Chapter 5
Medical Family Therapy in Intensive Care

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The history of intensive care units and critical care dates back to the early to mid-1900s. Critical care is commonly described as a form of medical care for patients who have an acute, life-threatening, or medically complex condition or illness which requires a close, constant watch by specialized providers (Fulbrook, 2010; Lakanmaa, Suominenb, Perttila, Puukkae, & Leino-Kilpi, 2012). Most critical care services take place in an environment known as an intensive care unit (ICU).

Critical care exists in a multitude of intensive care specializations, across both pediatric and adult populations. To name a few, neonatal ICUs (NICUs) provide extensive specialized care for newborn babies postdelivery. Once a child is discharged from a healthcare context after delivery and must return for critical care services, he or she would most likely be cared for in a pediatric ICU (PICU). For adults, critical care units include coronary care (CCU), medical–surgical (MSICU), surgical (SICU), neurosurgical (NCC for neurocritical care or NSICU for neurosurgical intensive care), and trauma (TICU) units. Furthermore, there are a number of forms of progressive care units (PACUs) that are aligned with critical care units, including telemetry, step-down, intermediate, and progressive care.

With years of work in attempting to solidify the competencies needed to care for patients in critical care units, as well as controversy over the patient–nurse or provider ratio needed in critical care units, is also a growing focus on the importance and role of family as part of the patient's care team. The inclusion of family and psychosocial support in ICUs is not surprising to most medical family therapists (MedFTs), especially since one of George Engel's earliest publications was in relation to Monica—an infant patient with esophageal atresia who was fed by gastrostomy and

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T. Mendenhall et al. (eds.), *Clinical Methods in Medical Family Therapy*,
Focused Issues in Family Therapy, https://doi.org/10.1007/978-3-319-68834-3_5

whose feeding intake was especially influenced by psychosocial interactions with one happy and one somber medical provider (Engel & Reichsman, 1956).

This chapter includes information for MedFTs that may cut across or be useful within a variety of critical care units (i.e., due to the multitude and levels of critical care services, specific attention is not given to the function of MedFTs in every type of intensive care unit). Details are provided regarding typical treatment team members in critical care, knowledge and skills necessary to work in critical care environments, and research-informed practices in caring for patients, including ways to maximize family involvement. The following segment is a MedFT clinical example from a real case that occurred in a children's hospital.

Clinical Vignette

[Note: This vignette is a compilation of cases representative of treatment in intensive care. All patients' names and/or identifying information have been changed to maintain confidentiality.]

More than a decade ago, a MedFT received a call from a nurse who served as a nurse educator and leader for her unit within a children's hospital. She described a unique need within the hospital; she sensed that the healthcare team was struggling with grief associated with the loss of a long-time pediatric patient. Based on that call, she and the MedFT met in person and discussed some of the interactions she had witnessed between providers and patients as well as among the providers and staff. From this discussion, the MedFT shared with her a curiosity about the role that grief was having in the NICU, PICU, and pediatric units and providers. In particular, the MedFT began to wonder with her about the presence of grief, secondary traumatic stress, burnout, and compassion fatigue.

*Over the next few weeks, that nurse educator pulled together a multidisciplinary team that included nurses, nurse managers, nurse educators, a pharmacist, a chaplain, and a MedFT. They discussed ways to develop education and support for providers when a need was determined, following a trauma or death on the unit. From the biweekly meetings, a doctoral student and MedFT faculty member developed a seminar that would be provided to all interested physician and extenders, mental health, and spiritual providers on the topics of grief, compassion fatigue, and burnout (*Meadors, Lamson, & Sira, 2010*). Nearly 300 providers attended the large psychoeducation sessions. Following these initial seminars, small group sessions were provided as a part of the orientation for the children's hospital. These orientation sessions proved immediately meaningful as some of the newest staff and providers at the hospital stated that they had never experienced death in their professional or personal lives and were most concerned about how to handle the loss of a patient.*

In addition, a program was developed called the HUGS (Hearts United Giving Strength) team. Any provider or staff member within the children's

hospital could go to a person on their unit's leadership team and request a HUGS team; these requests typically followed the death of a patient (or series of patient deaths) on a unit. The HUGS team included a team of MedFTs who would come onto the unit, food catered in, and a series of mindfulness practices (soft music, journals, messages for self-care) that were all provided in a designated room on the pediatric intensive care unit (PICU), neonatal intensive care unit (NICU), or pediatric (PEDS) unit. Throughout these sessions, the MedFT would offer a time for a group reflection and rejoicing of a patient(s) who had died or experienced a trauma. Traditional MedFT sessions were made available for any provider who requested support, as well as a way to honor the patient who had passed away (e.g., commonly quilt squares were available in the room so that each provider could draw or write a message to the family of the patient who had died).

The MedFTs were called many times at the start or end of a shift or on weekends to come and provide a HUGS team for providers on the NICU, PICU, or PEDS unit. These experiences were a unique addition; beyond providing MedFT to patients on the units, the MedFTs also cared for the hidden grievers (e.g., providers and staff on these units). The MedFT faculty member had distinctly remembered one experience when she was out of state and received a telephone call that there had been multiple deaths in the NICU within a very short amount of time. Upon her return, the HUGS team came together on the NICU and talked about what these providers were able to do for their own self-care while also extending rituals that were meaningful to the families during an incredible time of loss. In the NICU, pictures were taken of babies with the parents (upon parents' consent) and sent home with the parents, spiritual rituals were offered, and baby blankets were made for each family.

Another vivid experience was the loss of young boy who had struggled with cancer. His death was a reminder to the hospital and larger community of how experiences of grief and voices of collaboration can and do make a difference in honoring the family and the providers who interface with each patient. To this day, an event is celebrated each fall in honor of this child's life. The event that celebrates his life is not isolated; the medical and larger community offer many events throughout the year that celebrate the lives lost in our youngest warriors.

Many of the chapters in this text include examples of how MedFTs interface with providers in direct patient care. In the clinical example above, it is hoped that MedFTs can also learn how to care for the carers. It is important to highlight that the HUGS team, the psychoeducation seminars, and the push to incorporate information about death, grief, compassion fatigue, and burnout into orientation could not have been possible without the vision and passion of a diverse multidisciplinary team.

What Is Intensive Care?

In this section, we define the designations given to intensive care units, describe the types of providers and expertise needed at different levels of ICU care, and provide examples of patient conditions and interventions that MedFTs may encounter. ICUs are located in hospitals that have appropriate resources to ensure that the multifaceted needs of ICU medicine are met (Ramnarayan et al., 2010, Valentin, Ferdinande, & ESICM, 2011). ICUs, or critical care centers, are designated in each of three areas, including by level of care, "academic" or nonacademic," and "open" or "closed" (Haupt et al., 2003). Factors including disorders treated, availability of sophisticated equipment, level of provider specialization, and availability of support services determine which of the three levels critical care centers are designated as, and these factors determine the level of patient acuity that the ICU can serve. ICUs should accommodate at least six beds; however, 8 to 12 beds are considered the optimum number (Valentin et al., 2011). Larger ICUs can be subdivided into separate, specialized subunits of 6 to 8 beds but share geographic, administrative, and facility resources.

Levels of Care

Level 1 critical care centers deliver comprehensive care to critically ill patients experiencing a range of disorders that require hourly and likely invasive monitoring (Nates et al., 2016; Sarode & Hawker, 2014). In level 1 ICUs' sophisticated equipment, specialized nurses and physicians, nurse practitioners, or physician assistants with critical care training must be available at all times. Level 1 centers also provide support services including pharmaceutical, respiratory, nutritional, pastoral care, and social services. The nurse-to-patient ratio in these centers is greater than, or equal to, one nurse for every one or more patients (Nates et al., 2016; Valentin et al., 2011). Examples of interventions that can be provided in a Level 1 center include cerebrospinal fluid drainage for elevated intracranial pressure management, invasive mechanical ventilation, vasopressors, extracorporeal membrane oxygenation, intra-aortic balloon pump, left ventricular assist device, and continuous renal replacement therapy.

