

Electric profiling beds in residential and nursing homes

Manual handling and service user benefits

Prepared by the **Health and Safety Laboratory**
for the Health and Safety Executive 2010

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This study was requested by the Health and Safety Executive to investigate the use and practicability of Electric Profiling Beds (EPBs) for the control of manual handling risk in a care setting. Data were collated from a literature review, a questionnaire and through observation of simulated manual handling tasks. A total of 1944 questionnaires were sent to a random sample of care homes across England and Scotland. A total of 415 returned questionnaires were included in the analysis. Five site visits were undertaken to homes caring for people with physical and/or learning disabilities, the elderly mentally ill and frail elderly. Overall the results suggest that EPBs are generally selected for use with, and provide the most benefit for, assisting with the care of residents who have greater mobility needs. As such they form part of a range of manual handling equipment available for use to meet the needs of the carer and resident. It is proposed that the selection of EPBs for use in a care setting continues to be through a suitable and sufficient ergonomic risk assessment.

This report and the work it describes were funded by the Health and Safety Executive (HSE). Its contents, including any opinions and/or conclusions expressed, are those of the authors alone and do not necessarily reflect HSE policy.

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First published 2010

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ACKNOWLEDGEMENTS

The authors acknowledge the assistance of the Care Homes who completed the questionnaire and also those who participated in the site visits. Without their valuable input this work would not have been possible. The Care Homes/ Local Authorities visited included: Jenny Gray Residential Home, Fife; Haxby Hall, City of York Council, York; Westwood Care Home, York; Crescent Dale Care Home, York; Pentland Hill Care home, Edinburgh; Bracebridge Court Residential Care Home, Warwickshire; Workforce Development Service, Warwickshire

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EXECUTIVE SUMMARY

This study was requested by the Health and Safety Executive to investigate the use and practicability of Electric Profiling Beds (EPBs) for the control of manual handling risk in a care setting. Data were collated from a literature review, a questionnaire and through observation of simulated manual handling tasks. A total of 1944 questionnaires were sent to a random sample of care homes across England and Scotland. A total of 415 returned questionnaires were included in the analysis. Five site visits were undertaken to homes caring for people with physical and/or learning disabilities, the elderly mentally ill and frail elderly. Overall the results suggest that EPBs are generally selected for use with, and provide the most benefit for, assisting with the care of residents who have greater mobility needs. As such they form part of a range of manual handling equipment available for use to meet the needs of the carer and resident. It is proposed that the selection of EPBs for use in a care setting continues to be through a suitable and sufficient ergonomic risk assessment.

Objectives

The objectives of this work were to:

1. Summarise what is known about the number of EPBs currently in use in the care sector.
2. Identify the common resident handling tasks and the level of risk to care assistants when carrying out these tasks.
3. Determine the benefits of the use of EPBs in terms of the care assistant and residents' health and safety and the residents' comfort, recovery and independence.
4. Outline the financial and commercial rewards and costs to care home owners compared to standard beds. This will include the cost of beds, any modifications to premises, training, maintenance and any benefits through savings in staff resource, provision of care or reduced sickness absence.

Main Findings

The review of the literature, where the use of EPBs has been studied in a clinical setting, indicates that there are some clear benefits to using EPBs. Whilst there is not an extensive evidence base, all of the literature reviewed reported positive benefits for both staff and patients' health and well-being.

- There is some evidence to suggest that an increase in bed height will reduce the time-integrated forces and peak shear forces on the lumbar spine. However, this is dependent on the carer selecting an appropriate bed height for their body height.
- Electrically controlled rising backrests can reduce the manual handling requirements for carers and also potentially reduce the number of carers required to assist the resident and the frequency of visits, dependent upon the needs and capabilities of the resident.
- EPBs afford greater independence to the occupant as they can adjust their own posture/potentially get in and out of bed independently.
- There is potential for a reduced incidence in pressure sores as a result of a greater frequency of postural adjustment but without the need to manually handle the patient resulting in less friction on the skin.

The main findings from the questionnaire included:

- More than half of the respondents to the questionnaire provided residential care.
- In England, most respondents were from privately owned organisations, followed by small limited companies.
- In Scotland, most respondents were from the voluntary not for profit organisations, followed by privately owned homes.
- A limitation of the questionnaire results is that very few Local Authority run care homes responded to the survey. This may be due to LA care homes being allocated to a different SIC code of the Inter-Departmental Business Register, which was used to sample the population.
- Care homes¹ that provide a combined service (both nursing and residential care) have significantly more registered beds (Mean = 49) than those that provide nursing (Mean = 35) and residential (Mean = 23) care separately.
- Almost 100% of nursing and combined care home providers that responded to this survey indicated that they used slide sheets and mobile hoists to assist with manual movement of residents. Significantly fewer residential homes used these pieces of equipment. This may be due to a greater range of handling equipment being available in homes where there are potentially more heavily dependent residents.
- Over 60% of respondents in both England and Scotland reported that they did not have a bed replacement policy.
- EPBs were reported to be in use in just over half of the care homes that responded. EPBs accounted for 17% of the total number of beds in the survey.
- Over 80% of nursing and combined care home providers use EPBs for some of their residents. This is significantly more than residential homes, where only 38% indicated that they use EPBs.
- The main reasons given for using EPBs were to facilitate manual handling (88%), pressure sore management (53%), and to improve resident's independence (44%). Of those who stated they purchased EPBs for manual handling reasons, 20% did so based on risk management/good practice.
- More than 70% of EPBs in use had vertical height adjustment, backrest and knee break functionality.
- Nursing and combined care home providers own significantly more of the EPBs in use compared to residential homes. The EPBs in use by residential homes tend to be provided by the NHS/Social services.
- More than half (54%) of the respondents using EPBs gave positive comments concerning the benefits that EPBs provided to service users. Reported benefits included the increased levels of comfort and independence and the reduction of the risk of injury to service users. Respondents also stated that they liked the height adjustment feature of

¹ Respondents to the questionnaire were classified as providing either nursing or residential care or a combined service offering both nursing and residential care.

the beds the most, plus they stated that they were easy to move and use. Over half of the respondents (56%) felt that the use of EPBs provided benefits to staff.

- A third of respondents who use EPBs identified features they disliked. These included their size in relation to the bedrooms, which reduces the space available, purchase cost, maintenance/breakdown requirements, and issues with electrical leads under the bed that causes problems with using other pieces of equipment such as sling hoists.

The main findings from the task analysis and site visits were:

- The height of the divan/mattress when getting into bed can influence the carers' postures. In some instances it may be so high that the resident has to be pushed up onto the bed rather than lowered. This leads to one of the carers needing to bend and crouch down at the resident's feet to push them onto the bed. With an EPB, this can be avoided as the bed can be lowered.
- With an adjustable-height bed, the action of the bed raising can assist the user to stand, with little or no assistance, from a sitting position at the edge of the bed with their feet on the floor. With a lower bed height the resident may need more assistance to stand as the distance required to stand up from sitting would be greater and would require more effort.
- The electrically adjustable backrest of an EPB means that a resident can sit up/lay down without the need for any manual handling by the carer. Where a resident spends a lot of time in bed, this feature could help to significantly reduce the manual handling requirement, whilst potentially enabling the resident to be more independent.
- When turning a user on an appropriate height adjusted EPB, carers are able to stand with their posture closer to the vertical.
- It was not possible to find any suitable data to quantify the health benefits of EPBs be it to the carer or resident. However, some studies (Mitchell 2000, Hampton 1998, Purvis 2005) have reported a cost saving through reduced pressure sore incidence rates and savings on the provision of air mattresses.

Recommendations

- EPBs are a valuable piece of assistive equipment, which provide benefits to both carers and users. They form part of a range of manual handling equipment that can be used by care homes to reduce the risk of injury to carers. As such, their selection needs to be based on a suitable and sufficient ergonomic risk assessment that takes into account the individual needs of the resident and carer.
- Further consideration needs to be given to the interaction of EPBs with care and handling devices. For example, Zhuang et. al. (1999) evaluated twelve assistive devices that could be used for transferring patients from a bed to a chair using what was assumed to be a standard fixed height bed. It would be of value to repeat this study using an EPB to establish if this alters the effects of the use of the assistive devices. Such a study could provide an evidence base on best practice for handling techniques and inform the development of guidance training material.

1 INTRODUCTION

1.1 BACKGROUND

The Health and Social Care sector is one of the highest risk areas for back injury with around 50% of all accidents reported in the sector attributed to helping people whose mobility is reduced by disability and chronic illness (HSE, 2001). Stresses and strains can also occur when adopting awkward, static postures for treatment of patients. Smedley et al. (1995 cited in Palmer, 2004) reported that manual handling accidents in the health services were significantly associated with manually moving patients in the bed and transferring patients off the bed.

The type of bed used in the social care sector is variable and can include a resident's own divan type bed, standard 'King's Fund' type hospital beds, futons or electrically profiled beds (EPBs). The mattress platform of Electric Profiling Beds (EPBs) is split into a number of sections that can be angled by the occupant or care assistant at a 'push of a button'. The functions of an EPB can include (Rush, 2004):

- Height adjustment – raising and lowering the overall height of the bed
- Profiling backrests (raise and lower) – these enable people to sit-up independently
- Knee break – to raise and lower the knees, which will support a person in a sitting position
- Automatic turning of a person

The profiling of the backrest/knee break and automatic turning allows pressure to be transferred to different parts of a person's body, without the need for them to be manually adjusted by a carer. It therefore has many potential benefits for both the user and carer.

The type of bed provided in residential care homes is usually dependent upon the service user's needs and the level of care required. Research into the benefits of using EPBs as compared to standard beds has tended to be in a clinical setting. There is currently a dearth of empirical evidence on the benefits or otherwise of EPBs used in the Social Care Sector. This study was requested by the Health and Safety Executive (HSE) to investigate the use and practicability of these beds for the control of manual handling risk in a care setting.

1.2 AIMS & OBJECTIVES

The aim of this work is to evaluate the use of EPBs in residential and nursing care homes and provide information on the benefits, difficulties and risks of introducing EPBs more widely.

The objectives of this work are to:

1. Summarise what is known about the number of EPBs currently in use in the care sector.
2. Identify the common resident handling tasks and the level of risk to care assistants when carrying out these tasks.
3. Determine the benefits of the use of EPBs in terms of the care assistants' and residents' health and safety and the residents' comfort, recovery and independence.
4. Outline the financial and commercial rewards and costs to care homeowners compared to standard beds. This will include the cost of beds, any modifications to premises, training, maintenance and any benefits through savings in staff resource, provision of care or reduced sickness absence.

2 METHODS

2.1 LITERATURE REVIEW

A brief literature review of the use of EPBs and standard beds was carried out. The search focused on the risk of musculoskeletal injury to care assistants and patient comfort. The search terms included

- Profiling beds
- Patient/resident handling
- Patient/resident transfer
- Repositioning of patients/residents
- Pressure ulcers
- Long term care

The HSE/L information search team carried out the search in OHSROM, Ergonomics Abstracts, Web of Science, Medline, HD Data and Excerpta Medica.

2.2 EPB SURVEY

Permission was given by HSE Survey Control on 22nd July 2008 to conduct this audit of EPBs and manual handling equipment.

2.2.1 Sample selection

A questionnaire was sent by post to 1944 residential and nursing homes across England and Scotland. A randomly generated sample of local units was obtained from the Inter-Departmental Business Register (ONS, 2008) using the SIC codes for nursing homes (SIC 85113) and social work activities with accommodation (SIC 8531 –1/2).

A total of 2560 randomly selected records were originally obtained from the Register. The records were reviewed prior to the questionnaires being sent out and from this it became clear that there were a number of organisations included in the list that appeared to be for private residents/supported living. As a consequence it was decided to exclude those premises that indicated they employed five or less employees, thereby hopefully excluding most of these records. The estimated population size for each of these categories, and the corresponding sample size selected is shown in Table 1.

Table 1 Survey distribution

<i>SIC code</i>	<i>Estimated Population size England/Scotland</i>	<i>Random Sample Size England/Scotland</i>
85113	1715 / 206	160 / 194
8531/2	9870 / 1325	807 / 783

2.2.2 Questionnaire design

A first draft of the questionnaire was developed following a site visit to an elderly residential care home to discuss the key issues with EPBs and manual handling equipment. This was done using a semi-structured interview style. The questionnaire included a combination of open question responses and pre-determined selections. It was divided into two sections, A & B. Section A was to be completed by all care homes and section B by only those who used EPBs (see Appendix A).

Both a HSE Inspector of Health and Social Services and an HSL Ergonomist with a background in Occupational Therapy reviewed the first draft. A second draft was developed and piloted by three separate residential care homes. The results and feedback from the pilot were analysed and a final version developed (Appendix A), which was then posted out to care homes. An option was included to complete the questionnaire online or the survey could be returned by post to the Health and Safety Laboratory using a pre-paid envelope. Only one copy of the questionnaire was sent to each of the organisations included in the sample, and only questionnaires returned by the 29th October 2008 were included in the analysis to fit with the project time constraints and to avoid a response bias from late respondents (Oppenheim, 1966). Data were entered into SPSS from which frequency and descriptive statistics were generated.

2.3 SITE SURVEY/POSTURAL ASSESSMENT

A request was emailed to HSE and Local Authority Inspectors to ask for suggestions of suitable sites to visit that used EPBs. A HSE Inspector of Health and Social Services also provided suggestions. The proposed care homes were then contacted by HSL and a site visit arranged where appropriate. Three HSL researchers undertook in total five separate site visits that covered a range of care provision. Details of these visits are shown in Table 2.

Table 2 Summary details of sites visited

<i>Care Home</i>	<i>Visit Date</i>	<i>Type of care</i>	<i>Ownership</i>	<i>Types of bed</i>	<i>No of beds</i>	<i>Type of profiling bed</i>
Kirklees, YORK Residential home	07.10.08	Learning Disabilities	LA	Divan and profiling	3 EPB 5 divan	back, knee & height
Selby, YORK Residential home	15.10.08	Elderly Mentally Ill	Small Private	Divan and profiling	3 EPB, 13 divan	back, knee, height & tilt
City of York, YORK Residential Home	31.10.08	Older people, physical disability	LA	Divan and profiling	18 EPB 24 divan	back, knee, height & tilt
Lochgelly, FIFE Residential Home	08.12.08	EMI/Frail elderly	LA	Divan and profile	21 EPB 11 divan	back, knee, height & tilt
Edinburgh, Scotland – Nursing Home	8.12.08	EMI/Frail elderly	Corporate	Divan and profiling	80 EPB 40 divan	back, knee, height & tilt

Video based observations were taken of the carers performing four simulated manual handling tasks including:

1. Assisting a resident into bed
2. Assisting a resident out of bed
3. Sitting a resident up/laying them down when in bed/feeding a resident in bed
4. Turning a resident in bed/making them comfortable

These handling scenarios were adapted from the study by Murphy et al (2004) and discussed at the time of the site visit to confirm they covered the range of significant manual handling tasks undertaken by care workers involving handling the resident in, on or off a bed.

To assess the risk of musculoskeletal injury, the Rapid Entire Body Assessment (REBA), technique (Hignett and McAtamney, 2000) was used to analyse the recorded postures of the carers when performing the simulated tasks using both a standard bed and an EPB. This tool was chosen because it incorporates dynamic and static postural loading factors, as well as the acceptability of the coupling with the load and the weight of the load. Additionally this tool was developed to be sensitive to the assessment needs of the healthcare sector.

