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Levabo Turn All®

Preventing Pressure Ulcers: The Role of Automatic Lateral Turning Systems for Innovative Approaches to Pressure Ulcer Prevention in Care Homes

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Foreword

Pressure ulcers are one of the most painful and preventable conditions faced by some of the most vulnerable individuals in adult social care. While our sector strives to provide the highest quality of care, the realities of staff shortages, increasing demand, and the need for manual repositioning often place an undue burden on both caregivers and residents. This report, examining the role of a Lateral Turning System, highlights an important step forward in addressing these challenges.

At Care England, we are driven by the belief that innovation is critical to the future of adult social care. Technology has the potential to transform the quality of care provided, significantly reducing the occurrence of pressure ulcers, enhancing comfort for residents, and alleviating the physical strain placed on caregivers. By automating the process of repositioning, the system frees up valuable time for caregivers to focus on more personalised care, while offering a more dignified and consistent standard of care for residents.

The findings of this trial underscore the clear benefits of technology to support care provision, from cost savings to improved health outcomes. Most importantly, it demonstrates where this technology has the potential to enhance both the quality of life for residents and the working conditions for care staff.

As we face an ageing population and increasing pressures on our sector, we must continue to embrace solutions that improve efficiency and care outcomes. The use of innovative technology, as highlighted in this report, is key to securing a sustainable and compassionate future for adult social care. We owe it to the people we care for, and to the dedicated workforce that supports them, to ensure we are equipped with the best tools and strategies to meet the challenges ahead.

I would like to extend my gratitude to all the care providers who participated in this trial and to Algeos and Levabo for their partnership in this vital work. Together, we are demonstrating what is possible when we harness innovation for the benefit of those we care for.

Professor Martin Green OBE

Chief Executive of Care England

Executive Summary

Care England established a trial using the Levabo Turn All®, automatic lateral turning system (ALTS) in partnership with Algeos and commissioned them to write a report. Care England perceived this system to be a strong contender in the market and wanted evidence to substantiate its claims and prove the concept that this pressure relieving mattress is best in class. This system is an outstanding market leader in Europe.

This white paper presents the findings of a 12-week trial comparing the Levabo Turn All®, automatic lateral turning system (ALTS) with manual repositioning for pressure ulcer prevention in twenty-four residents across three UK care homes, rated outstanding or good by the Care Quality Commission (CQC), in the south of England.

The trial focused on residents with dementia, with multiple and complex co-morbidities, and those receiving palliative end of life care, who are particularly vulnerable to pressure ulcers due to immobility and frailty. The primary aims were to assess the effectiveness of the Levabo Turn All® 30-degree ALTS in reducing pressure ulcer incidence, its impact on caregiver workload, resident comfort, and overall cost-effectiveness.

During the trial, the system was successful for residents with:

- Dementia/dementia with challenging behaviours
- Existing pressure ulcers/vulnerable at-risk skin
- Limited or no mobility
- Pressure ulcer prevention and treatment
- End of life/Palliative care
- Critical illness
- Spinal/Neurological conditions.

It was also noted that the system was less successful with residents who:

- Suffered with severe contractions
- Have upper body mobility.

Pressure ulcers are a significant issue in care homes, particularly among residents with limited mobility and complex health conditions, such as dementia and those in palliative care[1]. (Alzheimer's Society).

Pressure ulcers are the most common condition among palliative care patients at home care facilities and impose a significant burden on patients, their relatives, and caregivers[2]. (Lovely, et al.2022).

Additionally, they are common, costly and impact negatively on individuals. Repositioning of older persons at risk of pressure ulcers using the 30-degree tilt, reduces the incidence of pressure ulcers compared with usual care[3]. (Journal of Clinical Nursing).

Traditional pressure ulcer prevention methods involve manual repositioning by caregivers every 1-4 hours, depending on the severity of the ulceration. However, this method is labour-intensive; disruptive and not always dignified for the resident; subject to human error and may not always be as frequent as required. Automatic lateral turning systems have emerged as a technological solution, offering continuous and consistent repositioning with minimal caregiver intervention.

Key Findings

The trial showed that utilising automatic lateral turning systems in a care setting has several key benefits, particularly for residents at risk of developing pressure ulcers and those in end of life palliative care.

Levabo Turn All® is effective in preventing and managing pressure ulcers. By automatically repositioning residents, it reduces prolonged pressure on vulnerable areas, significantly lowering the risk of further breakdown of skin.

The system automates the manual task of turning residents, which traditionally requires a minimum of two caregivers' time and effort to reposition. The system frees up caregivers' time to focus on other critical tasks and areas of care, and with the added benefit of improving efficiency.

Levabo Turn All® has also proved successful in residents in end of life care, who entered the terminal stage of their lives, minimising discomfort and ensuring residents' dignity by avoiding frequent manual handling.

Palliative care residents who spend a lot of time in bed are subject to an increased risk of soft-tissue ulceration. Pressure ulcers are associated with significant morbidity and mortality, causing pain and imposing a considerable burden and distress to residents both physically and psychosocially. The problem goes beyond increased healthcare costs to loss of life.[2]

The Levabo Turn All® has shown substantial cost savings for the care homes in the trial by helping in the prevention and management of pressure ulcers, which are expensive to treat, and reducing the number of carers needed for frequent manual repositioning. These results are comparable to a similar study trialling the Levabo Turn All® system conducted in Denmark Aalborg University 2018[10].

Levabo Turn All® ensures that residents are turned at regular intervals (30, 60 or 90 minutes), supporting a consistent standard of care that traditional manual repositioning may not always achieve, especially in understaffed situations.