Level 2 critical care centers are able to serve unstable patients in need of nursing interventions, laboratory workups, and monitoring every 2–4 hours (Nates et al., 2016). Level 2 centers may be able to deliver comprehensive, high quality care to most critically ill patients (Nates et al., 2016; Sarode & Hawker, 2014). Level 2 centers may have a dearth of specialty care services such as neurosurgical, cardiac surgical, or a trauma program, for example. As a result, Level 2 centers are obliged to have transfer agreements established in advance for patients with specific problems (Warren et al., 2004). The nurse-to-patient ratio in these centers is greater than, or equal to, one nurse for every three or more patients (Nates et al., 2016; Valentin

et al., 2011). Examples of interventions that can be provided in a Level 2 center include noninvasive ventilation, IV infusions, and titration of vasodilators or antiarrhythmic substances.

Level 3 centers primarily provide monitoring, initial stabilization of critically ill patients (Nates et al., 2016), or close monitoring of stable patients. Such centers have written policies to address the transfer of critically ill patients to critical care centers that can provide necessary comprehensive critical care (Level 1 or Level 2; Sarode & Hawker, 2014). Level 3 centers care for patients whose conditions are stable but require close monitoring (Nates et al., 2016). The nurse-to-patient ratio in these centers is one nurse for every four or more patients (Nates et al., 2016; Valentin et al., 2011). Examples of interventions that can be provided in a Level 3 center include IV infusions and titration of medications such as vasodilators or antiarrhythmics or necessary laboratory workups that must occur on a regular basis (e.g., every 2–4 hours).

Academic or Nonacademic Categorizations

In addition to levels, critical care centers are given the categorization of academic or nonacademic (Haupt et al., 2003). Level 1 and 2 centers can be classified as having an academic mission through affiliation with a medical, nursing, or other health service school or educational program. In academic facilities, physicians and extenders, nurses, pharmacists, and respiratory therapists have required times whereby they must participate in scholarly pursuits, including clinical and basic research, care reports, and critical thinking. These professionals also need to possess extensive knowledge and teaching skills that enable them to provide education to critical care nursing staff, physicians in training, and staff physicians in the ICU. Nonacademic centers also keep current with changes in the field of critical care through participation in continuing education and maintaining current certification in applicable areas of expertise; however, they are not mandated to attend to scholarly pursuits.

Open or Closed System

Some critical care centers use an added designation of “open,” “closed,” or a combination of both to define their ICUs (Haupt et al., 2003). Open-system ICUs have committed nursing, pharmacy, and respiratory therapy staff resources, but the physicians and extenders directing the care of ICU patients may have roles and responsibilities outside of the ICU, for example, in other outpatient and inpatient contexts or in the operating room (Chawla & Todi, 2012). In some centers, providers are able to choose whether to consult an intensivist to support patient management, while in others critical care consultation is required for all patients (Haupt et al., 2003). An

ICU is also considered open when any attending physician with the correct hospital admitting privileges can be the patient's physician of record and has definitive responsibility for care quality and coordination (Brilli et al., 2001).

In a closed ICU system, critical care physicians, nurses, pharmacists, respiratory therapists, and other healthcare professionals work together as an ICU-based team (Chawla & Todi, 2012). Intensivists are the attending physician of record for all patients admitted into a closed-system ICU (Skinner, Warrillow, & Denehy, 2015). All other physicians are considered consultants in this system.

Although the 2001 Society of Critical Care Medicine (SCCM) suggested that closed ICU systems produce better ICU outcomes (Brilli et al., 2001), results of an updated study found that closed ICUs were not associated with better outcomes compared to open systems (Weled et al., 2015). Regardless of the type of system, the SCCM recommends that the intensivist and the ICU patient's primary care provider and consultants proactively collaborate in the care of all patients. Both open and closed systems should have an intensivist with authority to intervene and directly care for the critically ill patient in urgent and emergent situations, and all orders regarding ICU patients' care should be channeled through an ICU-based intensivist and his or her extender team (Skinner, Warrillow, & Denehy, 2015). The differences between open and closed ICUs fade when these principles are followed.

Regardless of the level of care, academic or nonacademic, or open or closed systems across ICUs, MedFTs are uniquely positioned for success given their biopsychosocial–spiritual and systemic approach to care (Engel, 1977, 1980; Wright, Watson & Bell, 1996). This is especially important when considering the large, diverse, and often fluctuating composition and size of ICU treatment teams (Baggs, 1993; Baggs, Ryan, Phelps, Richeson, & Johnson, 1992; Baggs, Schmitt, Mushlin, Eldredge, Oaks, & Huston, 1997; Baggs, Schmittm, Mushlin, Mitchell, Eldrege, & Oakes, 1999). MedFTs have the training to support care coordination and deliver a wide range of BPSS-grounded assessments and interventions in tandem with interdisciplinary teams in the ICU. MedFTs are committed to supporting the diverse needs and concerns faced by ICU patients and their families.

Treatment Teams in Intensive Care

A critical care team is specially trained to work in an ICU (Despins, 2009). Delivery of care in ICUs has required an even greater team effort over the past several decades. A critical care team must be self-organizing and able to expand and contract based on sometimes competing needs at any given time (Hawryluck, Espin, Garwood, Evans, & Lingard, 2002). The ICU team typically is comprised of a bedside nurse, respiratory therapist, and physician and can grow to include other disciplines like MedFTs, dietitians, and physical therapists based on the needs of each patient. Levels of collaboration and conflict can fluctuate within the team, not unlike the size and composition of the team.

Optimal patient care requires a collaborative team approach to care delivery among many groups of professionals utilizing a diverse range of interventions, treatments, and procedures (Rose, 2011; Valentin et al., 2011). Collaboration among team members supports joint decision-making, focused on the needs of the patient while at the same time valuing and acknowledging individual members' respective contributions that lead to improved care quality, patient safety, and outcomes (Herbert, 2005; Manojlovich, Antonakos, & Ronis, 2009; Rose, 2011; Zwarenstein & Reeves, 2006). Below, the roles of specific team members often engaged in critical care units are described.

Care and case managers. Care management has been defined as a general concept covering assessment, care planning, coordination, and reviewing of services (Haupt et al., 2003). This is commonly a very patient-centered approach and is distinguished from case management (an activity of advocacy and coordination of services for patients who needs a designated level of support). Upon discharge, case managers typically meet with patients and/or healthcare proxies to talk about medications, oxygen therapy, home care, physical therapy, and/or post-discharge transition to home and follow up care with a primary care provider.

Chaplains. Chaplains are nondenominational clergy members who talk with patients, families, and staff in the hospital. In the ICU, chaplains provide spiritual support and may help find a clergy member of the patient's faith to better support the patient's spiritual needs (Society of Critical Care Medicine, 2016). Chaplains commonly play an important role in end-of-life care. Involving clergy or spiritual leaders during the last 24 hours of a patient's life in the ICU can contribute to greater family satisfaction with spiritual care (Wall, Engelberg, Gries, Glavan, and Curtis, 2007). Additionally, there is a strong association between satisfaction with spiritual care and satisfaction with the total ICU experience.

