

# British Columbia Sepsis Network (BCSN) Return on Investment

Asif Raza Khowaja<sup>1,2</sup>, David Sweet<sup>2,3</sup>, Christina Krause<sup>1,2</sup>, Colleen Kennedy<sup>2</sup>, Janine Johns<sup>2</sup>, Ben Ridout<sup>2</sup>, Eric Young<sup>2</sup>, Sarah Carriere<sup>2</sup> and Craig Mitton<sup>1</sup>

<sup>1</sup>School of Population and Public Health, University of British Columbia.

<sup>2</sup>BC Patient Safety & Quality Council.

<sup>3</sup>Vancouver General Hospital.



## BACKGROUND

- ❖ Sepsis is a clinical syndrome that occurs as a complication of an infection.
- ❖ It is a leading cause of mortality and is linked to increased hospital resource utilization and prolonged stays in intensive care.
- ❖ The BC Patient Safety and Quality Council (BCPSQC) created the BC Sepsis Network (BCSN) in 2012 to connect clinicians, quality improvement leads and operational staff who could champion sepsis improvement.
- ❖ There are three components of the BCSN:
  - Clinical and quality improvement (QI) resources
  - Expert teaching and coaching
  - Fostering province-wide awareness and engagement



People

Power

Change

## AIM

- ❖ This storyboard showcases the return on investment - ROI (i.e., value for money) - of the BCSN. These results provide robust evidence to inform decisions on resource allocation about QI initiative(s) in the province and to propagate a similar model of care for Canada and beyond.

## Methods

### Epidemiological Rates

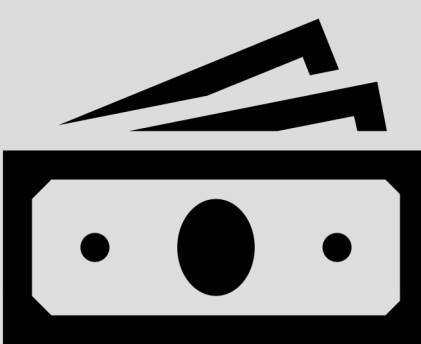
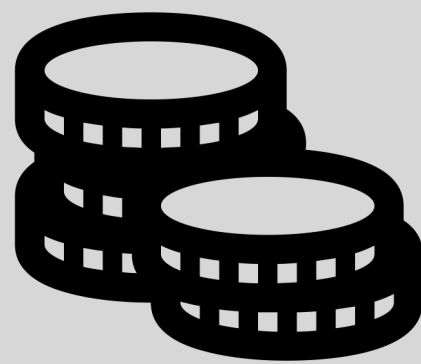
- ❖ Aggregate data on in-hospital sepsis rates and sepsis mortality in all Canadian provinces were obtained from the Canadian Institute for Health Information (CIHI).
- ❖ Annual background mortality rates for BC and Canada were extracted from the Statistics Canada.

### Costs / Assumptions

- ❖ The average cost of sepsis-related hospitalization was calculated from CIHI's Patient Cost Estimator.
- ❖ The average cost of in-hospital death and burial costs to the family were identified from the grey literature.
- ❖ The cost of BCSN implementation were extracted from financial reports.
- ❖ Health system and health authority costs related to improving sepsis care were not included in this analysis.
- ❖ A discount rate of 3.5% was applied, and all costs are reported in Canadian dollars.

