



Automated turning at your finger tips



## PATIENT A CASE STUDY

Mr A was a 44-year-old gentleman who is a tetraplegic due to an R.T.A.

He lives at home with his wife who was finding it difficult to reposition him on the bed especially as he is approximately 6 foot tall. A care package was in place, but this was minimal and support for repositioning during the night was required.

Mr A was referred to the Moving and Handling team for assessment. It was felt that the use of slide sheets was not a good option as his wife would need to roll him to insert them. In situ, slide sheets could be used, but this would still pose a risk to his wife as it is normally recommended that two people move a patient on a bed.

A compounding issue was the poor sleep quality for both the patient and his wife due to the need to reposition during the night.

It was decided to trial the Toto turning system at night to enable Mr A to have regular repositioning whilst improving sleep quality. The trial was successful and Mr and Mrs A started to sleep through the night.

On review of the equipment, as an additional outcome, Mrs A reported a reduction in the incidence chest infections experienced by her husband. As the use of Toto was the only change to his care, this is could be attributed to the system providing regular repositioning and the resulting flow of chest secretions.

[Helen Parks. Clinical Advisor to the Community Equipment Service. DipCot. S.R.O.T](#)

## PATIENT B CASE STUDY

This patient was a 90-year-old gentleman who was an above knee amputee. He lived at home with his wife and had a care package comprising of four calls during the day.

He was referred to the Clinical Advisor by the District Nursing team as, despite being on a high specification airwave replacement mattress, his skin was still marking. This was noted as a grade one pressure ulcer. He sat out for a short part of the day in a tilt in space seating system with integral pressure relief. It was not possible to put in night care, which would also have been disruptive to his partner as they slept in the same room.

The Toto turning system was trialled and after a few days it was noted the skin discolouration was resolved.

On review of this equipment, his wife also remarked that his bowel routing had also altered and he was now opening his bowels on a daily basis, which he had not done for some time. As the turning system had been the only change to the routine it can be assumed that this was due to the regular repositioning provided by this system.

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## PATIENT C CASE STUDY

Patient C is a 63-year-old tetraplegic female who also has osteoporosis. She lives with a personal care assistant at home.

She had sustained a grade four pressure ulcer which had been surgically closed and subsequently classified as a healed grade four pressure ulcer. Due to the level of immobility and the vulnerable healed skin, she returned home on a Nimbus airwave replacement mattress but also required regular repositioning.

The funding to increase the care package to support this could not be obtained and so a turning system was considered as a cost effective option, in conjunction with a standard community mattress; the Nimbus mattress was returned to stock.

The Clinical Advisor was consulted when the patient developed a recurring grade 1 - 2 pressure ulcer. On observation, the turning system was not fitting on to the bed frame properly, resulting in the turning system being on a very slight tilt. The Toto system was recommended as an alternative turning device which fitted the bed frame properly, plus an airwave mattress to support healing in this vulnerable patient.

The pressure ulcer went onto heal, and the patient moved from the airwave to a foam mattress. However, the Toto turning system remained in situ to continue to provide regular repositioning for pressure relief and the associated benefits of regular repositioning.

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## PATIENT D CASE STUDY

This case concerns a 58-year-old gentleman who was diagnosed with Multiple Sclerosis in 1984. His wife and two sons are his main carers as both he and his wife work, making access by external agencies difficult. He was under neurological care for symptom control and required antibiotics for recurrent chest and urine infections. He was initially referred to the District Nurse caseload in 2004 for assistance with supra pubic catheter changes plus physio and occupational therapy assessments for adaptations to the home.

During this time, there were occasional non-concordance issues regarding skin inspections and the use of equipment, as well as frustration with mobility issues and using the speech operated software. The patient would spend 12 hours plus sat in a wheelchair every day.

In June 2014, the GP was contacted regarding a sore area to the buttock which had been present for a two-week period; this resulted in a referral to the District Nursing team. The wound was found to be caused by inappropriate moving and handling techniques, as use of the hoist was refused by the patient. The patient also refused to use the pressure redistribution equipment provided. The wound healed in three weeks but broke down again in August. District Nurse visits continued, though dressing changes were refused when his wife had already changed it.

The following April, the patient was diagnosed by the Tissue Viability Nurse with a grade 3 pressure ulcer. Consent was given at this stage for an Occupational Therapy assessment for a hoist and use of a pressure relieving cushion, mattress and Repose Wedge.

In July 2015, the TVN found the interventions had not been effective (Fig. 1), advising bedrest as a solution but the patient was reluctant.