The REBA postural analysis tool or MSD assessment tool uses a scoring system that gives an action level to indicate the urgency of workplace change. The body parts are divided into segments and a rating given according to the posture observed to give the total score. The action category levels are shown in Table 3.

Table 3 Action category levels for REBA

<i>REBA score</i>	<i>Risk level</i>	<i>Action</i>
1	Negligible	None necessary
2-3	Low	May be necessary
4-7	Medium	Necessary
8-10	High	Necessary soon
11-15	Very high	Necessary now

During the site visits, general information was collected from the carers present about their experiences of using EPBs, the residents' experience and the financial rewards and costs to the care homes of purchasing the EPBs. A question set/prompt sheet was used by the researchers as an 'aide memoir' (Appendix B).

3 LITERATURE REVIEW

The primary bed type used in NHS hospitals has until recently been the ‘King’s Fund’ bed, which if height adjustable, can only be adjusted using a manual hydraulic foot pump. These hydraulic foot pump operated beds, whilst allowing the height of the bed to be adjusted, require some physical effort on the part of staff and potentially awkward postures may need to be adopted in order to gain access to the pump (Tarling and Burns, 1994). In a care setting, the beds used can often be the same as those used in an individual’s own home, with divan beds being common. Such beds are not height adjustable and are often not conducive when used with the handling equipment available to the care assistants, such as mobile hoists.

The use of EPBs to aid with the handling of patients has been considered in a few clinical studies. No studies were found that considered the use of EPBs in a care setting although EPBs were considered in a small number of manual handling equipment reviews applicable to the care sector (Rush, 2004; Williams, 2000; Hampton, 2001; Fernandes, 2007). The following review summarises the evidence so far considering the impact profiling beds have on the handling of patients in, onto or off a bed.

3.1 EFFECT OF BED TYPE ON POSTURE

DeLooze et al. (1994) investigated the effects of a height adjustable bed on mechanical low back stress for five different nursing tasks including turning the patient, positioning the patient on a bedpan, pulling the patient up the bed, and handling the patient on and off the bed. The effect of an increase in bed height can be that the nurse can adopt a posture closer to the vertical, which could reduce the peak compressive forces of the lumbar spine. However, the results of this study did not show any significant favourable effects of bed height adjustment on peak compressive forces, although a decrease in peak shear force, time-integrated shear force and time-integrated compression was observed. There were a number of possible confounding variables identified including nurses selecting a relatively low bed position in relation to their body height. Overall, they concluded that results favoured the use of height adjustable beds.

A study by Skotte and Fallentin (2008) measured the torque, compression and shear forces at the low back of health care workers performing patient handling tasks in the bed. They found that it was the healthcare worker’s repositioning technique of the patient and the use of friction reducing handling equipment that had a higher influence on low back loading than the patient’s weight or disability. For this study they used a manually adjustable hospital bed. They did not report whether adjustments were made to the height of the bed as part of the technique. Zhuang et. al. (1999) undertook a similar study that investigated the effect of transfer technique from a bed to a chair and resident weight on the biomechanical stress to the nursing assistant performing the task. A total of twelve assistive devices were evaluated that could be used for transferring patients from a bed to a chair. Unfortunately, an EPB was not used for this study so the impact of the height adjustment and backrest functionality on handling technique remains unclear.

Tarling and Burns (1994) undertook ergonomic assessments at Gloucestershire Royal NHS Trust and reported that for fixed height beds the Health and Safety risk assessment showed there was a high risk of back pain.

Murphy et al. (2004), in a collaborative study with the HSE, did an audit of eight manual handling operations associated with handling a patient in, onto or off a bed over a one-week period of three wards each at two separate hospitals. One hospital was fully equipped with

EPBs, whilst the other hospital used a mix of EPBs and standard beds. Video was taken of the manual handling trainers carrying out the identified manual handling operations and a postural analysis undertaken using REBA (Hignett & McAtamney, 2000). The results of the postural analysis showed there to be a lower risk level in terms of posture when using the EPBs compared to standard beds coupled with a reduction in the steps needed to complete the task.

3.2 MANUAL HANDLING FREQUENCY AND COST REDUCTIONS

Tarling and Burns (1994) reported that the electrically controlled rising backrests reduce handling requirements compared with standard beds as the hips remain in the same place and there is no need to adjust the patient up the bed. Where EPBs were in use, patients were observed moving themselves independently into comfortable positions, therefore negating the need to call for assistance.

Murphy et al. (2004), in a collaborative study with the HSE, looked at two separate hospital wards, one that used only EPBs and one where the vast majority of beds used were the standard 'Kings Fund' type hospital bed. They found that there was a much higher proportion of manual handling activity reported at the ward using standard beds compared to the one that was using EPBs. However, regardless of bed type a greater number of handling operations was recorded for moving the patient whilst in bed, than assisting them on/off the bed.

Another study by D'Orso et.al (2007) reviewed the number of occupational accidents in a hospital before and eighteen months after the introduction of EPBs. The results indicated that there was a significant reduction in the number of accidents related to the handling of patients in the wards where the beds were introduced. There was also a reduction in the number of patient falls from beds in the same period. Whilst the authors generally conclude that the purchase of EPBs seems to be economically advantageous they did include a cautionary note that continued monitoring of the effects would be advisable. This would be very interesting as there is the possibility that the positive results of this study could be due to the effect of taking part in the study (Hawthorne Effect) and the questions remain as to whether the same benefits would continue to be reported some years in the future.

A review of EPBs in hospitals was carried out by the MHRA (2003). Both a postal survey and site visits were used to collect data. They found that many Trusts believed EPBs reduced manual handling requirements, and were particularly beneficial for heavy patients. However, no further quantitative data were available on manual handling incidence reduction.

Other studies have looked at pressure sore incidence rates, EPBs and patient handling. Keogh and Dealey (2001) conducted a 10-day trial where patients were randomly assigned to either a profiling or standard bed to investigate the effects of a profiling bed with a pressure reducing foam mattress on pressure ulcer incidence outcomes. Following the trial, a total of 75 nurses and 70 patients completed a semi-structured questionnaire to seek feedback on the beds used. It was found that nurses chose to use the EPBs for more heavily dependent, immobile patients. They generally thought that it was easier to undertake nursing duties and reposition patients using the EPB compared to standard beds and because the bed lowered further this allowed patients to transfer more easily thus reducing the need to lift and handle. Patients commented they were more able to independently maintain a sitting position using an EPB and felt more able to transfer in and out of bed compared to users of a standard bed.

A six-month study was undertaken by Mitchell et al. (2000) of the West Bergholt Acute Trauma Ward in Colchester General Hospital following the introduction of EPBs. They held interviews and focus group discussions plus reviewed hospital records to find out what the effects were of

using EPBs on staff and ward monetary costs. They found that EPBs saved staff time and reduced handling requirements. However, it was reported that hospital records did not demonstrate any cost savings. Upon assessment of individual case notes it was found that the acquired pressure sore rates had fallen by a significant amount. It was suggested there was a cost saving to the NHS in terms of reduction in care requirements (staff time) for the patient and savings on pressure care equipment, potential for a speedier recovery and the freeing up of beds. In a care setting, the factor of freeing up hospital beds clearly does not apply. However, there would be a cost saving of a reduction in pressure sores.

As EPBs can be used to assist a patient to sit up in bed, a carer is no longer required either to do this task or to potentially pull a resident up the bed once they are sat up to prop them against a backrest. This leads to a reduction in handling requirements. This is beneficial to both patients and carers. For patients, this reduces the risk of pressure sores through friction on the skin when being pulled up the bed. For carers, less handling lowers the risk of musculoskeletal injury. Further studies (Purvis, 2005; Hampton, 1998) into the use of EPBs suggest that EPBs used in conjunction with appropriate pressure relieving mattresses can reduce the incidence of pressure sores and reduce manual handling requirements. The study by Hampton (1998) where a controlled trial was held over a 6-month period found that nurses who were using the EPBs reported it was significantly easier to transfer patients from bed to chair than those who were using standard beds.

In summary, these clinical studies generally report positive benefits of the use of EPBs. These benefits include:

- Potential to reduce the risk of pressure sores.
- Reduces the amount of manual handling undertaken by carers.
- Increases the independence of users.
- Potential to reduce the frequency/number of staff required to assist users to reposition or feed.
- Bed height can be raised high enough such that a carer's posture is closer to neutral.
- Bed adjustments are quick and easy to make.
- Potential benefit of use with heavier and more immobile users.
- Transfers from the bed to a chair made easier for the carers.

4 QUESTIONNAIRE RESULTS

4.1 RESPONSE RATE

A total of 447 completed questionnaires were returned to the HSL. However, 32 of these were returned after the cut off date so could not be included in the analysis. In total, 415 questionnaires were analysed giving a response rate of 21.3%. As three of the respondents did not indicate which country they were from, these results were excluded from the analysis, leaving a sample size of 412.

The questionnaire was divided into two parts: Section A and B. Section A related to categorical data on aspects such as the type of service provided, the number of beds in the care home, types of manual handling equipment available etc. Only those who used profiling beds in the care home completed Section B, which consisted of a series of questions on the reasons for choosing EPBs and general opinion about the beds.

England has a much larger number of care home establishments compared to Scotland. Therefore the sampling method was set up to over sample Scottish establishments, which ensured that the survey has adequate power. Sampling weights were then calculated and applied to the data as a way of compensating for the over sampling in Scotland.

4.2 TYPE OF SERVICE PROVIDED

Figure 1 shows the distribution of the type of care provided by the care homes. The majority of care homes responding to the questionnaire provide residential care (67%, N=256).

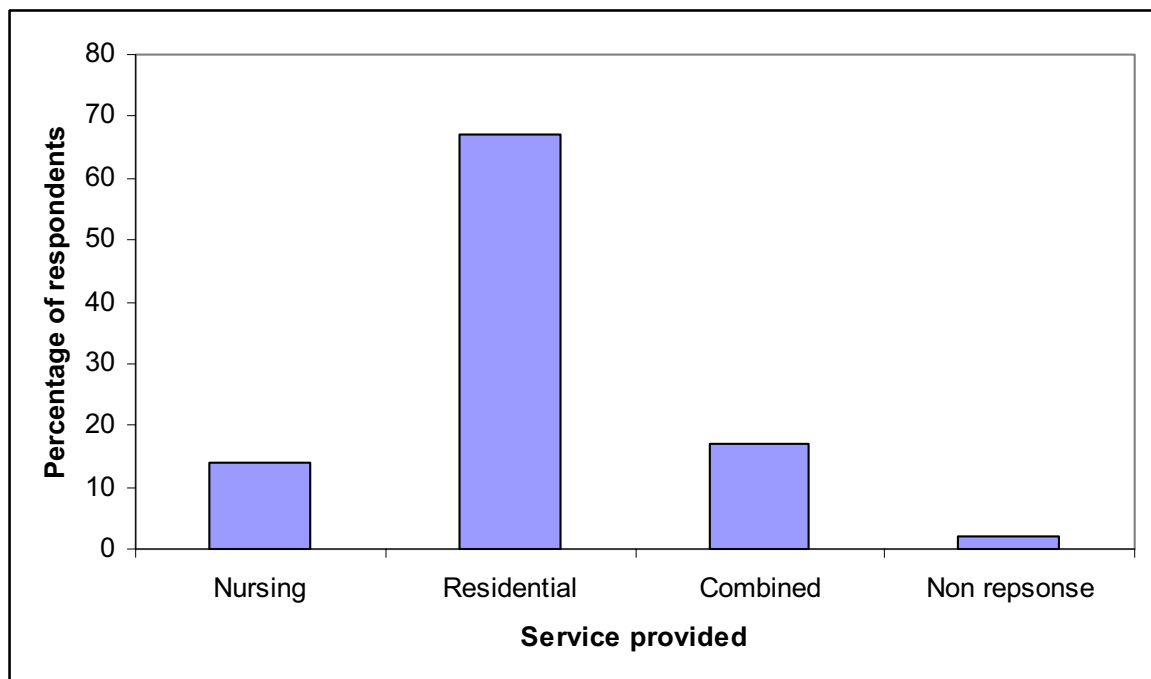


Figure 1 Type of Service Provided (N=412)

Figure 2 shows that for the type of service provided there are a very similar number of combined homes in both England and Scotland. However, there are significantly more nursing homes (26%, N=45) in Scotland that responded when compared to England (13%, N=32). Comparatively, 68% (N=163) of respondents in England provided residential care, which was slightly more than for Scotland where only 54% (N=93) provided this type of care. This may reflect a difference in care arrangements between England and Scotland or a response bias.

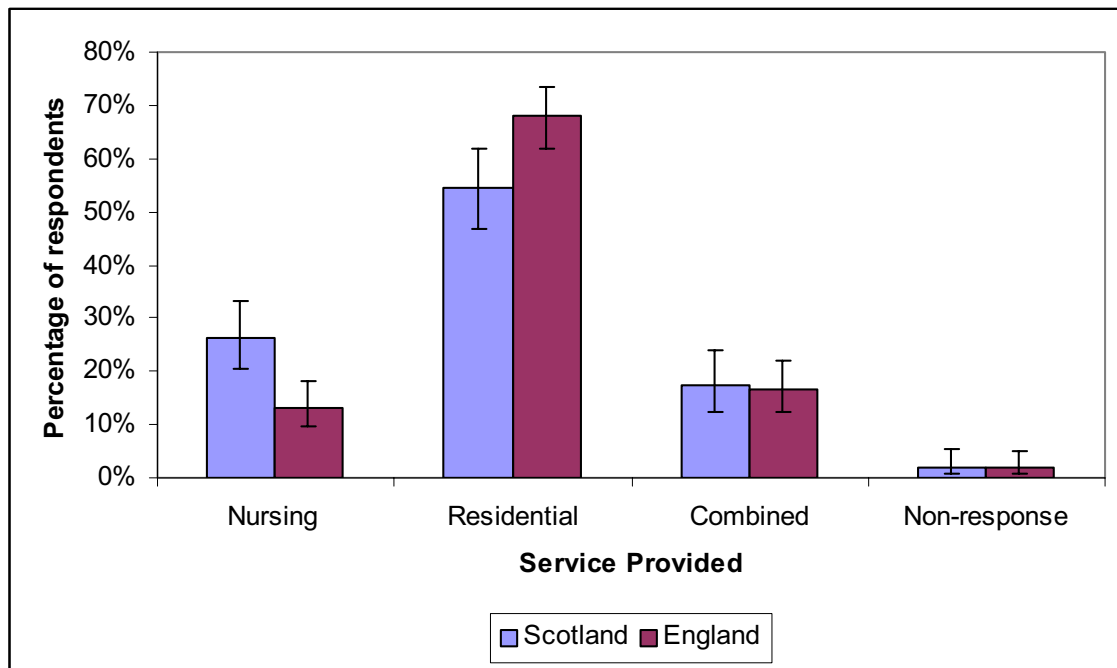


Figure 2 Type of service provided by country (N=412)

4.3 CARE HOME OWNERSHIP

Figure 3 shows that the majority of the care homes that responded to this survey were owned by three types of organisation: private individuals (36%, N=137), small limited company (26%, N=94) or run by a voluntary/non-profit making organisation (23%, N=109).

