Author’s response to reviews

Title: Sustainment, Sustainability, and Spread Study (SSaSSy): Protocol for a study of factors that contribute to the sustainment, sustainability, and spread of practice changes introduced through an evidence-based quality-improvement intervention in Canadian nursing homes

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Author’s response to reviews:

November 19, 2019
Dear Implementation Science Editors,

Thank you for your thoughtful review of our manuscript, "Sustainment, Sustainability, and Spread Study (SSaSSy): Protocol for a study of factors that contribute to the sustainment, sustainability, and spread of practice changes introduced through an evidence-based quality-improvement intervention in Canadian nursing homes". Below, and in the manuscript, we have addressed your points.

1) Need to know the outcomes of the SCOPE trial before embarking on work regarding sustainability of the SCOPE intervention.

As described in our manuscript, SCOPE is a complex HCA-led evidence-based QI intervention that was piloted in 10 Nursing homes in the Canadian Provinces of Alberta (AB) and British Columbia (BC) between 2010-2012 (Cranley et al., 2011), and is currently the focus of a clinical trial taking place in participating units in Nursing homes operating in the Provinces of Manitoba (MB), AB, and BC (NCT03426072). The impacts of the SCOPE intervention are described in several published articles:

- The impacts of the SCOPE pilot are reported by Norton et al. (2013), where the pilot was shown to meet its primary objective of demonstrating the feasibility and utility of implementing the intervention in Nursing homes relying upon the leadership of HCAs, and engagement of professional staff and leadership in facilitative roles. Specifically, of the 10 HCA-led QI teams in Nursing homes that participated in the SCOPE pilot, 7 succeeded in learning and applying the improvement model and methods for local measurement, with 5 of the 10 teams showing measurable improvement in the chosen clinical areas.

- These impacts were corroborated in a follow-up study that examined the sustainability of elements of the SCOPE pilot (Cranley et al., 2018) in participating BC nursing homes. In this article, sustained differences between participating/intervention units, and non-participating units, were observed in outcomes relating to quality improvement activities (i.e., continuation of work according to the improvement model and principles learned in SCOPE), HCA empowerment, and satisfaction with quality of work life.

- As part of the SCOPE clinical trial, SCOPE was implemented in 7 MB Nursing homes over 2017, somewhat earlier than implementation in participating BC and AB units/Nursing homes. While the data for the MB homes will be analyzed in conjunction with that collected for homes in BC and AB, a recent retrospective qualitative analysis of the implementation experiences (Ginsburg et al., 2018) of administrative leaders (sponsors), professional staff, and QI team participants in MB homes demonstrates effects akin to those observed in the SCOPE pilot. In addition to accruing observable
benefits to residents who were the subjects of the QI initiatives formulated by the HCA-led QI teams in participating units in each MB home, SCOPE was observed to change the expectations and behaviours on the part of administrative leaders, professional staff, and – importantly – HCAs relating to their abilities to conduct small-scale, unit-level, evidence-informed quality improvement initiatives (Ginsburg et al., 2018). The importance of the observed attitudinal and behavioural effects cannot be over-stated: a voluminous and robust theoretical and empirical literature in cognitive psychology, social psychology, and industrial/organizational/work psychology point to the importance of work attitudes - including self-efficacy (perceived behavioural control) and empowerment – and work environments – notably features of work life including self-actualization, and work context like perceived organizational support – as figurative in work motivation and work performance.

Implementation of the SCOPE intervention has recently concluded in participating nursing home units in BC and AB, and the collection of post-implementation outcomes data are still underway. We have no reason not to expect that the effects recorded in the above-noted articles will be observed in the participating units in BC and AB nursing homes.

2) Additional details needed regarding Phase 2.

a. Greater detail relating to the methods to be used.

The measures and details regarding analyses to be used for Phase 2, and their associations with the aims, are summarized in Table 1.

b. Specification of the primary and secondary outcomes.

SCOPE is a complex intervention that incorporates training, facilitation, external support, and feedback elements delivered over a one-year implementation period. As identified in Table 1, the primary outcome of the SCOPE intervention trial is Care Aide-reported conceptual use of best practices. The outcomes of interest in SSaSSy include this outcome, and additionally extend to: resident clinical outcomes (e.g., Aim 2a); HCA attitudinal and (additional) work outcomes (Aim 2c); staff (Aim 2b) and leadership (Aim 2d) behavioural outcomes; intra-organizational spread (Aim 2e); and adaptation/contextualization behaviours.

c. Description of planned sub-group analyses.

As indicated in Table 1, if changes in the primary outcome of the SCOPE intervention, Care Aide-reported conceptual use of best practices, are sufficient over the booster interval (e.g., an effect size of 0.29), we will use one-way ANOVA (repeated measures, within-between interaction) to test for “pre-post” differences in the means of each variable within and between groups/booster arms, followed by Tukey-Kramer test for significant differences between all pairs of groups if appropriate (where distributions are not normal the Kruskal–Wallis test will be used, and where data are heteroscedastic Welch's ANOVA will be used). In the more likely event that
changes of this magnitude do not occur, we will compute p-values by time point before and after the SSaSSy booster interval for each variable.

d. Steps that will be taken to mitigate the anticipated limitations regarding statistical power.

These are described in response to item c above. We are constrained in our sample size because we are studying the post-implementation of a trial with a fixed number of experimental sites.

3) As per your suggestion, we have removed the original Figure 1, and replaced it with a flow diagram for Phase 2.

4) In addition to this point-by-point response to your comments, we have attached one copy of our revised manuscript which highlight our changes via track changes.

With our thanks for your comments and consideration,

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