Identification of serious and reportable events in home care: a Delphi survey to develop consensus

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Abstract

Objective. To assess which client events should be considered reportable and preventable in home care (HC) settings in the opinion of HC safety experts.

Background. Patient safety in acute care settings has been well documented; however, there are limited data about this issue in HC. While many organizations collect information about ‘incidents’, there are no standards for reporting and it is challenging to compare incident rates among organizations.

Design. A 29-item electronic survey that included potential HC safety issues was used in a two-round Delphi study.

Setting and Participants. Twenty-four pan-Canadian HC safety experts participated in an electronic survey.

Main Outcome Measures. Perceived reportability and preventability of patient safety events, HC.

Results. The events that were perceived as being most reportable and preventable included the following: a serious injury related to inappropriate client service plan (e.g. incomplete/inaccurate assessments, poor care plan design, flawed implementation); an adverse reaction requiring emergency room visit or hospitalization related to a medication-related event; a catheter-site infection (e.g. a new peritoneal dialysis infection or peritonitis); any serious event related to care or services that are contrary to current professional or other practice standards (e.g. incorrect treatment regimen, theft, retention of a foreign object in a wound, individual practicing outside scope or competence).

Conclusion. These data represent an important step in the development and validation of standard metrics about client safety in HC. The results address an expanding area of health services where there is a need to improve standardization and reporting.

Keywords: patient safety, safety management, quality of health care, HC services

Introduction

While problems of patient safety have been well documented in acute care settings [1–4], limited data exist about safety issues for home care (HC). Patient safety research in acute care settings has resulted in the development of policies aimed at improving the safety of care through initiatives such as the US National Quality Forum’s (NQF) reporting system for serious reportable adverse events (AEs) [5, 6]. Many American acute care facilities are now voluntarily reporting all 28 adverse events identified by the NQF such as wrong site surgery, surgery performed on the wrong patient, unintended retention of a foreign object or serious disability associated with the use of contaminated devices or biologics.

Numerous healthcare reporting systems are in operation globally [7–10]; however, little of this work has included HC. In the USA, the Center for Medicare and Medicaid Services (CMS) instituted the use of the Outcomes and Assessment Information Set (OASIS) in 1999 for all HC agencies. CMS currently identifies 13 potential adverse event indicators for clients receiving HC [11]. Community Care Access Centres (CCACs) in Ontario fund and manage care while contracting out care delivery. Some CCACs have implemented event reporting systems in their efforts to ensure quality and safety. Several authors have identified, however, that payer/regulator involvement in error reporting is in fact a barrier [12, 13].

There is limited research on serious events in HC and few standards for reporting those events. HC differs in important...
ways from care delivered in hospital settings in terms of the nature of service provision, the role of family members and the characteristics of the client/patients receiving care [14]. For example, the setting of client homes is unregulated and uncontrolled in contrast to the hospital setting; there is greater autonomy for clients, families and caregivers than what is experienced in hospital settings; and a large percentage of clients receiving HC support are elderly and live alone [15, 16]. These realities were considered in the research study that is presented in this article.

In 2011/12, 637,727 Ontario residents received ~33 million HC hours of service/visits [17]. This suggests that there are ample opportunities for safety incidents to occur in HC. Three previous North American studies [18–20] reported that 12–13% of HC clients experienced an AE each year. The types of AEs reported were falls, adverse drug events, urinary tract infection, accidents at home, wound deterioration, unexpected nursing home admission and an increase in the number of pressure ulcers. Clients who experienced such events were generally older, had more depressive symptoms and behavioral problems, were more functionally impaired [21], had Parkinson’s disease, received psychotropic medications or were left alone for short or long periods of time [19]. These three studies were limited in population studied. For example, two focused on long-term older clients [18, 20] and one was limited to one jurisdiction in Canada [19]. A more recent study showed that the rate of adverse events in Canadian HC clients was 10–13% over a period of 1 year [22, 23]. Of these adverse events, over half were deemed preventable, the majority of which were falls, infections or medication-related incidents. It was determined that adverse events in HC happen because of inconsistencies in the way care is planned and delivered, lack of integration within the HC team and across sectors, and poor standardization of processes, packaging of medication and equipment [24].

