

# Could offering physiotherapy services in emergency departments improve patients’ quality of life while reducing healthcare costs?

Rose Gagnon<sup>1,2,3</sup>, Jason R. Guertin<sup>1,2</sup>, Kadija Perreault<sup>1,3</sup>, Simon LaRue<sup>2</sup>, Simon Berthelot<sup>1,2</sup>, Komi Edem Gatovo<sup>2</sup>, Simon Lafrance<sup>1,2</sup>, Luc J. Hébert<sup>1,3</sup>

Contact: rose.gagnon.1@ulaval.ca

## Affiliations



EE87

## Context

Musculoskeletal disorders are responsible for the greatest loss in health-related quality of life (HRQoL) among all chronic conditions<sup>1</sup>

Poor HRQoL is associated with a first emergency department (ED) visit<sup>2,3</sup>

Up to 25% of all ED visits are made for musculoskeletal disorders<sup>4,5</sup> contributing to ED overcrowding<sup>6</sup>

One solution is to further integrate a variety of health professionals in the ED

Such as physiotherapists<sup>7</sup>

...However, the impact of physiotherapy management on HRQoL and healthcare costs has never been evaluated in North America<sup>8</sup>

Is this new care model efficient when compared to usual care?

## Objective

Evaluate the incremental cost-effectiveness ratio (ICER) of two ED care models:

1. Management by an emergency physician alone
2. Management by an emergency physician and a physiotherapist

## Results

Table 1. Participants’ characteristics (n=46)

Characteristics	Usual care	Intervention
	EP alone	EP + PT
Number of participants, n (%)	23 (50.0)	23 (50.0)
Age (yr), mean (SD)	42.1 (15.2)	39.0 (19.2)
Sex, n females (%)	9 (39.1)	13 (56.5)
Other health condition, yes (%)	11 (47.8)	9 (39.1)
Localisation of MSKD, n (%)		
Upper/lower limb	10 (45.5)	12 (52.2)
Spine	12 (55.5)	11 (47.8)
Family physician, yes (%)	18 (78.3)	23 (100.0)
Pain level <sup>a</sup> , /10 (SD)	6.8 (2.1)	6.5 (2.5)
Pain interference <sup>a</sup> , /10 (SD)	4.7 (1.5)	3.9 (2.0)

Characteristics were very similar between groups

... although participants in the EP + PT care model were more likely to be female and younger

All analyses were therefore adjusted for age and sex

Table 2. Average participants’ costs per intervention and per perspective

Cost category	Mean cost <sup>a</sup> (SD)			
	Public Payer		Societal	
	Usual care	Intervention	Usual care	Intervention
	EP alone	EP + PT	EP alone	EP + PT
	n=23	n=23	n=23	n=23
<b>Emergency department visit</b>				
ED visit cost	276.53 (318.18)	275.67 (264.10)	276.53 (318.18)	275.67 (264.10)
<b>Entire follow-up</b>				
Total cost	804.70 (3,399.56)	469.23 (766.27)	1,288.76 (3,439.67)	878.37 (1,122.09)
Total QALY gain	0.181	0.196	0.181	0.196
ICER	- 22,129.53 / QALY [Dominant]		- 27,072.09 / QALY [Dominant]	

