

Costing Analysis Methodology for the Geriatric Emergency Management PLUS (GEM+) Program

Ronaye Gilsenan MA, AnnMarie DiMillo RN BScN, Kelly Milne BSc(OT), Frank Molnar MSc, MDCM, FRCPC



Project Objectives

1. Develop a costing methodology for the GEM+ Program.
2. Test out this methodology at The Ottawa Hospital (TOH) and determine if the GEM+ Program resulted in bed days saved or costs avoided.
3. If methodology is durable, expand to other hospitals with the GEM+ Program.

The GEM+ Program

The GEM+ program is a consistent Regional Model using an evidenced-based approach to screening and assessment of frail seniors 75+ visiting the Emergency Department (ED).

GEM+ ED nurses, with special training in Geriatric Medicine, provide a targeted geriatric assessment to support early identification and intervention of reversible medical and psychosocial issues. The GEM+ ED nurses develop an action plan and provide an individualized and coordinated approach in order to optimize and support the capacity of seniors to remain in their own homes by initiating earlier referrals to specialized geriatric services (SGS) and community support services (CSS).

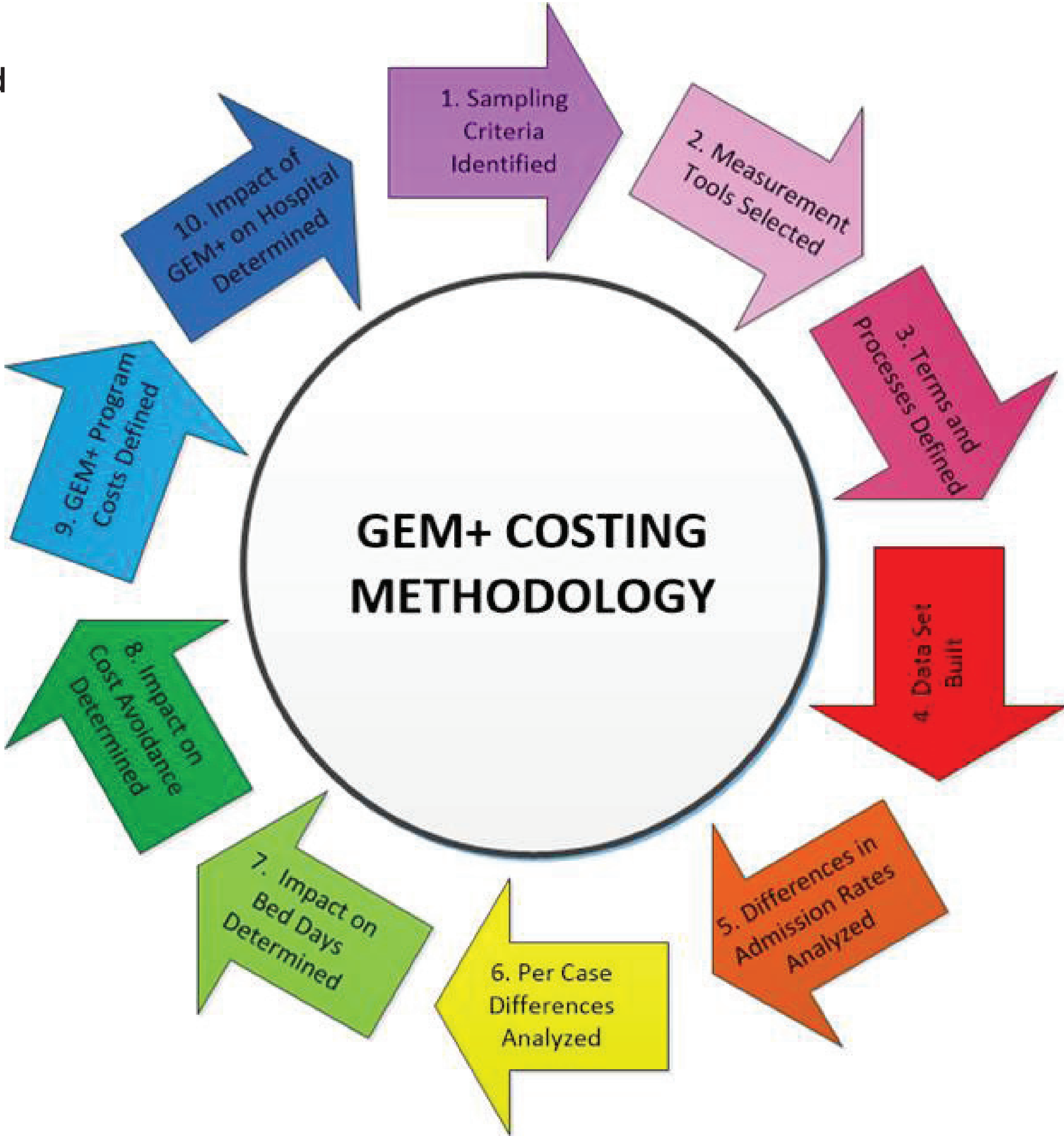
The ultimate goal is to improve the trajectory, safety, quality, and durability of ED discharges and thus improve ED flow, and reduce unnecessary hospital utilization (e.g.: Hospital Admission and/or Return ED visits).



GEM+ Costing Methodology

Steps of the Costing Methodology

1. Sampling criteria identified and the order for including and excluding data determined
2. Measurement tools selected: Canadian Triage and Acuity Scale, Elixhauser Comorbidity Index, and the Escobar Model
3. All terms defined and specific indicators provided with a numerator, denominator, and the required statistical analysis
4. Data set built to analyze differences in costs (direct and indirect) and bed days required
5. Analyzed data for differences in admission rates and ALC rates
6. Analyzed data for per case differences for a) ED cases, b) admitted cases, and c) admitted cases that become ALC
7. Determined impact on bed days
8. Determined impact on cost avoidance
9. GEM+ Program costs defined
10. Determine total impact of GEM+ on hospital resources and costs



Key Lessons Learned

- Ensure that the GEM+ study group and the Non-GEM+ comparator group are two exclusive groups during the entire study.
- Take the time required for staff and data analysts to fully understand the key processes of the GEM+ program and all definitions included in the costing analysis.
- Ensure one data analyst is selected to source data for both the study and the comparator groups.
- Select one program representative to liaise with the data analyst.
- Ensure only “clean” program data is utilized.
- Have the analyst walk through the results from the data analysis and explain what was done and what it means.
- Utilize a process map to facilitate understanding of the program and interpretation of the data.

Testing the GEM+ Costing Methodology at TOH

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|-------------------|-------------------------|
| Study Group: | 932 GEM+ TOH Cases |
| Comparator Group: | 6774 Non-GEN+ TOH Cases |

Key Limitations with the Analysis at TOH using 2012/13 FY Data

- Lack of costing data prior to program implementation
- Cases could not be randomly selected
- Costing data not available for all TOH cases
- Partial GEM+ assessments were excluded
- The administrative triage screen exclusion criteria “a second ED visit within 6 months” could not be used as it was not applied consistently to all GEM+ patients
- Patients re-visiting the ED with a CTAS level of 1 or 2 were excluded as this analysis was limited to patients at ED index visit with CTAS 3-5 levels.

Key Findings with the Analysis at TOH

Overall, the GEM+ study group diverted more in-patient hospitalizations than the Non-GEM+ comparator group. Of those cases that were admitted, the GEM+ study group had on average:

- a) a shorter length of stay
- b) a lower total cost

Impact of the GEM+ Program on TOH in 2012/13 FY:

- 1310 bed days saved
- \$1,941,340.79 in cost avoidance