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# KDIGO Controversies Conference on Dialysis Initiation, Modality Choice and Prescription

## January 25–28, 2018
## Madrid, Spain

Kidney Disease: Improving Global Outcomes (KDIGO) is an international organization whose mission is to improve the care and outcomes of kidney disease patients worldwide by promoting coordination, collaboration, and integration of initiatives to develop and implement clinical practice guidelines. Periodically, KDIGO hosts Controversies Conferences on topics of importance to patients with kidney disease. These conferences are designed to review the state of the art on a focused subject and to ask conference participants to determine what needs to be done in this area to improve patient care and outcomes. Sometimes the observations from these conferences lead to KDIGO guideline efforts and other times they highlight areas for which additional research is needed to produce evidence that might lead to guidelines in the future.

KDIGO Controversies Conferences follow a well-established protocol leading to a paper detailing the observations of the Conference, research questions and background data. The paper will be submitted to a peer-reviewed journal in approximately six months. This Conference on Dialysis Initiation and Prescription is the first of four on dialysis topics and follows the 2016 Conference on Advanced CKD. This enhances the continuity of KDIGO programs covering all stages of CKD.

### Introduction

The number of patients requiring kidney replacement therapy (KRT) has increased dramatically throughout the world over the last four decades. Some of the contributing factors include: the improved survival of the general population, an increase in the incidence of chronic kidney disease (CKD), changes in universal availability of dialysis in various countries and the significant broadening of KRT acceptance criteria.[1] As a result,

KRT has become available to increasing numbers of older patients with multiple co-morbid illnesses such as diabetes and congestive heart failure.[2] At the same time, the global epidemic of non-communicable chronic diseases has led to unprecedented numbers of people worldwide who have or are at risk for CKD, many of whom may not have access to KRTs.[3-6] In parallel, given the burden of illness the delivery of KRT has resulted in direct patient involvement in driving clinical outcome measures and research agenda.[7] These converging observations suggest that future clinical and research priorities in KRT will require realignment and global leadership.

**Relevance of the Conference and Topic**

There is significant variability in the practice of KRT initiation. Recent evidence has suggested that sub-optimal start to dialysis (i.e., an unplanned start of dialysis and/or requiring hospitalization) is associated with poor survival. However, dialysis initiation may be appropriately deferred as a "delayed strategy" in stable patients.[8] The initial use of home-hemodialysis, peritoneal dialysis[9] and integrated dialysis strategies[10, 11] have been introduced with variable success worldwide but the optimal approach for the individual is not clearly defined. As such, decisions concerning the optimal approach will guide timing and preparation for modality selection, appropriate dialysis access and initiation, and ultimately the prescribed and delivered dose of dialysis.[12] The aim is to achieve patient objectives in symptom control, dialysis outcomes and lifestyle. This conference is first of a series of dialysis controversies meetings to identify gaps in knowledge and consensus among various stakeholders to provide a blueprint for delivery of optimal contemporary KRT. Subsequent topics in this conference series will address management of dialysis complications, innovations in KRT, and diagnosis of hypertension and blood pressure management in end-stage kidney disease (ESKD).

The scope of this conference will not include optimal conservative care or preparation for kidney transplantation as the choice of KRT as these have been the subject of prior KDIGO Controversies Conferences. However, provision of supportive care (e.g., symptom management) as part of optimal dialysis management will be addressed in this conference.

**Conference Overview**

The conference will be led by Dr. Carol Pollock, nephrologist and Professor of Medicine, University of Sydney, Northern Clinical School, Kolling Institute of Medical Research, Australia and Dr. Christopher Chan, nephrologist and Professor of Medicine from the University of Toronto, University Health Network, Canada. This highly interactive conference will invite key thought leaders and relevant stakeholders in nephrology, and other related disciplines who will comprehensively review the literature and current state of understanding in this area, and address clinical issues as outlined in the **Appendix: Scope of Coverage**. There will be four working groups that will each address:

**Group 1: Choice of Initial Dialysis Modality**

**Group 2: Timing and Preparation for Dialysis Initiation**

**Group 3: Dialysis Access (HD/PD) and Preparation**

**Group 4: Optimal Dialysis Adequacy and Symptom Control**

## Appendix: Scope of Coverage

### Group 1: Choice of Initial Dialysis Modality

1. Is there a preferred modality and location (e.g., in-center, self-care satellite, home) for dialysis initiation? What is the optimal frequency? How can patient choices/preferences be integrated in this decision? Given potential constraints in local reimbursement policies, jurisdictions and infrastructure, what other medical/social factors does one need to consider in modality selection? Choice of modality includes:
    a. Incremental (HD or PD)
    b. Conventional (thrice weekly HD or PD)
    c. PD first (including CAPD vs APD)
    d. Integrated HD/PD
    e. Frequent / intensive HD
    f. Hemodiafiltration (HDF)

2. Given the theoretical construct of various aforementioned modalities, how does one reconcile the current clinical epidemiology of dialysis initiation worldwide?

