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Inpatient Dialysis Services: Nephrologist Leadership and Improving Quality and Safety

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In contrast to outpatient dialysis facilities in the United States, which are required by the Centers for Medicare & Medicaid Services (CMS) under the Conditions for Coverage for ESRD Facilities to have a qualified medical director who oversees facility quality and operations,[1-3] inpatient dialysis programs have no such requirement. Despite the high level of complexity of inpatient dialysis therapies, currently there is no CMS or other governing body regulation that describes the qualifications and responsibilities for physician leadership oversight for kidney replacement therapy (KRT) performed in hospitalized patients. Unlike outpatient dialysis care, which is closely regulated and overseen by CMS, both operationally and fiscally, CMS does not have direct jurisdiction over hospital activities such as inpatient dialysis services. Instead, hospital accreditation overseeing entities including The Joint Commission (TJC) and state Departments of Health more commonly review the quality and safety of inpatient dialysis practices during periodic hospital surveys. However, TJC evaluations may vary from region to region, given lack of regulatory definitions for responsibilities and accountabilities of dialysis therapy in the hospital setting.

The heterogeneity of presentations of patients requiring dialysis therapies in hospitals, the acuity level of such patients, and the complexity of available KRT modalities mandate a well-functioning inpatient dialysis therapy service, with a high level of expertise, led and staffed by qualified personnel. Within inpatient dialysis services, a meaningful organizational chart and leadership accountability are of immense importance. Hospitals and medical centers are required to ensure the expected level of quality and safety within the framework of best dialysis therapy practices. Therefore, we believe that inpatient dialysis services should function under the oversight of qualified physician leadership with clearly stated privileges and responsibilities to oversee the day-to-day clinical operation. This includes oversight of the dialysis and intensive care personnel performing dialysis, as well as the presence of practicing nephrologists who order dialysis and, in many instances, continuous KRT (CKRT) treatments for hospitalized patients if CKRT is managed by nephrologists.

Currently, there are several different models in place for how hospitals and medical centers provide dialysis in the inpatient setting. These include (1) contracted services between the hospital and a provider of acute dialysis services, which is the most common system at community hospitals and used at many larger medical centers; and (2) in-house dialysis services, which may also include a traditionally licensed outpatient hospital–based dialysis facility that also provides inpatient dialysis coverage or a dedicated inpatient-only facility that is not certified for ESRD care, staffed either by contracted staff or hospital employees. Inpatient provision of dialysis may also be modality-specific, with intensive care unit (ICU)-based nurses employed by the medical center providing CKRT (either independent of or in collaboration with dialysis staff), while dedicated dialysis staff oversee intermittent hemodialysis therapies. Oversight may vary by institution, with nephrologists responsible for CKRT in some institutions and intensivists in others. Peritoneal dialysis (PD) practices are also heterogeneous: some hospitals rely on contracted or employed acute dialysis providers to set up PD cyclers, some may have inpatient nursing staff trained in the provision of PD, and some require an ICU setting for providing PD care and may limit to only manual exchanges. This heterogeneity adds complexity to the role of inpatient dialysis medical director, and it is possible that the medical director may be responsible for some or all of

Policy Forum highlights aspects of nephrology relating to payment and social policy, legislation, regulation, demographics, politics, and ethics, contextualizing these issues as they relate to the lives and practices of members of the kidney community, including providers, payers, and patients.

these activities, depending on the institution. Notably, the needs and structure of a community hospital may differ from those of an academic medical center.

The National Forum of ESRD Networks (also known as the ESRD Forum; Fig S1), a not-for-profit organization that amalgamates the legislatively mandated system of ESRD networks charged with improving quality of ESRD care, created a physician leadership toolkit, also known as the inpatient dialysis medical director toolkit, for hospital-based dialysis services (Supplementary File 1).[4,5] Given the issues pertaining to the quality and safety of hospital-based dialysis services mentioned above, the increasingly larger volume of dialysis therapy services being performed in hospitals, and the intersection between outpatient and inpatient dialysis care, the Medical Advisory Council of the ESRD Forum decided to create an expert-based toolkit for inpatient dialysis physician leadership, known as medical directorship. This toolkit provides information about the care of patients requiring dialysis in the hospital setting and expected areas of responsibility and accountability for the inpatient dialysis medical director, with focus on quality, safety, and best practices. The toolkit was created during 2018-2020, underwent internal and external peer review, and was made freely available on the ESRD Forum's website on July 1, 2020.

