

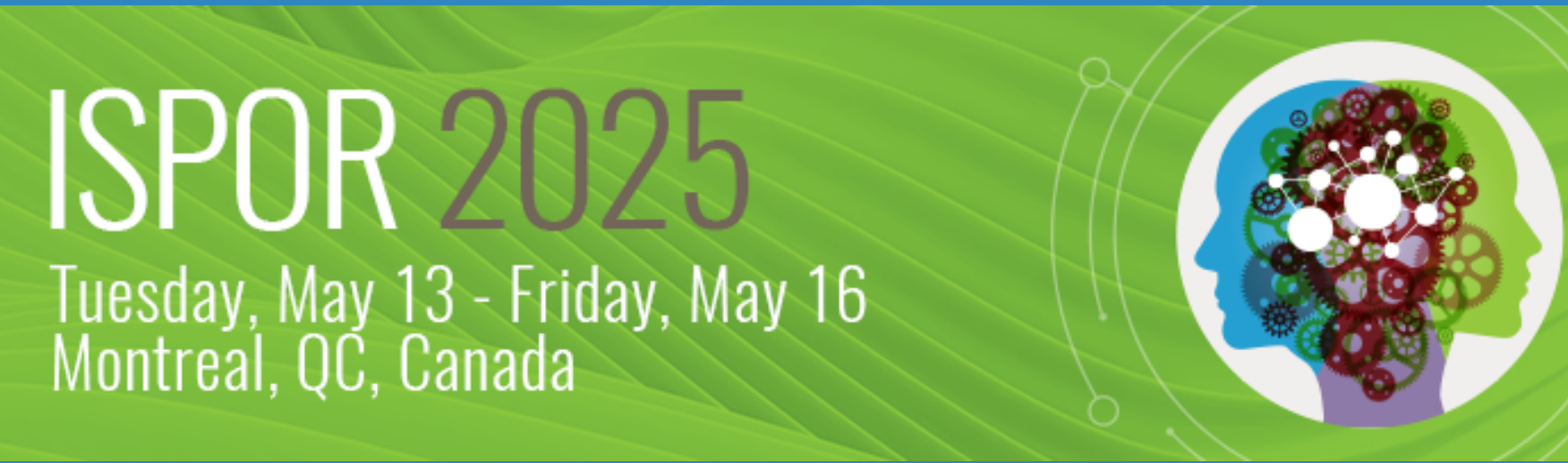
Cost-Savings of Primary Healthcare Nurse Practitioners' Planned Interventions for Reducing Transfers of Patients from Home Care to Emergency Departments in Quebec, Canada

Tchouaket, E. PhD¹, Kilpatrick, K. RN, PhD², Jabbour, M. MSc³, El-Mousawi, F. MSc¹

¹Department of Nursing, Université du Québec en Outaouais, Saint-Jérôme, Québec, Canada.

²Ingram School of Nursing, Faculty of Medicine and Health Sciences, McGill University, Montréal, Québec, Canada.

³Maisonnette-Rosemont Hospital Site, CIUSSS de l'Est-de-l'Île-de-Montréal du Québec, Montréal, Québec, Canada.



Background

- Primary healthcare nurse practitioners (PHCNPs) increase access to services in home care settings.
- Their integration reduces hospitalizations and Emergency Department (ED) transfers.
- The economic impact of reduced transfer costs remains underexplored.
- Cost-effectiveness analysis is needed to guide policy decisions.

Objectives

Principal Objective: Assess cost-savings of PHCNPs' planned interventions

- **Specific objective 1: Estimate Intervention Costs**
Calculate the human resource costs of nurse's planned versus unplanned interventions (care)
- **Specific objective 2: Determine Transfer Costs**
Report expenses from the literature for emergency department transfers from home care
- **Specific objective 3: Calculate Cost-Savings**
Quantify economic benefits of reduced transfers due to PHCNPs' planned interventions

Methods



PHCNP's planned interventions are defined as are regular follow up of patients in home care, while unplanned interventions are home visits due to patients experiencing unexpected events (i.e falls) or a deterioration in their health.

To estimate intervention costs

- Time-Motion Study
- Six PHCNPs were observed by research staff during their work in home care settings
 - Activities were captured using a validated tool to capture 32 activities related to clinical and non-clinical dimensions of interventions
 - A Time-Driven Activity-Based Costing approach (salary * time spent per year) was used to assess the costs of planned and unplanned interventions, expressed in 2022 Canadian dollars (CAD).

