

# Measuring the Value of Integrated Geriatric Emergency Care: A Return on Investment Evaluation of Ontario's Central East GEM Nurse Program

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Stacey Hawkins: No Conflicts of Interest



## Background

Older adults (65 and older) represent almost 30% of unplanned emergency department (ED) visits in Ontario<sup>1</sup>, ~24% of all ED visits<sup>2</sup>, and experience the highest rates of hospital admission, length of stay, and functional decline.

The Central East **Geriatric Emergency Management (GEM) Nurse Program** was developed to provide specialized geriatric assessment and care within EDs across nine hospital sites in the Central East Region of Ontario, Canada. Led by nursing specialists, GEM aims to improve patient outcomes, enhance system integration with community and specialized geriatric services (SGS), and strengthen the capacity of ED teams to deliver senior-friendly care. This evaluation examined both the clinical and economic outcomes.

## Approach

Using a **Return on Investment (ROI) methodology**, this mixed-methods evaluation included assessment of program elements across six data levels (**inputs, reaction, confidence, application, impact, ROI**), whilst linking program inputs to tangible and intangible program outcomes.

### Objectives

1. Establish a link between GEM program inputs and its impacts
2. Convert tangible GEM program impacts into an ROI value

### Evaluation Questions

Are quantifiable GEM program benefits greater than program costs?

- What are the intangible benefits of the GEM program?

Data were collected from:

- GEM nurse clinicians (n=9; interviews and self-report surveys);
- ED staff at three hospital sites (n=29; survey responses);
- Regional GEM metrics and financial data (administrative reports);
- Hospital decision-support data (retrospective), and prospective clinical data collection.

Comparative analyses between GEM patients and a non-GEM matched-case control group were undertaken to isolate program effects on inpatient admissions, length of stay (LOS), alternate level-of-care (ALC) rates, and ED recidivism. Financial proxies were applied using standard hospital costing data (including proportion of annual GEM program costs) to estimate the ROI, and constructed three financial models. Stakeholder engagement—including GEM clinicians, ED staff, and regional program leads—guided indicator selection, interpretation, and validation of findings.

## Results

### Input

Across sites, GEM services primarily operate weekdays (**8-hour shifts**) with most sites staffed by a single **GEM clinician** (advanced practice nurse and/or nurse practitioner) working as part of an interprofessional team.

GEM nurses were highly qualified: all held national gerontology certification, and **2/3** possessed or were pursuing graduate degrees.

### Reaction

Both GEM and ED staff expressed strong program buy-in.

**>90%**

respondents agreed GEM improves patient care, supports safe discharge, and reduces unnecessary hospital stays.

### Confidence & Application

GEM clinicians reported high confidence in:

- **Targeted geriatric assessment**
- **Care planning**
- **Community referral skills**

GEM Nurses routinely applied these clinical competencies to divert avoidable admissions and facilitate appropriate transitions.

## Intangible Impacts

### Satisfaction

Improved patient and caregiver satisfaction



### Gerontological Knowledge

Stronger linkages with SGS and community partners



### Partner Linkage

Increased gerontological knowledge among ED teams (capacity building)



## Tangible Impacts

**161**

fewer inpatient admissions



In-patient LOS after admission (-8.37 hours/patient)

**99**

fewer ALC admissions



Rate of becoming ALC after admission (≤ 30 days from admission)

While GEM was associated with increased average ED length of stay and revisit rates, overall **net ROI remained positive at +354%**, confirming that program benefits significantly exceeded costs (outcomes and operations).

These findings were based on our most conservative financial model.

**\$1.13**  
**million CAD**

annual savings per GEM Nurse

monetary saving > program costs

## Implications

This evaluation provides one of the first quantifiable ROI evaluations of a regional GEM model in Canada. Findings affirm that embedding specialized geriatric expertise within EDs yields both clinical and economic benefits, and strengthens integration between acute and community sectors. Beyond monetary return, GEM contributes to safer, person-centred transitions, and builds system capacity for senior-friendly, dementia-sensitive care.

Future work will focus on expansion of services across sites, and exploring digital tools to enhance access and follow-up. The ROI evaluation framework offers a replicable approach for jurisdictions seeking to demonstrate the value of integrated geriatric care models.

These findings have been used by hospital leadership to successfully advocate for funding of new GEM Nurse positions in the Central East Region.

### Citations

<sup>1</sup>Health Quality Ontario. Under Pressure: Emergency department performance in Ontario. Toronto, Ontario: Queen's Printer for Ontario; 2016.

<sup>2</sup>Canadian Institute for Health Information. NACRS Emergency Department Visits: Volumes and Median Lengths of Stay, 2003–2004 to 2021–2022 — Supplementary Statistics. Ottawa, Ontario: CIHI; 2022.

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