Considerable time savings with the system were reported by caregivers of 2 hours per day, allowing them to focus on other aspects of care. This equates to a significant time saving with a return on investment of 13 weeks. This is highlighted in the results and feedback.

Overall, the Levabo Turn All® system is an effective time saving, cost saving and efficient solution for improving resident care and preventing pressure ulcers. (see Appendix).

Introduction

Pressure ulcers are a common issue in care settings, with an estimated 700,000 people affected annually in the UK. The cost to the NHS for treating pressure ulcers is estimated to be around £1.4 to £2.1 billion annually.

There are approximately 16,700 care homes in the UK. Around 70 percent of care homes are residential settings, while nursing homes make up around 30 percent of the total number of care homes.

According to ONS (April 2023)[4] 137,480 (37.0%) of care home residents in England were classified as self-funders, compared with approximately 234,555 (63.0%) state-funded residents.

Approximately 441,479 people live in these care homes in the UK, according to ONS data April 2023[4], around 50% are aged 85 and older. The demand for care services is expected to increase significantly due to the ageing population. The number of people aged 85 and over in the UK is projected to double over the next 20 years, reaching around 3 million by 2045.

Traditional manual repositioning is labour-intensive and can be challenging to perform consistently, especially in residents with cognitive impairments or those near the end of life. ALTS offer a solution by providing consistent, automated repositioning, reducing the risk of pressure ulcers, and potentially reducing the burden on caregivers.

The Levabo Turn All® ALTS is an underlay mattress that turns any medical bed into an automatic turning system with almost any mattress. The Levabo Turn All® has been developed in line with the EPUAP 2019 guidelines[5] that the recommended 30-degree tilt in the side lying position is the optimum for pressure offloading. The Levabo Turn All® has a patented 5-degree counter tilt built into the mattress to prevent slippage when rotating from left to right in the automated turning process.

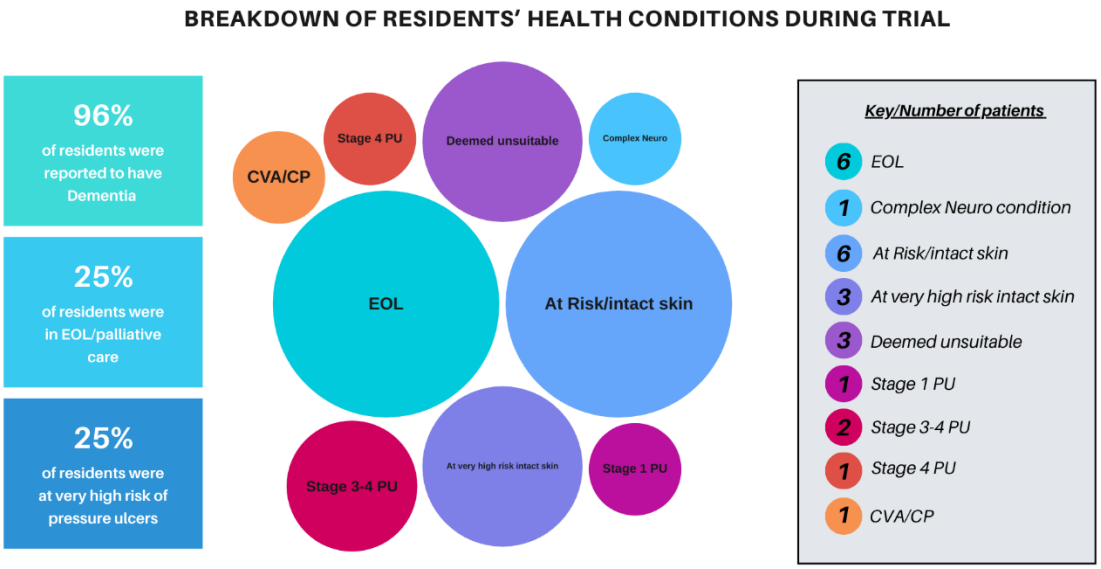
Objectives

The primary aims were to assess the effectiveness of the Levabo Turn All® ALTS in reducing pressure ulcer incidence, its impact on caregiver workload, resident comfort and overall cost-effectiveness.

The trial aimed to compare the effectiveness and efficiency of using an automatic lateral turning system to ease the pressure and burden on a caregiver's workload and provide resident comfort with manual repositioning.

The resident's status was recorded prior to using the Levabo Turn All®, during and at the end of each trial period. This was conducted with a prepared questionnaire.

The diagram below shows the number of residents in the trial and the conditions they suffered with. 96% of the residents were reported to have dementia, and other comorbidities, 25% were receiving end of life/palliative care and 25% were at very high risk of pressure ulcers.



Methodology

The trial was commissioned by Care England who made initial contact and introductions to the home providers. Discussions took place to introduce the Levabo Turn All® and qualify resident suitability and selection based on the indications and primary objectives of the trial.

The trial was conducted in three care homes, each with a mix of residents with dementia, with complex and challenging needs, and those in palliative care. The residents were using air flow, hybrid or foam mattresses prior to the trial; and were all at risk of, or with, existing ulcers.

Stow Healthcare, Taylor & Taylor Group – The Julie Richardson Nursing Home and Cornerstone Healthcare all took part in the trial.

A total of 24 residents were identified for the trial period across the three providers for the duration of 12 weeks.

Regular skin assessments, tracking of pressure ulcer development, caregiver logs, and feedback were recorded and collated to assess changes in workload and any challenges faced during the trial. (See Appendix for documents).