Complexity in HC results from the likelihood that community-based clients often receive services from multiple agencies or professionals [25]. Communication problems, skill mix, client complexity, home environment, procedures becoming a client/caregiver’s responsibility and service delays can all contribute to error [26]. These issues are very different from those facing patients in an institutional setting. More detailed knowledge of the ongoing safety challenges for HC clients will be gained with the development of a unique, standardized reporting system for HC. This study was designed to advance this goal by identifying a candidate list of adverse events that could be incorporated into a safety reporting system.

Although we have only recently developed evidence about safety of HC in Canada, the attributes of effective reporting systems are well documented. Effective reporting systems should be non-punitive, confidential, independent, timely, systems oriented, responsive and involve expert analysis [27–29].

The purpose of the current study was to identify events that can lead to a harmful outcome and are considered serious, preventable and significantly influenced by the policies and procedures of HC organizations in the opinion of HC and safety experts. It has been suggested that preventable events can be indicators of error [5, 6, 30]. Reporting and analyzing preventable events offer substantial opportunity to develop organizational responses to prevent them in the future [31]. These events could then be used as a starting point for trialling a standardized set of HC safety indicators.

**Conceptual framework and definitions**

The World Health Organization (WHO) [32] framework guided the conceptualization of the patient safety variables in this study. The WHO defines patient safety as ‘the reduction of risk of unnecessary harm associated with health care to an acceptable minimum’ (p. 15). Adapting this definition for HC, we defined patient safety as ‘the absence of harm to clients, their family and to unpaid caregivers from health care provided in the client’s home and the actions taken to prevent or reduce this harm’. A patient safety incident was defined by the WHO as ‘an event or circumstance that could have resulted, or did result, in unnecessary harm to a patient’ (p. 15). A harmful incident (adverse event) was defined by WHO as ‘an incident that results in harm to a patient’ (p. 16). In this study we used the term adverse event rather than harmful incident because it was consistent with much of the previous HC safety literature and was thus familiar to our target participants. An adverse outcome was defined as a consequence of an adverse event and generally includes prolonged health care, a resulting disability or death. The adverse outcome may be partially or totally attributable to health care received. In HC it is often difficult to determine that because much of the care provided is unobserved and is provided by unpaid caregivers.

In the current study, only harm to patients/clients was explored. Harm to family, unpaid caregivers and HC providers merit additional research. Within the context of HC, it is important to note that risk factors and incidents can be cumulative (for example, neglect over time) and multi-causal (for example, resulting from paid provider and unpaid caregiver interactions). Definitions of ‘serious’, ‘preventable’ and ‘reportable’ were based on NQF definitions [5] and were provided to participants during the rating process described in the Methods section. In this study, serious describes an event that results in death, or disability lasting >7 days or still present at the time of discharge from HC. Preventable describes an event that could have been anticipated and prepared for (e.g. evidence-based practices, organizational policies and procedures) but that occurs because of an error or system failure. Reporting is the act of making events that should never occur in a safe system of care known to a higher authority.

**Methods**

**Study design**

This study involved a Delphi survey with two waves of data collection and analysis in order to generate consensus about a list of serious reportable adverse events in HC. Recent literature [18–25] was used to generate a candidate list of frequently identified serious events in the HC context. Emphasis was placed on the pan-Canadian Safety-at-Home study [22–24] because of its relevance to the current context in Canada. The authors of that study used population-based linked data from the Resident Assessment Instrument-Home Care data, hospital Discharge
Abstract Data, National Ambulatory Care Reporting System data, Ontario Mental Health Reporting data and HC utilization data from three provinces to determine the incidents of adverse events among Canadian HC clients. This analysis was triangulated with a detailed literature synthesis/summary, a three-province audit of HC records and/or incident reporting systems, client/family and caregiver interviews and photo ethnography, and an incident analysis of contributing factors for serious falls and medication-related adverse events. The methodology for the Delphi survey is presented in the next section of the paper.