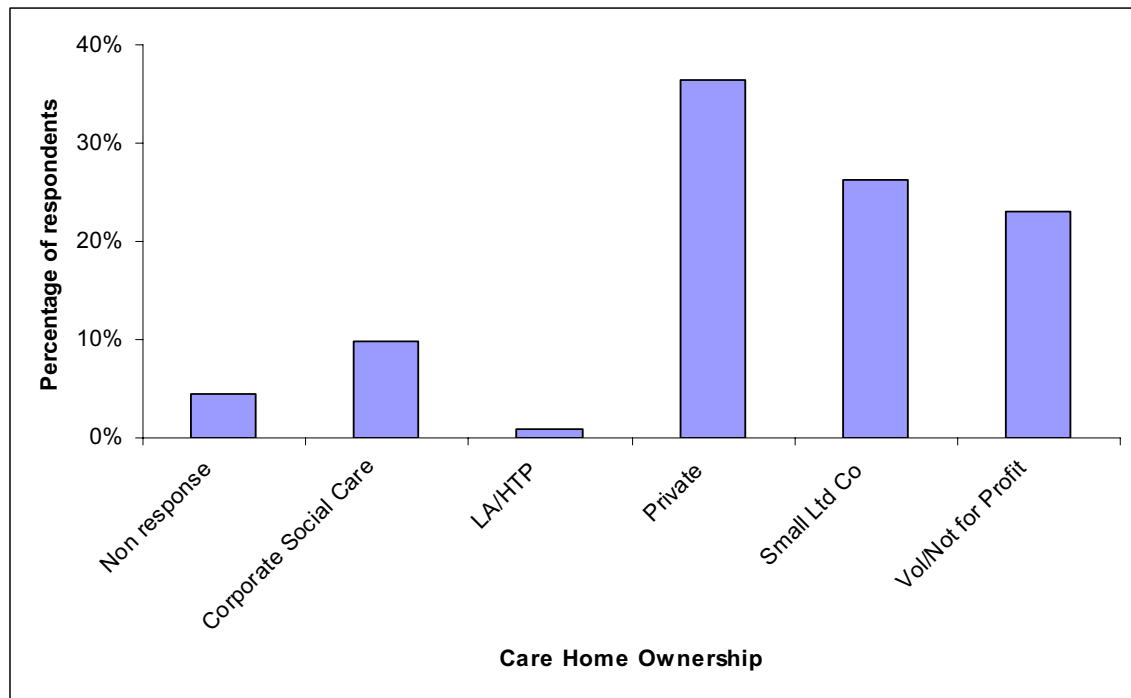


Figure 3 Nature of owner organisation (N=412)

Figure 4 shows that in Scotland 33% (N=56) of respondents were from care homes run by voluntary/not for profit organisations compared to 22% (N=53) for England. The largest number of respondents in England were from care homes in private ownership (36%, N=87). There were very few local authorities that responded although this is likely to be due to the sample from which the respondents were drawn.

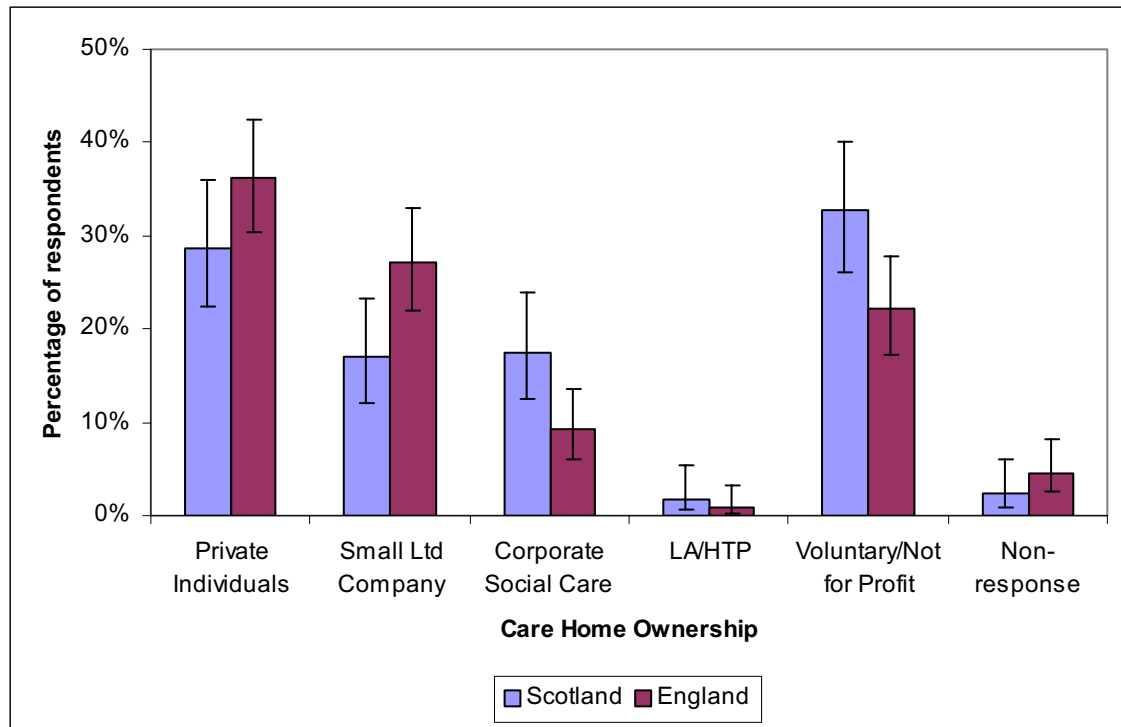


Figure 4 Care home ownership by Country (N=412)

Figure 5 shows Corporate Social Care providers own significantly more nursing homes (24%, N=23) than residential homes (6%, N=18). Conversely there are significantly more residential homes run by voluntary, not for profit organisations (27%, N=86) than nursing homes (6%, N=5).

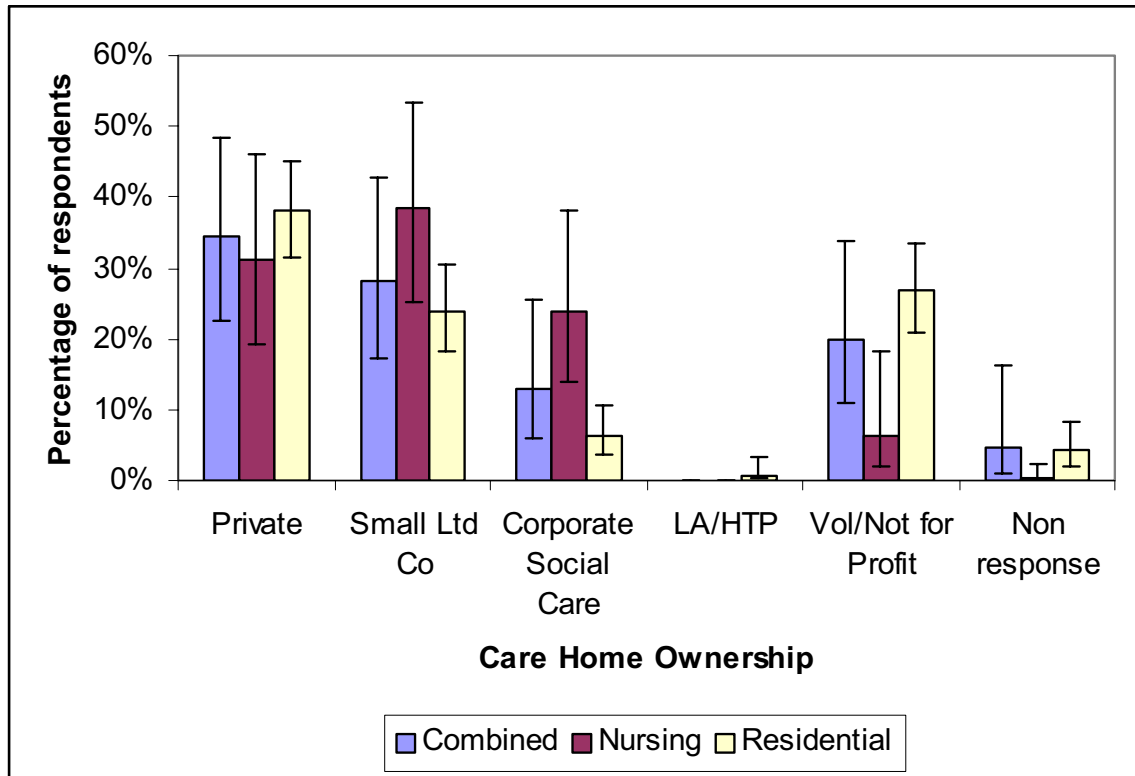


Figure 5 Care Ownership by type of service provided (N=412)

4.4 NUMBER OF BEDS

The mean number of registered beds available at a care home is 29 (SE 1.15, N=396, Non-responses=16). The mean number of beds available at a Scottish care home is 31 (SE 1.77, N=164) and for England it is 29 (SE 1.24, N=231), with no significant difference between them (95% CI).

Figure 6 shows the mean number of beds in care homes by service type provided (N=392, Non-responses=20). There are significantly fewer beds in homes that provide only residential care than in nursing or combined care homes. There are also significantly fewer beds in homes that provide only nursing care compared to those that offer a combination of both residential and nursing care.

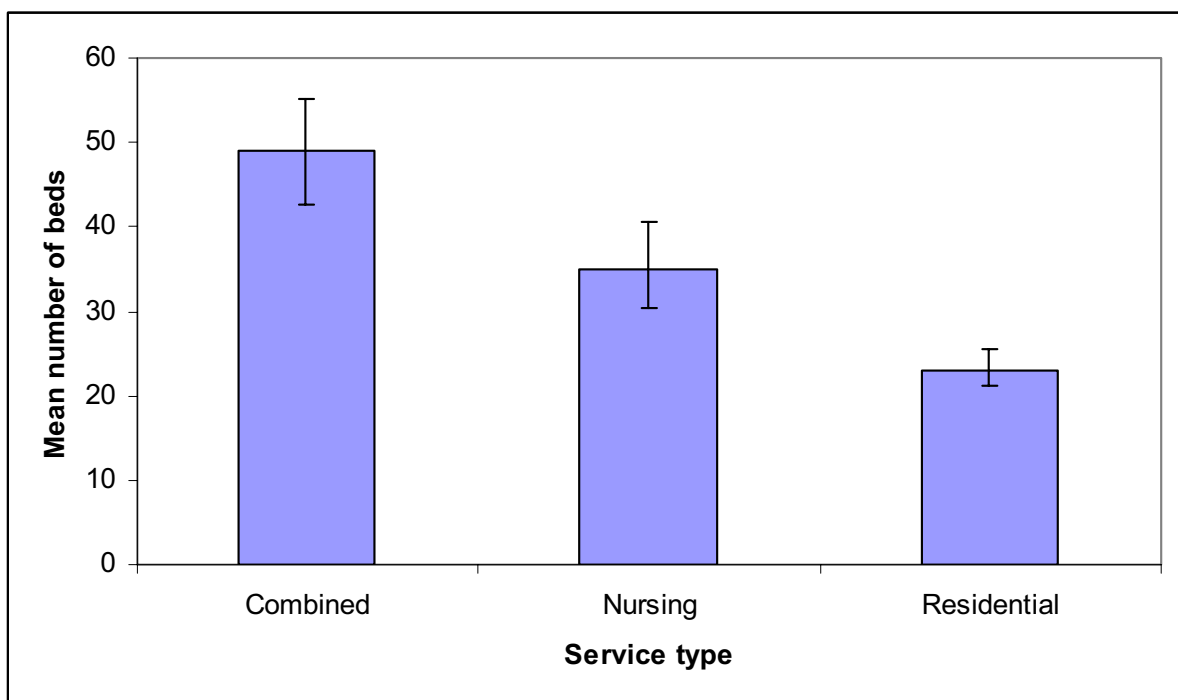


Figure 6 Mean number of registered beds by service type (N=392)

4.5 TYPES OF HANDLING EQUIPMENT USED IN THE CARE HOME

Respondents were asked to indicate the types of handling equipment available to them. A list was provided, which included:

- Slide sheets
- Monkey poles
- Hydraulic back rest
- Standing hoist
- Ceiling track hoist
- Mobile hoist
- Belts
- Transfer table
- Transfer Board
- Other

Figure 7 shows the percentage of respondents by country that indicated they use each type of handling equipment for moving and handling residents in, onto or off a bed. Slide sheets (77%, N=131, and 71%, N=171) and mobile hoists (77%, N=131, 75%, N=181) were the types of manual handling equipment most commonly used in the care homes in this survey in both Scotland and England respectively. This result corresponds with previous research into Welsh care homes (Marlow et al., 2005). The only significant result was for the use of belts, which are more widely used in England.

The other types of equipment identified included:

- Bath hoist
- Parachute slings
- Shower trolley
- Reclining Chairs
- Leg Lifter
- Hand rails
- Emergency Lifting Cushion

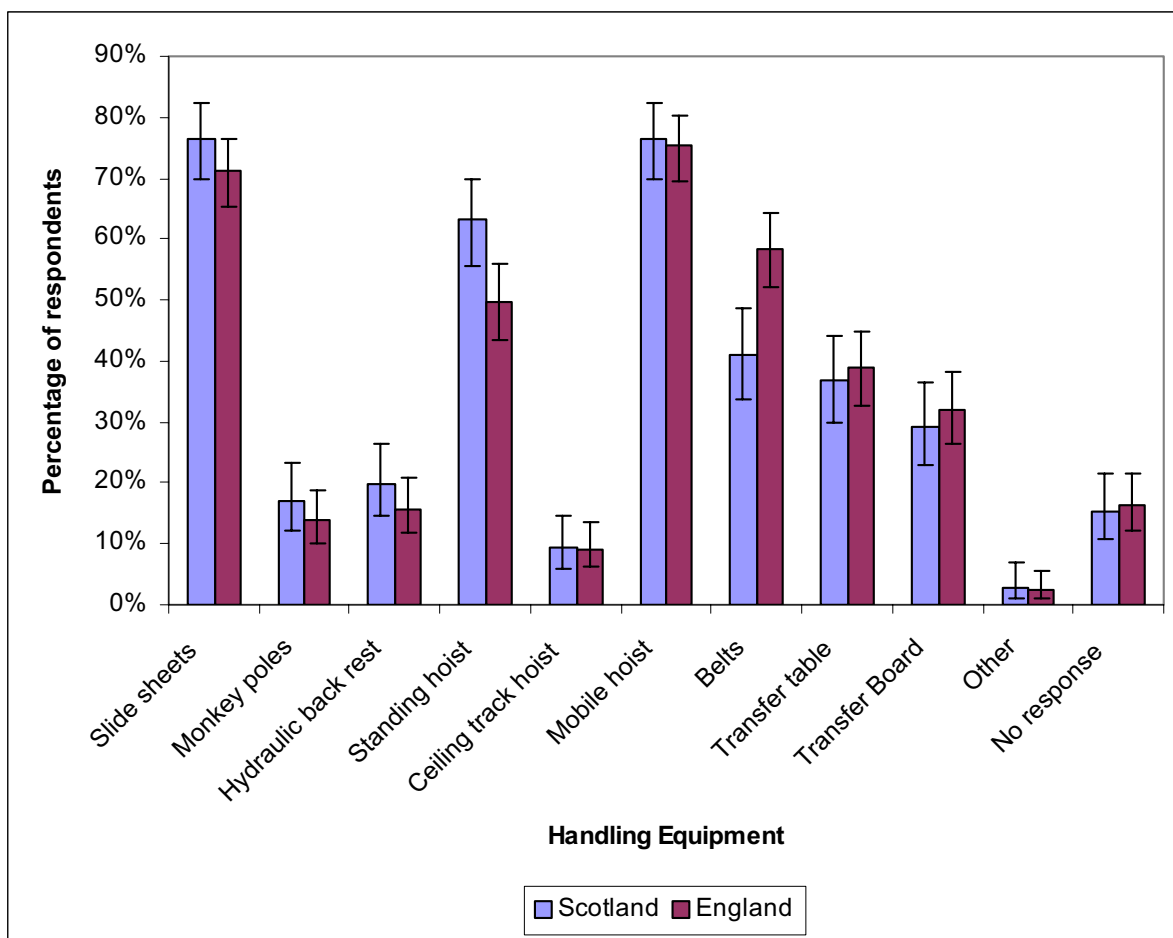


Figure 7 Handling equipment used by country (N=412)

Rush (2004) proposes that care homes need a core equipment resource that should include slide sheets, transfer boards, belts, hoists, turners and specialist chairs, along with EPBs. The survey results indicate that more than 50% of care homes use slide sheets, standing hoists, mobile hoists, and handling belts. Transfer boards are a little less common, with around 30% of care homes using them. However, slide sheets, standing hoists and mobile hoists are significantly more common in nursing and combined care homes than residential homes (Figure 8). Indeed, almost 100% of nursing and combined care homes who responded to this survey indicated they used slide sheets and mobile hoists. Comparatively, only 60% of residential homes used slide sheets and mobile hoists. Rush (2004) points out that the care homes core manual handling equipment is required to meet the needs of most residents. Therefore, these results seem to reflect the fact that where there are more heavily dependent residents, as might be expected in nursing and combined care homes, a greater range of equipment is available to meet these residents' needs. Indeed 22% of residential homes did not complete this question, with a total of 23 respondents stating that manual handling equipment was not needed.

