

**Title** Dialysis Modalities for the Treatment of End-Stage Kidney Disease: A Health Technology Assessment

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**Reference** Dialysis Modalities for the Treatment of End-Stage Kidney Disease: A Health Technology Assessment. Ottawa: CADTH; 2017. (CADTH Optimal Use Report; vol.6, no.2b). Available from: <https://cadth.ca/dialysis-modalities-treatment-end-stage-kidney-disease>

### Aim

The objective of this health technology assessment (HTA) was to inform a recommendation as to whether the provision of home-based self-care or assisted dialysis (peritoneal dialysis [PD] or hemodialysis [HD]) and self-care in-centre hemodialysis (ICHHD) should be more widely implemented in Canada. The HTA assessed the clinical effectiveness, cost-effectiveness, patients' experiences and perspectives, ethical issues, and implementation considerations for dialysis modalities for the treatment of end-stage kidney disease (ESKD).

### Conclusions and results

An assessment of clinical effectiveness suggested that home-based modalities appear to offer clinical benefits similar to ICHHD. There appears to be no consistent difference in quality of life outcomes between home-based HD and PD, when compared with ICHHD. Furthermore, the data suggest that both home-based dialysis modalities may offer a greater survival benefit among younger, motivated patients in supportive settings, when compared with ICHHD. Patients with diabetes and other comorbidities on home-based HD have similar survival rates as patients on ICHHD. The economic analysis suggests that home-based therapies, including home HD and PD, are the most attractive for eligible patients. Cost differences are accentuated in rural and remote settings. Assisted PD may be associated with greater costs of provision if delivered continuously, although may be less costly compared with ICHHD if provided intermittently. More frequent or nocturnal ICHHD is likely to be substantially more costly than any other modality, with little evidence to indicate superior outcomes. The evidence from the reviews of patients' perspectives and experiences, ethical issues, and implementation issues highlighted several important considerations to help decide whether home-based dialyses are appropriate modality options for the treatment of ESKD and could be more widely implemented in Canada. The considerations included patients' desire for a sense of freedom over their lives; the potential burden on caregivers; the opinions of health care practitioners and family members; ethical issues at the macro, meso, and micro levels of decision-making; and the need for education to address knowledge gaps at various levels of health care decision-making.

### Recommendations

The Health Technology Expert Review Panel recommends self-care home-based dialysis in patients diagnosed with ESKD, either with home HD or PD.

### Methods

To assess the clinical effectiveness and safety, a systematic review of the literature was conducted. For the economic analysis, a review of the literature was conducted that identified economic evaluations and costing studies in Canada. A Markov cohort model was constructed to assess the lifetime incremental cost-effectiveness of alternate dialysis modalities and prescriptions in patients with ESKD in Canada. For patients' perspectives and experiences, an overview of systematic reviews and a thematic synthesis of relevant literature was conducted. The ethics analysis combined a targeted literature search on various aspects of ESKD treatment modality selection and use with philosophical analyses to identify a range of ethical issues pertinent to the reimbursement and implementation of in-centre and home-based HD and PD. To understand the implementation issues surrounding dialysis treatment, a cross-Canada network of dialysis program professionals and nephrologists were surveyed to collect information on the strategies that have been used to establish or improve the uptake of home-based HD and PD and self-care ICHHD programs in Canada. Additionally, a narrative literature review was conducted to identify information on issues relevant to the implementation of home-based and self-care ICHHD in Canada.

### Further research and reviews required

Further research initiatives may be successful in determining, with greater precision, which subgroups of patients and under which conditions, self and home-based HD are the most successful. Better characterization of the potential cost variation between settings in Canada may result in more tailored economic findings. Implementation considerations for patients requiring dialysis in rural and remote populations in Canada need additional exploration. Future research could include a culturally appropriate investigation of chronic kidney disease screening and prevention, education initiatives, culturally appropriate care initiatives, and explanations behind the higher frequency of technique failure and lower PD use seen in Indigenous patients.

### Written by

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