Participants

Selection of participants is critical in the Delphi process because it directly relates to the quality of the results [33]. Delphi subjects should be highly trained and competent within the specialized area of knowledge related to the target issue. Letters soliciting nominations for study participants were emailed to the chief executive officer’s of a number of Canadian HC funding and provider organizations, provincial and national HC associations, HC interest groups and provincial quality organizations. Nomination criteria were provided and included the following:

- Managed HC services as either a funder or provider.
- Published papers on HC services.
- Conducted research/developed practice initiative in HC services.
- Worked in quality improvement in the HC sector.
- Have recognized expertise in HC.

Consent letters were then sent to nominees. A purposive sample of 26 persons with recognized expertise in HC client safety were recruited and consented to participate in the Delphi survey. Two additional invitees declined to participate as they felt that they did not have appropriate expertise.

The Delphi methodology

A 29-item electronic survey was developed by the study investigators to include pre-identified serious events in HC. Participants were asked to rate each adverse event in terms of preventability and reportability on a four-point scale (strongly disagree, disagree, agree, strongly agree) to comment on their rationale for their rating and to add additional events for consideration in a subsequent round. The results of the first round of the Delphi survey were summarized and included within the second round so that participants would know how the group of panelists had responded to the first round, and could then make a decision about how to respond to the second.

In Round 2 of the Delphi Survey, items with low perceived reportability and preventability were removed since the purpose was to identify events that were perceived as most reportable and most preventable. Also, items that had already achieved consensus (mean scores for both reportability and preventability of ≥3.6 or 90% consensus) were dropped for the second round in order to reduce response burden. As a result 13 items were dropped in Round 2. Ten new items were added in the second round based on suggestions from panelists. This resulted in 26 questions in Round 2.

Participants re-rated each adverse event in the second round of the Delphi survey, taking into consideration the ratings from the first round. Delphi rounds continue until a predetermined level of consensus is reached or no new information is gained. The controlled feedback process, consisting of the summary of the prior iteration, allowed each participant an opportunity to generate additional insights and more thoroughly clarify the information developed in Round 1 [33]. This feedback process made Delphi respondents aware of the range of opinions, and encouraged them to reassess their initial judgments. It also allowed anonymity and minimized the effect of ‘noise’, or the communication that occurs in a group process which can distort data and which often deals with group and/or individual interests rather than focusing on problem solving [34].

Analysis

Decision rules were established to assemble and organize the feedback provided by Delphi subjects. Consensus was determined by a certain percentage of the ratings falling within a prescribed range. In this project, consensus was determined by 90% agreement or a mean score of 3.6 or higher on a 4-point scale because the goal was to identify unambiguous reportable adverse events for the HC context.

All returned surveys were assigned a code number. Descriptive statistics involving mean, standard deviation and frequencies were computed for each survey item. Content analysis of participants’ written feedback was conducted. The mean score for each item in the first round and the frequency of responses for each answer were provided to panelists in Round 2 of the Delphi survey.

Results

Respondents

Twenty-four people from six Canadian provinces/territories completed the first round of the survey for a response rate of 92.3%. They had an average of 27.3 years of healthcare experience (range 14–40, SD 7.4) and 10.9 years of HC experience (range 1–25, SD 7.0). Nineteen (79.2%) of the participants were regulated health professionals (RHPs), of whom 11 indicated that they were nurses and 5 indicated that they were a therapist, dietician or pharmacist. The remaining RHPs did not provide details about their profession. Seventeen panelists were employed by healthcare provider organizations and two were currently providing direct client care. The second round of the Delphi survey was distributed to the same 24 participants who had participated in the first round and 21 participants responded for a response rate of 87.5%.

Delphi findings: Round 1

Following the first round of the Delphi, four adverse events/outcomes were deemed to be reportable (i.e. 90% or more of panelists ‘agreed’ or ‘strongly agreed’) and preventable (90% ‘agreed’ or ‘strongly agreed’). These AEs are listed in Table 1
along with the mean score of each for reportability and preventability, and the standard deviations. New catheter-site infection (e.g. peritoneal dialysis catheter infection or peritonitis) was the only item that achieved 90% consensus for being both reportable and preventable.

Panelists indicated that attributing causation of an event or outcome is very complex and needs to be considered on a case-by-case basis in HC, especially when clients and families are co-managers, along with formal providers, of their health care. One participant commented that only cases of malpractice should be formally reported. Other participants felt that it is important to differentiate events that happen that are directly linked to the delivery of care from events that happen outside of care delivery. Panelists provided comments about the context of various adverse events, whether or not an event was related to client/family self-management, and also suggested other items that might be considered for inclusion in the next round of the survey.