Results

Effectiveness in Pressure Ulcer Prevention

Pressure ulcer ratings in this care setting are exceptionally low across the homes as they are well managed. However, a small group of residents suffered with pressure ulcers, due to residents who were frail and vulnerable with multiple comorbidities, and bedbound with limited mobility. Seven residents had pressure ulcers prior to the start of the trial; three were in end of life care and one resident had a grade four ulcer that completely healed after 12 weeks. One resident had a sacral ulcer, two residents had heel ulcers, and another resident had redness of the skin.

According to the British Medical Journal, Best Practice 2021[6], the incidence and prevalence of pressure ulcers increases with age. Over 60% of pressure ulcers occur in people over 70 years of age. It is unclear whether this is due to age-related skin changes or the fact that conditions causing immobility are more common in older people.

Caregiver Workload

Caregivers reported considerable time savings with ALTS, approximately 2 hours per day, which allowed them to focus on other critical aspects of care, such as emotional support and personalised attention to residents. This was highlighted in the results and feedback from Taylor & Taylor.

Caregivers experienced less burden and physical strain, as the need for manual repositioning was greatly reduced. According to Weiner et al.2017[7], repositioning is one of the high-risk activities performed by caregivers. Among nurses, MSK disorders are the main cause of work-related health problems. The annual incidence of back pain is 40-50% (Hallmark et.al 2015[8]).

Resident Comfort and Dignity

Residents using ALTS generally showed fewer signs of discomfort or agitation during repositioning, an important factor for those with dementia. This is supported by a study which found that by automatically adjusting a patient's position, these systems can promote better sleep patterns, reducing nighttime burden and agitation. (Lichtwarck et.al, 2019[9]).

For residents in palliative care, ALTS provided a gentler, less invasive approach to repositioning, supporting their comfort and dignity during end of life care. At a Stow Healthcare home, the daughter of a resident receiving end of life care and using the Levabo Turn All® said the following:

"The introduction of the new mattress made an enormous difference to her. In the week after the mattress was introduced, mum entered the terminal phase of her life, and we spent 10 days with her, 24 hours a day.

The mattress did an excellent job in keeping her comfortable, and she was alert for a week of this terminal phase, dying three days after she lapsed into unconsciousness.

I was staggered to see, as she was being given after death care, that the sacral sore had completely gone, and her skin was intact. I was so amazed by this, as she had taken on no food or fluids during this 10-day period.

I can only surmise that her skin was well supported by the functions of the mattress during this difficult time, and her quality of life and then death, was supported by it."

Cost Analysis

Over the trial period, the data showed a reduction in overall care costs due to lower pressure ulcer treatment costs and reduced care time related to manual repositioning.

Implementing the Levabo Turn All® showed an estimated time saving of 2 hours per day compared to manual repositioning when considering the reduced incidence of pressure ulcers and associated treatment costs.

Discussion

The trial results suggest that ALTS is particularly beneficial for residents with certain forms of dementia, complex needs, and those in palliative care. The reduction in pressure ulcer incidence and severity highlights the systems effectiveness in providing consistent care. Moreover, the decrease in caregiver workload and physical strain can lead to improved caregiver wellbeing and potentially lower staff absence rates due to physical Musculoskeletal Disorder (MSD) issues, which is crucial in supporting high standards of care. This is supported by similar findings looking at user acceptance for an ALTS which highlights workload relief and patient wellbeing. (Lahmann, N, 2021[10])

Residents, especially those with dementia or in palliative care, benefitted from the reduced physical intervention, contributing to a higher quality of life, improved sleep from a reduction in repositioning in the nighttime and better engagement and nutrition intake during the daytime. (Lichtwarck et.al, 2019[9]).

Considerations

Initial Costs

The Levabo Turn All® is an affordable, cost saving system, compared to other devices on the market. However, the upfront cost of the Levabo Turn All® may be a barrier for some care homes, particularly smaller facilities with tight budgets. Rental options are available for providers wishing to invest in the system, to ease budget constraints.

Taylor & Taylor group reported that The Levabo Turn All® is a labour-saving piece of equipment, and their calculations show that it is also a cost-effective way forward for caring for bedbound residents, or residents with risk of skin damage/ulceration.

Compared with the time spent manual turning, the hours saved over a 24-hour period for a resident, showed a saving of 2 hours per day (2 care staff, 10 mins each = 20 min x 6 (4 hourly turns per day) = 2 hours saved per day).

They equated this to the 11 residents using the equipment and stated that this represents a huge saving in time of 22 hours per day. Their care staff work 12-hour shifts, so this is almost 2 carers working for one day.

"*We have saved £230.12 daily, £1,610.84 weekly.*" Taylor & Taylor group reported that the CQC and their stakeholders like the Levabo Turn All®. All their residents are checked a minimum of twice a day, and they hold documentation to show this.

These cost reductions are like those seen in the 2018 Aalborg University study[11] in a municipality setting in Denmark.

Training and Maintenance

Adequate training for caregivers is essential to ensure the effective use of Levabo Turn All®. During installation in each home, training was provided for every single install in each of the resident's rooms.

All systems were installed, set up and training provided to the staff (nursing, care and equipment teams), including safety requirements and information on how to care for the mattress.

Regular maintenance of the equipment is also necessary to avoid disruptions in care and an annual service is recommended and included in the cost of each system. The system should be wiped clean with disinfectant and the outer cover can be washed at 90 degrees centigrade.

