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Review

Interventions to reduce injuries when transferring patients: A critical appraisal of reviews and a realist synthesis

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ABSTRACT

Objectives: There has been extensive investment in programmes to reduce injuries among health care staff caused by moving and handling patients or residents. Given conflicting evidence regarding the effectiveness of such programmes, the present paper conducted a critical appraisal of systematic reviews assessing the effectiveness of interventions in reducing back pain and injuries among healthcare staff. A realist synthesis was conducted on a second set of reports to identify best practices for moving and handling programmes.
Design: A critical appraisal of systematic reviews and a realist synthesis to identify best practices for moving and handling programmes.
Data sources: A literature search of five databases (Medline, EMBASE, CINAHL, PsycINFO and ScienceDirect) located 150 reports assessing programme outcomes published in refereed journals between 2000 and 2013.
Review methods: The critical appraisal included six systematic reviews. The realist synthesis included 47 studies that provided descriptive information about programme mechanisms.
Results: Five of the six systematic reviews covered interventions involving either staff training or training and equipment supply. One review covered multi-component interventions. All concluded that training staff by itself was ineffective. There were differing conclusions regarding the effectiveness of training and equipment interventions and multi-component programmes. The reviews provided little information about the content of programme components. The realist synthesis noted the need for management commitment and support, and six core programme components; a policy requiring safe transfer practices, ergonomic assessment of spaces where people are transferred, transfer equipment including lifts, specific risk assessment protocols, adequate training of all care staff, and coordinators coaches or resource staff. These programme components are likely to be synergistic; omitting one component weakens the impact of the other components.
Conclusions: Five systematic reviews provided little information regarding the core components of effective programmes. Given the absence of experimental trials for multi-component programmes, the best available evidence for the effectiveness of multi-component programmes is from pre-post studies and large-scale surveys. The realist synthesis provided detailed information about the core components for effective programmes. Further studies, which include qualitative data, are needed to provide evidence about the specific mechanisms through which components contribute to effective patient handling programmes.

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What is already known about the topic?

- Interventions based solely on training care staff do not reduce back pain or injuries resulting from patient transfers.
- There is conflicting evidence regarding interventions comprising training plus equipment and multi-component interventions.
- As moving and handling programmes are complex interventions, systematic reviews should assess the extent to which reported interventions are adequately described.

What this paper adds

- Most systematic reviews did not adequately assess descriptions of the interventions in the trials reviewed. This reduces the credibility of these reviews.
- A realist synthesis identified six core components or mechanisms needed for effective moving and handling programmes; a policy requiring safe transfer practices, ergonomic assessment of spaces where people are transferred, transfer equipment including lifts, specific risk assessment protocols, adequate training of all care staff, and coordinators coaches or resource staff.
- Given the absence of experimental trials for multi-component programmes, the best available evidence is from pre-post studies and large-scale surveys. Findings from these studies provide support for the effectiveness of multi-component programmes.

1. Introduction

Evidence from multiple research studies and reviews indicates that health carers, such as registered nurses, nurse aides and residential care staff, have high injury rates, particularly back pain and musculoskeletal injuries (Dawson et al., 2007; Haladay et al., 2012; Tullar et al., 2010). Injuries to health carers most commonly occur while moving or transferring patients (Alnaser, 2007; Engkvist, 2008; Waters et al., 2006). Findings from a Canadian study indicated that care aides had the highest annual injury rates in every setting, the highest rate being in nursing homes (37.0 injuries per 100 full time equivalent staff – FTE). For registered nurses, the highest injury rates (21.9 per 100 FTE) occurred in acute care. Musculoskeletal injuries comprised the largest proportion of total injuries among health care staff. Care aides have the highest risk of injuries as their jobs mostly involve transferring and repositioning tasks during patient care (Alamgir et al., 2007).

Health care staff such as care aides and nurse aides, with less training, lower status and having less control or support in their workplace, have the highest rates of injuries (Eriksen et al., 2004; Pompeii et al., 2008). Higher daily frequency of patient handling increases the risk of back pain among staff with existing sub-chronic lower back pain (Holtermann et al., 2013). These two factors could be interrelated; lower status and less trained staff are more likely to carry out patient handling tasks (Kim et al., 2012).

There are initiatives in many countries to reduce patient handling injuries and associated costs among staff in healthcare facilities. Moving and handling programmes usually include multiple components such as providing equipment, training health care staff, risk assessments and an organisational policy that requires staff to use equipment and low-risk techniques. Health and residential care facilities in countries such as the UK, Canada and Australia have implemented programmes. For example, in Wales the Manual Handling Training Passport and Information Scheme includes training as a requirement for all employees who transfer objects or clients, during their everyday work (Welsh Assembly Government, 2009). A recent survey of 361 critical care nurses in the United States indicated that 46% had patient lifting equipment in their workplace (Lee et al., 2013).

In the UK, Australia and some states in the USA, there is now legislative enforcement for implementing moving and handling programmes to reduce injuries (American Nurses Association, 2013; Hudson, 2005). In countries without specific legislation, health and safety standards for workplaces may lead to the implementation of safe patient handling programmes (Hignett et al., 2007).

Two key drivers for the development of programmes to reduce injuries to carers resulting from patient handling have been concerns about the costs of employee injuries and continuing development of specialised equipment for moving and handling people. Significant reductions in injuries costs, following interventions to reduce injuries, have been reported in several papers (Chhokar et al., 2005; Lahiri et al., 2013; Park et al., 2009). Interventions have included the introduction of ceiling lifts (Chhokar et al., 2005; Miller et al., 2006), mobile floor lifts (Li et al., 2004) and implementation of a safe resident handling programme that included lifts, employee training and evaluation in 110 nursing homes (Lahiri et al., 2013). One indicator used in studies of costs is 'payback time,' which is the time for savings from reduced injury costs to exceed the costs of implementing a moving and handling programme. Payback time has been reported to be around 2–3 years in several pre-post studies (Chhokar et al., 2005; Collins et al., 2004; Lahiri et al., 2013). The systematic review by Tompa and colleagues, with three health care studies, concluded that there was 'moderate evidence that ergonomic interventions are worth undertaking for economic reasons' in the health care sector (Tompa et al., 2010, p. 230).

Over the last 15 years or so there have been major developments in specialised equipment for moving and handling people. These include; electric beds, mobile lifts (hoists), ceiling lifts and sit-to-stand lifts (Darragh et al., 2013; Kim et al., 2009). Other equipment includes lateral transfer devices, such as transfer boards, slide sheets and air-assisted devices (Baptiste et al., 2006). Many interventions in health care and residential care facilities have had a primary focus on providing equipment such as ceiling lifts and/or mobile lifts to reduce physical strain on staff while transferring patients or residents (Collins et al., 2004; Evanoff et al., 2003; Koppelaar et al., 2012; Miller et al., 2006). One of the key indicators associated with reduced injuries is the availability of lifting equipment