessment and personal learning plan ● Semi-annual review
Curriculum Mapping	●
Notes or Resources	● This subcompetency is not intended to evaluate a fellow's well-being. Rather, the intent is to ensure that each fellow has the fundamental knowledge of factors that impact wellbeing, the mechanism by which those factors impact well-being, and available resources and tools to improve well-being ● ACGME. "Well-Being Tools and Resources." https://dl.acgme.org/pages/well-being-tools-resources. 2021. ● AMA. Physician Well-being. https://www.ama-assn.org/topics/physician-well-being. 2021. ● Local resources, including Employee Assistance and online training modules

Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication **Overall Intent:** To form therapeutic relationships with patients and families, to identify and mitigate communication barriers and bias	
Milestones	**Examples**
Level 1 *Demonstrates respect and establishes rapport with patients and patients' families (e.g., situational awareness of language, disability, health literacy level)* *Communicates with patients and their families in an understandable and respectful manner*	● Introduces self and faculty member, explains the roles of team members, and identifies patient and others in the room ● Actively listens and engages all parties in healthcare discussion ● Uses age-appropriate language when counseling pediatric patients ● Speaks to patient without family member when appropriate
Level 2 *Establishes a therapeutic relationship in straightforward encounters* *Identifies barriers to effective communication (e.g., health literacy)*	● Explains simple pediatric urologic pathophysiology (foreskin issues, undescended testes, inguinal hernias, etc.) to families and answer questions as needed ● Recognizes the need for handouts with diagrams and pictures to communicate information to a patient who is unable to read ● Identifies need for trained interpreter with non-English-speaking patients ● Identifies when patients are having difficulty understanding conversations and proactively takes steps to improve communication
Level 3 *Establishes a therapeutic relationship in challenging encounters (e.g., shared decision making)* *When prompted, reflects on biases while attempting to minimize communication barriers*	● Appropriately counsels patient on treatment options for complex pediatric urologic pathophysiology (neuropathic bladder, vesicoureteral reflux, etc.) using shared decision making to align treatment plan with patient priorities ● Identifies biases regarding patients presenting for elective circumcision during discussions with families/mentors
Level 4 *Facilitates difficult discussions specific to patient and family conferences, (e.g., end-of-life, explaining complications, therapeutic uncertainty)* *Independently recognizes biases while attempting to proactively minimize communication barriers*	● Engages representative family members with disparate goals in the care of a critically ill patient ● Uses patient and family input to engage palliative care and develop a plan for home hospice in the terminally ill patient, aligned with the patient's values ● Recognizes their potential bias involved in caring for a patient with different views and solicits input from faculty to mitigate communication barriers
Level 5 *Mentors others in situational awareness and critical self-reflection*	● Leads a discussion group on personal experience of moral distress ● Assists residents with patient/family discussion techniques to improve communication skills

Coaches others in the facilitation of crucial conversations	● Develops a residency curriculum on social justice which addresses bias
Assessment Models or Tools	● Direct observation ● Multisource feedback ● OSCE ● Self-assessment including self-reflection exercises
Curriculum Mapping	●
Notes or Resources	● AUA University. https://auau.auanet.org/. 2021. ● Harvard. Implicit Association Test (IAT). https://implicit.harvard.edu/implicit/takeatest.html. 2021. ● Laidlaw A, Hart J. Communication skills: An essential component of medical curricula. Part I: Assessment of clinical communication: AMEE Guide No. 51. *Med Teach*. 2011;33(1):6-8. https://www.tandfonline.com/doi/full/10.3109/0142159X.2011.531170. 2021. ● Makoul G. Essential elements of communication in medical encounters: the Kalamazoo consensus statement. *Acad Med*. 2001;76(4):390-393. https://journals.lww.com/academicmedicine/Fulltext/2001/04000/Essential_Elements_of_Communication_in_Medical.21.aspx#pdf-link. 2021. ● Makoul G. The SEGUE Framework for teaching and assessing communication skills. *Patient Educ Couns*. 2001;45(1):23-34. https://www.ncbi.nlm.nih.gov/pubmed/11602365. 2021. ● Symons AB, Swanson A, McGuigan D, Orrange S, Akl EA. A tool for self-assessment of communication skills and professionalism in residents. *BMC Med Educ*. 2009;9:1. https://bmcmededuc.biomedcentral.com/articles/10.1186/1472-6920-9-1. 2021.