(Refer to case studies in Appendix)

Care Home Comparison

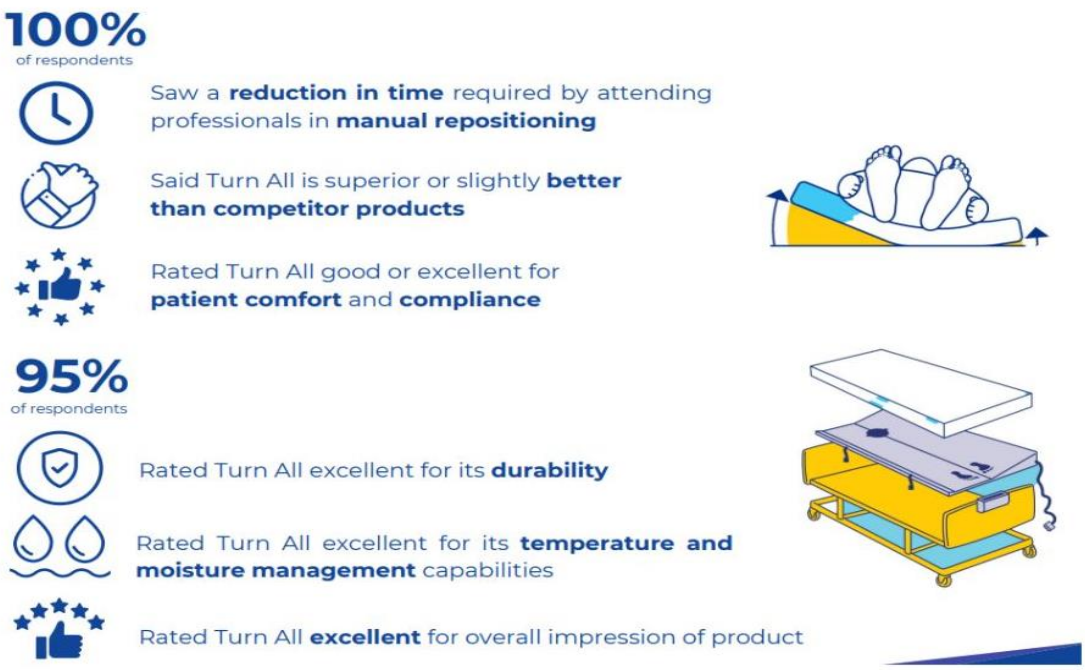
The three care homes who took part in the trial period had a similar cohort of resident health factors and conditions. These were identified as suitable for the Levabo Turn All® during the early discussions to get involved. All homes used the Waterlow score for the recording of pressure ulcers.

These factors included:

- Dementia/dementia with challenging behaviours
- Existing pressure ulcers/vulnerable at-risk skin
- Limited or no mobility
- End of Life/Palliative Care

- Critical illness
- Spinal/neurological conditions.

In addition to the data collected by care providers during the trial, respondents also said that they saw a reduction in manual repositioning when using the Levabo Turn All® and found it to be superior to other products they may have used in the past. Patient comfort and compliance was also rated good or excellent, as seen in the image below, generated from the data collected in the trial.



Taylor & Taylor

Taylor & Taylor run four high quality care homes offering nursing, dementia, end of life care, learning and physical disability care. They have 229 beds across these locations.

The Julie Richardson Nursing Home who took part in the trial, provide specialist, personalised care for those living with dementia, nursing and respite care, since 2003.

The feedback received from the team at the home said that the Levabo Turn All® is good at aiding to relieve pressure damage to most areas. They found that they need to use other pressure relieving products for heel care and use the Levabo Heel Up® boots for pressure relief and offloading.

This is a labour-saving piece of equipment, and their calculations show that it is also a cost-effective way forward for caring for bedbound residents or residents with risk of skin damage.

The time saved is a great resource for the homes, as it means staff can do other things with more residents.

The Levabo Turn All® also preserves the dignity of the residents as they are not having to have such intrusive care. This leads to happier more contented residents.

Another plus is the reduction in work related back injuries with all the moving and handling that it takes to turn residents manually. This could potentially reduce sick days from MSDs in the workplace. This will reduce staffing issues with having to cover sickness and ensure that safe numbers of care staff are always available.

Taylor & Taylor have invested in the Levabo Turn All® systems following the trial period.

Cornerstone Healthcare

Cornerstone Healthcare are a complex care provider and therefore the residents in their care often present with challenging behaviours and/or challenges with providing care. One of the considerations when selecting suitable residents to take part in the trial was to support those who find care interactions challenging.

This however proved not completely effective for all the residents who took part in the trial. Due to their level of upper body mobility, they were either trying to roll against the turn or using the turn to roll out of their bed. They tried the system on multiple residents of the same presentation and mobility level, and none were successful for them.

The other resident presentations they trialled the system on were for far less mobile residents who historically did not look to move their upper body to reposition in their bed. On these residents the system was much more successful and generated exceptionally valuable feedback from staff, whilst also supporting in the healing of a Stage 4 pressure ulcer.

Cornerstone Healthcare's conclusion on the suitability of their residents has been that the Levabo Turn All® is ideal for those with extremely limited mobility, particularly when very unwell or on end of life care. This is where the system has been most successful.

Cornerstone have invested in the Levabo Turn All® systems following the trial period.

Stow Healthcare

Stow Healthcare is a family owned and run group of care homes. The focus on family drives the way they run their residential homes, nursing homes and memory centres which are dedicated to dementia care. They have 8 locations in idyllic country settings in East Anglia.

They have a loyal team of managers, carers, nurses, chefs, housekeepers and handy people in addition to their residents, their relatives and the professional healthcare partners in Essex, Norfolk & Suffolk. Their family bond combined with high-quality care in homes full of character, has led to a string of awards, including 'Care Group of the Year' in the National Care Awards.

Every one of their homes that has been inspected by the Care Quality Commission is rated 'Outstanding' or 'Good' and they receive regular referrals from residents' relatives, and other health professionals.