Content analysis of participant feedback resulted in the generation of 10 new survey items for Round 2 (see Table 2). Examples of adverse events suggested by panelists include serious events related to the use of oxygen in the home, venous stasis ulcers and differentiating falls that occur in the presence of a healthcare provider from those that do not. The adverse event items that achieved low reportability in Round 1 are presented in Table 2. These were excluded in Round 2.

**Delphi findings: Round 2**

The results of the Round 2 survey are summarized in Table 3. No new items achieved consensus as indicated by mean scores failing to meet the criteria of ≥3.6 for both reportability and preventability. However, the following adverse events achieved 90% consensus for being reportable: a new infection related to an IV, PICC, central catheter site or related blood stream; serious injury associated with the use of oxygen in the home (e.g. no gas, wrong gas, contaminated); a new wound infection; a new pressure ulcer, any stage and a new peritoneal dialysis infection (e.g. catheter site infection or peritonitis).

**Discussion**

This study generated data that can be used to inform the development of a national adverse event reporting system for HC settings. Adverse event analysis in the HC context is challenging because of the nature of HC, and lack of institutional control together with multiple care providers and the unknown effect of family or self-care on the occurrence of adverse events. Furthermore, adverse events identified in HC can represent problems in other sectors of the healthcare system or even other systems [35]. All of these factors confound the processes of care and can make analysis of an adverse event in HC challenging. The utilization of a guiding framework or matrix for separating healthcare events that constitute quality issues from events that pose threats to client safety would be beneficial. The consensus list of events generated in this study is a good place to start; however, a companion rating or ranking system based on outcome and frequency would be helpful in determining what outcomes should be the focus of the reporting system, as well identifying those that may require the most intensive resources to investigate and effect system change. Those that would seem most appropriate for inclusion are adverse events that result in prolonged health care, a resulting disability or death [32].

The cause, consequence and outcome of the event can be examined through critical incident analysis, and processes to

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**Table 1** Serious events with highest scores for both reportability and preventability

<table>
<thead>
<tr>
<th>Serious event</th>
<th>% Agreed or strongly agreed that event is reportable</th>
<th>% Strongly agreed that event is reportable</th>
<th>Perceived as reportable, mean (SD)</th>
<th>Perceived as preventable, mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A serious injury related to inappropriate client service plan (e.g. incomplete, inaccurate assessments, care plan design or implementation etc.)</td>
<td>100</td>
<td>82.6</td>
<td>3.83 (0.39)</td>
<td>3.78 (0.42)</td>
</tr>
<tr>
<td>An adverse reaction requiring ER visit or hospitalization related to a medication-related event (e.g. wrong drug, wrong dose, wrong patient, wrong time, wrong rate, wrong preparation or wrong route of administration. etc.)</td>
<td>95.8</td>
<td>62.5</td>
<td>3.83 (0.48)</td>
<td>3.63 (0.50)</td>
</tr>
<tr>
<td>New catheter-site infection (e.g. peritoneal dialysis catheter infection or peritonitis)</td>
<td>90.9</td>
<td>90.9</td>
<td>3.82 (0.59)</td>
<td>3.91 (0.43)</td>
</tr>
<tr>
<td>Any serious event related to care or services that are contrary to current professional or other practice standards (e.g. incorrect treatment regimen used, theft, lack of hand washing, retention of a foreign object in a wound, individual practicing outside scope or competence etc.)</td>
<td>90.5</td>
<td>66.7</td>
<td>3.67 (0.66)</td>
<td>3.62 (0.59)</td>
</tr>
</tbody>
</table>

ER, emergency room.
mitigate risk should be put in place. We expect that the concept of prevention in the context of HC will evolve over time as more research within this sector develops. Furthermore, incidents that did not appear to be preventable at the time of this study could become amenable to prevention as evidence-based practice for the HC client expands.

The literature suggests that there are many adverse events worthy of reporting but preventable adverse events are those that can be attributed to health care and cause unnecessary harm [32]. This notion of attribution can be problematic in HC because of the following:

- Variety of service providers/agencies engaged in delivering care in the home.
- Interaction between client characteristics, contributing factors and health care.
- Client/family involvement in processes of care.