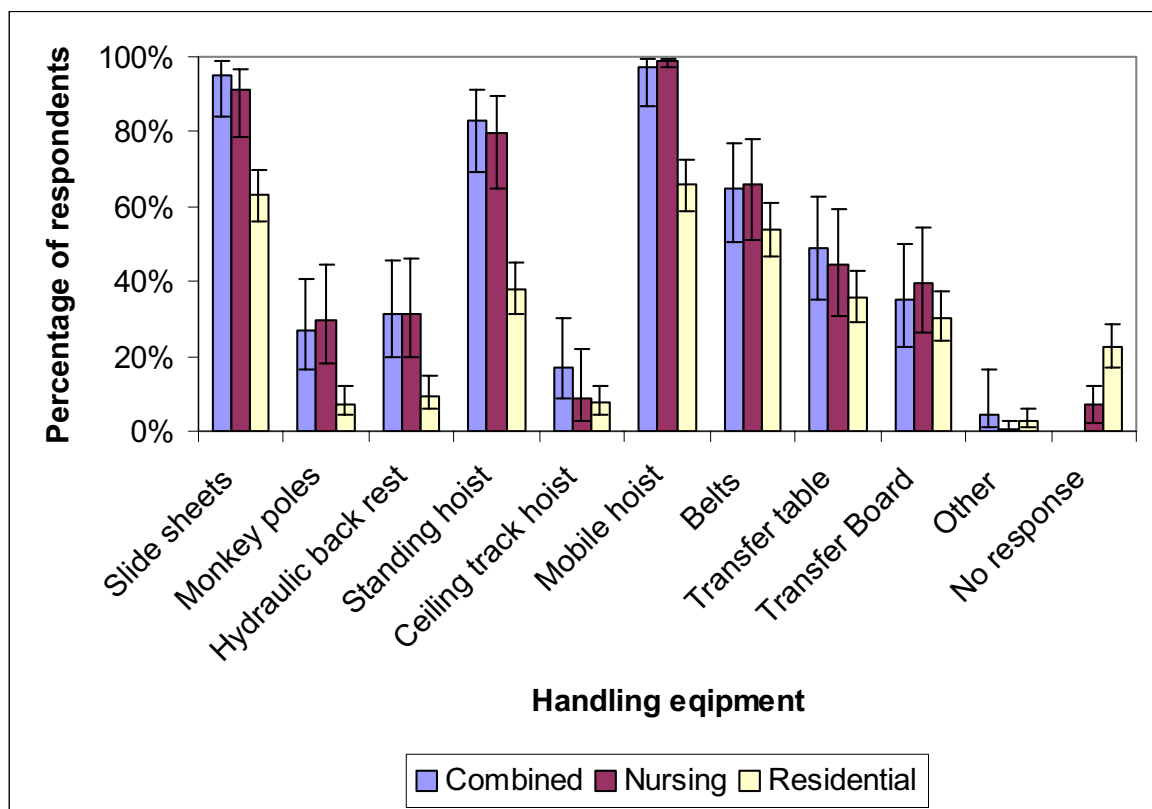


Figure 8 Handling equipment used by service provision

4.6 BED REPLACEMENT POLICY

A formal bed replacement policy was in place for only 68 of the 412 respondents included in the weighted analysis, (15 non respondents to this question). There is no significant difference (95% CI) between England and Scotland in their response to whether the care home has a formal bed replacement policy. Over 60% of respondents (N=154 for England, N=128 for Scotland) in both countries responded that they did not have a bed replacement policy (Figure 9).

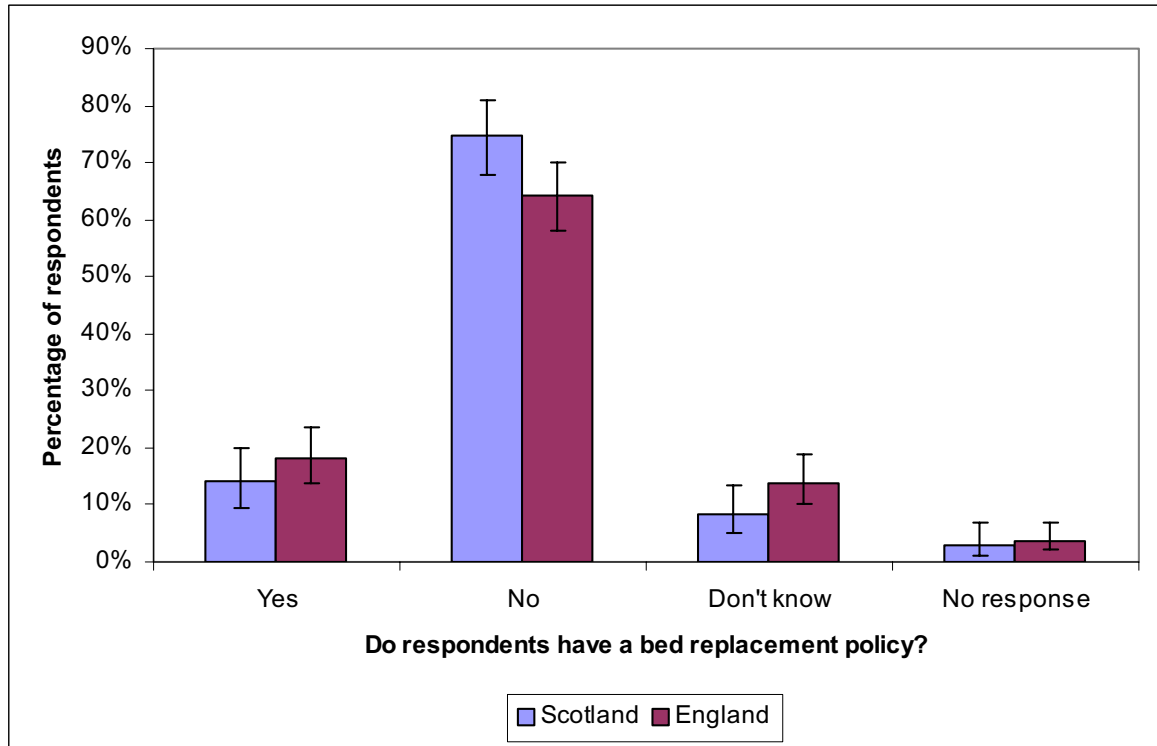


Figure 9 Bed replacement policy by country (N=412)

4.7 BED TYPE

In just over half of the Scottish care homes surveyed (60%, N=103) it was reported that there was a mixture of fixed height and adjustable height beds. This was significantly more (95% CI) than in English care homes (45.8%, N=110). In 15% (N=36) of English care homes all beds were height adjustable compared to Scotland where the figure was only 7% (N=12), although this difference is not significant (Figure 10).

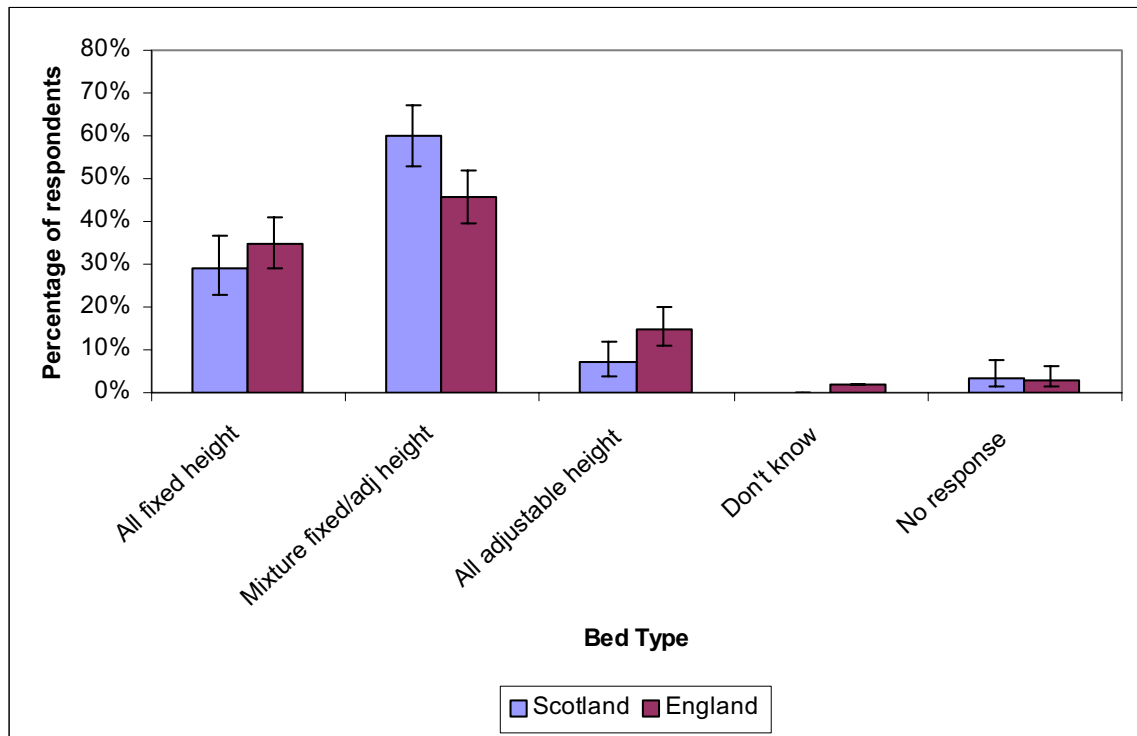


Figure 10 Bed type by country (N=412)

There are significantly more fixed height beds (48%, N=117) in residential homes than there are in nursing (2%, N=7) or combined (6%, N=6) service provision homes. Where there is a mixture of beds, there is less of a difference between residential homes and nursing/combined homes. Very few residential homes (5.9%, N=13) have only height adjustable beds.

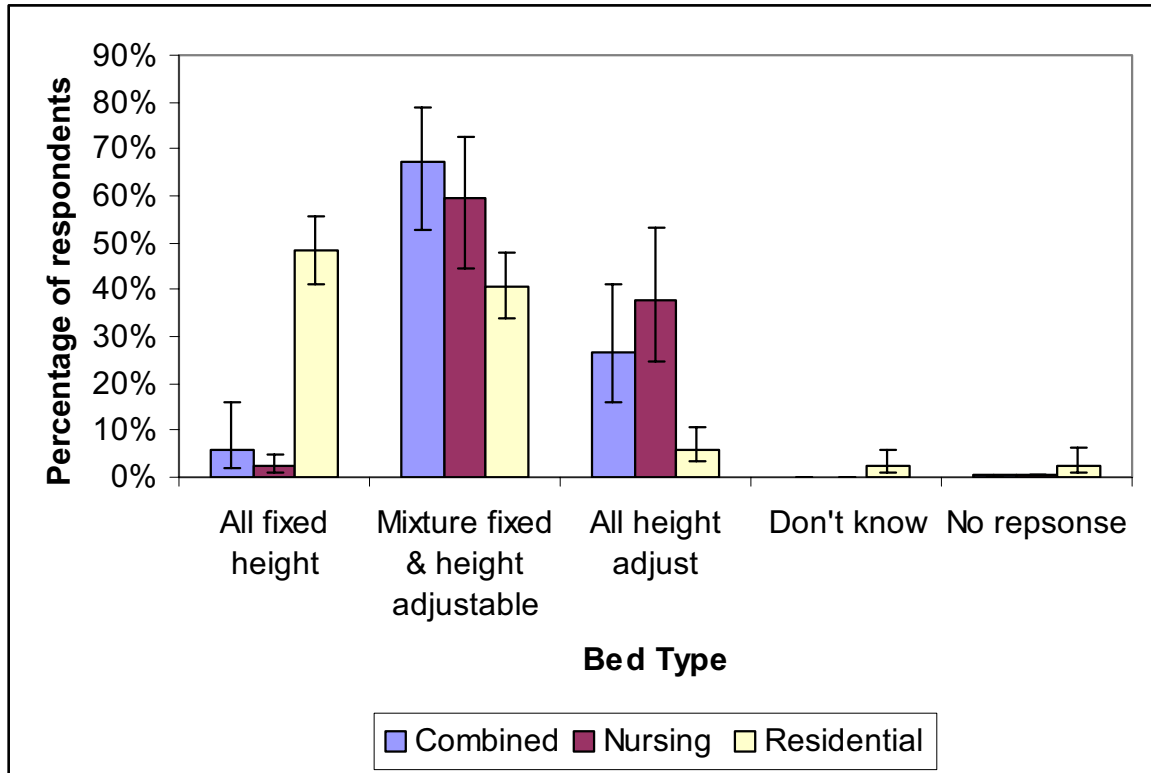


Figure 11 Bed type by service provision (N=412)

4.8 ELECTRIC PROFILING BED USE IN CARE HOMES

Figure 12 shows that EPBs were reported to be in use in just over half (53%, N=228) of the care home responding to the survey. Where EPBs were not in use, the main reason given was that there was no requirement for them (37.6%). Less than 10% indicated that they did not use them because they were too expensive.

The percentage in use was slightly higher in Scotland (59%) compared to England (52%), although this was not significant.

The total number of beds in the 412 responses from care homes was 11,950. Of these 2,035 were identified as EPBs. Therefore, EPBs accounted for 17% of the total number of beds in the survey.

