

# Evidence *in* Context

Health research — synthesized and contextualized for use in Newfoundland & Labrador

## **EVIDENCE UPDATE:**

### **Examining Options for Dialysis Services in Rural and Remote Newfoundland & Labrador**

*A summary of the research evidence on rural dialysis services published since the March 2008 release of an Evidence in Context Report on Rural Dialysis Services in Rural and Remote Newfoundland and Labrador*

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## Updating the 2008 ‘Evidence in Context’ Report: *Examining Options for Dialysis Services in Rural and Remote Newfoundland & Labrador*

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The Contextualized Health Research Synthesis Program produced a 2008 ‘Evidence in Context Report’ on rural dialysis that posed the following research question:

*“In meeting the needs for dialysis services in rural and remote populations, what are the differences among the available treatment options with regards to efficacy/effectiveness, cost, acceptability, and feasibility in Newfoundland and Labrador?”*

The report found no persuasive evidence to suggest that any of the available modalities of dialysis service, including peritoneal dialysis and hemodialysis, is either more or less appropriate for either clinical or economic reasons in rural or remote populations in this province. Both types of dialysis are, in fact, complementary forms of renal replacement therapy, and home-based therapies were recommended as the primary option for rural and remote service provision.

In late 2012, we conducted a review to confirm that the findings of our 2008 study remain both current and relevant. Following are the key findings from our updated research:

### RESEARCH UPDATE KEY FINDINGS:

- The updated review identified no research indicating that findings presented in the original CHRSP report are inaccurate or out of date.
- There is still no persuasive or robust evidence to suggest that either peritoneal dialysis or hemodialysis is inappropriate in the unique rural and remote context of this province.
- In the absence of evidence to the contrary, home-based therapies should be considered the primary option for rural and remote service provision, and specific contextual factors should be considered when examining other options.
- A preliminary examination into the economic and clinical benefits of the NxStage system may be beneficial.

## 2012: UPDATING THE EVIDENCE

Using the original search strategy from our 2008 report, we examined relevant HTAs, systematic reviews, and economic evaluations published since 2007, and found the following:

- A total of nineteen systematic reviews and meta-analyses were located, fifteen of which directly and fully supported the report's findings.
- These reviews, like those we reviewed in our 2008 report, indicate that the modality of dialysis does not appear to affect patient mortality or morbidity.
- Most of the new studies also agreed with the cost analysis of the 2008 report, although three studies suggested that the cost issue was not quite straightforward:
  - one study suggested that local variations could actually make peritoneal dialysis *more* expensive;
  - one study found the costs of the two options to be equal;
  - one study found that home hemodialysis was comparable in cost to hospital hemodialysis and to peritoneal dialysis.
- As in 2008, it is still true that definitive conclusions on modalities cannot be drawn, given the lack of hard clinical data from randomized clinical trials (RCTs).
- The remaining four reviews did not directly address these issues but focused instead on finer distinctions between modality subtypes, rather than on the differences between peritoneal dialysis and hemodialysis. Specifically, automated peritoneal dialysis, typically completed during sleep, was found to be more beneficial than continuous ambulatory peritoneal dialysis, which does not require a machine and is completed during waking hours.
- When compared to conventional hemodialysis, short daily hemodialysis may be associated with long-term cardiovascular benefit, better clinical effectiveness, and enhanced quality of life.
- Extended hemodialysis may also confer enhanced cardiovascular benefit.
- Finally, a heightened quality of life was found among patients who underwent renal transplantation when compared to all types of hemodialysis, and

transplantation patients also had a lower risk level than those undergoing either type of dialysis.

**NEW NxSTAGE TECHNOLOGY:** We note that NxStage has developed a simple, small and portable short daily hemofiltration device that is primarily used in the home. Preliminary research at the University of Ottawa and elsewhere indicates that, although this product is not yet available for use in Canada, the cost of the NxStage system to both patients and the healthcare system may be comparable to, or less than, the cost of daily in-centre dialysis. Costs savings from the NxStage System may potentially result from several factors:

- fewer dialysis centres and staff would be required;
- NxStage has a simple patient and partner training module;
- NxStage requires minimal home renovation requirements.

The efficacy of the NxStage system appears to be promising, as it is noted to be a safe and viable option for some ESRD patients. Early research suggests that further investigation of home hemodialysis using NxStage may be helpful if it is introduced in Canada, given the potential clinical and economic benefits resulting from this form of home hemodialysis.

## About NLCAHR

The Newfoundland & Labrador Centre for Applied Health Research, established in 1999, contributes to the effectiveness of the health and community services system of the province and the physical, social, and psychological wellbeing of the population. NLCAHR accomplishes this mandate by building capacity in applied health research, supporting high-quality research, and fostering more effective use of research evidence by decision makers and policy makers in the province's health system.

## About the

### Contextualized Health Research Synthesis Program

In 2007, NLCAHR launched the Contextualized Health Research Synthesis Program (CHRSP) to provide research evidence to help guide decision makers in the provincial health system on issues of pressing interest to Newfoundland & Labrador.

CHRSP does not conduct original research, but rather analyzes the findings of high-level research (systematic reviews, meta-analyses and health technology assessments) that have already been done on the issue in question. The findings of these studies are synthesized and are subjected to a systematic process of 'contextualization': they are analyzed in terms of their applicability to the conditions and capacities of the unique context of Newfoundland & Labrador.

Our contextual analysis includes assessment of the specific forms that the issue takes in this province as well as the applicability of proposed solutions and methods to locally available physical and human resources, cultural conditions and financial capacities. CHRSP uses a combination of external experts and local networks to carry out and contextualize the research synthesis and to facilitate the uptake of the results by research users.

CHRSP focuses on three types of projects: health services/health policy projects; health technology assessment (HTA) projects; and projects that combine the two to examine processes for the organization or delivery of care involving a health technology.