Interpersonal and Communication Skills 2: Patient Counseling and Shared Decision Making **Overall Intent:** To use shared decision making, counsel patients about indications, risks, benefits, and alternatives during informed consent	
Milestones	**Examples**
Level 1 *Demonstrates basic understanding of the informed consent process*	● Confirms consent and patient counseling has been completed for a procedure ● Understands how to obtain informed consent from patients when decision making process has been previously undertaken ● Understands the difference between consent and assent and the importance of these topics in pediatric urology
Level 2 *Answers questions from patients and caregivers about treatment plans and seeks guidance when appropriate*	● Uses patient-centered communication when answering questions during the informed consent process ● Ensures use of receptive body language, eye contact, and posture
Level 3 *Counsels patients and caregivers through decision-making process using developmentally appropriate language for simple clinical and surgical problems*	● Fully discusses indications, risks, benefits, and alternatives during informed consent for routine cases such as ureteroscopy, circumcision, orchiopexy, etc.
Level 4 *Counsels patients and caregivers through decision-making process using developmentally appropriate language for complex clinical and surgical problems*	● Fully discusses indications, risks, benefits, and alternatives during informed consent for more complex cases such as bladder augmentation, partial nephrectomy, etc. ● Obtains a consent in emergent situations and documents appropriately
Level 5 *Leads patients, caregivers, and team in complex and high-risk decision making and counseling*	● Develops supplemental materials to better inform patients prior to procedure ● Counsels patient/ family members regarding treatment options in a spina bifida patient with hostile bladder and obtains informed consent for bladder augmentation in the setting of multiple prior abdominal surgeries ● Leads a detrusor sphincter dyssynergia patient group
Assessment Models or Tools	● Direct observation ● Multisource feedback ● Patient evaluation of residents ● Rotation evaluation
Curriculum Mapping	●
Notes or Resources	● AUA University. https://auau.auanet.org/. 2021. ● Harvard. Implicit Association Test (IAT). https://implicit.harvard.edu/implicit/takeatest.html. 2021. ● Laidlaw A, Hart J. Communication skills: An essential component of medical curricula. Part I: Assessment of clinical communication: AMEE Guide No. 51. *Med Teach*. 2011;33(1):6-8. https://www.tandfonline.com/doi/full/10.3109/0142159X.2011.531170. 2021.

	● Makoul G. Essential elements of communication in medical encounters: the Kalamazoo consensus statement. *Acad Med*. 2001;76(4):390-393. https://journals.lww.com/academicmedicine/Fulltext/2001/04000/Essential_Elements_of_Communication_in_Medical.21.aspx#pdf-link. 2021. ● Makoul G. The SEGUE Framework for teaching and assessing communication skills. *Patient Educ Couns*. 2001;45(1):23-34. https://www.ncbi.nlm.nih.gov/pubmed/11602365. 2021. ● Symons AB, Swanson A, McGuigan D, Orrange S, Akl EA. A tool for self-assessment of communication skills and professionalism in residents. *BMC Med Educ*. 2009;9:1. https://bmcmededuc.biomedcentral.com/articles/10.1186/1472-6920-9-1. 2021.

Interpersonal and Communication Skills 3: Interprofessional and Team Communication **Overall Intent:** To effectively communicate with the health care team, including consultants, in both straightforward and complex situations	
Milestones	**Examples**
Level 1 *Respectfully interacts and actively communicates with all members of health care team (e.g., proper identification, politely accepts and requests consults)*	● Respectfully requests anesthesia consultation for post-operative pain management ● Receives consult request for a patient with urinary retention, asks clarifying questions politely, and expresses gratitude for the consult ● Respectfully engages with nursing and social work to facilitate patient discharge
Level 2 *Communicates in an approachable and productive manner to facilitate teamwork (e.g., active listening, updates in timely fashion)*	● Succinctly presents complete information to faculty members ● Communicates diagnostic evaluation recommendations clearly and concisely in an organized and timely manner ● Communicates pertinent details of consultation request to the pediatric nephrologist for management of post-obstructive diuresis ● Actively listens to other members of the team and responds appropriately
Level 3 *Actively recognizes and mitigates communication barriers and biases with members of the health care team*	● After a consultation has been completed, communicates directly with the primary team to verify they have received and understand the recommendations ● When receiving treatment recommendations from an attending physician, actively listens and repeats back the plan to ensure understanding ● Seeks opportunity to constructively educate the consulting service ● Identifies potential sources of bias in the clinical setting and redirects the team to mitigate this bias
Level 4 *Identifies conflict as threat to patient care and team functioning and initiates an intervention*	● Organizes a care conference involving the care team and consultants to resolve conflicting recommendations and coordinates recommendations from each specialty
Level 5 *Exemplifies flexible communication strategies*	● Formally mediates conflict between members of the health care team ● Adjusts teaching and communication approach for various learning styles on the team
Assessment Models or Tools	● Direct observation ● Medical record (chart) audit ● Multi-source feedback ● Rotation evaluation ● Simulation
Curriculum Mapping	●
Notes or Resources	● Dehon E, Simpson K, Fowler D, Jones A. Development of the faculty 360. *MedEdPORTAL*. 2015;11:10174. http://doi.org/10.15766/mep_2374-8265.10174. 2021.