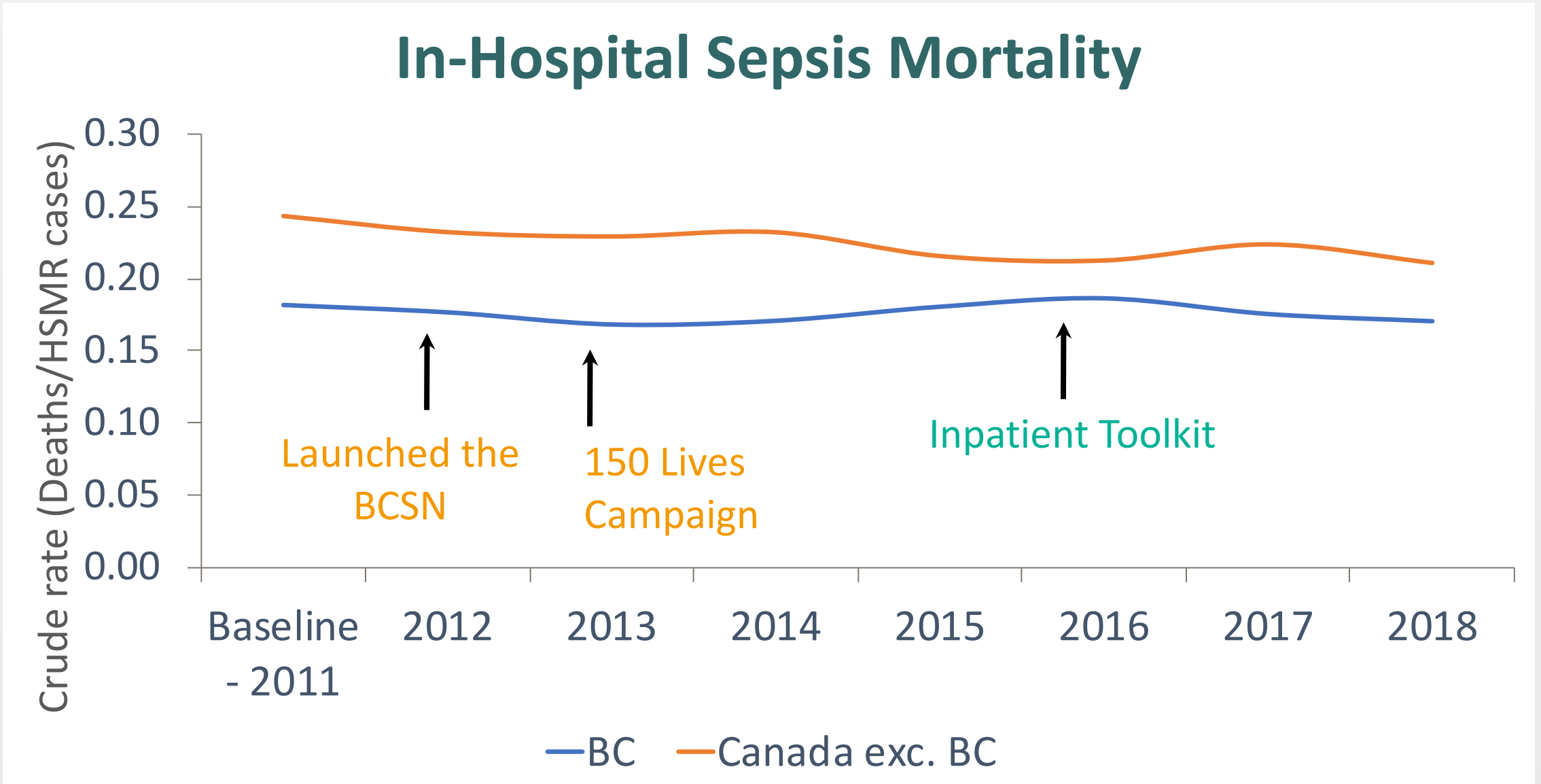