Child life specialists. Child life specialists may be found in a variety of ICUs but most particularly in NICUs or PICUs. Child life specialists are experts in child development who typically collaborate with other providers to support ill children in the PICU or work with children visiting adult family members or siblings in an ICU, PICU, and NICU (Child Life Council, 2010; Society of Critical Care Medicine, 2016). In their work they often provide theory-based play therapy. Having families and children visit critically ill family members in the ICU has been shown to have wide-ranging positive impacts, including decreased patient anxiety (Sims & Miracle, 2006), decreased intracranial pressure (Bell, 2012), better coping and integration of experiences in the ICU by patients (Clarke & Harrison, 2001), and improved patient and family satisfaction (Khaleghparast et al., 2016). The unhampered presence of supportive loved ones can also improve communication between the patient, family, and providers, understanding of the patient and their condition, patient- and family-centered care, and enhance staff satisfaction (Bell, 2012; Thompson, 2009).

Successful visitation can be supported through such things as supporting staff and families in discussion about their concerns with children visiting the ICU (Hanley & Piazza, 2012); identification of tools that will support visitation, such as

educational books for children preparing to visit the ICU; overview of developmental goals; and guidance on appropriate language and explanations to use with children based on their stage of development. A comprehensive plan for introducing children and adolescents to the ICU should include an overview of what the environment is like, the sights and sounds they will experience; changes their family may experience; normalizing responses to visitation; identification of hospital support people available before, during, and after the child or adolescent visit; discussion of why it is important for the child or adolescent to share their feelings about the hospital experience in order to receive needed care and support; and identification of language to describe things, as well as words that they might encounter during their family member's hospitalization.

Critical care nurses. Critical care nurses provide many facets of care to patients in the ICU (Society of Critical Care Medicine, 2016). They are formally trained in intensive care medicine and emergency medicine (Valentin et al., 2011). The critical care nursing staff led by a head nurse, who is responsible for the function and quality of nursing care in the ICU, as well as education and evaluation of the nursing staff's competencies. Critical care nurses are an important part of decision-making processes with the patient, family, and care team (SCCM, 2016). They facilitate dialogue and collaboration among those involved in care, maintain close contact with the patient and family, and work to uphold the patient's wishes.

Critical care nursing practice is focused on a number of areas, including patient assessment, physical care, and oversight of the plan of care (Brilli et al., 2001). This occurs in collaboration with the ICU attending physician. In the ICU, the ratio of patients to bedside nurses is usually 2:1 (Hinds & Watson, 2008). This allows the critical care nursing staff to spend several hours per patient, per shift collecting and integrating information into meaningful patient care (Brilli et al., 2001). Critical care nurses use their experience and critical thinking skills to identify clinical changes and prevent further deterioration in patient health conditions. Critical care nurses possess expertise in organizational leadership and have the ability to implement unit-based protocols, quality improvement, and outcome data based on staff and patient satisfaction (Hillman & Bishop, 2004).

Intensivists. The ICU has a director who is a medical doctor responsible for the administrative and medical management of the ICU (Valentin et al., 2011). Between 75 and 100% of the director's time should be dedicated to the ICU, and they cannot hold other top-level positions within the hospital. Typical prior degree specialties include anesthesiology, internal medicine, or surgery. The director of the ICU is supported by medical doctors qualified in intensive care medicine called intensivists.

Intensivists have academic and clinical training as well as credentials focused on caring for very ill patients (Hinds & Watson, 2008; SCCM, 2016). Intensivists coordinate and lead multidisciplinary, multispecialty critical care teams; act as coordinators of management activities for safe, efficient, timely, and consistent delivery of care in the ICU; delegate authority and responsibilities; and provide resources and

administrative leadership for the team (Valentin et al., 2011; Wheelan, Burchill, & Tilin, 2003; Yoo, Edwards, Dean, & Dudley, 2016). Examples of an intensivist's responsibilities may include patient triage based on admission and discharge criteria, discharge planning, development and enforcement of clinical and administrative protocols for the purpose of improving the safe and efficient delivery of clinical care, meeting regulatory requirements in collaboration with other ICU team disciplines, and coordination and support of the implementation of quality improvement activities within the ICU (Brilli et al., 2001).

Intensivists also take on roles in offering emotional support and information to families during patient admissions to the ICU (Brilli et al., 2001). They facilitate and collaborate with other team members including nurses, chaplain services, and social service team members who provide counseling to families. Collaboration with diverse providers is also essential given the likelihood that together they must attend to ethical care issues and decisions. Across all levels of ICU, difficult decisions pertaining to healthcare delivery or life and death alterations are common; thus, intensivists must be prepared to offer information and support to families and other providers in order to assist in making informed decisions regarding the patient's care.

Occupational therapists. Occupational therapists work collaboratively with the treatment team to support the goals for each patient (Kwiecinska, 2008). Interventions may focus on the prevention of problems secondary to the illness, psychological and physiological impacts of treatment in the ICU, or modification of functional capacity or occupational performance. Examples of goals that occupational therapists may set with patients in the ICU include relearning activities of daily skills (such as grooming, feeding, dressing) or instrumental activities of daily living skills (such as balancing a checkbook), rebuilding muscle strength and endurance, or attending to ways to maximize body function in context of the diagnosis or condition (Kwiecinska, 2008). Through these interventions, occupational therapists help patients live as independently as possible (Society of Critical Care Medicine, 2016).

Pharmacists. Pharmacists are experts in a multitude of medicines, their side effects, and potential interactions with daily vitamins, alcohol (or other substances), and environmental factors (e.g., sun exposure) and in counseling needs pertaining to their use. Pharmacists work with the critical care team on prescribed treatments and check on the progress of patients' pharmacotherapy needs during their stay in the ICU (Hinds & Watson, 2008; Society of Critical Care Medicine, 2016). They also help manage pain and discomfort, agitation and sedation, and delirium (Gagnon & Fraser, 2013).

Physical therapists. Physical therapists in the ICU focus on restoring body functionality and maximizing health and wellness involving muscles, bones, tissues, and nerves (Society of Critical Care Medicine, 2016). Physical therapists help patients improve mobility in daily life, for example, walking and going up and down the stairs, by using techniques like stretching and applying heat to reduce pain and swelling. Such assistance is also aimed at preventing permanent physical disability.

Physical therapy interventions commonly utilized in the ICU include therapeutic exercises and functional mobility retraining (Hodgin, Nordon-Craft, McFann, Mealer, & Moss, 2009).

Registered dieticians. Registered dieticians working in the ICU are trained and licensed in nutrition in context of diverse illnesses (Society of Critical Care Medicine, 2016). Registered dieticians collaborate with the care team and the family to help improve the patient's health, particularly when they lack nutrients. Registered dieticians in the ICU direct or perform feedings by the mouth, tube, or vein.

Respiratory therapists. Respiratory therapists in the ICU have special knowledge and experience in healing patients with breathing problems (Society of Critical Care Medicine, 2016). Respiratory therapists focus primarily on management of the patient/ventilator system, airway care, delivery of bronchodilators, monitoring of hemodynamics and blood gases, and the delivery of protocol-regulated respiratory care (Brilli et al., 2001).

Fundamentals of Intensive Care

The following section includes fundamental knowledge and skills that are helpful for MedFTs who work in neonatal intensive care units, pediatric intensive care units, and a variety of critical care units. The majority of content in this section focuses on most common diagnoses in ICU contexts, so that MedFTs are aware of the complexity and prognosis of conditions as they collaborate with patients, families, and diverse healthcare providers.