Attributing causation is complex in HC, especially when many clients and families are actively involved in managing some or all aspects of their health care. An additional complexity is introduced by clients who live at risk—either through their own choice or by circumstances that are beyond the control of the HC system. In spite of these challenges, we expect that adverse event reporting in HC would have many benefits including the opportunity to improve the safety of care, advance understanding of HC safety, promote opportunities for benchmarking and ultimately impact health care policy and outcomes for clients.

Delphi participants were uncertain about whether or not it is possible to differentiate adverse events or outcomes that occur during the provision of care from those that occur when no HC provider is present (e.g. falls, medication errors). As a result they felt it is often difficult to identify the locus of responsibility and to determine whether an event could have been prevented and should be reported. For these reasons few adverse events were judged both reportable and preventable. The one exception was catheter-site associated infection which perhaps is more clearly linked to the health care received than is the case with some of the other adverse events examined in this study. It was also noted by participants that multiple providers and organizations can be involved in HC. Consistent expectations by funders and regulators will make it easier for provider organizations to both report incidents and implement prevention strategies.

Several items that have historically been considered reportable and preventable were rated with lower levels of preventability by the Delphi participants in this study. For example, an unplanned hospital admission [19], unplanned emergency room visit [18, 19] and caregiver decline [20] were rated below the median on a five-point scale. Such differences could reflect differences in beliefs about the contributing factors for these events in HC compared with institutional settings. Increasing acuity and complexity in HC associated with chronic disease management, and the involvement of formal and informal providers may render it more difficult to ascribe responsibility and achieve preventability. These factors need to be considered in the development of an adverse event reporting system for HC.

**Study limitations**

While the Delphi method has long been used to generate ideas in health care [36–41], there are limitations inherent in the process. Similar to the limitation identified by Madigan and Vanderboom [39], operational definitions provided may have been either insufficient or understood in different ways by the respondents. Subsequent variations in understanding may have altered participants’ ratings of events. There is no formally accepted definition of what constitutes consensus, which is another potential limitation of using a Delphi approach. This study examined only expert opinions regarding events that can occur among HC clients. The issue of harm or injury to family members, caregivers and HC service providers merits a

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**Table 2** Adverse event items with low reportability in Round 1

<table>
<thead>
<tr>
<th>The following items had low reportability in Round 1 and were not included in Round 2</th>
<th>Mean, perceived as reportable</th>
<th>Mean, perceived as preventable</th>
<th>% Agreed + strongly agreed that event is reportable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncontrolled pain</td>
<td>3.09</td>
<td>2.96</td>
<td>69.6</td>
</tr>
<tr>
<td>Clients, family or service providers not following an established clinical pathway</td>
<td>3.09</td>
<td>2.61</td>
<td>68.3</td>
</tr>
<tr>
<td>An unplanned hospital admission</td>
<td>3.00</td>
<td>2.36</td>
<td>63.6</td>
</tr>
<tr>
<td>A new urinary tract infection, not catheter related</td>
<td>3.00</td>
<td>2.65</td>
<td>60.8</td>
</tr>
<tr>
<td>A wound that fails to heal</td>
<td>2.91</td>
<td>2.43</td>
<td>60.8</td>
</tr>
<tr>
<td>Dehydration</td>
<td>2.91</td>
<td>2.83</td>
<td>60.8</td>
</tr>
<tr>
<td>New caregiver decline, mental or physical</td>
<td>2.91</td>
<td>2.70</td>
<td>60.8</td>
</tr>
<tr>
<td>CVA should be considered an adverse event among HC clients</td>
<td>2.48</td>
<td>2.54</td>
<td>52.4</td>
</tr>
<tr>
<td>Congestive heart failure should be considered an adverse event among HC clients</td>
<td>2.48</td>
<td>2.68</td>
<td>47.6</td>
</tr>
<tr>
<td>Myocardial infarction should be considered an adverse event among HC clients</td>
<td>2.43</td>
<td>2.43</td>
<td>47.6</td>
</tr>
<tr>
<td>Fever should be considered an adverse event among HC clients</td>
<td>2.29</td>
<td>2.65</td>
<td>30.1</td>
</tr>
</tbody>
</table>
Table 3 Delphi panelists’ opinions about serious events in HC, in the descending order based on mean score for reportability (maximum score = 4 if all panelists strongly agree)