Stow Healthcare have 152 beds across the three homes in the trial.

They think this equipment will help end of life patients/residents to ensure minimal interruptions and distress and ensure comfort. They also believe it is best for prevention for vulnerable skin in immobile residents to aid healing.

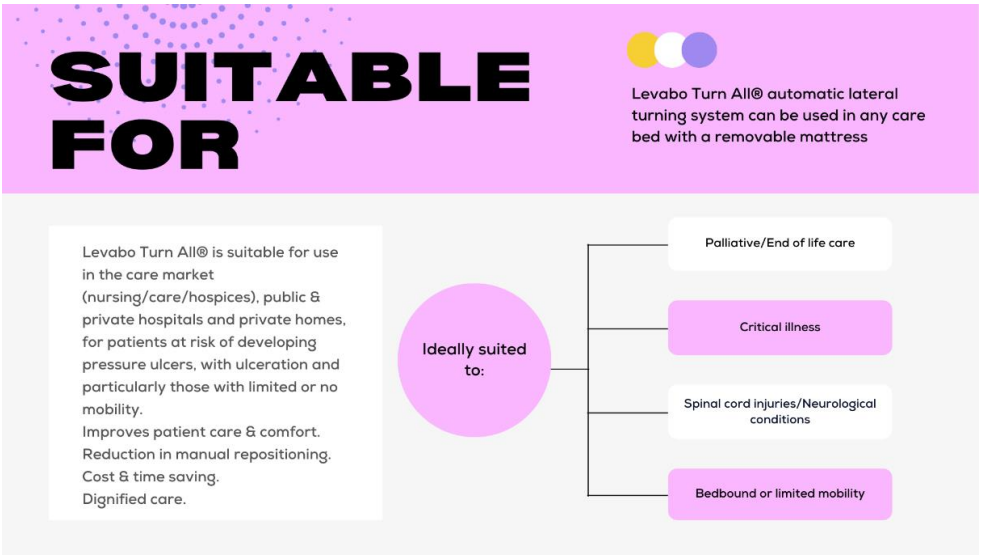
However, it was unsuitable for residents with severe contractions who are unable to mobilise themselves. This group of residents tended to position themselves in a manner that made the system ineffective.

Following the trial the Directors at Stow Healthcare have chosen to purchase additional systems for other homes to support improved resident outcomes with less demands on staff.

Conclusion

The 12-week trial shows that automatic lateral turning systems are an effective and efficient alternative to manual repositioning for preventing pressure ulcers in care home residents with dementia, complex needs, and those receiving end of life/palliative care. The benefits include reduced pressure ulcer incidence, decreased caregiver workload, establishing a reduction in attending carers by two to one care and improved resident comfort, making ALTS a valuable tool in enhancing care quality.

Who is it suitable for? See diagram below based on all case studies in this trial.



Recommendations for the Adoption ALTS, Levabo Turn All®

Care homes, especially those dealing with residents that have reduced mobility, with established complex medical needs and palliative care should consider integrating ALTS into their care protocols.

Looking at the benefits in terms of costs, patient care and staff wellbeing, healthcare providers should consider investing in ALTS, especially in settings with high-risk populations. From the findings in this trial, it would be beneficial to consider adopting the Levabo Turn All® ALTS.

Ideally, a further study with a larger cohort of residents of this client group over a longer period, would provide in depth condition specific analysis. For example, looking specifically at different groups, such as those in end of life palliative care.

More About Levabo & Algeos

Levabo Aps is a Danish family-run company with headquarters in Skanderborg in East Jutland. A global company that has distributors, and supplies products, all over the world.

For more than 10 years, Levabo have collaborated closely with the users of their products and healthcare professionals. Developing positioning products for the prevention and treatment of pressure ulcers in collaboration with several Danish wound nurses.

Levabo aim to make a difference in healthcare and their vision is that their products can help eradicate pressure ulcers and improve the quality of life and wellbeing of the population.

Levabo developed the Turn All® for acute and homecare patients.

Turn All® is an automatic tilting system that helps prevent and treat pressure ulcers by positioning a person in a 30-degree side position alternating between the right and left side. The system can be used in any healthcare bed with a removable mattress, where it is placed under the mattress.

Side lying at 30-degrees reduces the external pressure noticeably compared to lying flat or directly on the side of the bed. This is because the pressure is distributed over a larger area without prominent bones.

The system supports the body along its entire length. The stabilising repositioning relieves tissue compression and restores blood flow.

A 30-degree lateral position is recommended by the latest research in the field and by the European Pressure Ulcer Advisory Panel guidelines.

The slight lift on the opposite side counteracts shear, while providing reassurance and peace of mind for the user.

Levabo work in partnership with Algeos.

Algeos are a Liverpool based, family run business specialising in diabetes, pressure care, and lower-limb care. Algeos are a dynamic and innovative company working in collaboration with clinicians and experts in the industry, providing a range of cutting-edge products that improve patients' lives and help our clinical customers serve their patients to a very high standard.

Thanks to our patient-centric business model, the business has sole domestic distribution rights for key brands in our markets, including Levabo, Diaped, Interpod, and more.

Within the pressure care space, Algeos boasts a close working relationship with wound and pressure care experts Levabo, who have developed innovative solutions for the prevention and management of pressure ulcers.

The Levabo Turn All® is available through Algeos.

For further information please contact beth.mercer@algeos.com

Appendix

Case studies

Individual studies

Resident – Female, aged 84, chairbound (Taylor & Taylor)

Condition at start of trial: Dementia, pressure areas intact, has assisted in maintaining intact skin.

Turning/repositioning frequency prior to using Levabo Turn All®: 3 hourly turns by 2 caregivers.