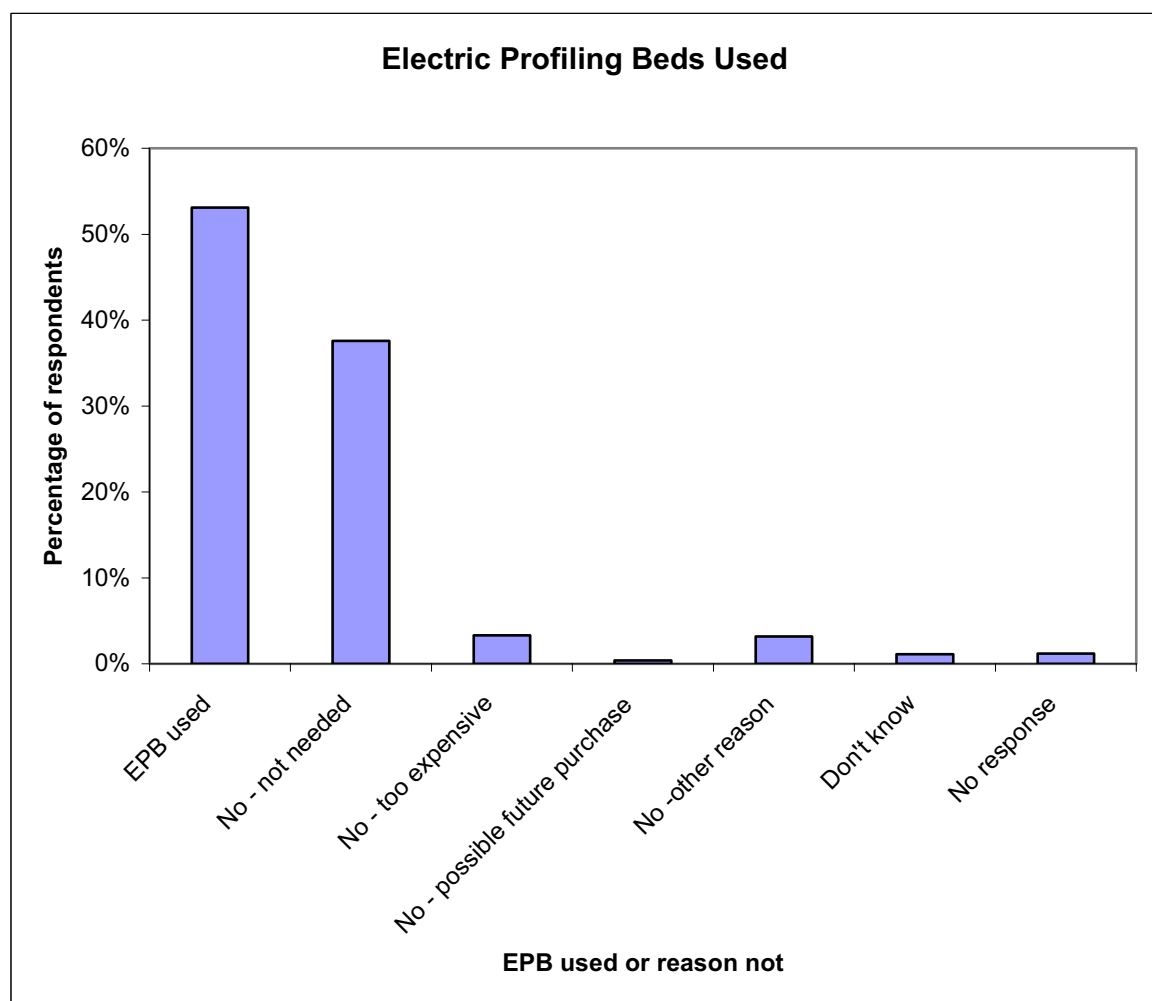


Figure 12 Use of electric profiling beds (N=412)

Figure 13 shows a comparison of those who responded ‘yes’ to using EPBs in their care home by service type provided. This shows that there is significantly more EPBs used in nursing (N=68) and combination (N=54) homes than those that offer residential (N=105) care alone. Indeed over 90% of the nursing homes that responded to this survey use EPBs. This potentially reflects the fact that residents cared for in nursing homes are likely to be more dependent i.e. will spend longer periods confined to bed, so there is greater need to use EPBs to reduce the risks to both carers and residents.

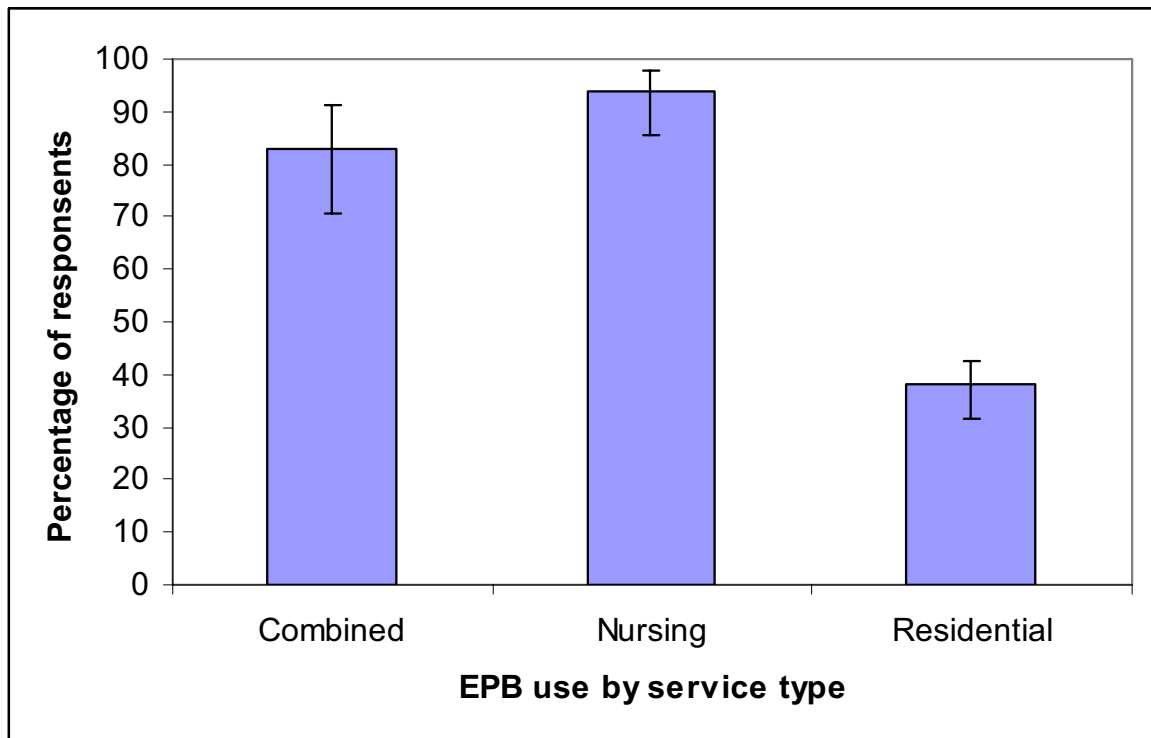


Figure 13 Respondent's who answered ‘yes’ to using EPBs by service type provided (N=228 of 412 who answered ‘yes’, 1 non-respondent)

Figure 14 shows that there is no significant difference in EPB use by care home ownership. The sample size of Local Authority owned care homes is too small to draw any inferences from.

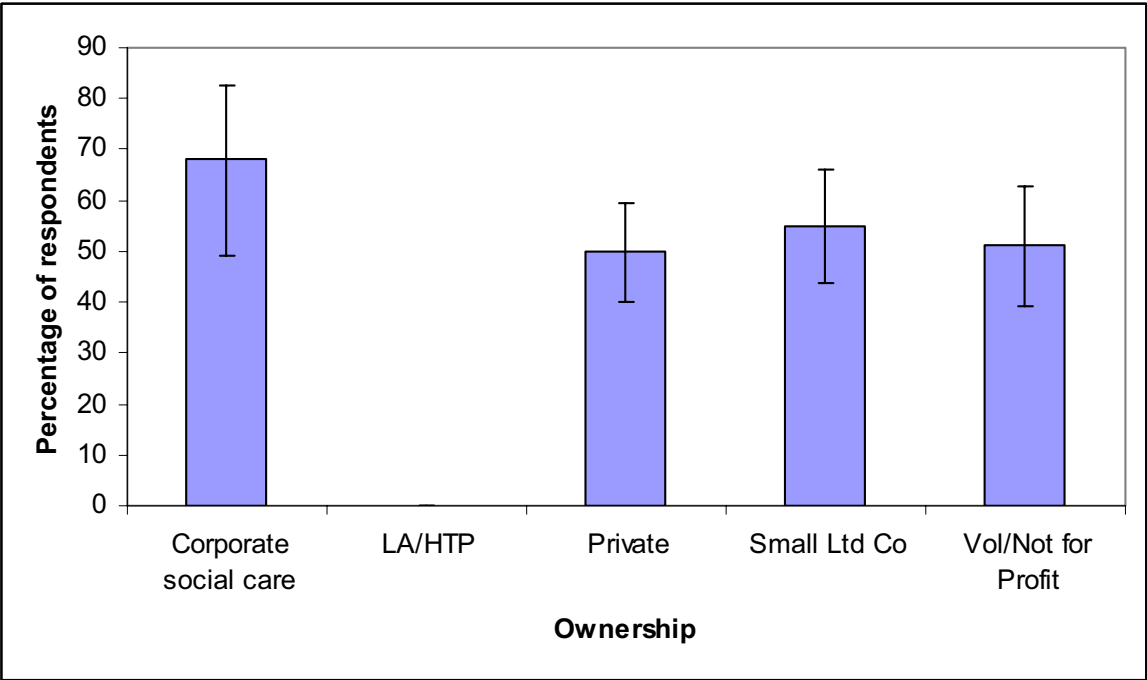


Figure 14 Respondent's who answered 'yes' to using EPBs by care home ownership (N=228 of 412 who answered 'yes', 1 non-respondent)

4.9 REASONS FOR CARE HOMES USING EPB

Figure 15 shows that of those respondents who reported that EPBs were in use in their care home, the majority (83%) gave facilitation with manual handling as one of the reasons for EPBs being obtained. Other common reasons given were pressure sore management (54%) and to improve the independence of the service user (44%). This suggests that beds are being purchased to provide support to care givers as well as for improving residents' health and well-being. There are no significant differences in reasons given for purchase of EPBs between nursing, residential and combined care homes.

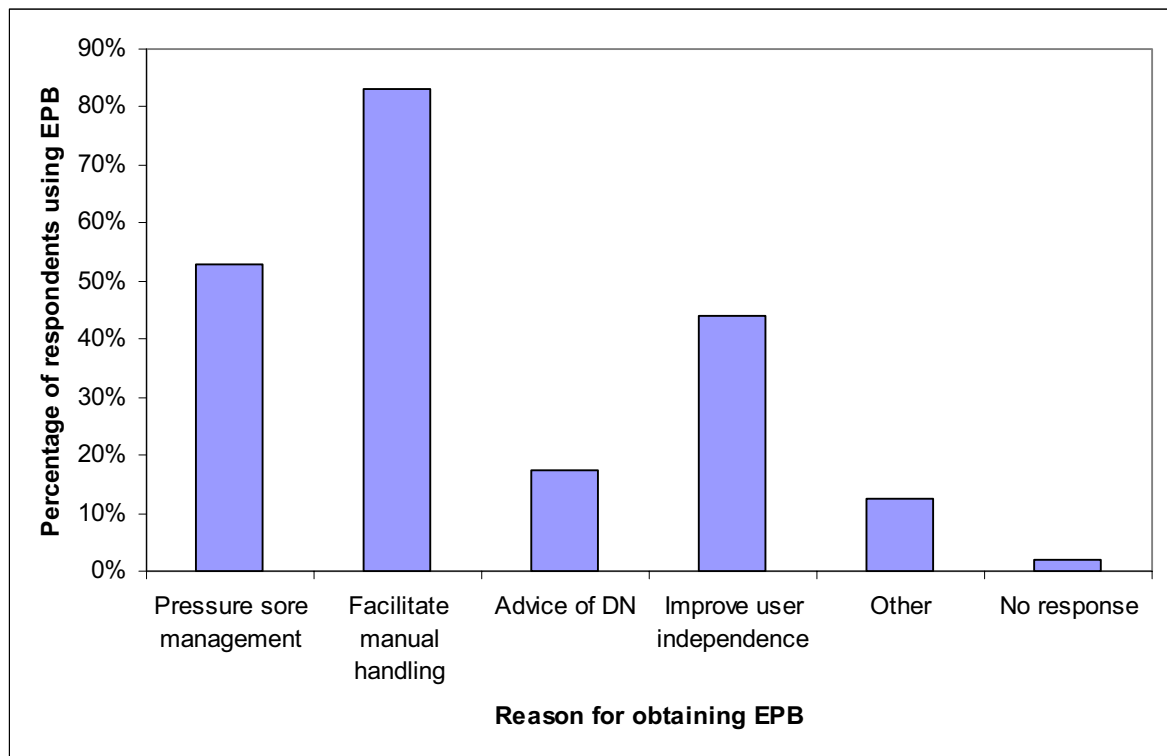


Figure 15 Reason for obtaining EPB (N=228)

4.10 DETAILS OF MANUAL HANDLING DIFFICULTIES ADDRESSED BY EPBS

Almost half of those who gave manual handling difficulties as a reason for purchase of EPBs, stated that they did so as part of their risk management process/good practice. Other reasons given included the height adjustment function of the beds - 'if staff are tall, prevents bending all the time'; the level of dependency of the service user such as 'client immobile [bed used] to assist with transfer'; and ease of moving and handling '...make it easier for moving and handling of a resident'.

Only 4% of respondents to this question stated that it was an organisation requirement/company policy that EPBs were used.

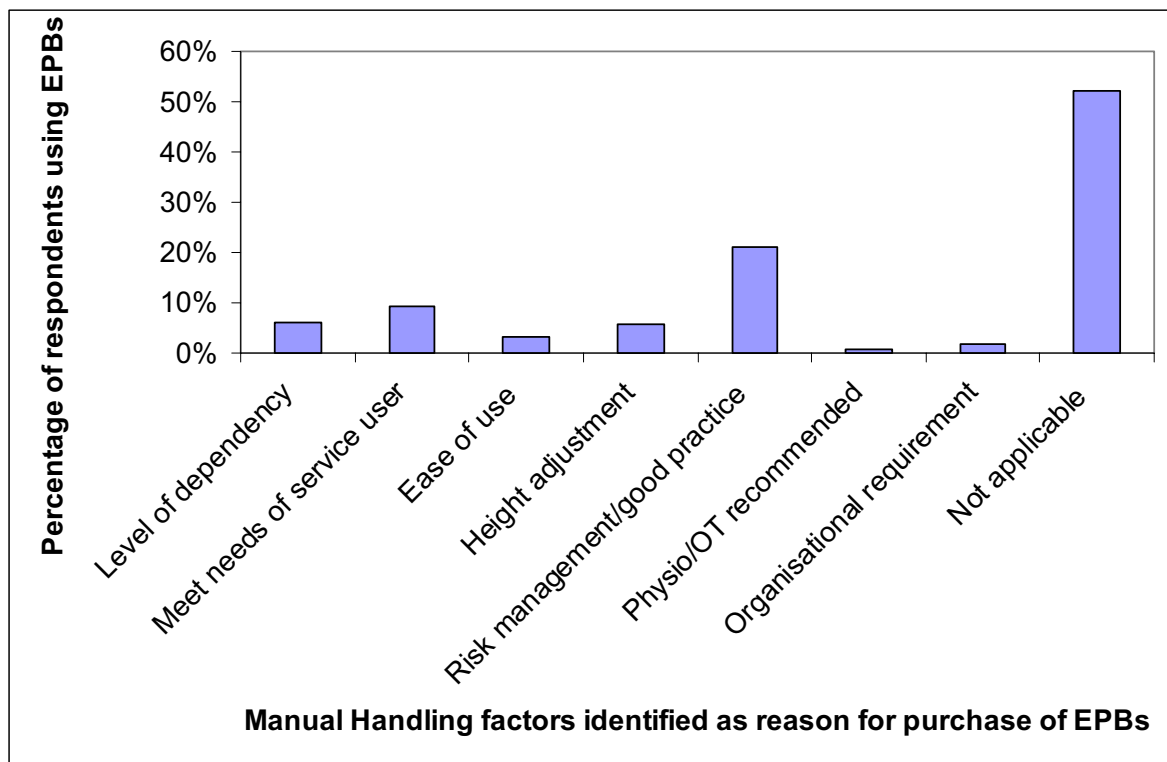


Figure 16 Percentage of respondents (not weighted) who identified a range of manual handling factors as a reason for purchase of EPBs (N=228)

4.11 TYPE OF EPB USED

Figure 17 shows that 77% of respondents used EPBs that were adjustable in height, had a profiled back rest and knee break adjustment. Beds that were only height adjustable were in use in only 8% of care homes. There are no significant differences in the type of EPB used between nursing, residential and combined care homes.