<table>
<thead>
<tr>
<th>Serious event</th>
<th>Mean, perceived as reportable</th>
<th>Mean, perceived as preventable</th>
<th>% Agreed or strongly agreed that event is reportable</th>
<th>% Strongly agreed that event is reportable</th>
</tr>
</thead>
<tbody>
<tr>
<td>A new infection related to an IV, PICC, central catheter site or related blood stream</td>
<td>3.95</td>
<td>3.35</td>
<td>100</td>
<td>95</td>
</tr>
<tr>
<td>Serious injury associated with the use or function of a device where the device is either not used when indicated or is used or functions other than as intended (e.g. lack or misuse of equipment, devices or supplies, IV, pain pump, lift, bath aids; wrong equipment or supplies ordered/sent/used)</td>
<td>3.95</td>
<td>3.35</td>
<td>90</td>
<td>89</td>
</tr>
<tr>
<td>Serious injury associated with the use of oxygen in the home (e.g. no gas, wrong gas, contaminated)</td>
<td>3.90</td>
<td>3.48</td>
<td>100</td>
<td>90</td>
</tr>
<tr>
<td>A new wound infection</td>
<td>3.90</td>
<td>2.90</td>
<td>100</td>
<td>90</td>
</tr>
<tr>
<td>Evidence of client abuse (e.g. neglect, suspicious injury, etc.)</td>
<td>3.89</td>
<td>2.79</td>
<td>100</td>
<td>89</td>
</tr>
<tr>
<td>Any suicide by an HC client</td>
<td>3.89</td>
<td>2.26</td>
<td>100</td>
<td>89</td>
</tr>
<tr>
<td>A fall resulting in serious injury experienced by a client, Health Care Provider is present</td>
<td>3.86</td>
<td>2.86</td>
<td>100</td>
<td>86</td>
</tr>
<tr>
<td>New pressure ulcer, any stage</td>
<td>3.85</td>
<td>3.15</td>
<td>95</td>
<td>90</td>
</tr>
<tr>
<td>A new embolism (e.g. intravascular air, deep vein thrombosis, pulmonary embolism)</td>
<td>3.85</td>
<td>2.95</td>
<td>100</td>
<td>85</td>
</tr>
<tr>
<td>A serious injury related to inappropriate client service plan (e.g. incomplete, inaccurate assessments, care plan design or implementation etc.)</td>
<td>3.83</td>
<td>3.78</td>
<td>100</td>
<td>82.6</td>
</tr>
<tr>
<td>An adverse reaction requiring ER visit or hospitalization related to a medication related event (e.g. wrong drug, wrong dose, wrong patient, wrong time, wrong rate, wrong preparation or wrong route of administration etc.)</td>
<td>3.83</td>
<td>3.63</td>
<td>95.8</td>
<td>62.5</td>
</tr>
<tr>
<td>A new peritoneal dialysis infection (e.g. catheter site infection or peritonitis)</td>
<td>3.82</td>
<td>3.91</td>
<td>100</td>
<td>90.9</td>
</tr>
<tr>
<td>A new catheter-associated urinary tract infection</td>
<td>3.80</td>
<td>3.15</td>
<td>100</td>
<td>80</td>
</tr>
<tr>
<td>A new pneumonia, ventilator associated</td>
<td>3.80</td>
<td>3.00</td>
<td>100</td>
<td>80</td>
</tr>
<tr>
<td>A fall resulting in serious injury experienced by a client, Health Care Provider is not present</td>
<td>3.71</td>
<td>2.62</td>
<td>100</td>
<td>71</td>
</tr>
<tr>
<td>Pressure ulcer deterioration</td>
<td>3.70</td>
<td>3.20</td>
<td>100</td>
<td>70</td>
</tr>
<tr>
<td>Any septicemia or severe infection</td>
<td>3.68</td>
<td>2.90</td>
<td>90</td>
<td>79</td>
</tr>
<tr>
<td>New stasis ulcer</td>
<td>3.68</td>
<td>2.89</td>
<td>95</td>
<td>74</td>
</tr>
<tr>
<td>A new delirium</td>
<td>3.67</td>
<td>2.71</td>
<td>95</td>
<td>71</td>
</tr>
<tr>
<td>Any serious event related to care or services that are contrary to current professional or other practice standards (e.g. incorrect treatment regimen used, theft, lack of hand washing, retention of a foreign object in a wound, individual practicing outside scope or competence etc.)</td>
<td>3.67</td>
<td>3.62</td>
<td>90.5</td>
<td>66.7</td>
</tr>
<tr>
<td>Any unexpected death of an HC client</td>
<td>3.63</td>
<td>2.16</td>
<td>84</td>
<td>79</td>
</tr>
<tr>
<td>Stasis ulcer deterioration</td>
<td>3.63</td>
<td>3.16</td>
<td>100</td>
<td>63</td>
</tr>
<tr>
<td>Any serious unexpected injury of an HC client (accidental or self-inflicted)</td>
<td>3.58</td>
<td>2.37</td>
<td>89</td>
<td>68</td>
</tr>
<tr>
<td>A fall that does not result in injury experienced by a client; health-care provider is present</td>
<td>3.52</td>
<td>2.81</td>
<td>91</td>
<td>62</td>
</tr>
<tr>
<td>Complication of any prosthetic device, implant or graft</td>
<td>3.50</td>
<td>2.65</td>
<td>90</td>
<td>65</td>
</tr>
<tr>
<td>A new pneumonia</td>
<td>3.50</td>
<td>2.65</td>
<td>85</td>
<td>65</td>
</tr>
</tbody>
</table>