Trial aims: PU prevention

Waterlow on Admission with Levabo Turn All® in place: 21.

Waterlow after 12 weeks using Levabo Turn All®: 16.

Overlay mattress type used with Levabo Turn All®: Nimbus.

Skin condition after 2 weeks: Intact

Results & feedback after 12 weeks: The Levabo Turn All® is good at aiding to relieve pressure damage to most areas and superior to other devices we have used. Resident was comfortable and compliance was good. Easy to use and operate.

We have found that we need to use other pressure relieving products for heel care and have trialled the Levabo Heel Up® offloading boots.

Resident – Female, aged 76, chairbound (Taylor & Taylor)

Condition at start of trial: pressure areas intact, has assisted in maintaining intact skin, dementia.

Turning/repositioning frequency prior to using Levabo Turn All®: 3 hourly turns by 2 caregivers.

Trial aims: PU prevention

Waterlow on Admission with Levabo Turn All® in place: 23.

Waterlow after initial 12 weeks using Levabo Turn All®: 23.

Patient compliance: Good.

Overlay mattress type used with Levabo Turn All®: Nimbus.

Skin condition after 2 weeks: Intact.

Results & feedback after 12 weeks: The Levabo Turn All® is good at relieving pressure damage compared to other devices we have used. Resident was happy and content. Easy to use and operate. The Levabo Turn All® aided in supporting intact skin and reduced the need for manual repositioning.

Resident – Female, aged 91, chairbound (Taylor & Taylor)

Condition at start of trial: Dementia, with complex needs. At medium to high risk of pressure ulcers. Skin areas intact.

Turning/repositioning frequency prior to using Levabo Turn All®: 3 hourly turns by 2 caregivers.

Trial aims: PU prevention

Waterlow on Admission with Levabo Turn All® in place: 23.

Waterlow after initial 12 weeks using Levabo Turn All®: 23.

Overlay mattress type used with Levabo Turn All®: Nimbus.

Skin condition after 2 weeks: Intact.

Results & feedback after 12 weeks: The Levabo Turn All® -pressure areas intact, aided in maintaining intact skin. Reduction in manual repositioning.

Resident – Male, aged 56, chairbound (Taylor & Taylor)

Condition at start of trial: Dementia with complex needs. Pressure areas intact. High risk of pressure ulcers.

Turning/repositioning frequency prior to using Levabo Turn All®: 2 hourly turns by 2 caregivers.

Trial aims: PU prevention.

Waterlow on Admission with Levabo Turn All® in place: 24.

Waterlow after initial 12 weeks using Levabo Turn All®: 24.

Overlay mattress type used with Levabo Turn All®: Nimbus 3.

Skin condition after 2 weeks: Intact.

Results & feedback after 12 weeks: The Levabo Turn All® aided in supporting skin integrity and preventing occurrence of ulcers. Reduction in manual repositioning.

Resident – Male, aged 79, chairbound (Taylor & Taylor)

Condition at start of trial: Dementia with comorbidities and complex needs. Pressure areas intact.

Turning/repositioning frequency prior to using Levabo Turn All®: 2 hourly turns by 2 caregivers.

Trial aims: PU prevention.

Waterlow on Admission with Levabo Turn All® in place: 15.

Waterlow after initial 12 weeks using Levabo Turn All®: 15.

Overlay mattress type used with Levabo Turn All®: Nimbus 3.

Skin condition after 2 weeks: Intact.

Results & feedback after 12 weeks: The Levabo Turn All® -pressure areas intact, aided in supporting intact skin and reduction in manual repositioning.

Resident – Female, aged 91, bedbound (Taylor & Taylor)

Condition at start of trial: Dementia with comorbidities and complex needs. At high risk of pressure ulcers. Grade 1 Pressure injury to sacrum. End of Life/Palliative care.

Turning/repositioning frequency prior to using Levabo Turn All®: 2 hourly turns by 2 caregivers.

Trial aims: PU prevention & treatment

Waterlow on Admission with Levabo Turn All® in place: 23.

Waterlow after initial 12 weeks using Levabo Turn All®: 23.

Overlay mattress type used with Levabo Turn All®: Nimbus.

Skin condition after 2 weeks: PU healing.

Results & feedback after 12 weeks: The Levabo Turn All® aided full healing in sacrum pressure injury. Reduction in manual repositioning.

Resident – Male, aged 76, bedbound (Taylor & Taylor)

Condition at start of trial: Dementia and presents behavioural challenges. At extremely high risk of pressure ulcers. Longstanding redness to buttocks. Chest infections and continued weight loss, frail and vulnerable.

Turning/repositioning frequency prior to using Levabo Turn All®: 2 hourly turns by 2 caregivers.

Trial aims: PU prevention & treatment.

Waterlow on Admission with Levabo Turn All® in place: 34.

Waterlow after initial 12 weeks using Levabo Turn All®: 34.

Overlay mattress type used with Levabo Turn All®: Nimbus.

Skin condition after 2 weeks: Redness on buttock healing.

Results & feedback after 12 weeks: The Levabo Turn All® aided full healing with redness on buttocks. Reduction in manual repositioning.

Resident – Male, bedbound (Taylor & Taylor)

Condition at start of trial: Dementia and complex needs. Continued weight loss, frail, and 3 hospital admissions during trial period. At extremely high risk of pressure ulcers. All pressure areas intact.

Turning/repositioning frequency prior to using Levabo Turn All®: 2 hourly turns by 2 caregivers.

Trial aims: PU prevention

Waterlow on Admission with Levabo Turn All® in place: 13.

Waterlow after initial 12 weeks using Levabo Turn All®: 21.