Where EPBs were in use in care homes almost two thirds of respondents (63.8%) reported that all the EPBs had integral bed rails.

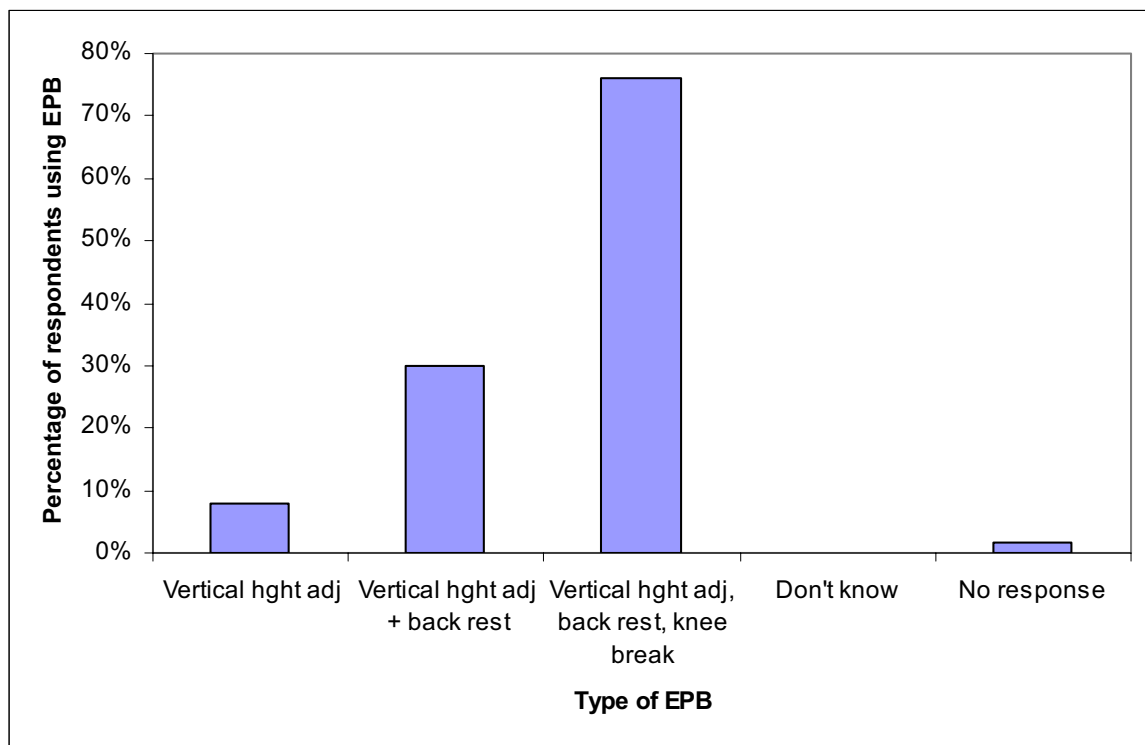


Figure 17 Type of EPB in use (N=228)

4.12 OWNERSHIP OF EPBS

Nearly three quarters (74.2%) of respondents in care homes where EPBs were in use, reported that the beds had been purchased by the care home. Figure 18 shows that nursing and combined care homes own significantly more of the EPBs in use than residential homes. The EPBs in use by residential homes tend to be provided by the NHS/Social services.

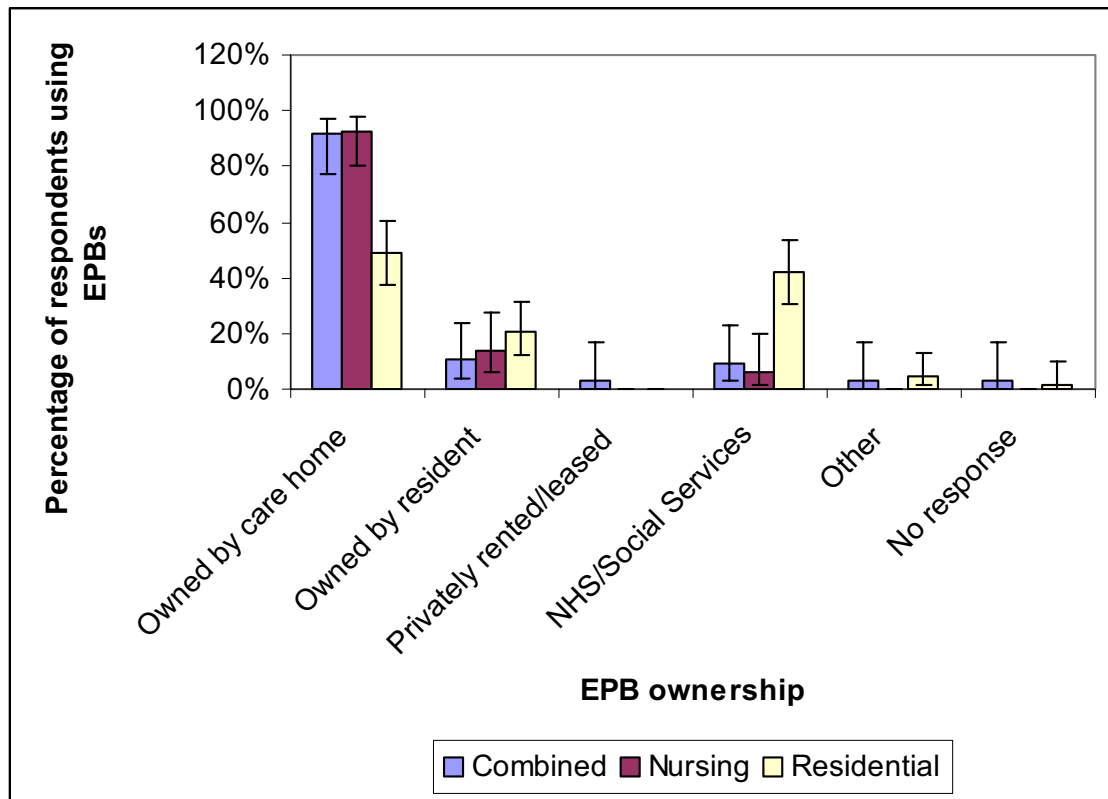


Figure 18 EPB ownership by service type provided (N=228)

4.13 WHAT DO RESPONDENTS LIKE ABOUT USING EPBS

A content analysis was carried out on the responses made to this question. The comments generally concerned three areas:

1. Physical features of the EPBs,
2. Benefits to service users/residents from the use of EPBs,
3. Benefits to staff/carers from the use of EPBs.

It should be noted that 10% of the respondents (N=23) did not answer this question and in this instance the responses to the questions have not been weighted.

4.13.1 Physical Features of EPBs

A third of respondents commented on the physical features of EPBs that were liked. Figure 19 shows that the height adjustability was the most common feature of EPBs that the respondents liked. As well as other features of adjustability such as the backrest and knee break, respondents also liked the ease of use of EPBs. Other positive comments included the flexibility of EPBs to meet the varying and changing needs of a wide range of service users, the ease with which the beds could be moved around the room for both patient care tasks and hygiene/cleaning tasks, and the aesthetic features of some EPBs.

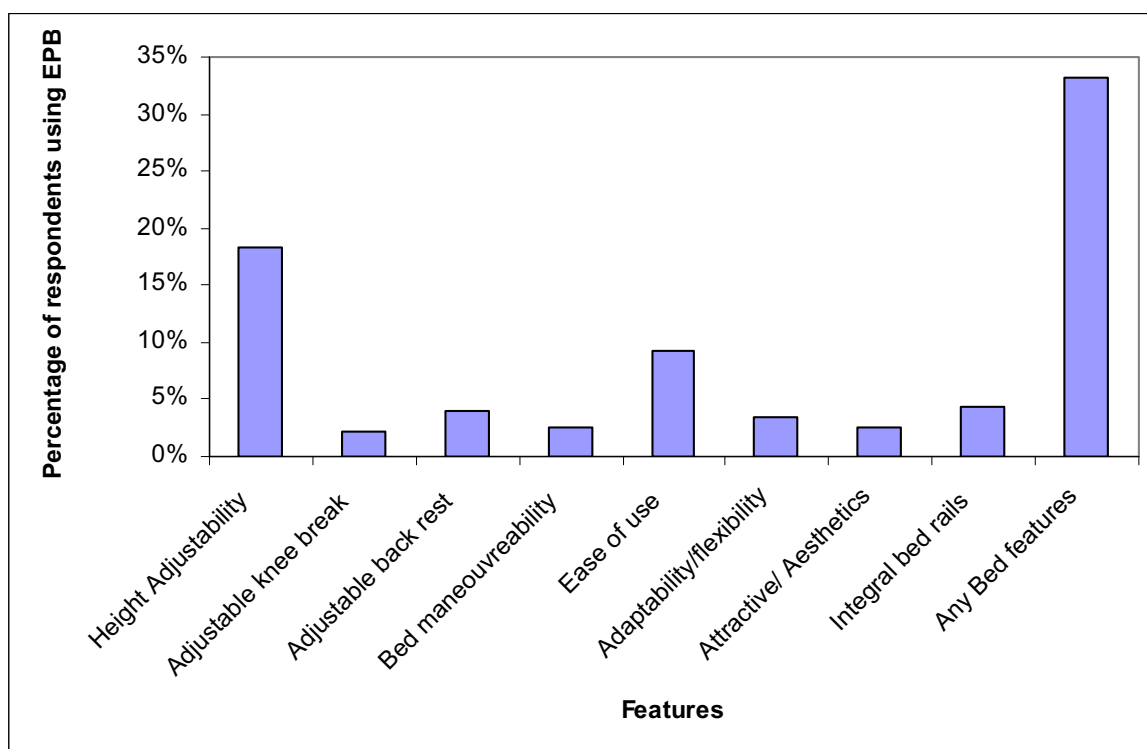


Figure 19 EPB features liked (N=228, No response=23)

4.13.2 Benefits to Service Users/Residents

More than half of the respondents using EPBs (54%) gave positive comments concerning the benefits EPBs provided to service users. These concerned the increased levels of comfort and independence that EPBs could provide for service users, and the reduction of the risk of injury to service users.

4.13.3 Benefits to staff

Over half of the respondents (56%) felt that the use of EPBs provided benefits to staff. The main benefits for staff that were commented on included:

- Good working height
- Easier for personal care
- Reduced manual handling
- Easier manual handling
- Safety/less injury risk
- Better care e.g. pressure sores

4.14 WHAT RESPONDENTS DON'T LIKE ABOUT USING EPBS

A content analysis was also carried out on the responses made to this question. In this case the comments only concerned the physical features of the EPBs,

It should be noted that only a third (N=76) of the respondents who use EPBs, answered this question with a specific dislike. Comparatively 200 respondents who use EPBs answered the previous question related to what they like about EPBs. Consequently, there are very small numbers associated with the factors identified from the content analysis, which means these cannot be taken to apply to the population as a whole. The responses to this question have not been weighted.

4.14.1 Physical features of EPBs

Respondents disliked a range of physical features of EPBs (Figure 20). These included their size in relation to the bedrooms, which reduces the space available, purchase cost, maintenance/breakdown requirements, and issues with electrical leads under the bed that causes problems with using other pieces of equipment such as sling hoists. Other features noted included their 'hospital' like appearance, poor manoeuvrability and difficulties with the integral bed rails. Interestingly, these features were also identified in the previous question as being liked by some of the care homes. In terms of the bed rails, comments related to these being easily broken, and not being long enough to cover the head and foot end. No further details were

given as to why a given care home liked or disliked a particular feature. However, the difference could be due to personal preference or through using different makes of bed.

There were two instances where reference to the risk of entrapment was made. For a detailed review of this issue the reader is referred to the MHRA (2006) that looks specifically at the risk of bed rails and entrapment.

A further two respondents also identified difficulties in using EPBs to accommodate taller occupants.

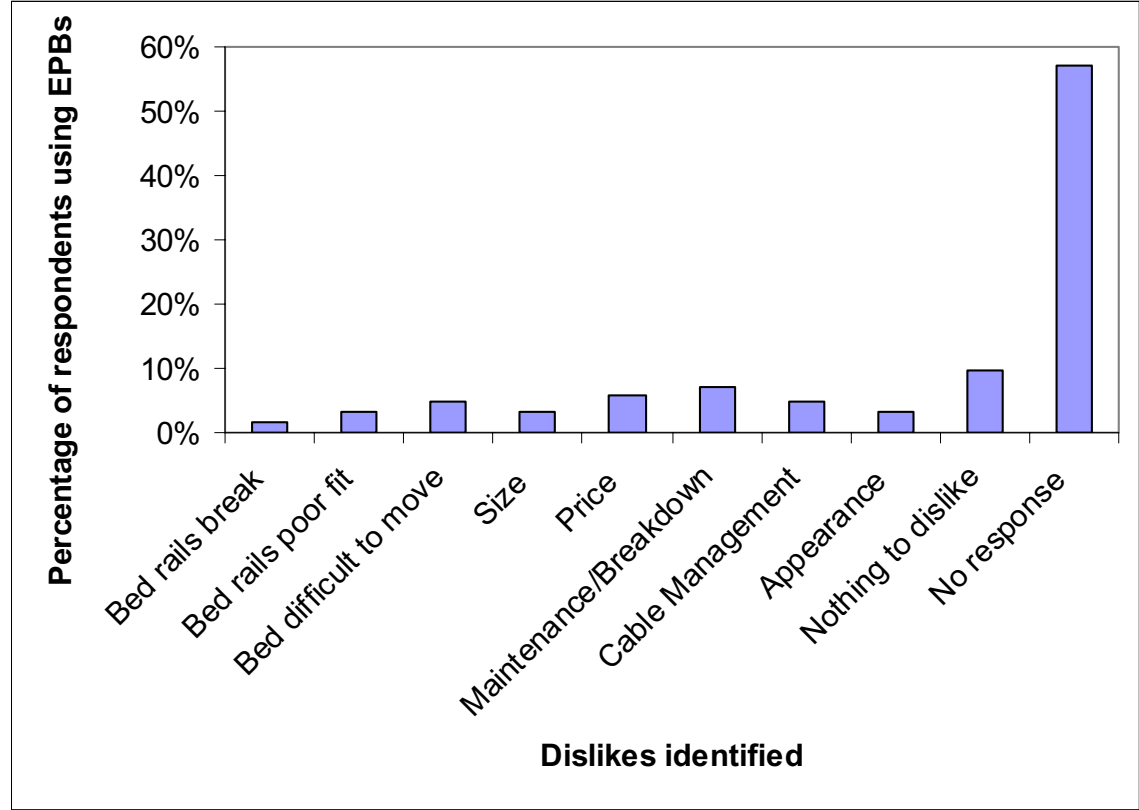


Figure 20 Comments on EPB features disliked (N=228)

5 SITE VISIT OBSERVATIONS

5.1 TASK REQUIREMENTS

The types of activities that nurses perform in a hospital, and potentially at a nursing home at the bedside can include measuring blood pressure, taking body temperature, attaching drips, changing dressings along with feeding patients and performing personal care activities. Comparatively in residential care homes, there would generally be fewer handling tasks at the bedside, unless the resident has become very dependent and/or is in a critical condition.