EP + PT care model was found to be dominant for both perspectives

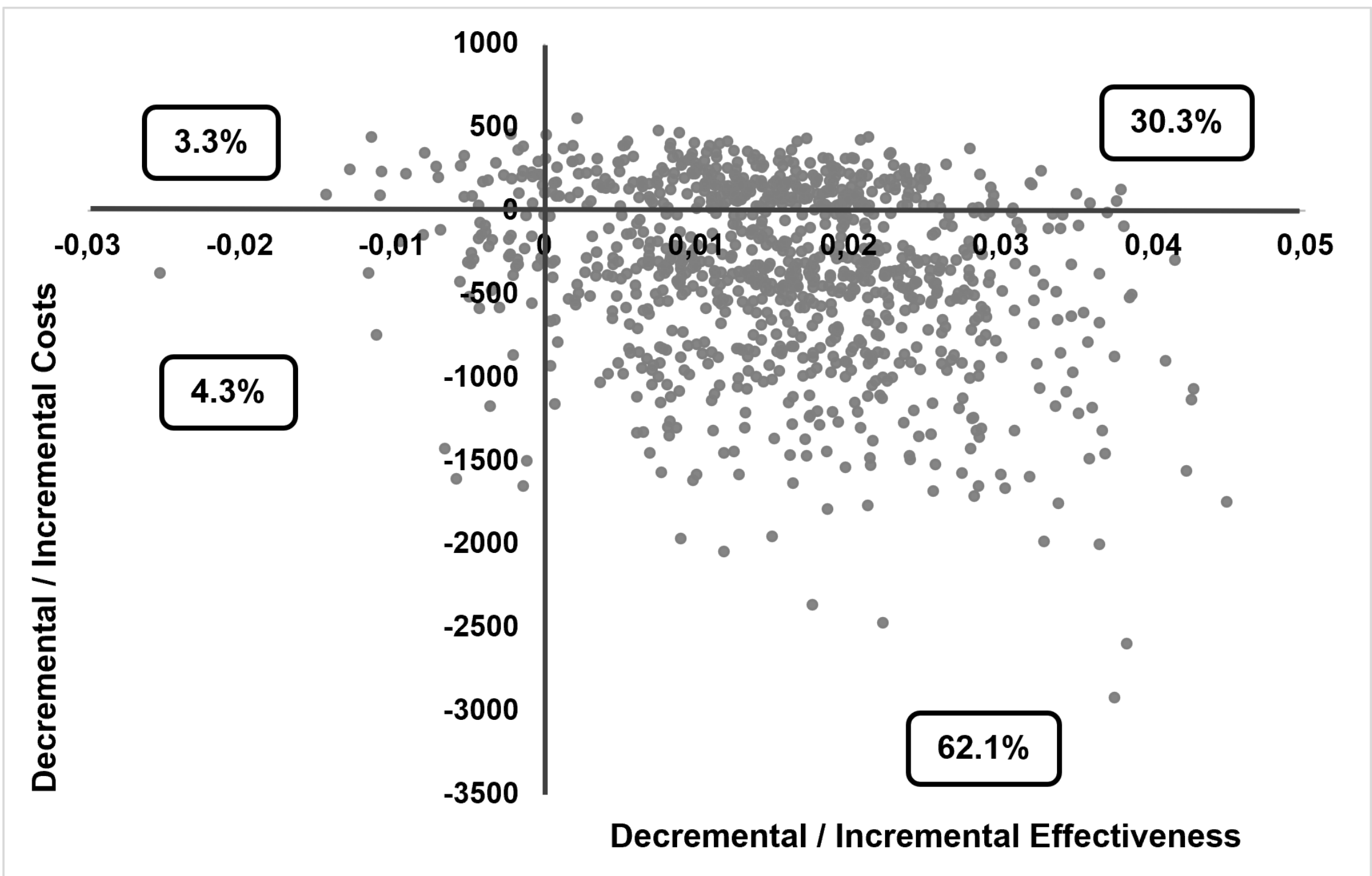


Figure 1. Cost-effectiveness plane – Canadian Public Payer perspective

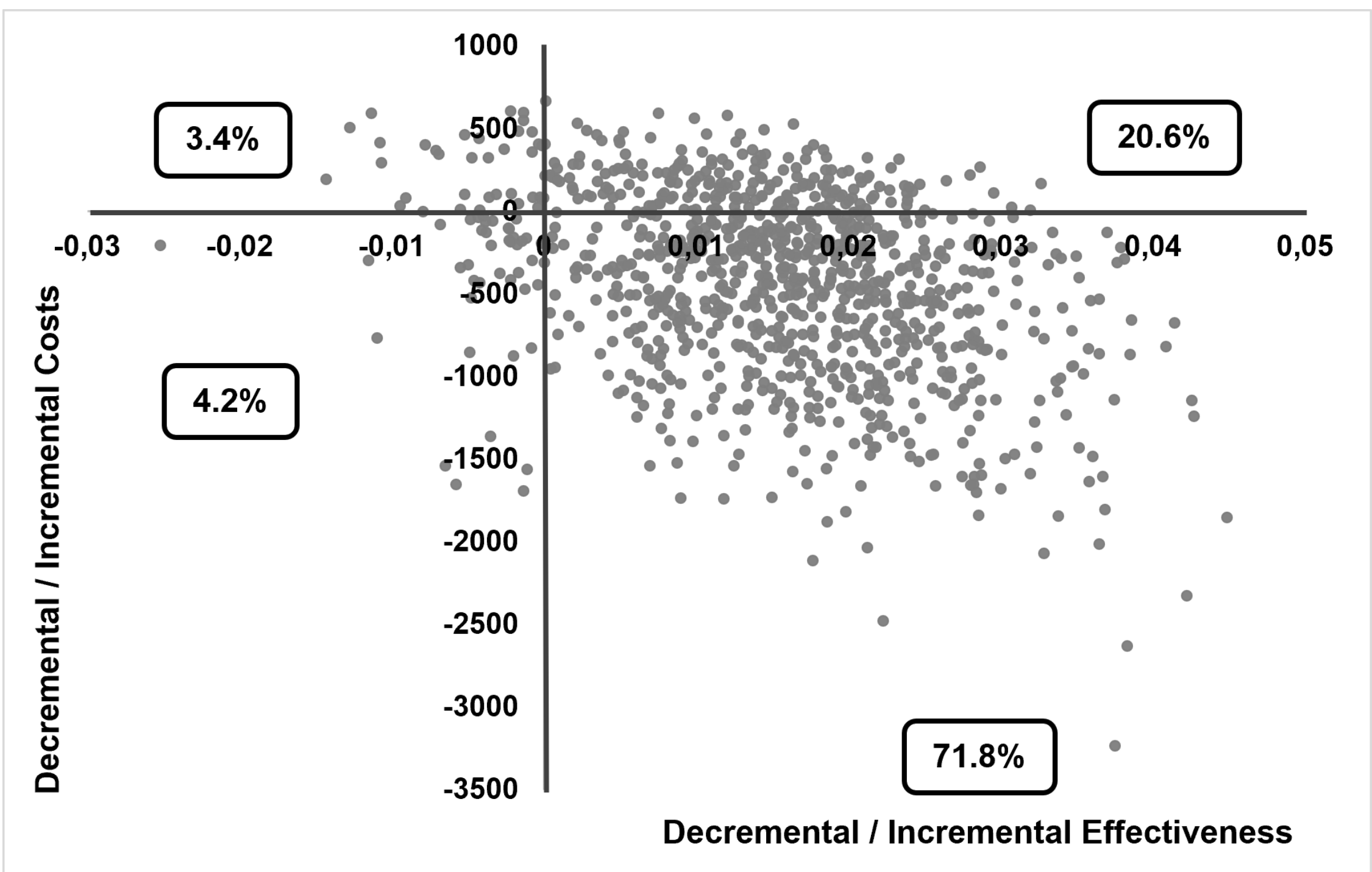


Figure 2. Cost-effectiveness plane – Canadian Society perspective

For both perspectives, the EP + PT care model was identified as being either cost-effective or dominant in over 92% of iterations

Sensitivity analyses Supported results obtained, with EP + PT management being also dominant for both perspectives

## Methods

- ➡ Cost-utility analysis (three-month period) based on data collected during a pragmatic randomized clinical trial
- ➡ ED of the CHU de Québec – Université Laval (Quebec, Canada, #NCT04009369)
- ➡ People aged 18 to 80 presenting to the ED with a minor musculoskeletal disorder (n=78)
- ➡ HRQoL was measured at baseline, 1 and 3 months (EQ-5D-5L). Scores were transformed into:
  - Utility scores - Canadian conversion algorithm (Xie et al., 2016)
  - Quality-adjusted life years (QALY) - Area-under-the-curve analyses
- ➡ Standardized healthcare resource utilization questionnaire: included costs came from our team’s previous work, scientific and grey literature
- ➡ Two analysis scenarios:
  - Complete case analysis (main analysis)
  - Missing data imputation using multiple imputation (sensitivity analysis)

## Discussion + Conclusion

The addition of physiotherapists in the ED may have the potential to reduce expenses while improving HRQoL