Overlay mattress type used with Levabo Turn All®: Nimbus.

Results & feedback after 12 weeks: The Levabo Turn All® aided in supporting intact skin and a reduction in manual repositioning. Resident had multiple hospital admissions during trial period due to ill health.

Resident – Male, 79, chairbound (Taylor & Taylor)

Condition at start of trial: Dementia and complex needs. Frail and vulnerable. At high risk of pressure ulcers. All pressure areas intact.

Turning/repositioning frequency prior to using Levabo Turn All®: 3 hourly turns by 2 caregivers.

Trial aims: PU prevention.

Waterlow on Admission with Levabo Turn All® in place: 26.

Waterlow after initial 12 weeks using Levabo Turn All®: 27.

Overlay mattress type used with Levabo Turn All®: Nimbus.

Results & feedback after 12 weeks: The Levabo Turn All® aided in supporting intact skin and reduction in manual repositioning. Resident had several hospital admissions during trial period due to ill health.

Resident – Male, 90, bedbound (Taylor & Taylor)

Condition at start of trial: Extremely limited mobility. End of Life/Palliative care. Dementia and complex needs. Frail and vulnerable. At substantial risk of pressure ulcers. All pressure areas intact.

Turning/repositioning frequency prior to using Levabo Turn All®: 3 hourly turns by 2 caregivers.

Trial aims: PU prevention

Waterlow on Admission with Levabo Turn All® in place: 24.

Waterlow after initial 12 weeks using Levabo Turn All®: 24.

Overlay mattress type used with Levabo Turn All®: Nimbus.

Results & feedback after 12 weeks: The Levabo Turn All® aided in supporting intact skin. Resident was comfortable. Dignified care and reduction in manual repositioning.

Resident –Female, 77, chairbound (Taylor & Taylor)

Condition at start of trial: Type 1 diabetic, progressive weight loss, End of Life/Palliative care, extremely poor nutrition intake. Exceedingly high risk of pressure ulcers. Susceptible and prone to pressure ulcers due to poor skin integrity. Dementia and complex needs. Needs offloading boots on heels.

Turning/repositioning frequency prior to using Levabo Turn All®: 2 hourly turns by 2 caregivers.

Trial aims: PU prevention

Waterlow on Admission with Levabo Turn All® in place: 26.

Waterlow after initial 12 weeks using Levabo Turn All®: 30.

Overlay mattress type used with Levabo Turn All®: Nimbus.

Results & feedback after 12 weeks: The Levabo Turn All® aided in supporting resident dignity, and further breakdown of skin on other pressure areas. However, due to residents need for offloading heel boots prior to using the system, a heel ulcer developed during the trial period, as the offloading boots were removed. Need to continue with offloading pressure boots whilst using the system to aid with skin integrity. Reduction in manual repositioning.

Resident – Male, aged 90, bedbound (Stow Healthcare)

Condition at start of trial: Resident came to Stowlangtoft Hall Nursing Home following a period in hospital having become unwell with urinary retention and reduced mobility. On admission, he had various pressure damaged areas, including buttock, both heels and outer aspect of both feet. These areas were necrotic and starting to breakdown. He sadly deteriorated significantly shortly after admission and was receiving all care in bed. He initially declined to have an airwave alternating mattress in situ which sadly resulted in his pressure areas deteriorating significantly. The area on his left buttock was unstageable due to the wound bed being covered with necrotic tissue. It was most likely a stage 3 or 4. The management of his wound was difficult and was reviewed weekly by Tissue Viability Specialist, with the dressing being changed daily. At this point, he was transferred onto the Levabo Turn All® system.

Turning/repositioning frequency prior to using Levabo Turn All®: 2 hourly turns by 2 caregivers.

Waterlow at start of trial - 34 (Sept 2023).

Waterlow on review – 32 (Oct 2023).

Waterlow on discontinuing Levabo Turn All®: – 34 (Nov 2023).

Trial aims: PU treatment & management.

Overlay mattress type used with Levabo Turn All®: non-specified air flow.

Skin condition after 2 weeks: There was a significant improvement over the following 2 weeks of his wound, with it healing and his surrounding skin becoming healthier. The circumference of the wound had shrunk by 3cm and the dressing change frequency reducing.

Resident was more compliant with care as he was only needing to be rolled/turned when having continence aids changed/checked. His pain appeared

to have reduced as he was not being moved as often (he was previously on 2 hourly turns). He appeared to be sleeping better as he wasn't being woken for turns. Overall, his mental wellbeing improved significantly.

Results & feedback after 12 weeks: He had existing pressure areas on his feet (both heels and outer aspects). Sadly, once he was on the Levabo Turn All®, these deteriorated and broke down. Different cushions were trialled in place to try and elevate, however these moved when the mattress tilted, thus meaning they were no longer in the correct position to elevate and relieve pressure. The Levabo Heel Up® boots were the only equipment that did alleviate the pressure (however, this was not entirely successful due to the location of the pressure damage).

Resident – Female, aged 72, bedbound (Stow Healthcare)

Condition at start of trial: Complex neurological condition, Multiple System Atrophy, complete immobility. End of Life/Palliative care.

Turning/repositioning frequency prior to using Levabo Turn All®: 4 hourly turns by 2 caregivers.

Trial aims: PU prevention, management.

Waterlow on Admission - 27 (Oct 2023).

Waterlow on review – 20 (Nov 2023) – Levabo Turn All® in place.

Waterlow on RIP – 20 (end Nov 2023).