The significant manual handling tasks identified from the site visits, which occur at both nursing and residential homes, include:

- Assisting a resident into bed
- Assisting a resident out of bed
- Sitting a resident up/laying them down including moving a resident up the bed
- Turning a resident in bed

There are times when a resident would use a bed pan, although of the sites visited this seemed to be an infrequent task, with incontinence pads generally being the preferred method. Washing of residents in beds was not identified by the care homes as a significant manual handling task.

5.1.1 Task 1: Assisting a resident into bed.

Figure 21 provides a breakdown of the task when transferring a resident from a wheelchair to a bed using a handling belt and slide sheet. The bed height/backrest of the EPB can be adjusted to meet the needs of the carer and/or resident unlike the standard divan bed. However, the corresponding REBA scores for this task showed there is actually very little difference in the action levels suggested. One area where there was a difference was the point at which the resident sits on the bed. In the case of the observation made for the divan, the resident had to be pushed up onto the bed due to its height. In this instance the height of the standard divan had been increased due to the addition of a pressure-relieving mattress. This element received a higher REBA score/action level owing to the bent and crouched posture required to lift the resident's legs up off the floor. When lowering a resident onto the bed this type of posture is not required. The need to push a resident up onto a standard divan is unlikely to be required for all transfers.

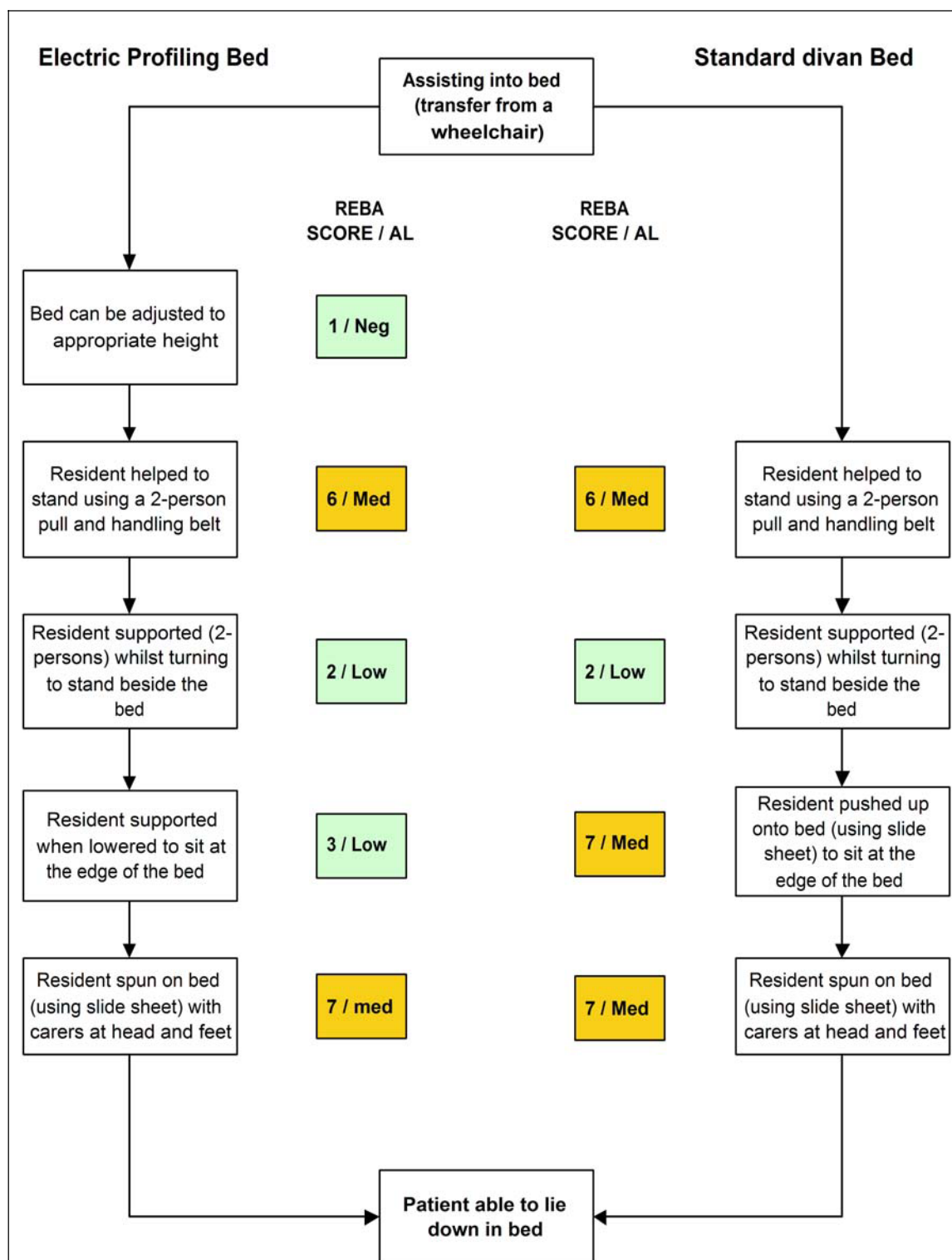


Figure 21 REBA assessment of assisting a resident into bed

5.1.2 Task 2: Assisting a resident out of bed

The bed height/backrest of the EPB can be adjusted to meet the needs of the carer and/or resident. In particular, with the bed height raised the resident may be able to stand up off the bed with no assistance. This can be seen in Photograph 1. Without the facility to adjust the height the resident may require more assistance to stand up from a lower bed as shown in Photograph 2. A part of the task could also include helping a resident to sit up, which is covered in section 5.1.3. The resident may also need assistance to spin round so that they can put their feet on the floor. The postures adopted by carers to perform this part of the task are the same as those described in section 5.1.1.



Photograph 1 Standing up from a height adjusted EPB



Photograph 2 Standing up from a standard divan bed

5.1.3 Task 3: Sitting a resident up/laying them down

Figure 22 illustrates the breakdown of this task and the associated REBA/action level scores. The EPBs backrest can be electrically profiled up/down to allow a user to sit up or lie down so the carer does not need to undertake any manual handling. A knee break or similar can be used to prevent the user from sliding down the bed. In this case, a single carer may be required to attend the resident or residents may be able to perform this task themselves.

In the case of a standard divan type bed carers pull the resident up directly from the prone position to sitting upright (Photograph 3). A removable backrest/other padding can then be used to support the resident or there is the possibility that the resident could be pulled up the bed and propped up against the headboard of the divan. To lay the resident down, the carer would need to support the weight of the resident whilst removing the backrest before laying them down. This would normally require two carers to perform this task.

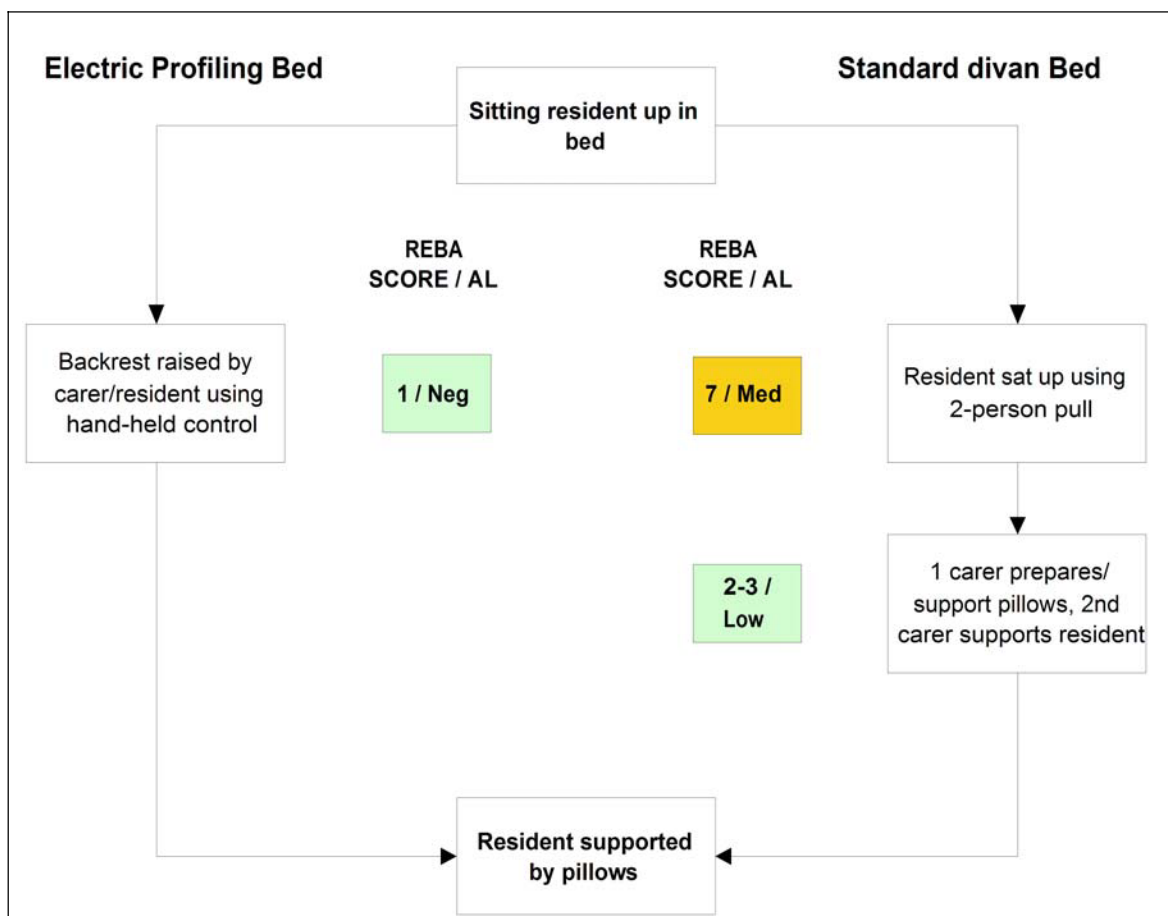


Figure 22 REBA assessment of sitting resident up in bed



Photograph 3 Resident being sat up using 2-person pull

5.1.4 Task 4: Turning a resident in bed

The bed height can be adjusted to meet the needs of the carer, which could limit the degree of bending. Manual handling of the resident is then required to turn the resident unless the profiling bed includes an automatic turning facility. With a standard divan the carer was observed to bend further to reach the resident to turn them manually. This resulted in a higher REBA/action level score (Figure 23).

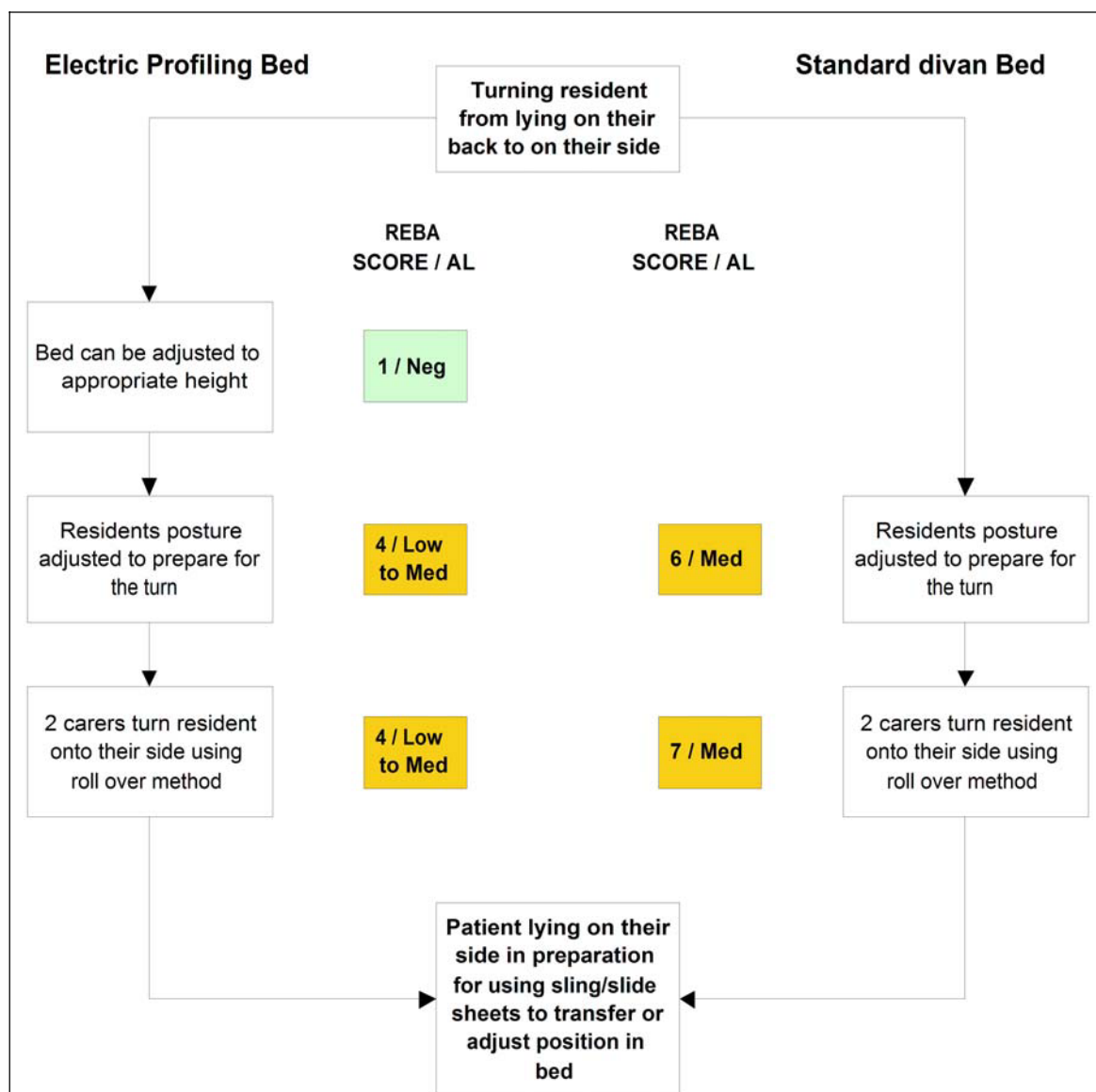


Figure 23 REBA assessment of turning a resident in bed

Photograph 4 shows a user on an EPB who has been turned by two carers in preparation for a sling to be located under the resident's back. In this instance they have raised the height of the EPB so they are able to stand with their posture closer to the vertical.