By August, the wound had developed into a category 4 pressure ulcer (Fig. 2) with daily dressing changes required and antibiotics prescribed for a possible wound infection. Agreement was reached to install a profiling bed plus a carer was arranged to assist with positional changes. In September after feeling unwell and pyrexial, NPWT was applied and antibiotics for the infected pressure ulcer. A two-week hospital admission followed for investigations, then discharge under the care of a 'Virtual ward'. Positional changes were required every one to two hours during the day and four hourly overnight. The patient was unhappy due to the intensity of the intervention and deterioration of the wound continued (Fig. 3)

As wound healing progression was not being made, in November, positional change visits were cancelled and replaced by the installation of a Toto system and a Nimbus Professional mattress. A marked improvement in the wound was evident six days later. Following one month of the new regime, the wound had markedly improved with 100% granulation tissue over the wound bed (Fig. 4) By March 2016, the wound was almost healed (Fig. 5).

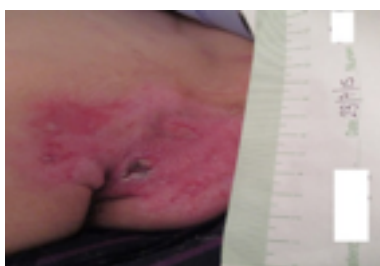


Fig. 1 July 2015 Wound status after four months and not responding to pressure redistribution interventions

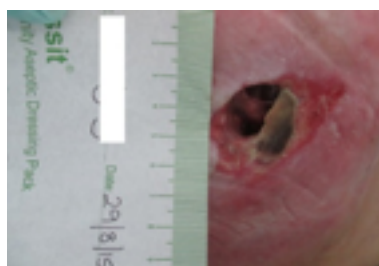


Fig. 2 August 2015 Category 4 pressure ulcer



Fig. 3 October 2015 The wound continues to deteriorate

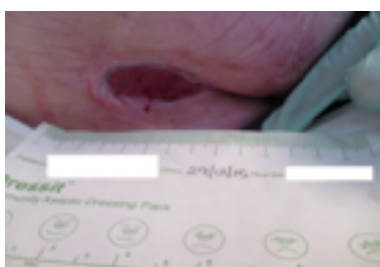


Fig. 4 December 2015 Wound improvement following changes in the pressure area care regime



Fig. 5 March 2016 Healing almost complete

### Cost Analysis

#### Pre-Toto and Nimbus Professional Installation

Five months' dressings	£1,557	Annual cost	£3,737
Five months' carers visits	£5,066	Annual cost	£12,160
Hospital admission for 13 nights			£3315
<b>Total cost for year</b>			<b>£19,212</b>

#### Post Toto and Nimbus Professional Installation

Five months' dressings	£570	Annual cost	Minimal
Five months' carers visits	£2,318	Annual cost	£2,318

### Savings

Cost for one year without equipment			£19,212
Equipment cost		Toto system	£1,845
		Nimbus Professional	£4209
<b>Total savings first year</b>			<b>£13,158</b>

Rebecca Rae. Evaluating the effectiveness of a new Lateral Turning System to aid Patient Repositioning using Dynamic Interface Pressure Mapping. Bradford Teaching Hospitals NHS Foundation Trust

## PATIENT A Testimonial

I am severely and profoundly disabled and suffer from a deteriorating prognosis resulting in total paralysis. Currently I still have the use of my lower arms, wrists, hands and fingers but only for a short time as my deterioration progresses.

My prognosis is called Trauma Induced Denervation Atrophy and Resultant Skeletal Muscular Fibrosis. I have to wear extensive locking bracing from a SOMI cervical collar, affixed to a full torso spinal and hip brace (CTHO Brace), which in turn is fixed to bilateral, knee, ankle foot orthosis full length callipers, which in turn are affixed to large surgical boots.

This extensive bracing is not intended to aid mobility but to stop it and to promote postural stance in an attempt to stop uneven muscle wastage.

Due to the extremely restrictive nature of my bracing I am at greater risk of contracting pressure ulcers and should this occur, I would be unable to wear the much needed bracing with disastrous consequences.

During a meeting with the manager of my care providers, the Toto turning system was brought to my attention. I contacted the supplier and within 72 hours was able to assess the suitability of the equipment.

This trial of the Toto system was a life changing experience for me; nothing more, nothing less.

