Feasibility of Intradialytic Exercise in a Rural Community Hemodialysis Unit: Mixed Methods Analysis of Implementation

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A. Background

Numerous hemodialysis (HD) units in large centres offer option to exercise using leg cycle ergometers during or after HD sessions. There are well known benefits to patients:

Benefits to patients:
- ⇓ muscle wasting
- ⇓ muscle protein loss
- ⇓ CV mortality
- ⇓ blood pressure
- ⇑ exercise capacity
- ⇑ physical function
- ⇑ quality of life
- ⇑ hemodialysis efficiency

Barriers:
- Strain on limited resources
- Limited to large sites
- Often the relatively young and healthy take more interest
- Reduce interest over time

- **Can such an exercise program be implemented in a smaller or community unit?**
- **What are the key factors in its initial success and long tern sustainability**

B. Methods

- **Study design: mixed methods, 3 months duration**
  - **Quantitative data**
    - **Log books – patient recorded frequency, duration, and intensity of cycling**
  - **Qualitative data**
    - **Semi-structured interviews at 3 months with patients and clinical care providers capturing barriers and facilitators to participation**
- **Participants: 9 patients and 5 clinical care providers (CCPs) recruited from a remotely located community HD unit in northern British Columbia**
- **Analysis:**
  - **Descriptive statistics to indicate frequency, intensity and length of cycle utilization.**
  - **Transcribed interviews coded and analyzed using a theoretical framework scaffolded by constructs of acceptability and feasibility of implementation.**
  - **Creation of mind map illustrating the elements exclusively related to implementation in a rural small community context.**

C. Results

Figure 1. Timeline of Intervention

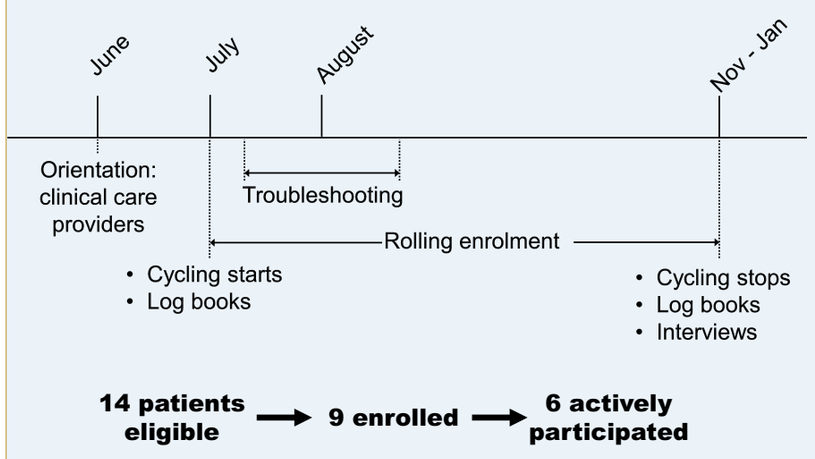
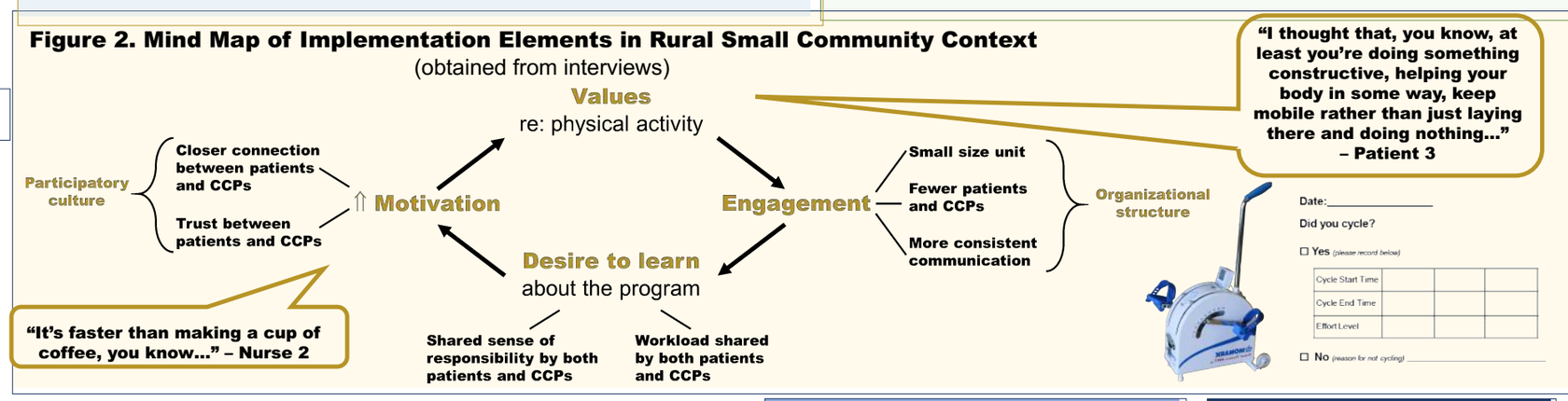


Table 1. Descriptive Statistics of Patients Cycling
(obtained from log books)

	Duration of participation (months)	Frequency of cycling (% of dialysis sessions)	Duration of cycling (minutes per session, average and range)	Intensity of cycling (using Perceived Exertion Scale)
Average	**2.5**	**87%**	**60**	**3 / easy**
Patient 1	1	73%	31 (16-44)	2 - 5
Patient 2	3.5	100%	74 (15-120)	2 - 10
Patient 3	5	88%	60 (27-95)	3
Patient 4	1.5	100%	115 (35-150)	4
Patient 5	4	63%	41 (30-60)	1 - 3
Patient 6	1	100%	39 (30-51)	3
Patient 7*	Once	N/A	25	6

* Data not included in calculation of averages.

Figure 2. Mind Map of Implementation Elements in Rural Small Community Context
(obtained from interviews)



D. Take-Home Message

- **Exercising during hemodialysis is acceptable, feasible, and safe when implemented in a rural community unit.**
  Key factors for success include:
  - **Patient engagement and partnership**
  - **Capitalizing Patient-Nursing Staff relationships**
  - **Flexibility and making small changes to improve**
  - **Using a structured team-based approach**
  - **Communication: information video/social media**
- **Watch patient educational recruitment video, created on the recommendation of our participating patients:**
  http://bit.ly/cycdialvid

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