(continued)
Table 3  Continued

<table>
<thead>
<tr>
<th>Serious event</th>
<th>Mean, perceived as reportable</th>
<th>Mean, perceived as preventable</th>
<th>% Agreed or strongly agreed that event is reportable</th>
<th>% Strongly agreed that event is reportable</th>
</tr>
</thead>
<tbody>
<tr>
<td>New or significant deterioration of depression</td>
<td>3.50</td>
<td>2.62</td>
<td>85</td>
<td>65</td>
</tr>
<tr>
<td>Inadequate nutrition (e.g. evidenced by unintended weight loss &gt;5% over 30 days or &gt;10% in last 180 days)</td>
<td>3.32</td>
<td>2.79</td>
<td>89</td>
<td>42</td>
</tr>
<tr>
<td>An unplanned emergency room visit</td>
<td>3.21</td>
<td>2.47</td>
<td>84</td>
<td>42</td>
</tr>
<tr>
<td>A fall that does not result in injury experienced by a client; healthcare provider not presenta</td>
<td>3.05</td>
<td>3.62</td>
<td>81</td>
<td>43</td>
</tr>
</tbody>
</table>
| aNew adverse event item suggested by panelists that was added to Round 2.  
  bIndicates events that were deemed to be both preventable and reportable (both means ≥3.6) during the first round of the Delphi survey. These items were not repeated in Round 2. The scores for these items are from Round 1. 
  bBoth reportability and preventability ≥3.6 and agreed + strongly agreed ≥90%. |

separate in-depth study. It would also be prudent to incorporate patient reported outcome measures in future studies. There are many adverse events that may be unknown or unreported by HC workers. Patient reported outcomes are a valuable contribution to development of a comprehensive safety system and can help organizations determine whether care is improving or worsening or whether a change in rates is simply a function of instituting a safety reporting system that more accurately captures adverse events [42]. All of the Delphi panelists were HC experts and professionals, as perceived by their peers; the opinions of family members and clients about serious reportable events are critical and merit inclusion in future research. Finally, there may be less serious events that occur frequently that merit intervention and could be incorporated into a reporting system.

**Conclusion**

A standardized, coordinated HC adverse event reporting system is an important first step in the collection of meaningful data about safety in HC. WHO’s patient safety research motto is ‘better knowledge for safer care’. This study has assessed which adverse events in HC warrant reporting to some higher coordinating body based on the opinions of a panel of HC experts. This consensus list of events could be used to support the development of a provincial or national HC reporting system. Adverse event reporting in HC is an important step in organizational learning which will enhance HC client outcomes [43].

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**References**