"My mum was living with a complex neurological condition, Multiple System Atrophy, which gradually reduced her mobility to the point she was completely immobile. She was offered the opportunity to trial the new tilting mattress in mid-October 2023 and was able to understand that it would reduce the need for her to be repositioned on a 4 hourly basis, which was often difficult for her.

She had had a small sacral sore for several months, which needed to be dressed at times. The introduction of the new mattress made an enormous difference to her. In the week after the mattress was introduced, mum entered the terminal phase of her life, and we spent 10 days with her, 24 hours a day.

The mattress did a wonderful job in keeping her comfortable, and she was alert for a week of this terminal phase, dying three days after she lapsed into unconsciousness.

I was staggered to see, as she was being given after death care, that the sacral sore had completely gone, and her skin was intact. I was so amazed by this, as she had taken on no food or fluids during this 10-day period.

I can only surmise that her skin was well supported by the functions of the mattress during this difficult time, and her quality of life and then death, was supported by it." Relative Feedback

Resident – Female, aged 72, bedbound (Stow Healthcare)

Condition at start of trial: resident admitted to Stowlangtoft Hall Nursing Home for end of life care. On arrival her skin was intact, but vulnerable due to her low weight, poor oral intake and co-morbidities. The Levabo Turn All® was implemented on admission.

Turning/repositioning frequency prior to using Levabo Turn All®: 3 hourly turns by 2 caregivers.

Trial aims: PU prevention, treatment, management.

Waterlow score on admission: 25 (Nov 2023).

Skin condition after 2 weeks: Intact.

Results & feedback after 12 weeks: The Levabo Turn All® helped to alleviate any pressure damage and avoid the need for repositioning. She was able to spend her last weeks in comfort and peaceful, with her skin staying intact and no distress caused by repositioning.

Waterlow score on RIP – 19 (Nov 2023).

Resident – Male, aged 93, bedbound (Stow healthcare)

Condition at start of trial: Admitted to Cerebral Palsy, gastric reflux and tongue thrusting. Recent history of CVA (Cerebrovascular accident) and dementia, delirium and poor mobility. Incontinence issues and has suprapubic catheter. Resident suffers with COPD so lying flat can cause breathing issues.

His sacrum area is vulnerable due to previous skin breakdowns due to past issues with moisture lesions.

The Levabo Turn All® was implemented on admission.

Turning/repositioning frequency prior to using Levabo Turn All®: 1 hourly turn by 2 caregivers.

Trial aims: PU prevention, treatment, management.

Skin condition after 2 weeks: Intact.

Results & feedback after 12 weeks: The Levabo Turn All® Turn All was initially set for 60 min intervals and was turned off when care was delivered and reset afterwards. His skin condition remained unchanged and intact, and sacrum was

continuously checked. His skin was vulnerable, had not improved and remained unchanged, but had not deteriorated. Resident found the 60 min rotations too much and felt dizzy, so setting was switched to 90 mins. Resident condition remained unchanged.

Resident – Male, aged 93, bedbound (Stow Healthcare)

Condition at start of trial: End of Life/Palliative care. Pressure ulcer on sacrum.

The Levabo Turn All® was implemented on admission.

Turning/repositioning frequency prior to using Levabo Turn All®: 2 hourly turns by 2 caregivers.

Trial aims: PU prevention, management

Results & feedback after 12 weeks: Resident passed away shortly after system was in place. RIP.

Resident – Female, bedbound (Stow Healthcare)

Condition at start of trial: Resident was admitted to Stowlangtoft Hall Nursing Home as primarily "self-caring", with minimal assistance from staff. However, she sadly deteriorated rapidly and resulted in being cared for in bed.

Sadly, she became contracted very quickly and sustained pressure damage to both heels, knees and her sacrum. She was transferred onto the Levabo Turn All® system to try and reduce the pressure damage.

Unfortunately, due to her contractures, the system was not helping and resulted in her positioning being worse (she was tilting to the side and becoming more contracted). The system was therefore removed after 5 days.

Resident – Male, aged 95, bedbound (Cornerstone Healthcare)

Condition at start of trial: Dementia, challenging behaviours and challenges with providing care. Stage 4 pressure ulcer on sacrum.

The Levabo Turn All® was implemented on admission.

Turning/repositioning frequency prior to using Levabo Turn All®: 2 hourly turns by 2 caregivers.

Trial aims: PU prevention, management, treatment.

Overlay mattress type used with Levabo Turn All®: non-specified air flow.

Waterlow at start of trial- Extremely high risk.

Waterlow at 12 weeks– Completely healed with Levabo Turn All® in place.

Results & feedback after 12 weeks: Residents Stage 4 PU healed within 12 weeks. Resident was immobile and spent extended periods of time in bed due to the requirement of limited seating time for wound healing. Nursing staff reported that the Levabo Turn All® aided this. Dignified care. Reduction in manual repositioning.

Residents overlay airflow mattress was changed for a high-grade foam mattress after 12 weeks and used with the Levabo Turn All®.

Resident – Male, bedbound (Cornerstone Healthcare)

Condition at start of trial: Dementia, End of Life/Palliative care.

The Levabo Turn All® was implemented on admission and passed away 3 days later.

Turning/repositioning frequency prior to using Levabo Turn All®: 2 hourly turns by 2 caregivers.

Trial aims: PU prevention.

Overlay mattress type used with Levabo Turn All®: non-specified air flow.

Results & feedback after 3 days: Resident passed away soon after moving to EOL care. Nurse feedback "he remained comfortable during this period, probably because he is on an automatic turning mattress with little human handling". RIP.

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This white paper provides a review of the trial's findings, offering actionable insights for care homes, healthcare professionals, and policymakers on the potential of ALTS to improve pressure ulcer prevention in vulnerable populations.