Neonatal Intensive Care Unit (NICU)

MedFTs' primary work in NICU environments may be in facilitating and modelling integrated behavioral healthcare that connects the biopsychosocial–spiritual needs of a parent/guardian with the child. This work may also include building a model that strengthens efficient and quality interactions between a parent/guardian and the variety of providers and staff. While the MedFT will have very limited direct engagement with the patient in this context, researchers have found extraordinary benefits of integrated behavioral healthcare on babies in the NICU. O'Brien et al. (2013), for example, tested a family integrated care (FIC) model involving parents in the care of their NICU infants (and allows them to participate in the care team) against a control group; they found a 25% increase in weight gain in the FIC babies, an 80% increase in the rate of breastfeeding, a 25% decrease in parental stress, and a significant reduction in nosocomial infection and critical incident reports. In particular, MedFT skills may include assisting parents with building confidence in

attending to the nonmedical needs of their baby (e.g., diaper changes, feeding, cleaning/bathing), attending to parents' concerns related to developmental questions about having a new baby with any unexpected health needs, and facilitating integrated behavioral healthcare models. For those who experience the death of a child or patient, skills can also include offering brief therapy for families and/or providers.

In addition to the skills described above, MedFTs should have knowledge of a number of diagnoses that are most prevalent among babies who are cared for in NICUs (e.g., apnea, jaundice, intraventricular hemorrhage, necrotizing enterocolitis, respiratory distress syndrome, and sepsis). MedFTs must be knowledgeable enough about these diagnoses in order to help families process both acute and long-term familial and systemic changes that may occur. MedFTs are also great ambassadors for hope and can help to facilitate solution-based conversations between families and healthcare providers in relation to projected treatments and optimal health.

Researchers have also investigated leading causes of death in NICUs (e.g., congenital malformations (28%), diseases closely associated with perinatal disorders (25%), disorders of the cardiovascular system (18%), and infections (15%)) that MedFTs must be prepared to discuss with bereaving family members and the patient's healthcare team (Widmann et al., 2017). MedFTs are an integral partner with palliative care teams, when needed. MedFTs have taken an important stance to suggest that all patients, regardless of age or severity of diagnoses, deserve the attention received from palliative care services (Williams-Reade et al., 2013a, 2013b).

Apnea. Apnea is a common occurrence with neonatal patients (March of Dimes, 2014; Sleep Education, 2017). Apnea is a pause in breathing that lasts 15–20 (or more) seconds. The most common form of apnea occurs due to disruptions in the central nervous system (Gardner, Carter, Enzman-Hines, & Hernandez, 2011). It is most highly correlated with being born too early (i.e., prior to 34 weeks) or from maintaining a low birth weight. Apnea occurs in approximately 85% of all babies born under two pounds and in 25% of babies born less than 5.5 pounds. It typically appears between the second and seventh day after birth (American Academy of Sleep Medicine, 2017). Interestingly, apnea has not been correlated as a risk factor with sudden infant death syndrome.

Intraventricular hemorrhage (IVH). IVH is the most common type of neonatal intracranial hemorrhage and typically develops within 3 days after delivery. This diagnosis may be reflected through seizures, decreased motor activity, hypotension, and/or bradycardia.

Jaundice. This condition is when babies have a yellowish color to their eyes or skin. Jaundice occurs when the baby's liver is not functioning well due to a form of waste that is not being effectively eliminated from the blood. This is more likely to occur when the baby has a different blood type from his or her mother. Babies may be placed under a special form of lighting to help break down and eliminate the toxin.

Necrotizing enterocolitis (NEC). NEC is a disease of the bowels. Unfortunately, NEC has a very high mortality rate within the NICU (Gregory, DeForge, Natale, Phillips, & Van Marter, 2011). Risk factors that may result in NEC include perinatal stress, prematurity, and hypothermia.

Respiratory distress syndrome (RDS). Distress primarily happens shortly after birth and is particularly prone to those born prematurely. Signs of RDS include shallow respiration, apnea, and grunting noises in attempts to breathe.

Sepsis. While sepsis also occurs in adults, in newborns it differs in types and origins of symptoms. Sepsis in newborns is a toxic condition (bacterial, fungal, parasitic, or viral) that spreads throughout the bloodstream or body tissues. In newborns it can occur because of intergenerational risk factors (e.g., substance use, malnutrition, fever, current urinary tract infection of mother) or neonatal risks (e.g., meconium aspiration, low birth weight, or prematurity) (Gardner, Carter, Enzman-Hines & Hernandez, 2011).

Pediatric Intensive Care Unit (PICU)

According to researchers, essential skills necessary in PICU care include communication and professionalism with families and healthcare professionals (Turner et al., 2013). While this research was written for pediatric critical care medical fellows, it is likely that these skills are just as important for MedFTs, including the ability to

> communicate effectively with patients, families and the public across a broad range of socioeconomic and cultural backgrounds; communicate effectively with physicians, or other health professionals, and health related agencies; work effectively as a member or leader of a health care team or other professional group; maintain comprehensive, timely, and legible records; extend compassion, integrity, and respect for others; responsiveness to patient needs that supersedes self-interest; respect for patient privacy and autonomy, accountability to patients, society, and the profession; and sensitivity and responsiveness to diverse patient populations, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation. (p. 456)

Beyond recognizing the importance of communication and professionalism in pediatric intensive care, an essential element that was punctuated by Turner et al. (2013) is that many residency and fellowship programs have no mechanism to teach fellows about the impact(s) of grief and loss on themselves. As such, MedFTs should be leaders in PICUs in establishing training and retreats for providers as well as for the primary caregivers of children. Topics, such as compassion fatigue and burnout, should be addressed in order to keep these carers as emotionally healthy as possible.

A widespread number of conditions are treated in PICUs, spanning the ages from the time a newborn is discharged from a healthcare context after delivery (or directly after delivery if at-home birth) through 21 years of age. It is not possible to list every condition treated in a PICU context. However, MedFTs in PICUs should be knowl-

edgeable about issues recognized as most prevalent and complex, including severe breathing problems from asthma (respiratory illness are the most common diagnoses treated in PICUs), serious infections (including poisoning), complications of diabetes, childhood cancer, and trauma (e.g., those associated with automobile accidents, near-drowning incidents, and other crises), and childhood-onset chronic conditions like congenital heart abnormalities, cerebral palsy, and chromosomal abnormities (Edwards et al., 2012).

Childhood cancer. Each year approximately 16,000 children aged 0–19 years are diagnosed with cancer (Ward, DeSantis, Robbins, Kohler, & Jemal, 2014). There are numerous types and complexities of cancer that a child and his or her family may face. There are a myriad of experiences that can be encountered by the family throughout treatments, including complex decision-making, engaging with extended family, managing side effects from treatments, and dealing with potential psychosocial challenges associated with care (e.g., long-term care in the hospital, parental/guardian absence from work to be present with child, having to split time between children at home and child at the hospital). Biopsychosocial–spiritual care is necessary with cancer patients and their families in order to reduce the likelihood for depression and post-traumatic stress in relation to the child's experience with the diagnosis, support healthy communication between family members related to systemic changes, and facilitate family involvement through integrated behavioral healthcare throughout the treatment process in the PICU.

Congenital heart abnormalities/diseases (CHDs). About 1 out of every 120 children is born with a congenital hearth abnormality (Hoffman & Kaplan, 2002). There are many types of CHDs that may influence a newborn's life. CHDs occur because too little or too much blood passes through the lungs or too little blood passes through the body. These abnormalities are typically diagnosed during pregnancy or shortly after delivery and commonly last throughout one's life. However, there are some abnormalities that will wane as the child ages. Children with CHDs should be followed by a pediatric cardiologist as indicated.

Endocrine disorders. While Type 1 and Type 2 diabetes are likely the most recognized names aligned with endocrine disorders (Mayer-Davis et al., 2017), there are other diagnoses associated with endocrinology among pediatric populations as well. These including thyroid and pituitary disorders, congenital hypothyroidism, Hashimoto's thyroiditis, isolated growth hormone deficiency (GHD), Graves' disease, polycystic ovarian syndrome, adrenal gland disorders, and hypoglycemia (Neary & Nieman, 2010). The endocrine system affects growth and development, metabolism, and mood.