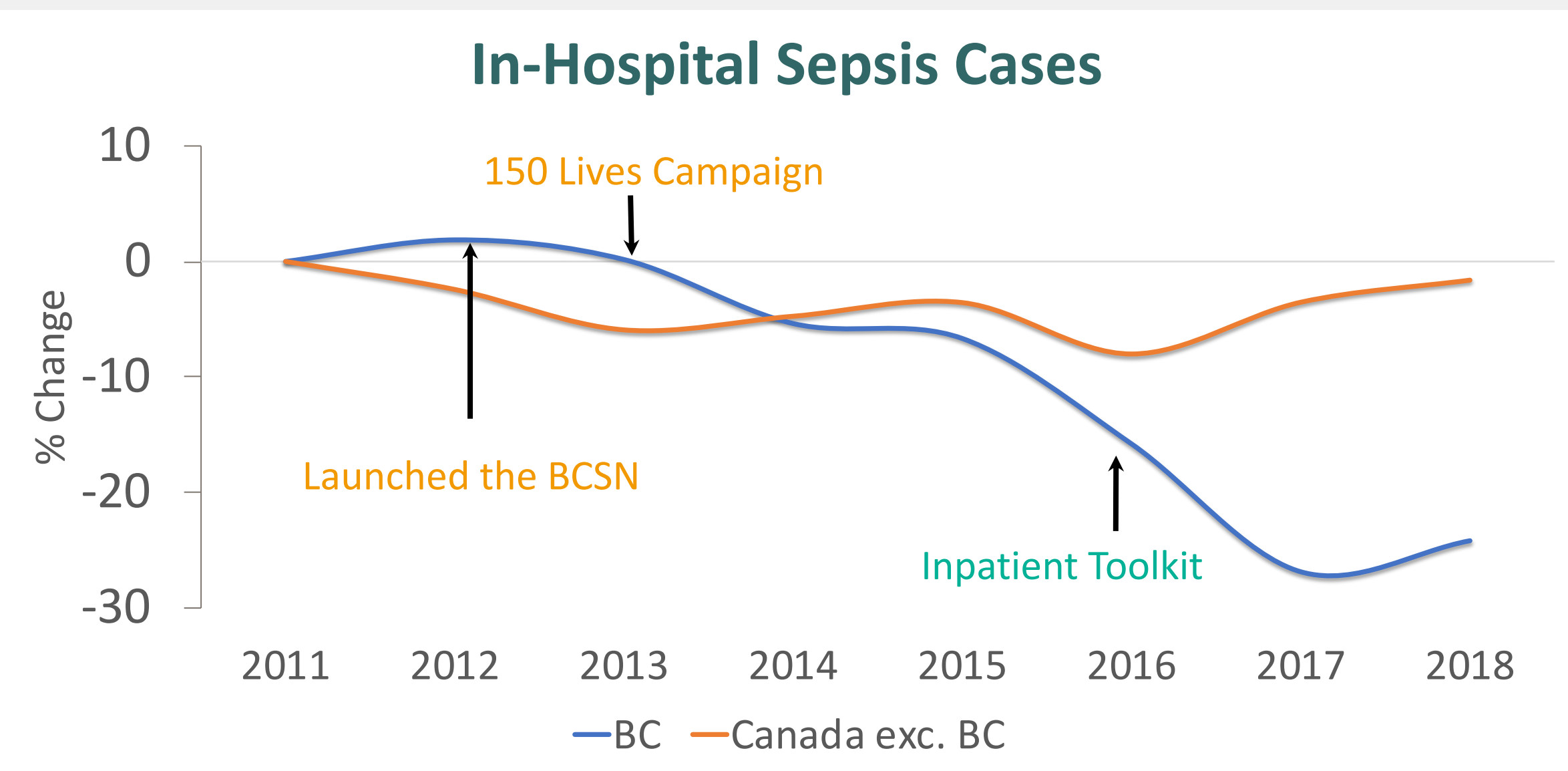
### Analysis