3. Should specific patient-related factors or co-morbid conditions require specific treatment strategies? (e.g., age, body size, residual kidney function (RKF), polycystic kidney disease, heart failure, atherosclerotic heart disease, diabetes and anuric patients)

4. Should preservation of RKF be one of the considerations in deciding the choice of dialysis modality?

5. What are the strategies for urgent vs planned start (HD vs PD)?

6. How can we better define optimal patient support by modality in the transition period?

7. What are the drivers for dialysis initiation across jurisdictions?
    a. What is the economic implication of each potential strategy?
    b. What are the infrastructure implications of each potential strategy?
    c. What are some strategies in reducing early mortality (i.e., first 90 days) after dialysis initiation?
    d. What are the causes of early PD attrition and means for its reduction?

**Group 2: Timing and Preparation For Dialysis Initiation**

1. What are the current recommendations and status across different jurisdictions on this issue?
    a. Review of current guidelines and recommendations
    b. Review of current registry data and trends

2. What are the definitions on:
    a. Timely vs late referral
    b. Avoidable vs unavoidable delay in referral
    c. What is the impact of dialysis initiation on dialysis outcomes

3. How can late referral be avoided?

4. In patients with ESKD requiring initiation of dialysis, how can timing and preparation be optimized?
    a. Can we predict when to start dialysis?
        i. Serial assessment of patient-reported outcomes (e.g., PROs: physical functioning, frailty, cognitive impairment) & clinician-reported outcomes (e.g., ClinROs: signs and symptoms) and their trajectory: What are the available tools? What is the ideal timing of assessment?
        ii. Traditional biochemical markers and their trajectory
        iii. Novel biomarkers

        Address definition, utility & validation for each above and the relationship of each with respect to long-term outcomes including quality of life, hospitalizations, complications, withdrawal of dialysis
    b. Can we define the nature and timing of preparation and education, including counseling and peer support?
    c. How can we tailor (a) and (b) above for vulnerable patient subgroups:
        i. return from transplant/prior dialysis
        ii. pediatric
        iii. elderly
        iv. patients with comorbidities
    d. What are specific/appropriate co-interventions we need to consider?
        i. The need for optimizing co-morbid conditions
        ii. The need for social support
        iii. The need for financial support
        iv. The role of nutritional support

## Group 3: Dialysis Access and Preparation

Although it is widely accepted that pre-emptive dialysis access is preferred, there are significant challenges and barriers to achieve timely establishment of dialysis access. When preparing for HD or PD:

1. What are the system/patient/care providers' role and barriers in choosing dialysis access?

2. Is there a need to rethink old paradigms for dialysis access and consider dialysis access in the framework of the patients ESKD Life-Plan?

3. When should CVC/graft/fistula/PD catheter be considered as the initial access for medium to long-term dialysis?

4. What are the exit strategies for the initial access chosen and the considerations for subsequent dialysis access?

5. How do we reconcile the type of dialysis access between patients' choices versus clinical evidence?

6. Is there a role for access education, coordination and maintenance?

7. What are the existing gaps in clinical care and research in dialysis access, such as timing and monitoring of access prior to use? What about novel approaches to vascular access and peritoneal access?

## Group 4: Optimal Dialysis Adequacy and Symptom Control

1. How should dialysis adequacy be defined using the following parameters?
    a. Biochemical indices
    b. Volume status
    c. Signs and symptom control
    d. Nutritional status
    e. Novel physiological indices (e.g., avoidance of subclinical hemodynamic alterations)

2. What is the role of small / middle / large molecule kinetics in dialysis "dosing"?

3. Should we be measuring non-traditional uremic retention solutes? If so, how is this best achieved?
    a. What are the important uremic toxins?
    b. Can measurement be incorporated into routine clinical care?
    c. Is there sufficient evidence of clinical importance to justify their routine measurement?

4. How do we prioritize and balance the importance of:
    a. Solute clearance
    b. Fluid removal/rate
    c. Reducing treatment burden and interference with life activities
    d. Patient signs and symptom control (e.g., fatigue, pruritus, restless legs, etc.)

5. Should alternate day hemodialysis be adopted as the norm to avoid long inter-dialytic intervals? If so, how can this be operationalized?

6. What are the appropriate quality metrics (e.g., SONG-HD) and measurement tools?
    a. How should symptoms be assessed and with what instruments)?
    b. How should multiple measures be incorporated into a quality metric to allow for a multidimensional approach to assessing quality?
    c. How can metrics be individualized to avoid a "one-size-fits-all" approach?

7. What is the role of additional supportive/monitoring care in dialysis patients with significant frailty?

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