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Falls assessment and prevention in older people: an evaluation of the Crisis Response Service

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Abstract

The elderly population of the world is growing with increasing trends of older people falling and accessing emergency services. The Crisis Response Falls Service in Northamptonshire (UK) was designed to identify health and social care needs, promote independence and limit the impact of falls. This paper presents the findings of an evaluation of the service. A mixed-method approach was applied, drawing on the views of service users (via a survey and telephone interviews) and reviewing existing East Midlands Ambulance Service (EMAS) data with routinely collected data from the service.

A decrease in the numbers of patients conveyed to hospital following a fall was observed. Best estimates of financial calculations suggest savings. High levels of patient satisfaction were achieved; patients felt treated with dignity and staff were considered friendly, approachable and well-informed. First responder services can provide positive impacts for those who fall in the community. The development and impact of the CRS shows the importance of evidence-based client centred training to inform the approaches taken to supporting those who fall, and the impact of a strong values based approach on the experiences of patients.

Keywords

Key points

1) The elderly population of the world is growing with increasing trends of older people falling and accessing emergency services.
2) Falls have a range of impacts for communities and individuals, including fractures, traumatic brain injury, hospitalisation or premature death.
3) Having an understanding of falls and the circumstances leading to them is invaluable for identifying a targeted, proactive response from commissioners and front line staff.
4) It is important that the views of older people are taken into account and that they are afforded choices in interventions, ensuring that they maintain independence and competence.
5) This study has begun to illustrate the range of impacts that interagency collaboration can have in supporting older people who fall, alongside the importance of effective training and a values based approach.

Introduction

The elderly population of the world is growing as a result of improved public health and medical treatments (Lu et al, 2014). In the United Kingdom the percentage of people over 65 years increased to 17% in 2010 (an increase of 1.7 million people). Projections estimate that by 2035 23% of the total population will be 65 years or over (ONS, 2012). Alongside this there is a growing trend of older people falling and accessing emergency Ambulance Services in the UK (Snooks et al, 2006). Nearly 80% of all falls-related fatalities occur in people aged 65 years and over (ONS, 2006) and it is estimated that one third of the population aged 65 years and over have at least one fall each year (Gillespie et al, 2012).

Falls have a range of impacts for communities and individuals (Boyé et al, 2013), including fractures, traumatic brain injury, hospitalisation or premature death. They have the potential to destroy confidence, increase isolation and reduce independence (Help the Aged, 2008). Falls are a major cause of disability and the leading cause of mortality resulting from injury in people aged above 75 in the UK (Scuffham and Chaplin, 2002). In a three-year period, there were over 4,600 fatal falls and 339,000 serious falls in the elderly in the UK (Department of Trade and Industry, 1999).

Reducing falls has been a major focus of public health policy for many years. Specialist falls services were set up as a result of the implementation of Standard 6 of the National Service Framework for Older People (National Institute for Health and Care Excellence, 2013). Standard Six provided targets for local health and social care services to operate an integrated falls service. This paper focuses on the development and evaluation of one such service.

Description of the Crisis Response service (CRS)

The CRS in Northamptonshire comprises a range of health and social care professionals within partner organisations providing a variety of clinical, health and social care assessments and interventions the immediate needs of older people who have fallen. The service aims to identify needs, promote independence, limit impacts and promote immediate and longer term wellbeing (NHS Federation, 2012). This is achieved through professional health and social care staff with a range of holistic social and intermediate care skills. The service blurs traditional health and social care boundaries, providing an enhanced person-centred approach.

The CRS is focused on the immediate period following a fall, presenting a complex range of educational challenges to prepare the health and social care professionals working

within it. Sixty local health and social care professionals were trained via an inter-professional learning module which addressed key issues in assessment and interventions immediately post-fall and the following 72 hours. The course was developed through liaison between local health and social care organisations and was underpinned by the following values:

- Passionate about the rights of older people to remain at home where possible

- Flexible and resourceful: able to respond/ cope in 'unknown' situations

- Resilient: able to respond effectively to pressure from a range of professionals

- Skilled: equipped/ able to deal with a wide range of needs

- Able to learn: from what went well/ less well

- Non-defensive: welcoming feedback to facilitate continuous improvement

- Sense of humour: 'ability to walk on water desirable'

Methods

Evaluation was completed by a team independent of the CRS. The protocol was developed in partnership with the commissioning organisation; tailored to data availability. The aim of the study was to identify the effectiveness of the service, with particular emphasis on patient experience and service impact.

Analysis of routinely collected data

A mixed-method approach was used, including the analysis of data collected on a routine basis by the partner organisations (namely the East Midlands Ambulance Service [EMAS] and data collected by the CRS themselves). Data was received from EMAS Business Intelligence Unit enabling analysis of the following:

- total number of falls-related calls to EMAS (before and after introduction of the CRS service);

- number of transfers to hospital/ admissions to A&E departments;

- patient demographics of falls-related calls to EMAS.

