Summary

Safety at Home: A Pan-Canadian Home Care Safety Study

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While problems of patient safety are well documented in acute care settings, only limited data exist for patient safety issues among home care (HC) clients. While many of the same risks and adverse events (AEs) exist in both settings, the context in which the care is administered is vastly different, which necessitates unique solutions specific to HC settings. To date, the studies of HC clients are limited with regard to small sample size, population studied (i.e. long-stay clients), and failure to consider the client/caregiver perspective. The present study will address these limitations by involving a large national population-based sample, and utilizing multiple methods to determine valid estimates of the prevalence and incidence of HC AEs. One of the study's major strengths will be the population-based study of linked data from the Resident Assessment Instrument-Home Care (RAI-HC) data, hospital discharge abstract data (DAD), national ambulatory care reporting system data (NACRS), and HC utilization data (from three provinces). This population-based analysis will be triangulated with a three-province in-depth audit of HC records and/or incident reporting systems. As a result it will assume a broad perspective on HC safety, recognizing the unique context of the home and the need to include the client, family, and unpaid caregiver perspective.

The proposed study is comprised of 5 inter-related sub-projects, using mixed methods that will collectively provide valid estimates of safety problems among HC clients and help develop new

methodology. The research completed under these 5 sub-projects will collectively address the following questions:

1. What are the nature, prevalence, magnitude, and incidence of adverse events (AEs) in home care (HC) settings across Canada?

2. What are the determinants and risk factors associated with AEs in HC?

3. What are the challenges or concerns of recipients (i.e., clients, family members, caregivers) and paid providers of publicly funded HC services?

4. What practices and tools have been shown to have a strong potential to reduce avoidable AEs for HC clients?

The unique methodological approaches and contributions of the 5 sub-projects are summarized below:

Sub-project 1 will provide an evidence base for the proposed research and generate information about what is known about HC safety in the Canadian and international literature. Using a search and retrieval strategy based on the Cochrane and Briggs methodologies, literature will be searched for evidence related to; i) prevalence of AEs in HC context, ii) contributing factors, and iii) interventions or strategies found to reduce avoidable AEs. Concept clarification/analysis of key definitions relevant to patient safety in HC will be undertaken. Concurrently the team will be generating empirical evidence from sub-projects 2-5. A synthesis of the findings from these different sources of evidence will be presented to an expert Panel, composed of members of the Knowledge Exchange (KE) Board and representatives of HC policy makers and decision makers,

and a revised HC patient safety definition will be generated through discussion with these external stakeholders.

Sub-project 2 will investigate the nature, prevalence, magnitude, and incidence of AEs in the general Canadian HC population, and in two chronic disease populations, clients with congestive heart failure (CHF) and chronic obstructive pulmonary disease (COPD). The study will examine the prevalence and incidence of AEs and consequences among HC clients, describe the types of AE HC clients experience as well as the type and frequency of contributing factors/risk factors, determine the distribution of population risk factors and their association with AEs, and assess the sensitivity of critical indicators for identifying AEs in HC clients. The cohort will consist of HC clients from Nova Scotia, Ontario, Winnipeg Regional Health Authority (WRHA), Alberta and Yukon Territory for the years 2006-2009 with an anticipated sample size of approximately 500,000 cases. This sub-project will involve linking data sources such as the RAI-HC and DAD or emergency department (ED) data to validate prevalence and incidence estimates for certain types of AEs. Descriptive analysis will also be used to identify the type and frequency of contributing factors and risk factors, and logistic regression analysis will be used to examine their association with AEs.

Sub-project 3 will explore data from client health records (or charts) and organizations" incident reporting systems. This sub-project will document the rate and types of AEs among HC clients in three jurisdictions (Québec, Winnipeg region, Nova Scotia), identify the contributing factors to AEs among HC clients in these jurisdictions, and assess the value of chart review and incident reporting systems as a complement to clinical and administrative databases. Multiple

logistic regression analysis will be used to identify the contributing factors associated with the risk of AEs for both charts and incident report data. By examining the contribution of three different methods, this sub-project will help develop and advance methodology for exploring safety in HC settings.

Sub-project 4 will employ Root Cause Analysis (RCA) to identify contributing causes and ascertaining ways to reduce the likelihood and impact of AEs. This sub-project builds upon and expands the knowledge of the types and frequencies of AEs in Canadian HC settings through chart reviews and analysis of clinical and administrative data. The RCA will use a sub-sample of events identified through chart review and/or administrative databases. These would be exemplars of the most frequent or severe types of events. As there is little reported use of RCA and similar tools in HC settings, methods will build from the recent CPSI workshop on RCA examining the experience of the Veterans Health Administration and the National Patient Safety Association (England). In the current study, AEs will be analyzed using the CPSI RCA framework, adapted for HC settings.

Sub-project 5 builds upon and expands knowledge about the types of AEs in Canadian HC settings provided through chart review and analysis of administrative data. This qualitative study utilizes interpretive description to capture social, emotional, functional, physical and contextual factors that influence safety in the HC experience. It targets CHF and COPD clients, thus enabling triangulation with data collected in sub-projects 2 and 3, and extending previous work by the team. This sub-project will describe the safety challenges or concerns of HC recipients, explain the socio-ecological factors that contribute to or reduce safety related risks and burden

for HC recipients, as well as describe how the safety challenges, concerns, and relevant socio-ecological factors identified compare across two provincial (MB, NB) HC systems thereby contributing to the advancement of a definition of HC safety. Triangulation of the findings from this sub-project with sub-projects 2, 3, and 4 will provide a comprehensive understanding of HC safety issues.

Collectively the five sub-projects will provide a comprehensive understanding of the nature and burden of safety problems among Canadian HC clients. Triangulation of findings from the five sub-projects will be achieved by comparing results to identify convergence and divergence in findings. This 'meta-analysis' will be conducted in three stages: first by the two principal investigators and sub-project leads; second, by all research team members; and third, by members of the KE Board.