Respiratory diseases. Respiratory diseases include several conditions; those most commonly treated in the PICU include bronchiolitis, bronchitis, asthma, and acute respiratory distress syndrome. Asthma is the most common of the respiratory diagnoses for youth. However, pneumonia and its associated complications lead to the most deaths, particularly in those aged five and younger (Zar & Ferkol, 2014). Still too common of a diagnosis is tuberculosis (TB); nearly one-fifth of all persons diagnosed with TB are youth. Many respiratory diseases can be better managed by

reducing toxins in youths' living and school environments (e.g., minimizing exposure to smoke, dust, pesticides, vermin feces, stress).

Unintentional injury. Unintentional injuries are considered any incident that was not done deliberately. Of all of the presenting concerns addressed in the PICU context, unintentional injury is the leading cause of death among children under the age of 14 years old. It is estimated that more than one million children die each year due to unintentional injuries. Leading causes of accidental injury for children and youth typically occur in the home; the most common include burns, drowning, suffocation, choking, poisonings, falls, and injury from firearms (Acar et al., 2015).

Adult Intensive Care Unit (AICU)

About 20% of acute care admissions and approximately 58% of emergency department admissions in the United States result in an ICU admission (Wunsch, Angus, Harrison, Linde-Zwirble, & Rowan, 2011). The most common reasons to be admitted in AICU units include acute myocardial infarction, intracranial hemorrhage (or cerebral infarction), percutaneous cardiovascular procedure with drug-eluting stent, respiratory system diagnosis with ventilator support, and septicemia or severe sepsis without mechanical ventilation. While ICUs are still considered in many contexts as part of a hospital's geography, critical care patients may be treated in diverse units throughout most any hospital context. However, when on a unit, healthcare providers must be adept at the management of catheters, surgical outcomes, and central lines. They must also be prepared to best attend to the 20% of all AICU patients who meet criteria for palliative care services (Lamas, Owens, Bernacki, & Block, 2014).

Medical family therapists can be of great assistance in meeting families where they are at in ensuring that there is transparent and beneficial communication between family members and healthcare provider teams in relation to the loved one's progress and health-related decisions. It is also important that MedFTs be skilled at working with families who have difficult biopsychosocial–spiritual decisions to make in collaboration with or on behalf of a loved one. Addressing psychosocial well-being in the context of critical care conditions is particularly important, given that ICU survivors commonly experience symptoms of post-traumatic stress and depression that then negatively influence their health-related quality of life (Bienvenu, & Neufeld, 2011; Davydow, Gifford, Desai, Needham, & Bienvenu, 2008). Below are descriptions of common concerns experienced by critical care patients that should be cared for by interdisciplinary healthcare teams that include MedFTs.

Acute myocardial infarction. Cardiac diagnoses make up the most common reason for entry into an ICU in the United States (44.6%), with almost one-tenth of those admitted due to coronary artery disease or acute myocardial infarction (Wunsch et al., 2011). Unfortunately, as is the case with many chronic physical health conditions, it does not exist in isolation. Smolderen et al. (2017), for exam-

ple, conducted a longitudinal study that enforced the need to attend to psychological diagnoses, particularly focusing on depression comorbid to acute myocardial infarction and its associated adverse outcomes.

Cardiovascular illnesses. It is estimated that 38% of patients admitted to ICUs have a primary cardiovascular diagnosis and that another 33% are experiencing a cardiovascular complication in relation to their presenting illness (van Diepen et al., 2015). Cardiovascular illnesses rarely emerge without being accompanied by other chronic conditions, such as diabetes mellitus, hypertension, renal dysfunction, and obstructive lung disease. As such, patients with cardiovascular disease may be deemed critically ill due to the likelihood toward major systemic complications, including those that may occur or be exacerbated while in an ICU (e.g., bleeding, catheter-related infections, ventilator-acquired pneumonia, and multi-organ dysfunction).

Intracranial hemorrhage/cerebral infarction. These serious conditions result from airway or respiratory compromise, large cerebral swelling, and—sometimes—seizures. As cerebral swelling increases, the likelihood to maintain consciousness decreases. Oftentimes, neuroimaging and neurological monitoring are needed to best care for patients experiencing these conditions. In particular, most serious cases are recommended to be served in intensive care or stroke units so that they are treated by neurointensivists. In the ICU, complex medical care often includes airway management and mechanical ventilation, blood pressure control, fluid management, and glucose and temperature control (Wijdicks et al., 2014).

Respiratory system diseases. Respiratory and pulmonary diseases include diagnoses such as influenza, pneumonia, chronic obstructive pulmonary disease, asthma, cystic fibrosis, and pulmonary hypertension. While many of these conditions may worsen without much awareness from the patient, attention to self-management is essential. Cognitive behavioral therapy has been used to bring attention to self-management, while also treating the distress that often accompanies respiratory diseases (Baraniak & Sheffield, 2011). More recently, internet-based self-management systems have been created that attend to both physical and psychosocial symptom regulation. One example of such a system is EDGE (sElf-management anD support proGrammE). The EDGE was designed to help patients identify exacerbations of physical and psychosocial symptoms while also providing them with psychoeducation about ways to maximize compliance to treatments and overall well-being (Farmer et al., 2017). The results from EDGE research show clinical significance toward reducing depression, but not statistical significance. Still, long-term findings should be tracked given that these comorbid diagnoses typically span many years without improved outcomes.

Septicemia/sepsis. Sepsis is an inflammatory response to infection (Kaukonen, Bailey, Suzuki, Pilcher, & Bellomo, 2014; Prescott, Osterholzer, Langa, Angus & Iwashyna, 2016). It has the capacity to influence multiple systems and organs in the body that can, and typically does, lead to impairments on both physical and mental abilities during and after discharge from the ICU (Winters, Eberlein, Leung, Needham, Pronovost, & Sevransky, 2010).

Toxicity from drugs/substances. Common substances resulting in toxicity or overdose include recreational stimulants, tricyclic antidepressants, monoamine oxidase inhibitors, and opioids. Growth in opioid abuse, as well as other prescription and illicit drugs, has led to a growth in concerns related to treatment of these patients in ICUs. One serious concern is serotonin syndrome, which can lead to hyperthermia, tachycardia, and rhabdomyolysis (Altman & Jahangiri, 2010). The likelihood for this syndrome increases when selective serotonin reuptake inhibitors (SSRIs) or serotonin and norepinephrine reuptake inhibitors (SNRIs) are administered alongside other serotonergic medications (Kelly, Rubenfeld, Masson, Min, & Adhikari, 2017). Patients who arrive at a hospital with cognitive impairment, or who have overdosed, typically are unable to report their drug of choice or last substance used. This can present additional treatment challenges as it can influence their treatment process.

Intensive Care Across the MedFT Healthcare Continuum

Medical family therapy on critical care or intensive care units is not likely occurring in smaller healthcare contexts (i.e., MedFTs are more likely in larger trauma-1 hospitals) and as such may be more likely to be practiced off-site or in central mental health arenas of a healthcare context. MedFT is more likely to take place on location in larger trauma or critical care complexes. Skills and knowledge of MedFTs range from a primary focus on the psychosocial needs of a family member who has a loved one in a critical care context toward more advanced relational and BPSS skills and knowledge of MedFTs who function as a part of collaborative teams within NICU, PICU, and AICU contexts. Tables 5.1 and 5.2 highlight specific knowledge and skills that characterize MedFTs' involvement in ICU contexts across Hodgson, Lamson, Mendenhall, and Tyndall's (2014) MedFT Healthcare Continuum.