Patient experience

A patient experience survey was distributed to users of the service (total responses 294). Most respondents (84%) were over 75 years. There were no statistically significant differences between the respondents and all who were assessed by the CRS in terms of age group (χ^2=0.355, p=0.837) or gender (χ^2=1.030, p=0.310). A series of telephone interviews (n=16) were conducted with patients.

Analysis

Quantitative data were analysed using descriptive statistics and chi-squared tests for comparison of distributions. A process of thematic analysis was used to develop a comprehensive representation of service experience based on data gathered from open text survey questions and telephone interviews. An essentialist/ realist perspective was taken towards qualitative data analysis, illustrating the belief that the language used by participants would illustrate their experiences without the need for complex deeper interpretation (see also Parkes et al., 2014).

Ethical issues

The study protocol and data collection tools were reviewed by a University of Northampton Research Ethics Committee prior to data collection, adhering to best practice ethical guidelines. Participants took part in the project of their own free will after being fully informed of where and how the information was to be used. An information sharing agreement was developed and signed by relevant parties. Storage of data followed the guidelines set by the Data Protection Act and the Freedom of Information Act.

Results

Service need and referral rates

Data were received from EMAS detailing every falls-related call which an ambulance responded to 12 months before and 12 months after the introduction of the service (the data included data from both the falls ambulances and general ambulances, which were not able to be differentiated on the database). The total number of calls-outs were almost the same, with just over 12,000 cases in each 12 month period (12,119 12 months pre- service introduction and 12,284 12 months post-). Amidst this, data collected by the CRS showed a total of 1,546 referrals over the 13 month evaluation.

Most (75%) of referrals were single incidents. One client was referred on seven occasions (the most seen) and 145 clients were referred twice (18.8% of total referrals). There was a steady increase in referral numbers throughout the period, with some in-year fluctuations. An initial mean number of c.70 referrals per month in the first 3 months rose to approximately 150 per month towards the end. Most referrals came from two primary sources: 43% (n=663) came from specialist falls ambulances and 23% (n=365) were made by hospital A&E departments.

Almost 50% (49%, n=756) of referrals were made for the purpose of avoiding hospital admission and a further 43% (n=659) were to facilitate falls discharge from A&E Departments (see **Error! Reference source not found.**).

Reason for referral	Total number	%
Hospital Admission Avoidance	756	49.6
Facilitate falls discharge from A&E	659	43.2
Safety Assessment / Transportation	44	2.9
Access to Social Care (Non-Falls)	33	2.2
Facilitate non-falls discharge from A&E	24	1.6
Facilitate non falls discharge (other location)	9	0.6
TOTALS	**1525**	**100**

Table 1 Reasons for referrals

Conveyance

The proportion of falls patients who were attended by an ambulance and conveyed from home fell slightly (55.68% to 54.28%) in the year following CRS introduction. Although a small percentage drop, this was statistically significant (χ^2=4.825, p=0.028), representing a decrease of 174 patients being conveyed to hospital (compared to the number that would have been conveyed had conveyance rates been the same as the year before the service started).

It was not possible to differentiate between specialist falls and general ambulances on the EMAS database. A comparison was made between daytime (7am-5pm) conveyance rates for weekends and weekdays, giving a more realistic comparison of the effect of having falls ambulances. The conveyance rate was lower when falls ambulances were in

service (57.5%) than when only general ambulances were (59.4%: this does not take account of any possible effect of weekend *versus* week day on the need to convey patients to hospital).

Calculating cost-benefit

Financial data collected by different agencies was collected differently, restricting detailed cost-benefit analysis. The average costs of a general medical admission to hospital (£1,566) were obtained from the study commissioner. However, anecdotal evidence suggests that falls patients are admitted for longer than the average medical admission, and a cost per falls admission of £2,800 has been reported as being used in related business cases[1]. The service cost an average of £778 per CRS contact.

Error! Reference source not found. shows that the CRS either avoided a hospital admission directly (e.g. avoidance of conveyance to A&E) or facilitated discharge (therefore again avoiding hospital admission) in 1,206 cases. After assessment, 156 patients were admitted to hospital, giving an estimated 1,050 avoided admissions. Assuming each of those patients would have been admitted for the average length of stay for a general medical patient, this would then have cost the NHS a total of £1,644,300. If the estimate for a falls patient is used, this becomes £2,940,000. In this period, the CRS accepted 1,311 referrals, giving a total cost to the CRS of £1,019,958 (which includes the cost of falls ambulances, care and telecare basic equipment). This represents a total saving of between £1,920,042 and £624,342 (based on above estimates).