	● Fondahn E, De Fer TM, Lane M, Vannucci A. *Washington Manual of Patient Safety and Quality Improvement Lippincott Manual Series*. 1st ed. Philadelphia, PA: Wolters Kluwer; 2016. ISBN:978-1451193558. ● François J. Tool to assess the quality of consultation and referral request letters in family medicine. *Can Fam Physician*. 2011;57(5):574–575. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3093595/. 2021. ● Green M, Parrott T, Cook G., Improving your communication skills. *BMJ*. 2012;344:e357. https://www.bmj.com/content/344/bmj.e357. 2021. ● Henry SG, Holmboe ES, Frankel RM. Evidence-based competencies for improving communication skills in graduate medical education: a review with suggestions for implementation. *Med Teach*. 2013;35(5):395-403. https://www.tandfonline.com/doi/full/10.3109/0142159X.2013.769677. 2021. ● Lane JL, Gottlieb RP. Structured clinical observations: a method to teach clinical skills with limited time and financial resources. *Pediatrics*. 2000;105(4):973-7. https://pdfs.semanticscholar.org/8a78/600986dc5cffcab89146df67fe81aebeaecc.pdf. 2021. ● Roth CG, Eldin KW, Padmanabhan V, Freidman EM. Twelve tips for the introduction of emotional intelligence in medical education. *Med Teach*. 2019;41(7):1-4. https://www.tandfonline.com/doi/full/10.1080/0142159X.2018.1481499. 2021.

Interpersonal and Communication Skills 4: Communication within Health Care Systems **Overall Intent:** To effectively communicate across the health care system using the medical record	
Milestones	**Examples**
Level 1 *Accurately records information in the patient record in a timely manner while safeguarding patient personal health information*	● Documentation is accurate but may include extraneous information ● Shreds patient list after rounds; avoids talking about patients in the elevator
Level 2 *Documents diagnostic and therapeutic reasoning in the patient record with appropriate use of documentation shortcuts*	● Organized and accurate documentation outlines clinical reasoning that supports the treatment plan ● Develops documentation templates to avoid copy-and-paste errors
Level 3 *Concisely reports diagnostic and therapeutic reasoning*	● Documents complex clinical thinking concisely but may not include anticipatory guidance
Level 4 *Efficiently communicates in an organized fashion that includes contingency plans*	● Writes accurate, organized, and concise note for a patient with overactive bladder and provides plan for follow-up management if current treatment is unsuccessful ● Writes exemplary notes that are used to teach others
Level 5 *Facilitates improved written and verbal communication of others*	● Organizes one-on-one teaching sessions with residents and medical students to improve documentation
Assessment Models or Tools	● Direct observation ● Medical record (chart) audit ● Multisource feedback ● Rotation evaluation
Curriculum Mapping	●
Notes or Resources	● AUA University. https://auau.auanet.org/. 2021. ● 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. *Teach Learn Med.* 2017;29(4):420-432. https://www.tandfonline.com/doi/full/10.1080/10401334.2017.1303385. 2021.

To help programs transition to the new version of the Milestones, the ACGME has mapped the original Milestones 1.0 to the new Milestones 2.0. Indicated below are where the subcompetencies are similar between versions. These are not exact matches, but are areas that include similar 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: Information Gathering, Pre-operative/Diagnostic Testing, Differential Diagnosis	PC1: Patient Evaluation and Decision Making
PC2: Patient Management/Indications for Surgery/Judgment	PC1: Patient Evaluation and Decision Making MK2: Clinical Reasoning
PC3: Peri-operative Care	PC2: Peri-Procedural Care
PC4: Genital Reconstructive Procedures	PC5: Genital Reconstruction
PC5: Open Abdominal/Retroperitoneal Procedures	PC4: Open Procedures – Abdominal and Retroperitoneal
PC6: Endoscopic and Percutaneous Procedures of the Upper and Lower Urinary Tract	PC3: Endoscopic Procedures
PC7: Laparoscopic/ Robotic	PC6: Minimally Invasive Procedures
MK1: Appropriate Competency in Core Domains	MK1: Clinical Medical Knowledge
MK2: Related Fields of Knowledge	MK1: Clinical Medical Knowledge MK3: Complex Care in Medical Management
SBP1: Working Effectively Within and Across Health Delivery Systems for the Benefit of Children	SBP2: System Navigation for Patient-Centered Care
SBP2: Cost Awareness and Risk-Benefit Analysis In Patient Care	SBP3: Physician Role in Health Care Systems
SBP3: Enhancing Patient Safety	SBP1: Patient Safety and Quality Improvement
PBLI1: Improves via feedback and self-assessment	PBLI2: Reflective Practice and Commitment to Personal Growth
PBLI2: Evidence-based Learning	PBLI1: Evidence-Based and Informed Practice
PBLI3: Education of Team Members	
PROF1: Work Ethic: Integrity, Altruism, and Teamwork	PROF1: Professional Behavior and Ethical Principles PROF2: Administrative Tasks
PROF2: Respect for Patient Privacy and Autonomy	PROF1: Professional Behavior and Ethical Principles
PROF3: Sensitivity and Responsiveness to Diverse Populations	
	PROF3: Well-Being
ICS1: Communication: Families and Care Givers	ICS1: Patient- and Family-Centered Communication ICS2: Patient Counseling and Shared Decision Making
ICS2: Communication: Children	ICS1: Patient- and Family-Centered Communication ICS2: Patient Counseling and Shared Decision Making

ICS3: Communication: Personal Interactions with Physicians, Nurses, Hospital Staff Members, Residents, and Students	ICS3: Interprofessional and Team Communication
ICS4: Use of Technology and Information Sharing Modalities to Facilitate Communication	ICS4: Communication within Health Care Systems

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/