Medical family therapists functioning at *Levels 1* and *2* are likely to be either off-site or in a behavioral health hub in a particular part of a hospital where there is minimal collaboration or opportunity to directly collaborate with ICU providers or staff. While they may be aware of BPSS health and relational well-being as a researcher and/or clinician, these MedFTs only rarely or occasionally address the interface of the physical complications into the psychosocial assessments or care. MedFTs at these levels will not likely recognize the idiosyncrasies of a medical diagnosis, but rather attend to the criticality. That is, they are more likely to extend services to a family member who has a loved one in an ICU than the patient himself or herself. As such, MedFTs at these levels may be maintaining a systemic lens (considering the loved one who is in ICU), but attention is primarily given to the psychosocial concerns of the family member. In relation to the vignette at the start of this chapter, a MedFT at these levels would likely provide services for ICU families once a family member has been discharged, treating relational dynamics that have shifted after an ICU experience, for example, or grief after the death of a loved one.

Table 5.1 MedFTs in Intensive Care: Basic Knowledge and Skills

MedFT Healthcare Continuum Level	Level 1	Level 2	Level 3
Knowledge	MedFTs at this level are more likely to extend services to a family member who has a loved one in an ICU than the patient himself or herself; thus, knowledge would be focused on coping or grief pertaining to a loved one's condition. Minimal awareness of potential for collaboration or how to access diverse treatment team members.	MedFT may be aware of BPSS health and relational well-being as a researcher and/or clinician, but he/she only occasionally addresses the interface of the physical complications into the psychosocial assessments or care.	Has a working knowledge of specific team members and medical terminology within the ICU. Is aware of family therapy interventions appropriate for siblings, couples, and families who have a loved one in the ICU.
Skills	Incorporates family systems or BPSS assessments into sessions on an irregular, rare occasion. May request discharge documents to better understand complexity of condition. Able to conceptualize behavioral health concerns with families associated with a loss that occurred in an ICU.	Facilitates conversations with family members about questions that they could ask of the healthcare team on the ICU in relation to BPSS or systemic questions of concern. Attends to relational changes that may occur after discharge of a family member from the ICU.	Attending to multiple family members' needs, including crisis response pertaining to an ICU admission or death on a unit. Recognizes BPSS and systemic health outcomes associated with having a family member admitted to or die in the ICU. Deliver research-informed and culturally aware family therapy and BPSS interventions to family members in ICU contexts. Can identify ways in which psychosocial and spiritual health can exacerbate or support health complications.

Table 5.2 MedFTs in Intensive Care: Advanced Knowledge and Skills

MedFT Healthcare Continuum Level	Level 4	Level 5
Knowledge	Biopsychosocial–spiritual (BPSS) implications for the patient and family members during stay in ICU and any related trauma on patient, family, and provider systems. Systemic and relational concerns unique to the patient and family experiences in the ICU and with related trauma.	Proficient in theories, assessments, and interventions that capture BPSS and systemic healthcare in ICU contexts for families and in collaboration with diverse healthcare providers. Systemic and relational concerns unique to patient and family experiences in the ICU, including death of a loved one/death of a patient. Design, implement, lead, and evaluate integrated behavioral healthcare teams in the ICU.
Skills	Consistently engages as part of the ICU team. Assesses for BPSS factors unique to ICU patients and intervenes with families and providers accordingly. Delivers systemic and family therapy and BPSS interventions to support patient, family, and provider systems. Encourages interprofessional collaboration to maximize care.	Administers, supervises, conducts program evaluations and policy formation in the ICU. Trains healthcare professionals in family therapy and MedFT practice, research, policy, and/or administration in ICU contexts. Advocates and analyzes healthcare policy effectively to maximize patient care and ethical research in ICUs.

MedFTs at *Level 3* must be highly adaptable, attending to multiple family members' needs, including attention to crisis responses in family members who have encountered acute trauma or critical health concerns in a loved one. MedFT can be complicated at this level because of the acuteness of the presenting concern. MedFTs who are trained in family therapy and BPSS interventions can assist family members in recognizing their immediate needs. At this level, too, MedFTs are informed about the most common diagnoses encountered in an intensive care unit and can identify ways in which psychosocial and spiritual health can exacerbate or support health complications in order to share these types of challenges with family members. In relation to the vignette at the start of this chapter, interventions at this level included ways that the MedFT worked to integrate rituals into the ICU that fit with the beliefs and needs of the family members. The MedFT works to interact with families to minimize stressful interactions among family members during ICU treatments or a loss experience and also assists families with ways to maximize communication between family members and their loved one's healthcare team.

MedFT research may include research on ways in which families are influenced by critical care encounters and experiences. Examples of this at *Level 3* could include attention to family communication following child or partner treatment for sepsis. This work may focus on ways in which communication and BPSS health are altered following a critical care encounter with sepsis.

At *Level 4*, MedFT clinicians and/or researchers are trusted as reputable and consistent healthcare team members; they offer family therapy interventions and expertise through a biopsychosocial–spiritual lens for families engaged in an ICU. As described in the vignette at the start of the chapter, some families may be awaiting happy news from the healthcare team (e.g., that the patient will be released to go home in a stable medical condition); others may also be expecting a release from the hospital but recognize that a chronic healthcare battle will lie ahead for their family member; others still may find the ICU as a final resting place. MedFTs at *Level 4* must be able to weave in and out of the emotional tapestry that exists in the ICU for families, as well as in the healthcare team. MedFTs' systemic training allows them to interface with patients at the clinical level in an ICU room, recognize the processes and procedures that can positively influence care (e.g., discussing procedures for rituals and healthcare logistics that can take place to honor the loss of a loved one in an ICU unit), and identify ways to reduce provider burnout and compassion fatigue given the high level of empathy and energy given to each patient. At *Level 4*, the MedFT would encourage interprofessional collaboration in order to maximize quality care; this may be done through clinical, operational, and larger system processing groups, research groups, or grand round/national presentations.

At *Level 5*, MedFTs are experienced at administration, supervision, program evaluation, and policy formation in the ICU. They are also experienced in training healthcare professionals in family therapy and MedFT practice, research, policy, and/or administration. Examples of this through the vignette were that the MedFT faculty member had mentored a doctoral student in developing a research-based educational seminar focused on grief, trauma, reduction of burnout, and compassion fatigue that was administered to over 300 NICU and PICU providers and staff (Meadors et al., 2010). She and the student collaborated on a pre- and posttest for the seminars (approved through the institutional review board [IRB] processes to be used for program evaluation and research purposes). Content from the pre- and posttest outcomes led to an increase in clinical service debriefings with providers across the children's hospital. These outcomes also further resulted in a number of publications and sparked additional research and practice requests from diverse medical disciplines who wanted to better attend to infant loss, palliative care processes, and family-centered care practices in ICU contexts.