Photograph 4 Turning a resident whilst on an EPB ready for sling to be positioned

5.2 CARE WORKERS FEEDBACK

At the time of the site visit, feedback was sought from the carers on their experiences, and likes and dislikes of using EPBs. Some of the key comments made by carers were:

- Residents tend to prefer their own beds, which are usually divans. This also helps to maintain the feel of the care home as a ‘home’.
- If a resident becomes critically ill, the NHS will provide an EPB. However, if the EPB is wanted for another reason, an alternative purchasing route is required. One option is to turn to the resident’s family for funding.
- EPBs used for completely immobile residents as it helps to prevent staff from bending and stooping, as they are able to adjust the height of the bed. Without it, staff would have to do more manual handling. It was felt that where there are heavy care needs the physical challenge to the carers can be high but this is much less with an EPB. The combination of using hoists, handling belts, slide sheets and an EPB helps to minimise the manual handling risk.
- Carers thought they might struggle to use a mobile hoist with a divan bed.
- It was said that whilst EPBs don’t eliminate manual handling the transfers are made easier with simpler movements and less handling required.
- For general care activities, including nursing care, of a resident who is highly dependent the bed height can be adjusted, which reduces the need to bend over the bed/resident. The height adjustment feature can also be used for cleaning/changing beds.

In summary, the likes and dislikes of using EPBs identified from the site visits were:

Likes:

- Makes life easier for carers
- Handle residents less
- Safer for both staff and residents
- Improve residents' independence, confidence and dignity
- On castors so can move around easier
- Can go as low as 18 cm and as high as 40 cm

Dislikes:

- Clinical look – residents can be disgruntled with the change

5.3 EPB COSTS AND BENEFITS

Mitchell et al. (2000) reported that only after a careful review of individual case notes could they detect a cost saving as a result of introducing EPBs into a hospital ward. They commented that effective maintenance of hospital recording systems is essential to evaluate any outcome of changes to healthcare.

It had been hoped that some quantitative data could be collected from the site visits that would provide evidence on the cost implications of using EPBs more widely. However, this was impossible to come by for the very reason noted by Mitchell. Without looking at individual case notes in detail there were no records available to be able to detect any long-term health benefits to the resident. In terms of health benefits to the carers, the only available records are accident data. Again these are insufficient in terms of their time span or knowledge of when EPBs were introduced to be able to detect any noticeable changes at individual care homes. Furthermore, the use of accident data to quantitatively assess the health benefits of EPBs to carers is limited by reporting rates, the cumulative effect of handling on the occurrence of MSDs, and the need to know all of the types of beds the carer will be exposed to so as to determine if any health benefits are due to EPBs.

Hampton (2001) reports that EPBs can cost from £650, for one that is designed specifically for use in a care home, to £3000 for one that is top of the range. The reported cost of the EPBs purchased by the care homes that participated in the site visits ranged from £607 to £900 (all prices include a mattress plus VAT). Comparatively, a standard divan might cost £100 to £370 including bedding, headboard and mattress.

Additional mattress requirements, such as a pressure relieving mattress can increase the overall cost of the bed whether it is an EPB or a divan. Hampton (1998) found that there was a 75% reduction in the use of air mattresses on a ward that was using profiling beds. Air mattresses are expensive, ranging in cost, according to Hampton (1998), from £2500 to £4000. There is potentially a substantial cost saving if the use of a profiling bed means the purchase of an air mattress to reduce the risk of pressure sores can be avoided

On top of the purchase cost there is a running cost, which includes yearly service, and PAT testing. Maintenance costs might be built into the original contract of the purchase cost. One

care home estimated the maintenance cost to be approximately £20 per bed at present. However, this is likely to depend on the age of the beds. Another care home had older models, which they frequently manoeuvred and it was reported that more maintenance was required as a consequence of this practice. None of the care homes visited report any significant installation cost although this is likely to be an issue for some homes.

There is anecdotal evidence that the introduction of EPBs has reduced injuries i.e. carers commented that there is a reduction in back pain but there was no quantitative data available to support this. Of the sites visited, none were able to provide information on any reduction in pressure sore rates and the potential associated cost savings.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

A key difference in the nature of care provided by a hospital and care homes is that for hospitals a patient can be heavily dependent when they first arrive but will hopefully improve and become less dependent over time. Conversely, for a care home, a resident's condition is likely to stay the same or worsen over time, typically resulting in them becoming more dependent. It is therefore reasonable to expect that not all residents in a care home, particularly those offering residential care alone, will need an EPB when they first arrive.

From the site visits it was apparent that the care homes had chosen EPBs for some residents because they were high dependency and they relied upon them as part of the overall approach to care management and manual handling risk reduction. The questionnaire results also showed that nearly all of the combined care and nursing homes that responded used EPBs, where it is more likely that they will cater for more heavily dependent residents.

Given the likely variation in resident's dependency in all types of care home, a risk assessment approach seems the most appropriate way to decide whether carers and/or residents will benefit from using an EPB.

A summary of the advantages and disadvantages of using EPBs and standard divan beds is given in Table 4.

Table 4 Advantages and disadvantages of using EPBs and standard divan beds

<i>Electric Profiling Beds</i>	<i>Standard divan beds</i>
<ul style="list-style-type: none"> • Less handling of residents required and can return some independence to the user, which they may have lost when using a divan bed for. • Can look more 'clinical' and less homely • Maintenance costs involved and there were some reports of beds breaking down. • Results from the survey indicate carers believe that EPBs provide significant handling benefits • Require adequate access to electric sockets 	<ul style="list-style-type: none"> • Some divan beds can exclude the use of a mobile hoist as there is little room underneath the bed. • Can become very high, particularly when a pressure-relieving mattress is added. This can lead to a resident finding it difficult to get into bed. • Carers posture a little more restricted, as they may be unable to place their feet under a divan style bed. • Look more homely, and may even be the residents' own bed. • No height adjustments in standard divans although some can be purchased that have an electric profiling function of the back and foot.

The observations and feedback from the site visits suggest that the height adjustment feature of the EPB can help carers to maintain a trunk posture closer to the upright. Further, it is proposed by DeLooze et.al. (1994) that there is some evidence to suggest that an increase in bed height will reduce the time-integrated forces and peak shear forces. However, this is dependent on the carer selecting an appropriate bed height for their body height. It was found that for the task of assisting a resident into bed, the bed height might not have much impact on the carers posture. This is due to the need for one carer to bend and lift up the resident's legs whilst a second carer supports the resident's upper body. However, when getting out of bed, the EPB could be raised to provide additional support to the resident to be able to stand up. A greater postural effect for the carer was observed for turning a resident over, where the carer was able to stand in a more neutral posture. The height adjustment feature will enable the carer to adjust the bed to an appropriate height for most tasks performed at the bedside.

The greatest decrease in manual handling requirements, as indicated by a drop in REBA action level score from seven to one, was observed for sitting a resident up/laying them down in bed. This finding matches those of other studies including previous work by the HSE in collaboration with Bro Morgannwg NHS Trust (Murphy et.al. 2004, Tarling & Burns, 1994). Essentially, the use of the electric backrest of an EPB means that a resident can sit up/lay down without the need for the carer to undertake any manual handling. Where a resident spends a lot of time in bed, this feature could help to significantly reduce manual handling requirement, whilst potentially enabling the resident to be more independent when they can use the EPB control device. It may also potentially reduce the number of carers required to assist the resident and the frequency of visits, dependent upon the needs and capabilities of the resident.

6.2 RECOMMENDATIONS

- EPBs are a valuable piece of assistive equipment, which provides benefits to both carers and users. They form part of a range of manual handling equipment that can be used by care homes to reduce the risk of injury to carers. As such, their selection needs to be based on a suitable and sufficient risk assessment that takes into account the individual needs of the resident and carer.
- Further consideration needs to be given to the interaction of EPBs with care and handling devices. It would be of value to repeat the type of study undertaken by Zhuang et al. (1999) using an EPB to establish if this alters the effects of the use of assistive devices. Such a study could provide an evidence base on best practice for handling techniques and inform the development of guidance training material.

7 APPENDICES

7.1 APPENDIX A

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Survey of Beds and Handling Equipment used in a Care Setting

Dear Sir/Madam,

This questionnaire will take you around 10-15 minutes to complete. Please complete the questionnaire by answering relevant questions as fully as possible. Some of the questions require a written answer, for others you need only tick a box.

If you have any queries, please contact Laraine Oxley on 01298 218352 or email on laraine.oxley@hsl.gov.uk

Thank you for your help

SECTION 1

Please provide details about the care home

1 What kind of service does the care home provide?

- ☐ Nursing
- ☐ Residential
- ☐ Combined

2 Who owns the care home?

- ☐ Private individual/s
- ☐ Small Limited Company
- ☐ Corporate Social care provider
- ☐ Local Authority/Health Trust Partnership
- ☐ Voluntary/not for profit

3 How many registered beds are there in total?

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- 4 Please describe what type of care is provided by the care home and approximately how many beds are allocated to each area?

For example: 10 beds available for Elderly mentally ill

- 5 In which country is the care home located?

☐ England

☐ Scotland

- 6 In which city and/or county is the care home located?

- 7 Please indicate which types of manual equipment are used in the care home for moving and handling residents in, onto or off a bed? (You may choose more than one option).

☐ Slide sheets

☐ Monkey poles/trapeze handle

☐ Hydraulic back rest

☐ Standing hoist/transfer stand

☐ Ceiling tracker hoist/ceiling mounted hoists

☐ Mobile hoist

☐ Belts

☐ Turning table

☐ Transfer board

☐ Other - Briefly describe any other manual equipment used:

- 8 Do you have a formal bed replacement policy?

☐ Yes

- ☐ No
- ☐ Don't know
- ☐ If 'yes', please provide more details, for example how frequently are the beds replaced.

9 Are the beds:

- ☐ All fixed height
- ☐ A mixture of fixed and height adjustable
- ☐ All height adjustable
- ☐ Don't know

10 Are there any electric profiling beds used in the care home?

- ☐ Yes: Please go to section 2
- ☐ No: We do not need any or
- ☐ No: They are too expensive or No: We are considering purchasing them in _____ months (please fill in) or
- ☐ No: Other reason, please provide details
- ☐ Don't know

**There are no more questions, thank you for completing this questionnaire.
If you use electric profiling beds, please go to Section 2 continued overleaf.**

SECTION 2

Please provide details about the electric profiling beds used in the care home

- 1 Approximately, how many electric profiling beds are used in the care home?

- 2 Please indicate the reason(s) for obtaining the electric profiling beds, please tick all that apply:

- ☐ To manage or prevent pressure ulcers
- ☐ To facilitate manual handling of the service user
- ☐ Advice from district nurse
- ☐ Improve independence of service users'
- ☐ Other - please give details:

- 3 If you have purchased electric profiling beds to address manual handling difficulties, please provide more details, e.g. member of staff suffered an injury?

- 4 What kind of profiling beds do you use? Please tick all that apply

- ☐ Vertical height adjustment only
- ☐ Vertical height adjustment and profile of back rest
- ☐ Vertical height adjustment, profile of back rest and knee break
- ☐ Don't know

5 Do the electric profiling beds in use have integral bed rails?

- ☐ Yes, all of them
- ☐ Yes, only some of them
- ☐ No
- ☐ Don't know

6 Who owns the electric profiling beds? Please tick all that apply.

- ☐ owned by the care home
- ☐ owned by resident
- ☐ privately rented/leased
- ☐ NHS/social services rented/leased
- ☐ Other – please give details:

7 Please describe what you like about using electric profiling beds:

8 Please describe if there is there something you don't like about electric profiling beds:

Thank you for completing this questionnaire.

7.2 APPENDIX B

Questions for Care Homes site visits

Care home details

1. Location:
2. Nursing/residential
3. Type of care provided:
E.g. Elderly mental infirm, older people, physical disability, learning disability, combination
4. Types of bed available plus who owns the bed:
E.g. Electric profiling, divan, standard hospital bed
5. Approximate number of beds that are:
 - a) Height adjustable;
 - b) Fixed:
6. Type of profiling bed in use e.g. height adjustable only, height and back rest or height, back and knee rest?

Capture Carers experience of using beds

1. Ask carers to describe their experiences of handling residents in the following task scenarios:
 - Assisting a resident into bed
 - Assisting a resident out of bed
 - Assisting a resident on/off bed pan
 - Feeding a bed resident
 - Laying a resident down in bed
 - Moving/sitting a resident up in bed
 - Turning a resident in bed

Prompts to consider include:

- Do they do the tasks differently using an EPB compared to a standard bed?
- Do they use the same number of staff for the above tasks when using an EPB compared to a standard bed?
- Do they perform the same number of tasks for residents when using an EPB compared to a standard bed? (Obtain examples)
- Have they changed their training guidelines/been provided with additional training in how to handle residents when using an EPB?

- What part of the bed is the most frequently adjusted by care workers to assist with handling e.g. is it the height adjustable operation?
2. If possible, ask if the care workers could participate in the simulation of some of the above tasks. This is to capture observation data so that postures can be assessed.
 3. What is the level of care required by the residents who use the profiling beds?
 4. What were the reasons for purchasing the bed/s and how were they identified? E.g. advice from district nurse, request by resident, injury to care worker

Residents experience

1. What do you like about using your electric profiling bed?
2. Is there something you don't like about electric profiling beds?

Prompts:

- Do you use the adjustments on the bed and if so which ones?
- Has it made you more independent and how?
- How is it different to using a standard bed?
- How comfortable do you find the bed?

Financial rewards/costs

1. Estimated cost of the EPB and standard beds – to include the base and mattress?
2. Cost of additional training?
3. Maintenance costs?
4. Other alterations such as new electricity points?
5. Any increase/decrease in administrative burden?
6. More or less frequent replacement compared to standard beds?
7. Is staff time freed up in any way?
8. Any reduction/increase in staff complaints of aches and pains?
9. For a given resident with a profiling bed, what would be done differently if they did not have it?

Summary

1. Ask the care workers what they like about using electric profiling beds?
2. Ask the care workers what they don't like about using electric profiling beds?

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Electric profiling beds in residential and nursing homes

Manual handling and service user benefits

This study was requested by the Health and Safety Executive to investigate the use and practicability of Electric Profiling Beds (EPBs) for the control of manual handling risk in a care setting. Data were collated from a literature review, a questionnaire and through observation of simulated manual handling tasks. A total of 1944 questionnaires were sent to a random sample of care homes across England and Scotland. A total of 415 returned questionnaires were included in the analysis. Five site visits were undertaken to homes caring for people with physical and/or learning disabilities, the elderly mentally ill and frail elderly. Overall the results suggest that EPBs are generally selected for use with, and provide the most benefit for, assisting with the care of residents who have greater mobility needs. As such they form part of a range of manual handling equipment available for use to meet the needs of the carer and resident. It is proposed that the selection of EPBs for use in a care setting continues to be through a suitable and sufficient ergonomic risk assessment.

This report and the work it describes were funded by the Health and Safety Executive (HSE). Its contents, including any opinions and/or conclusions expressed, are those of the authors alone and do not necessarily reflect HSE policy.