Some of the salient features of the defined position of the inpatient dialysis medical director are highlighted in Fig S2, and a comparison of inpatient and outpatient medical directorships is included in Table 1. The ESRD Forum's toolkit recommends that the inpatient dialysis medical director role should be assigned to an experienced, board-certified or board-eligible nephrologist as the most qualified clinician specialist to perform this role, owing to the needed training and experience in extracorporeal therapies. The inpatient dialysis medical director, in a manner analogous to their outpatient counterpart, provides the leadership that insures safe and effective delivery of extracorporeal therapies and coordination of care and quality initiatives with the entire treatment team, including nurse managers/directors. A key aspect of the inpatient dialysis medical director role, distinct from roles in dialysis outpatient facilities, is the interface with hospital quality control infrastructure that includes, but is not limited to, infection control, hospital quality and process improvement programs, intensive care and critical care quality programs, hospital biomedical equipment maintenance programs, and pharmacy and therapeutics services. Additionally, inpatient dialysis medical directors should routinely review all clinical and technical parameters that have an immediate impact on patient safety, including water quality, infection control, and hepatitis B monitoring and control. The inpatient dialysis medical director ideally will also review routinely the hospital's provision of other forms of KRT, including PD and CKRT. This individual will decide on implementation of adjunct technologies, such as blood volume monitoring, and should

Table 1. Comparison Between Inpatient and Outpatient Dialysis Medical Director Status

	Inpatient Dialysis Medical Director	Outpatient Dialysis Medical Director
Reporting status and accountability	Usually reports to CMO of the medical center	Reports to CMS with dotted reporting to the dialysis provider/owner
Immediate oversight	Medical center	ESRD networks, regional/county Department of Health, state Departments of Health
Ultimate oversight	TJC, via usually periodic surveillance (no a priori permission); state authorities in some states	CMS, via the Conditions for Coverage
Accreditation	Not defined	Across several areas: (1) CMS, (2) state licensing (as indicated), (3) certificate of need (as needed)
Biomedical and infection control	Infection Control Department of the hospital interacts with the biomedical staff (or may report to the engineering department)	Biomedical staff report to medical director
Financial compensation	Medical directorship fee based on contractual and administrative agreement with the medical center	Medical directorship fee according to contract with the dialysis provider
Administrative FTE	Equivalent of 0.1 to 0.25 FTE based on the volume (opinion)	Equivalent of 0.25 FTE or higher
Outsourced dialysis provider	If outsourced, the staff under the outsourcing entity also reports to the medical director	Hospital-owned or independent outpatient dialysis centers may have certain services outsourced, including management services
In-center vs home modalities	Usually a single medical director	There may be separate medical directors for different modalities
Dialysis payment model	Hospitals are not always reimbursed for dialysis treatments given that hospital reimbursement is DRG-based[a]	Facilities are reimbursed based on a per-treatment bundled payment model

Abbreviations: CMO, Chief Medical Officer; CMS, Centers for Medicare & Medicaid Services; DRG, diagnosis related group; ESRD, end-stage renal disease; FTE, full-time equivalent; TJC, The Joint Commission.
Adapted from the *Inpatient Dialysis Medical Director Toolkit*, ©2020 Forum of ESRD Networks, with permission of the copyright holder.
[a]There may be modifiers that can increase the DRG-based reimbursement.

review effectiveness of communication with outpatient facilities in order to facilitate safe transitions of care. Finally, the inpatient dialysis medical director needs to ensure the hospital's compliance with applicable requirements for the accreditation of the medical center under TJC as well as local and regional oversight and regulatory bodies.

According to the CMS Interpretive Guidance for the ESRD Conditions for Coverage (V711), the medical director of an outpatient dialysis facility should devote enough time to fulfill the responsibilities described. CMS considers that position to reflect a 0.25 full-time equivalent (FTE). Based on the complex nature of the inpatient dialysis medical director role, the authors and reviewers of the toolkit (who all have extensive experience in the care and oversight of patients requiring dialysis in the inpatient setting) strongly believe that the inpatient dialysis medical director position should be at least 0.1 FTE for smaller-volume programs, whereas in larger medical centers 0.25 FTE or more may be appropriate.

In conclusion, hospital-based dialysis therapy is a critical operation with major implications and potential liability for medical centers. It should be operated under the direct oversight of a qualified physician leader, specifically a qualified and experienced nephrologist, with defined areas of responsibility and accountability related to quality assurance and safe practice of dialysis and hemofiltration therapies. The Inpatient Dialysis Medical Director Toolkit from the National Forum of ESRD Networks can serve as a reference for organizing inpatient dialysis services with related hospital-level quality, safety, and best practices, which are frequently examined by oversight entities including TJC and other hospital accreditation organizations. The expectation is that the toolkit will be updated based on patients, health care workers, and other stakeholders, in order to refine and improve advice for the administration and oversight of inpatient dialysis care.

Supplementary Material

Supplementary File 1 (PDF)

Figure S1: Overview of the National Forum of the ESRD Networks.

Figure S2: Organization chart and accountability hierarchy constellation related to the inpatient dialysis medical director.

Table S1: List of select chapters in the Inpatient Medical Director Toolkit that provide more detailed description of medical director's responsibilities.

Supplementary File 2 (PDF)

Inpatient Dialysis Medical Director Toolkit.

Article Information

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