In relation to policies that influence ICUs, MedFTs advocate for healthcare policy, particularly in relation to the inclusion of family-centered care in ICU contexts, including the removal/restrictions of visitation hours for family members. MedFTs at *Level 5* should analyze existing policies in their local healthcare system with particular attention toward operational processes and procedures that are linked to health disparities and barriers to treatment. Given the research presented throughout this chapter, involvement of *Level 5* MedFTs may help (through their systemic lens

Table 5.3 Critical Care ICU Research by Role

Role	Responsibilities	Interprofessional Research that Informs Practice
Care/case manager	Deliver home health services. Determine if assisted living or other transitional care is needed. Help to coordinate the transition from the inpatient to outpatient setting.	Researchers have highlighted the role of care management for outpatient health care services particularly to ensure reductions in mortality post-discharge and attention to aging patient populations (Katz et al., 2010). *This research may benefit a MedFT who can assist by collaborating with family members on ways in which these decisions align with the family's health beliefs and also how they may influence the family's role in the care of their loved one.*
Chaplain	Provide spiritual support to patient and family.	Research has been limited yet positive about the role of chaplains in addressing patients' spiritual concerns in ICUs (Johnson et al., 2014); much more exists in relation to chaplains' presence in patient and family end-of-life decision-making (Shinall, Ehrenfeld, & Guillamondegui, 2014). *MedFTs are often close collaborators with chaplains, because of their shared attention to meaning making in relation biopsychosocial–spiritual health.* *MedFTs recognize the important role that chaplains and spiritual beliefs bring to decision-making processes, the need for more research on spirituality and religion in relation to health, and as such are likely to build strong bonds in practice and research with chaplaincy teams.*
Child life specialist	Deliver various types of family-centered supportive care for infants and children. Support staff and families in preparation for child visitation in ICU.	By 2022, all child life specialists will be required to have a graduate degree in order to be clinically active. Researchers have reported that child life specialists have a role in understanding developmental care tasks developed in the ICU, providing sibling support, and assisting with nonpharmacologic pain management support (Smith, Desai, Sira, & Engelke, 2014). *MedFTs and child life specialists are often trained in child and family development departments and thus typically share a systemically oriented foundation to care, making them a logical partnership in practice, research, and advocacy for children and families.*

(continued)

Table 5.3 (continued)

Role	Responsibilities	Interprofessional Research that Informs Practice
Critical care nurse/nurse practitioner	Assessment. Oversight of plan of care. Care delivery. Organizational leadership. Implementation of unit-based protocols. Quality improvement. Outcomes data analysis. Staff and patient satisfaction.	Researchers have found that specified training for nurses and nurse practitioners in ICU care following degree completion maximizes unit-based protocols and care delivery outcomes (Simone, Mccomiskey, & Andersen, 2016); training options that maximize patient outcomes may include orientation to ICU daily routines, rounding processes, competencies in ICU knowledge and systems, unit level work models, and rotations through a series of ICU/trauma units (Weled et al., 2015). *This research may benefit MedFTs by encouraging Level 5 leaders to develop cite-based protocol, trainings, and metrics that can maximize operational outcomes that benefit the patient, patient's family, and interprofessional team practices.*
Intensivist	Team leader. Assessment and treatment. Coordinate and delegate. Administrative. Regulatory. Quality improvement. Support patients and families. Discharge.	Consistently, researchers have found over the past decade that between 30% and 50% fewer patients would die if an intensivist rounded daily with critically ill patients (Durbin, 2006; Wilcox et al., 2013). High-intensity staffing is consistently tied to better patient outcomes and lower patient mortality; however still in question is whether 24-hours intensivist staffing is needed, given contradictory outcomes in full-day versus daytime-only coverage (Kerlin & Halpern, 2016; Wilcox et al., 2013). *MedFTs may benefit from this research by conducting a cost–benefit analysis on provider type, time spent with each patient, interprofessional processes, and patient outcomes in order to develop a time and cost-effective model of care.*
Pharmacist	Medication monitoring. Medication delivery. Pharmacotherapy evaluation.	A quarter of ICUs have no dedicated clinical pharmacists, despite studies demonstrating a reduction in medication errors and increase in benefits to patient outcomes (Beardsley, Jones, Williamson, Chou, Currie-Coyoy, & Jackson, 2016). Advanced practice training is recommended for pharmacists who work on ICUs, particularly because preventable adverse drug events are at least twice as likely to occur on an ICU than on an acute unit (Durbin, 2006). *From this research, MedFTs can raise awareness on the unit about the importance of pharmacists in patient care, the role of medication adherence, recognition of a family history with substance use, and barriers to long-term medication management.*

(continued)

Table 5.3 (continued)

Role	Responsibilities	Interprofessional Research that Informs Practice
Physical therapist	Develop treatment plan. Utilize stretching, movement, and heat to reduce disability. Focus on early mobility of patients.	Emerging evidence suggests the safety and efficacy of physical therapist-guided ambulation to promote recovery postsurgery and improve patient mobility in the ICU (Fields, Trotsky, Fernandex & Smith, 2015). *MedFTs are able to collaborate with PTs and learn about the role of pain in tandem with in-unit physical therapy. MedFTs can provide pre- and post-PT interventions that may assist pain management.*
Registered dietician	Plan diet based on patient needs. Direct or perform feedings.	Given the complex chronic health and illness conditions presented in the ICU, nutritional assessments are essential in order to determine the unique nutritional needs for each patient; the prevalence of malnutrition among critically ill patients is estimated to exceed 50%, again supporting the need for registered dieticians or nutritionists as part of the ICU team (Fontes, Generoso, & Correia, 2014). *MedFTs can take away many lessons when collaborating with registered dieticians, particularly addressing the meaning associated with eating and the roles in the family (e.g., who does the grocery shopping; who cooks the food); psychoeducation is also important in that nutrition influences most chronic conditions and thus requires family meal planning and goals that support better biopsychosocial health.*
Respiratory therapist	Manage delivery of protocol-regulated respiratory care. Patient/ventilator system. Airway care. Deliver bronchodilators. Monitor hemodynamics and blood gases.	With increasing percentages of ICU patients who are mechanically ventilated, respiratory therapists have become an integral part of the ICU team, particularly in improving adherence to weaning protocols, decreasing ventilator days, and reducing ICU costs (Bourke, 2016). *MedFTs and RTs may deliver a most unique collaboration both for the patient and their family, after all struggles with breathing often heighten anxiety for patients and for loved ones; evidence-based interventions can be taught to providers, to families, and in best-case scenarios to patients in order to best regulate breathing that maximizes their biopsychosocial health.*

of practice, research, and policy) to reduce the mortality rates within the ICU and improve biopsychosocial health of the patient and family within the year after discharge.

Research-Informed Practices

All of these forms of ICU performance can be further enhanced by MedFT contributions to clinical practice, research, and policy efforts, as seen in Table 5.3 (which describes critical care ICU teams by role, responsibilities, and interprofessional research in tandem with MedFT). Collectively, these efforts serve to better inform integrated behavioral healthcare practice and research.

Intensive care unit performance can be assessed using a number of measures focused on medical, economic, psychological, and institutional outcomes (Ko et al., 2017; Kohn et al., 2017). Medical outcomes are tied to variables including patient survival, complication rates, adverse events, and symptom control (Rose, 2011). Economic outcomes involve analysis examining resource consumption and cost-effectiveness of care, in particular, related to specified treatment plans (e.g., antimicrobial stewardship (Reader, Reddy & Brett, 2017; Rose, 2011; Ruiz-Ramos et al., 2017). Psychological outcomes, as presented earlier in the chapter, are largely missing from the research. Yet these are necessary to examine, not just in relation to patients who survive the ICU, but also for parents of critically ill children (Stremler, Haddad, Pullenayegum, & Parshuram, 2017). Institutional and operational outcomes are essential to the patient flow and quality of perceived outcome for patient/family and providers, including the importance of patient/family–provider communication as a key indicator toward quality care (Kohn et al., 2017). Institutional outcomes have also been measured by staff satisfaction and turnover, ICU bed utilization, efficiency of ICU services, and satisfaction of other hospital departments with these services (Garland, 2005).

Family Approaches

According to researchers, only one-quarter of ICUs include patients and family members in their daily rounds and even less have protocols that promote a family meeting as part of care or treatment planning (Cypress, 2012). While research about family involvement in ICU care is limited, it is clear that there are some essential elements that are regarded as important in family-centered care and influence patient outcomes. These elements include transparent and genuine interpersonal communication between patients/patients' families and providers (including communication about the roles of parents and professional caregivers) and empathy through challenging decision-making processes.