- ❖ Calculated financial savings from averted cases and mortality for the fiscal period from April 2011 to March 2012 (baseline), and April 2012 to March 2018 (post-BCSN initiation).

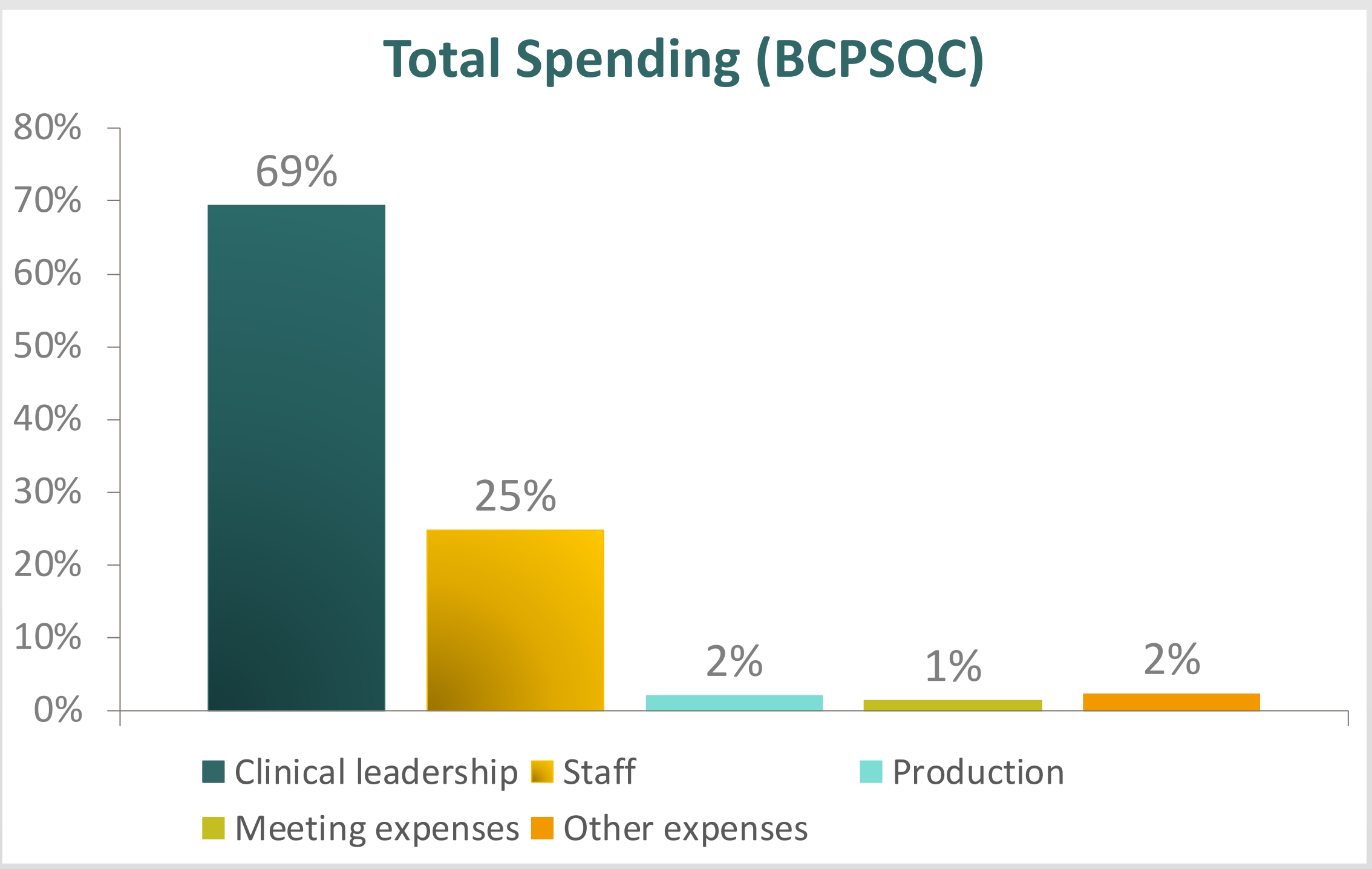
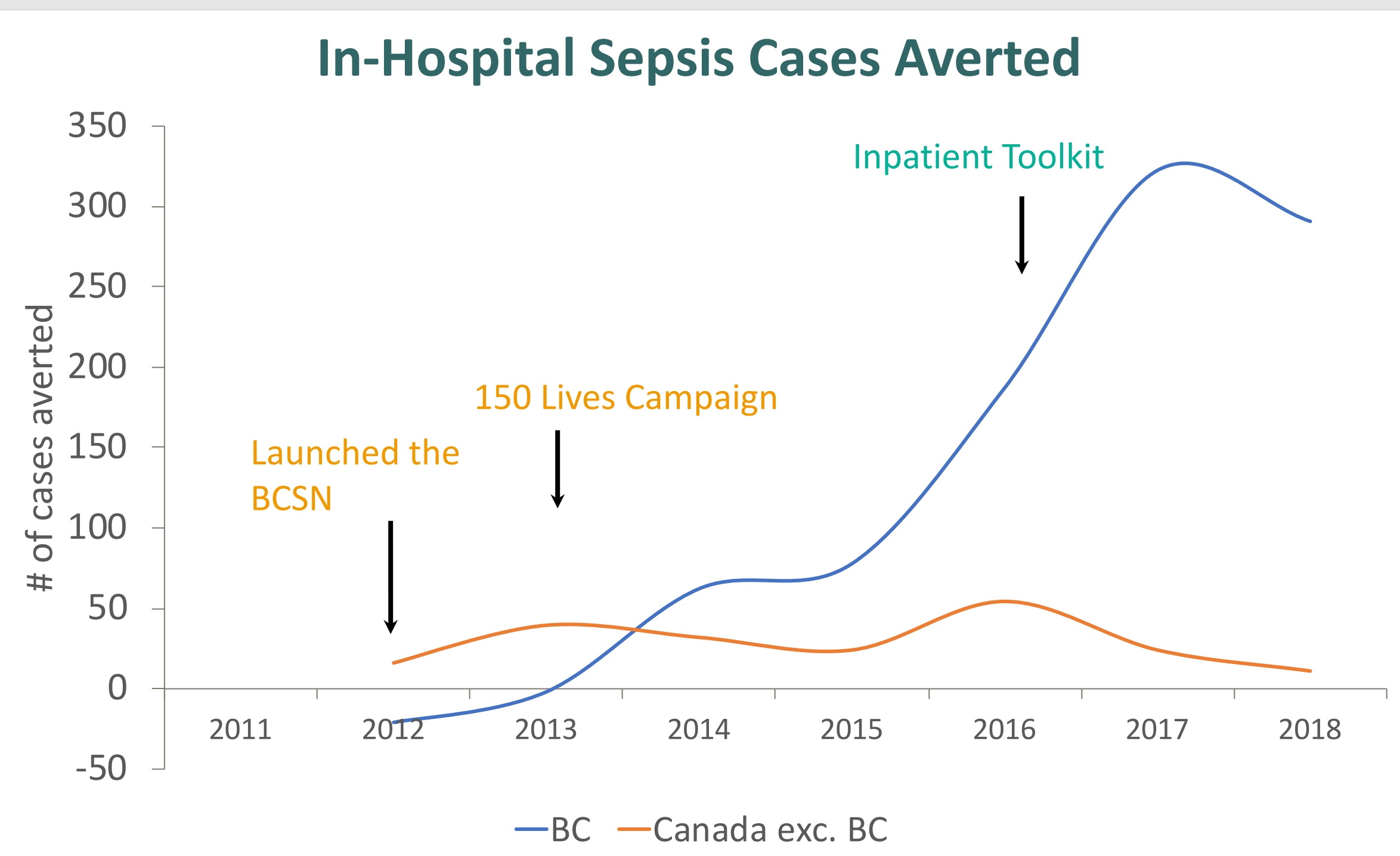