My health had started to suffer as a result of lack of sleep as I was being turned by carers during the night which left me wide awake. The first night using the Toto turning system was nothing short of amazing. I had my first uninterrupted nights sleep since 2008 and woke in the morning feeling like I could float on air, despite the intensive bracing. I had not even noticed or become aware of the turning processes by this amazing piece of equipment.

Life changing is a statement used on a daily basis by many people but I have truly experienced a life changing experience and continue to do so each and every night thanks to Toto!



## PATIENT B Testimonial

Using the Toto system has made such a big difference to my life, my illness, and the symptoms I face every day. Previously, I had to be turned regularly by my mum and carers to prevent pressure ulcers, help to stop my joints dislocating and reduce my pain, but to turn me involved someone physically pulling me onto my side using the sheet and placing a pillow underneath. This caused more pain and due to it being physically demanding, it wasn't being undertaken regularly especially during the night, as it was up to my mum to set her alarm to turn me, so we both had a disturbed nights sleep.

Following the introduction of the Toto system, my position is being gently changed every 15 minutes. I am now so much more comfortable in bed, there has been a difference to my pain and dislocations, and we know my skin is being cared for. During the night, we know the Toto system will be regularly turning me, so there is no need for mum or I to have disturbed sleep, which has helped so much. Another benefit is taking away the need for someone to physically turn me. This has removed a big strain making life easier and calmer knowing Toto is performing a difficult part of my care. I am really pleased with how much it is helping my pain, reducing dislocations, protecting my skin and making life one job easier for myself, mum and carers, especially during the night.

## Carer of Patient B Testimonial

As Patient B's carer, I believe having the Toto system has made a huge difference to the care of my daughter and also for me. Before Toto, I had to physically turn my daughter numerous times a day and also during the night. This would mean pulling her across on the sheet and placing pillows underneath, but this would cause a lot of pain for her. It was also very physically demanding for myself causing pain as I already suffer from joint problems and tiredness from disturbed sleep. The Toto system has improved both our lives so much; I am no longer struggling with the demanding task of physically turning someone day and night which means I can sleep and my pain has reduced. More importantly, I can relax and be happy knowing my daughter is being turned every 15 minutes helping her symptoms and protecting her skin, something I could never possibly do. It has been a huge benefit for both my daughter and I; I can definitely say that life is much easier with Toto and it solves one daily worry.

## PATIENT C Testimonial

Mr C is a 67-year-old gentleman who, following an operation for a spinal tumour at the age of 47, was left unable to walk. He is also type 2 diabetic, although this is relatively well controlled.

Following the spinal surgery, rehabilitation was undertaken at the Oswestry Spinal Unit where the importance of pressure ulcer prevention was instilled in both Mr C and his wife.

Although Mr C was unable to walk, he could still independently transfer and raise himself frequently to assist with pressure ulcer prevention. 10 years ago, Mr. C suffered what has been described as 'a brain episode'. This was unrelated to the spinal tumour but resulted in a degenerative loss of memory. Despite this, Mr C could still transfer himself and elevate when prompted to do so.

Three years later, Mr C and his wife moved to a different area of the country, which according to Mrs C, seems to have accelerated her husband's deterioration making him slower physically and emotionally altered as well.

As time progressed, so did his deterioration, and after a while, help was required to transfer from bed to wheelchair. It was during one of these transfers that Mr C sustained pressure damage to his sacrum, developing into a grade 3 pressure ulcer. District Nurses visited to dress the wounds and supply pressure redistribution products and mattresses.

Healing of the ulcer was slow and hampered by admissions to hospital. The District Nursing team continued to provide care at home with a hybrid pressure redistribution mattress and profiling bed was installed. However, by Christmas 2015, Mr C presented with a suspected deep tissue injury on his ischial tuberosity which within a week, had evolved into a 15cm track; this was in addition to the existing pressure ulcer.

District Nurses were now visiting alternate days and Mr C was being repositioned with pillows every two hours during the day and night, but this could not be done consistently as the only person available to do this was his wife. This was also not successful as Mr C would return to his original position so pressure offloading was not achieved.

At this point, Mr C's wife contacted The Oswestry Spinal Unit for advice who suggested using the Toto system to provide automated turning. In April 2016, an evaluation of the system was commenced. Funding was obtained in August 2016 and within two weeks there were improvements to both pressure ulcers, with healing after three months. Prior to the introduction of Toto, there had been episodes of infection with plastic surgery being considered.

Using the Toto system has improved both Mr and Mrs C's quality of life as there is reduced sleep disturbance for them both and no frequent District Nurse visits causing disruption and anxiety.

\*Account from Patient C's carer.



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