Results support the importance of further studying the impact of alternative ED care models

A more systematic measurement of care models’ efficiency could promote equity (value-based healthcare)

Could autonomous physiotherapy management be even more efficient?

### Limits

Small sample size

High variability in cost and effectiveness measures

## References

1. Cieza, Causey, Kamenov et al. *The Lancet*. 2021. [10.1016/S0140-6736\(20\)32340-0](https://doi.org/10.1016/S0140-6736(20)32340-0)
2. Krieg, Hudon, Chouinard and Dufour. *BMC Health Services Research*. 2016. [10.1186/s12913-016-1852-1](https://doi.org/10.1186/s12913-016-1852-1)
3. Naseer, Dahlberg and Fagerström. *Health and Quality of Life Outcomes*. 2018. [10.1186/s12955-018-0967-y](https://doi.org/10.1186/s12955-018-0967-y)
4. Bird, Thompson, Williams. *J Physiotherapy*. 2016. [10.1016/j.jphys.2016.08.005](https://doi.org/10.1016/j.jphys.2016.08.005)
5. Gaieski, Mehta, Hollander et al. *Clin Orthop Relat Res*. 2008. [10.1007/s11999-008-0277-5](https://doi.org/10.1007/s11999-008-0277-5)
6. Canada’s Drug Agency Health Technology Review. *Emergency department overcrowding in Canada*. 2023.
7. Canada’s Drug Agency Health Technology Review. *Emergency Department Overcrowding: Contributing Factors and Interventions*. 2023.
8. Lafrance, Demont, Thavorn et al. *BMC Health Services Research*. 2021. [10.1186/s12913-021-07221-6](https://doi.org/10.1186/s12913-021-07221-6)

## Funding

