

Clinical factors impacting quality of life and outcomes through the transition from pre-dialysis chronic kidney disease to early dialysis treatment

Citation for published version (APA):

Maddux, D. W. (2018). *Clinical factors impacting quality of life and outcomes through the transition from pre-dialysis chronic kidney disease to early dialysis treatment*. Datawyse / Universitaire Pers Maastricht. <https://doi.org/10.26481/dis.20181218dm>

Document status and date:

Published: 01/01/2018

DOI:

[10.26481/dis.20181218dm](https://doi.org/10.26481/dis.20181218dm)

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

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Download date: 17 Jan. 2022

Valorization

The time of transition from pre-dialysis chronic kidney disease (CKD) to dialysis start is a critical period associated with the highest annualized mortality for end stage renal disease (ESRD) patients. As documented by the United States Renal Data System, the time of transition to dialysis start is also costly to the healthcare system. The research documented in this thesis explores how trends in laboratory and clinical parameters in the pre-dialysis and early dialysis periods may impact patient outcomes and modality at the time of transition to dialysis. It further provides insight into some interventions that can be implemented to improve patient outcomes during this critical period.

The dialysis transition time is difficult to study in the U.S. in part because the legacy healthcare delivery pattern and current electronic health record systems (EHRs) segregate pre-dialysis CKD care from care delivered after day 1 of dialysis treatment. Pre-dialysis CKD patients receive care in the nephrology practice with clinical data collection in the practice EHR. On day 1 of dialysis treatment, the dialysis facility multidisciplinary team assumes the majority of the clinical care of the patient and this care is documented in the dialysis organization EHR. The Fresenius Medical Care – CKD Registry is a rare database yielding continuous data through the dialysis start transition. The research included in this thesis and other data suggest that events during late stage CKD impact dialysis start and early dialysis outcomes. Particularly, studies have demonstrated that nephrology practice visits and CKD education in the year prior to dialysis start improve the likelihood of an optimal dialysis initiation and lower early dialysis mortality. As shown in our study, case managers with good population management tools and individualized patient support can improve the transition to dialysis. This case management model is resource intensive and not scalable in the U.S., so more research is needed to develop ways to efficiently deliver the right care to the right patient at the right time. These tools and processes will likely need to include telehealth, data-driven personalized algorithms, and online resources.

Data is critical to developing predictive models and insights that help match patients with the care they need at the right time. The development of real-time continuous clinical data repositories for the entire CKD care continuum from early CKD stages through the initiation of treatment for ESRD is needed. Such databases would support ongoing research and advance predictive and prescriptive analytics.

The transition to dialysis start needs to become a smooth, stable hand off from a nephrology practice setting to a dialysis treatment setting. More overlap time in clinical care between the CKD and ESRD care teams would be helpful. Pre-dialysis CKD clinical care teams should be held accountable for clinical quality goals that reflect a stable and successful dialysis start and early dialysis transition. In the U.S., payer reimbursement for optimal dialysis start and safe transition to ESRD care for both nephrology and surgical staff preparing patients for dialysis transition may provide incentives for improvement in outcomes.

In addition, more attention to patient and caregiver perceptions of quality of life is needed. In the U.S. today patients may not receive a first quality of life survey for up to 90 days after the first day of dialysis. This may delay clinical staff recognition of patient depression or treatment burdens. With peak mortality in the first 2 weeks of dialysis, the first days of dialysis should be viewed as a time of intensive assessment and support by the dialysis clinical team. This is also a good time for the nephrology practice clinical team with established patient relationships to be included in the clinical transition care team. Legacy reimbursement systems in the U.S. have been barriers to coordinating and overlapping pre-dialysis CKD and ESRD dialysis clinical care.

This research shines a light on this critical transition period for CKD patients. Future success will be easily measured by elimination of the steep rise in patient mortality and healthcare costs in the early weeks after the transition to dialysis start. New and better advanced analytical methods, such as predictive models, may help identify patients at high risk for unstable transition even before day 1 of the transition to dialysis begins.