Patient feedback

A participant feedback questionnaire was used to elicit structured feedback about the service. Free text responses were also invited to add detail. A summary of the main quantitative findings, with illustrative quotations from the free text responses is included in **Error! Reference source not found.**.

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[1] Source: service commissioner.

Questionnaire data	Illustrative qualitative data (open text survey questions and interview data)
85% felt that the service offered maximum choice, control and independence 98% felt that support received had made a positive difference 81.8% felt that the support fully met their needs to live life how they wished	*"[The service] enabled me to come back to my home and maintain my independence."* *'[The service] helped me to keep independence pointing us in what direction I needed to go for more helpful aids.'* *"I think the important part of it is when you live on your own, it keeps you in your own home."*
99.3% felt respected and treated with dignity 95.8% felt involved and consulted regarding support they received	*"Whoever thought of this service deserves a medal for having compassion and respect for older people"* *"I felt as though I was an individual again and not just a number."*

Table 2 Key patient experience findings

In addition to the practical support provided by the CRS, the emotional support offered by the service was also discussed. The service (paramedics included) had offered reassurances; calmed people, provided helpful information and for many, been someone to talk to. Participants also commented on their flexible approach:

'I was very traumatised and everything and they were, the paramedic was brilliant.'

'They were very helpful, and they assured me. And there again, nothing was too much trouble for them'.

Discussion

Having an understanding of falls and the circumstances leading to them is invaluable for identifying a targeted, proactive response (Stevens et al, 2014). This is true not only for commissioners and service managers, but for the frontline staff working with those who have fallen.

An awareness of increasing numbers of falls experienced by older people in the community has fuelled a raft of worldwide research into the risk factors associated with falling (Stevens et al, 2014), the impact of falls (Roe et al, 2008; Thomas et al, 2013)

and preventative measures to reduce falls in the future (Gillespie et al, 2012). The impacts of falls are wide-ranging, including weakening health, reduced social networks/ activities and overall quality of life (Roe et al, 2009).

Within this study, a drop in the numbers of patients conveyed to hospital following a fall was observed when conveyance rates were compared for the CRS service delivery timeframe with the previous year. Although this change was small it was statistically significant. The conveyance rates for patients to hospital were lower during the hours that the falls ambulances were in service, than when only general ambulances were running. Based on available data the estimated 1,050 avoided admissions facilitated by the service represents a total saving of between £1,920,042 and £624,342.

It is important that the views of older people are taken into account and that they are afforded choices in interventions, ensuring that they maintain independence and competence (McInnes et al, 2011). There was a high level of satisfaction from patients within the current study; interventions were considered timely and staff friendly and well-informed. Most responding to the questionnaire felt that they were respected as an individual, treated with dignity and consulted about their care; 87% of CRS service users felt that the service had enabled them to have maximum choice, control and independence; 98% of those responding to the questionnaire reported the support that they received from CRS had made a difference to them. The social support offered by the service was seen as a highly important, additional benefit.

This study has begun to illustrate the range of impacts that interagency collaboration can have in supporting older people who fall. Previous studies have focussed on the impacts of falls and risk factors associated with them (see above). It has also begun to signal the importance of evidence-based client-centred training to inform the approaches taken to supporting those who fall, and the impact of a values-based approach on the experiences of patients (see **Error! Reference source not found.**).
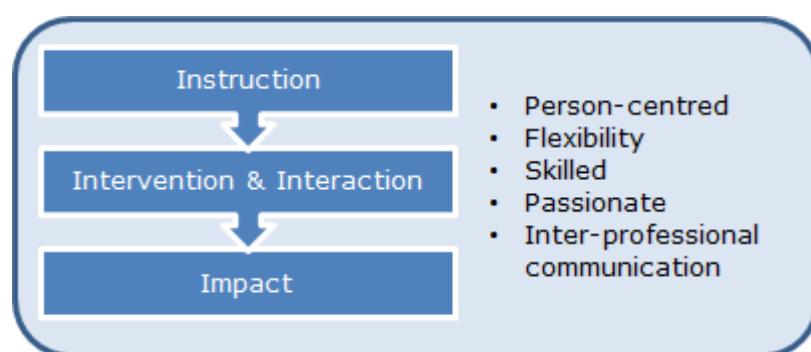

Figure 1 An integrated, value based model of service design

Limitations of this study

Routine data recording across each partner agency was completed in ways which did not enable cross-agency data comparison. In addition, the collection of service data on key performance indicators and finance would have further developed the evaluation. The commissioning organisation is now liaising with acute NHS Trusts to identify where detailed cost data can be extracted relating to admission subsequent to falls.

Acknowledgements

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