## RESULTS

- ❖ Since the launch of BCSN and targeted efforts to improve sepsis care in the province, there has been a substantial reduction in sepsis cases and mortality in the BC compared to other provinces in Canada.

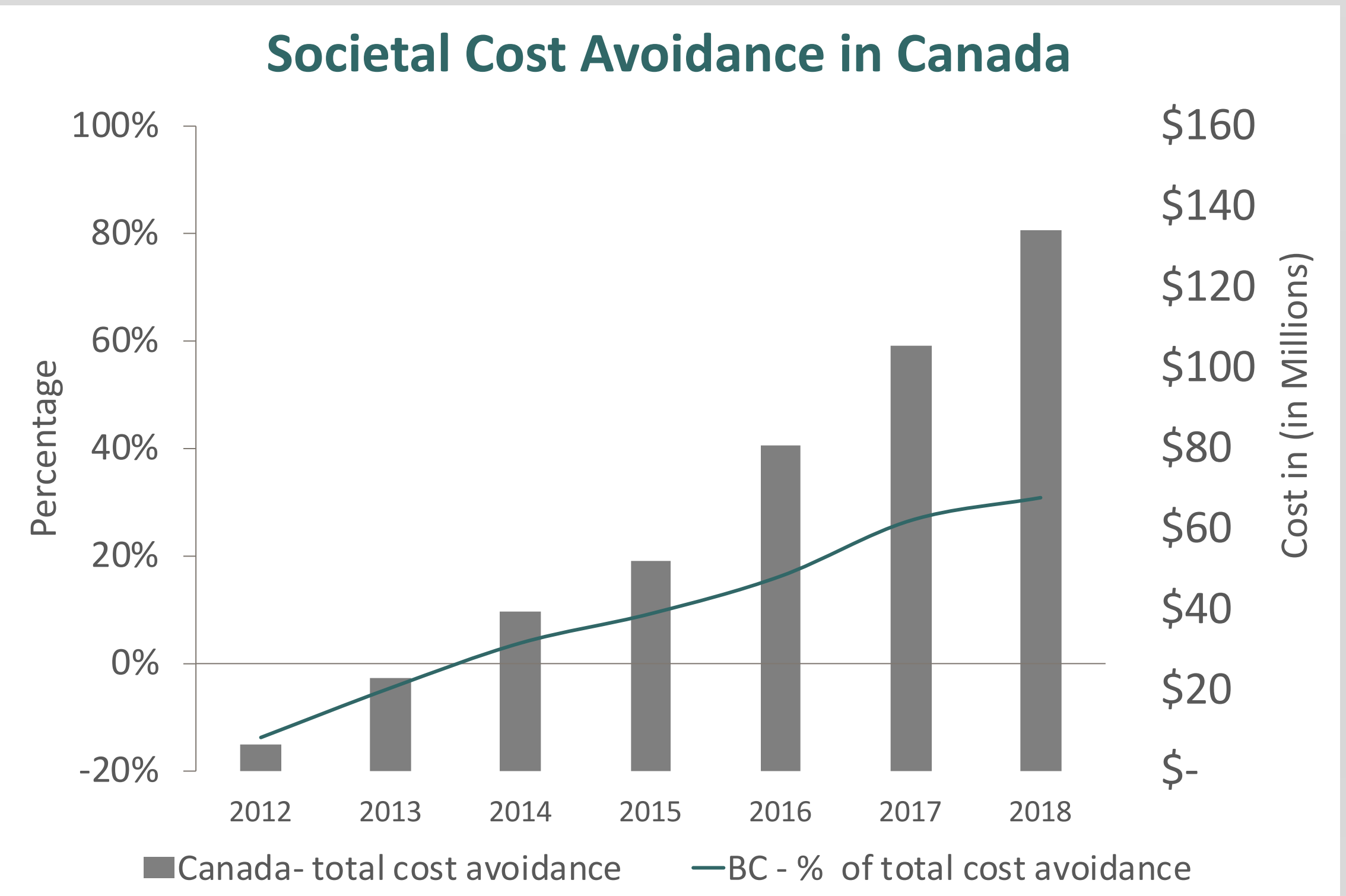
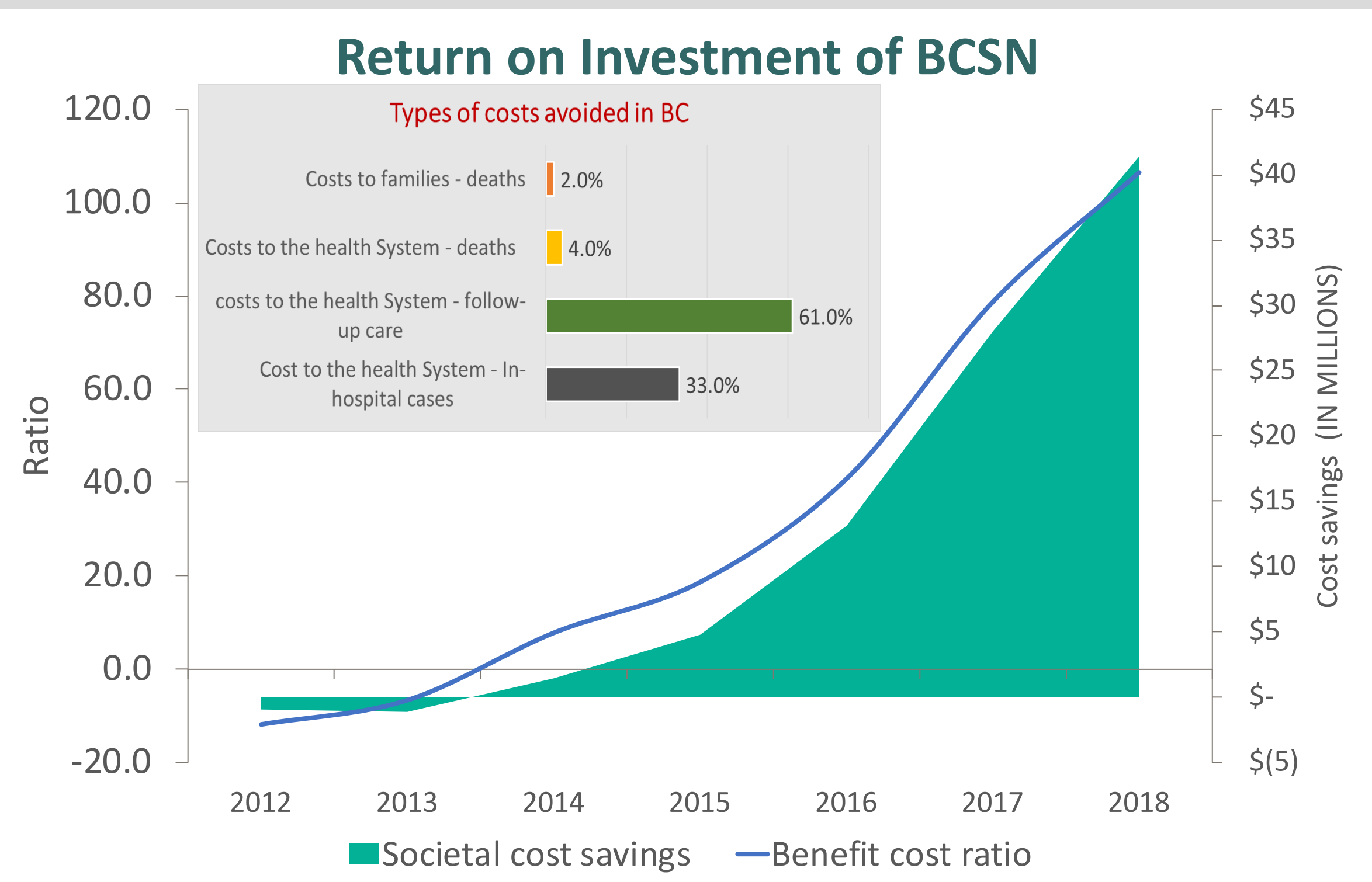


- ❖ A total of 918 sepsis cases and 161 deaths were averted in BC during the post-BCSN period. In 2017, approximately 323 sepsis cases were averted in BC compared to the other provinces, where on average only 24 cases were averted.
- ❖ Of \$499,388 invested in the BCSN, nearly 70% funds were utilized for clinical leadership and 25% on staffing.



- ❖ The ROI translates into approximately \$14 million in cumulative savings from averted sepsis cases, \$25 million in savings from averted follow-ups, and \$2 million in savings from deaths averted; **altogether generating a return of \$41million.**

- ❖ In 2018/19, BC contributed nearly 31% to the overall societal cost avoided in Canada.



## Lessons Learned and Next Steps

- ❖ Implementing the BCSN required a minimal financial investment in Sepsis care.
- ❖ Our work demonstrates a positive ROI for the BCSN and strengthens the policy argument for similar QI initiative(s) in the province.
- ❖ Next steps are to calculate a difference in the natural reduction of sepsis cases in Canada and BC, and to estimate future cost savings (a 10-year forecast).