To determine transfer costs

- A Rapid Literature Review
- CINAHL and Medline databases were queried; 2015-2025
 - Material and human resource costs of PHCNP related patient transfers from home care to ED with and without hospitalization were calculated for: transportation alone, or with hospitalization

To calculate cost-savings

- Chart review
- Site: 4 institutions where the PHCNPs worked
 - Data source: 343 charts of patients receiving home care between 2019 and 2020
 - Data were collected assess the number of interventions that were planned with a PHCNP and those that were unplanned, and their risk of transfer to hospital

Results

Costs of PHCNP planned versus unplanned interventions

Intervention Type	Median Annual Cost (CAD 2022)	Range (Min; Max)
All interventions N=1091	790.00	392.70; 3,997.10
Unplanned interventions n=790	772.10	403.50; 2,942.20
Planned interventions n=301	792.30	392.70; 3,997.10
Adjusted Cost Difference Planned vs. Unplanned	49.50	-71.00; 166.30

Planned interventions cost slightly more than unplanned ones, but non-significantly (p>0.05)



- **Study design:** Multi-Method Observational Approach
- **Perspective:** Societal perspective
- **Discounting and Sensitivity analysis:** 1,000 simulations with discount rates of 3%, 5%, and 8%.

Rapid literature review: cost of transfers from home care to hospital

From 345 records, 9 articles were retained for cost analyses.

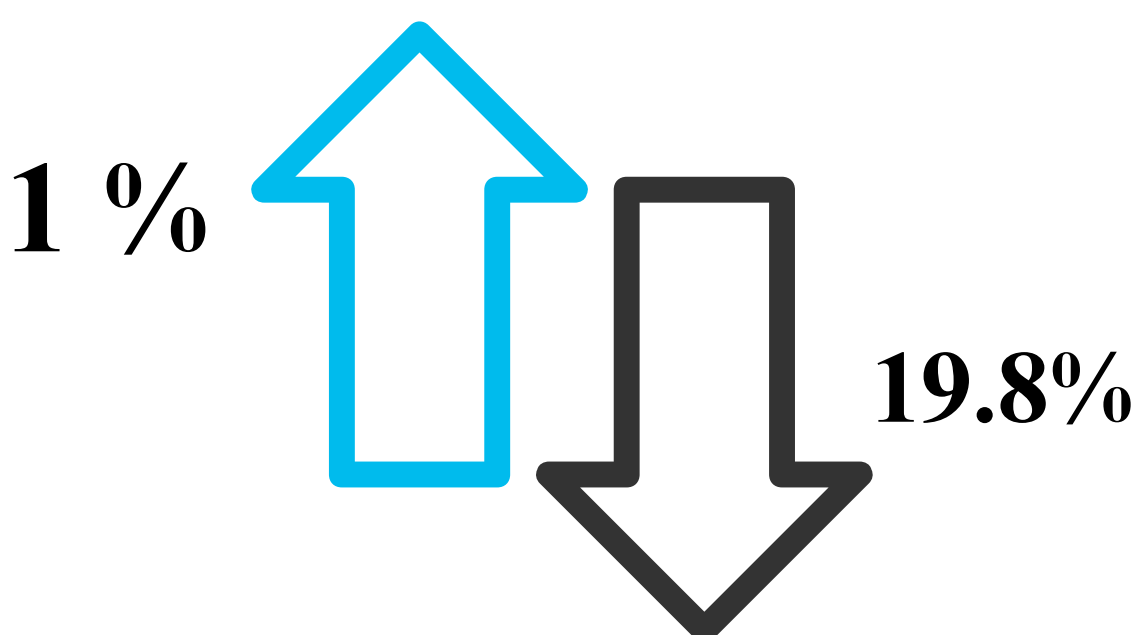
Median costs (discounted at 5%; sensitivity: 3%, 8%) were:

- Without hospitalization: **\$1,266** (95% CI: \$986–\$1,557)
- With hospitalization: **\$15,303** (95% CI: \$12,867–\$20,583)

Chart review to assess impact of planned interventions

Each **1% increase in planned interventions** was associated with a **19.8% decrease in hospital transfers**

This resulted in 26.1 transfers avoided annually.



Cost-savings from planned interventions and the resulting reduced number of transfers

Median net cost savings from reduced transfers per year were: **\$38,857** (30,968; 57,036) and up to **\$ 879,718*** (700,516 ; 2,147,421) for those with hospitalization

Benefit-Cost Ratio for transfers avoided was: **800:1** (603:1 ; 1,164:1) and up to **17,530:1**** (13,031:1; 46,563:1) with hospitalization

above numbers are reported at 5% (3%, 8%) discount

Discussion

- * Planned interventions provided net gains of up to \$879,718 per year in this study
- ** Every 1 dollar invested in planned interventions provided up to \$17,530 in savings

Clinically, these findings support safer, more stable, and person- centred care that keeps patients at home and out of hospital. Findings support increased integration of PHCNPs in home care services throughout Quebec's healthcare system.