Transparent and genuine interpersonal communication. In a study conducted with neonatal–perinatal medicine fellows by Boss, Hutton, Donohue, and Arnold (2009), researchers found that 41% of respondents had no formal training on communication skills and 75% had never even participated in role-plays or simulated trainings for clinical encounters with families. These skills are critical for providers to have, given that communication affects parental stress, satisfaction, care,

treatment, decision-making, and health outcomes for the child, parent, and family (Curtis, Engelberg, Wenrich, Shannon, Treece, & Rubenfeld, 2005; Curtis & Rubenfeld, 2005; Foster, Whitehead, and Maybee, 2015).

Family-centered care research may more naturally bend toward the involvement of families in the care for young children. However, family-centered care is just as important when engaging in care of a spouse, partner, or parent. Curtis et al. (2001) developed five objectives that can help guide providers when engaging in conversations with families throughout the lifespan. These objectives are summarized by the mnemonic VALUE; researchers have adapted this to strengthening providers' ability to value family statements, acknowledge family emotions, listen to the family, understand the patient as a person, and elicit family questions (Lautrette et al., 2007). While family-centered care, and thus level of interpersonal communication, lies on a continuum from more provider-directed conversations at times to times when the conversation is more family led, the important element is that providers and family feel as though they are collaborators toward the best care for the patient (Lilly et al., 2000; Lilly, Sonna, Haley, & Massaro, 2003; Stapleton, Engelberg, Wenrich, Goss, & Curtis, 2006).

Family-centered care becomes even more interesting when considering the diverse nature of patients served in ICUs. In a study done with Latino families (Walker-Vischer, Hill, & Mendez, 2015), participants stated that they felt as though there was greater trust with the healthcare team when they were involved in decision-making processes on behalf of their loved one and that this comfort grew even stronger when providers on the healthcare team were fluent in Spanish. Walker-Vischer et al. (2015) also supported the importance of transparent and genuine communication from providers when considering concepts such as *respecto* and *simpatía* (i.e., honoring those in authority without questioning decisions by those higher in the hierarchy and respecting the value of relationships, particularly by avoiding conflict). Thus, providers will need to continue to strengthen their skill set in growing transparent and genuine communication with families as well as their cultural awareness. These skills will likely transpire into more empathetic exchanges between families and providers regardless of the patient's health outcome.

Empathy. Foster et al. (2015) extended multiple recommendations that can enhance empathy through family and provider communication and decision-making processes. Through their systematic review, they encouraged parent involvement and connection in the ICU via

> parental presence during life-threatening events and procedures; regular health care professional, parent, and child meetings; development of PICU parental support groups; access to interactive web-based communication systems; and integration of research into clinical practice where health care providers, parents, and children are active participants. (p. 59)

Again, these recommendations were put forth for family-centered care when the child was the identified patient. However, empathy is needed throughout the lifespan and may be most noticed in times of difficult decision-making. Empathic statements exchanged with the ICU team have been found to be associated with higher overall family satisfaction (Selph, Shiang, Engelberg, Curtis, & White, 2008). Empathic statements made by physicians and physician extenders may include the

way in which one discusses the difficulty of having a critically ill loved one, the difficulty of surrogate decision-making related to determining the patient's wishes, and statements about the difficulty of confronting death related to the process of accepting the impending loss of a loved one (Selph et al., 2008). When a loved one is dying in the ICU, families report higher levels of satisfaction when providers spend more time listening (Heyland, Rocker, O'Callaghan, Dodek, & Cook, 2003; Keenan, Mawdsley, Plotkin, Webster, & Priestap, 2000; Malacrida et al., 1998; McDonagh et al., 2004). More recently, researchers are finding that placing a family support coordinator (e.g., a MedFT) into the ICU may enhance family-focused empathy, increase the possibility for family-provider consensus on decision-making, and reduce conflict and thus symptoms of post-traumatic stress for the patient and family (Azoulay et al., 2005; Moore et al., 2012).

Overall, MedFTs have a great deal to offer in neonatal, pediatric, and adult ICUs. There is still much to learn about the role of psychosocial health for patients and families during and post their ICU stays. Furthermore, MedFTs have the opportunity to contribute as clinicians and researchers to understanding what happens for patients and families after discharge that leads to better longevity and quality of life. In particular, integrated behavioral healthcare teams are well suited to assess best practices while on the unit that can result in evidence-based practice and evidence-based research for these patient populations.

Conclusion

One of the most challenging elements of working in a critical care unit is that any given day is filled with a multitude of unexpected events. Providers may have the opportunity to go into one patient room and deliver good news and then walk into the next to deliver bad news about a poor prognosis or loss of life. MedFTs' value is added to these contexts is extensive, particularly in their ability to assist in the reorganization of a family's life in the face of the event that led to the ICU experience. Furthermore, MedFTs have the ability to use their relational training to strengthen the quality of work and personal life for providers who extend care in ICU contexts. These contributions are further strengthened when their relational and BPSS expertise is integrated into research and policy that can maximize family-based care for patients and their providers.

Reflection Questions

1. How might you prepare yourself and promote self-care among the healthcare team when going from best-case scenario situations to worst-case scenario situations (or vice versa) within the ICU?
2. What knowledge, skills, and outcome research will assist you in providing best practice to families receiving care in ICU contexts?
3. What are the biopsychosocial–spiritual implications for a medical procedure that occurs on any given ICU unit, and how might these implications influence the family system while on the ICU and at time of discharge?

Glossary of Important Terms in Intensive Care[1]

Arterial catheterization A thin, hollow tube that is placed into an artery (large blood vessel) in the wrist, groin, or other location to measure blood pressure. This is often called an "art line" in the intensive care unit (ICU).

Bubble CPAP Devices that apply pressure to the neonatal respiratory system via nasal prongs placed into the nostrils, forming a tight seal to minimize leak.

Central venous catheter (central line) A long, soft, thin hollow tube that is placed into a largevein. Also known as a central line or CVC.

Chest tube thoracostomy Chest tubes are inserted between ribs into one's chest in order to drain blood, fluid, or air and allow full expansion of the lungs. The tube may be connected to a suction machine to help with drainage.

High-frequency oscillation A type of high frequency ventilation characterized by the use of active expiration.

Intensive care unit-acquired weakness Clinically detected weakness in critically ill patients when there is no other explanation for the weakness other than critical illness.

Intubation The introduction of a tube into a hollow organ (such as the trachea).

Mechanical ventilation The technique through which gas is moved toward and from the lungs through an external device connected directly to the patient.

Neuromuscular blockers A group of drugs that prevent motor nerve endings from exciting skeletal muscle. They may be used during surgery to produce paralysis and facilitate manipulation of muscles.

Tracheostomy This procedure involves surgically constructing a hole that goes through the front of the neck into the trachea or windpipe. A breathing tube is placed through the hole and directly into the windpipe to facilitate breathing.

Additional Resources

Literature

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[1] Note: Due to diversity of diagnoses across neonatal, pediatric, and adult intensive care units, terms are defined within the "Fundamentals of Intensive Care" section of this chapter. Below are key terms related to intervention in ICUs that are important for MedFTs to know regardless of a patient's age.

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Electronic Resources

Critical Care Reviews (free, full access, peer reviewed articles related to critical care). http://www.criticalcarereviews.com/

iCritical Care Podcasts (produced by the Society of Critical Care Medicine; free to download). https://itunes.apple.com/nz/podcast/sccm-podcast-icritical-care/id76207297/

Learn ICU.org (offered by the Society of Critical Care Medicine; provides a variety of journal articles and presentations about different ICU topics). http://www.learnicu.org/Pages/default.aspx

Organizations/Associations

American Thoracic Society. http://www.thoracic.org/default.asp

National Association of Neonatal Nurses. http://nann.org/

Society of Critical Care Medicine. http://www.sccm.org/index.asp

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