

# A STEP CHANGE IN PRESSURE ULCER PREVENTION: REAL WORLD EVIDENCE FROM A LARGE SCALE MULTISITE EVALUATION OF A HYBRID MATTRESS

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## Introduction

Preventing pressure ulcers (PU) in an acute hospital setting is a complex activity. The multiple comorbidities and increased acuity of the at risk patient result in many conflicting care priorities and current changes in healthcare provision make delivering high quality, evidence based care challenging.

Within the field of pressure ulcer prevention high level RCTs are difficult to undertake, requiring significant numbers of patients and long time scales – in an area where technology changes rapidly this is frequently not a viable option.

An alternative to the prospective RCT is a real world review, in this case a retrospective analysis of the incidence of PU occurrence, pre and post implementation, of a powered hybrid mattress the Dyna-Form<sup>®</sup> Mercury Advance (Direct Healthcare Services).

## Method

The Tissue Viability nurses (or equivalent) from each hospital were contacted and asked about the process of implementation in their organisations. They were requested to provide the monthly incidence of hospital acquired PU and monthly admissions data for a minimum of 6 months prior to and 6 months post implementation of the mattresses using a standard format. Data was entered into an SPC chart to determine if improvement had occurred.

## Results

Across the 8 sites totalling 5580 beds, 4230 hybrid mattresses have been installed (most sites retained alternating mattresses in Intensive Care). All organisations ran a variety of initiatives including education and awareness days alongside the implementation.

### Real Life Challenges Impacting Care Delivery

The TVN meetings gave insight into real life challenges and behaviours impacting every day care delivery. All identified that whilst some of the challenges related to behaviours of clinical staff, e.g. holding on to equipment “just in case” or not stepping patients down as their condition improves, the majority of the issues related to processes and organisational behaviours or constraints (see Figure 1).

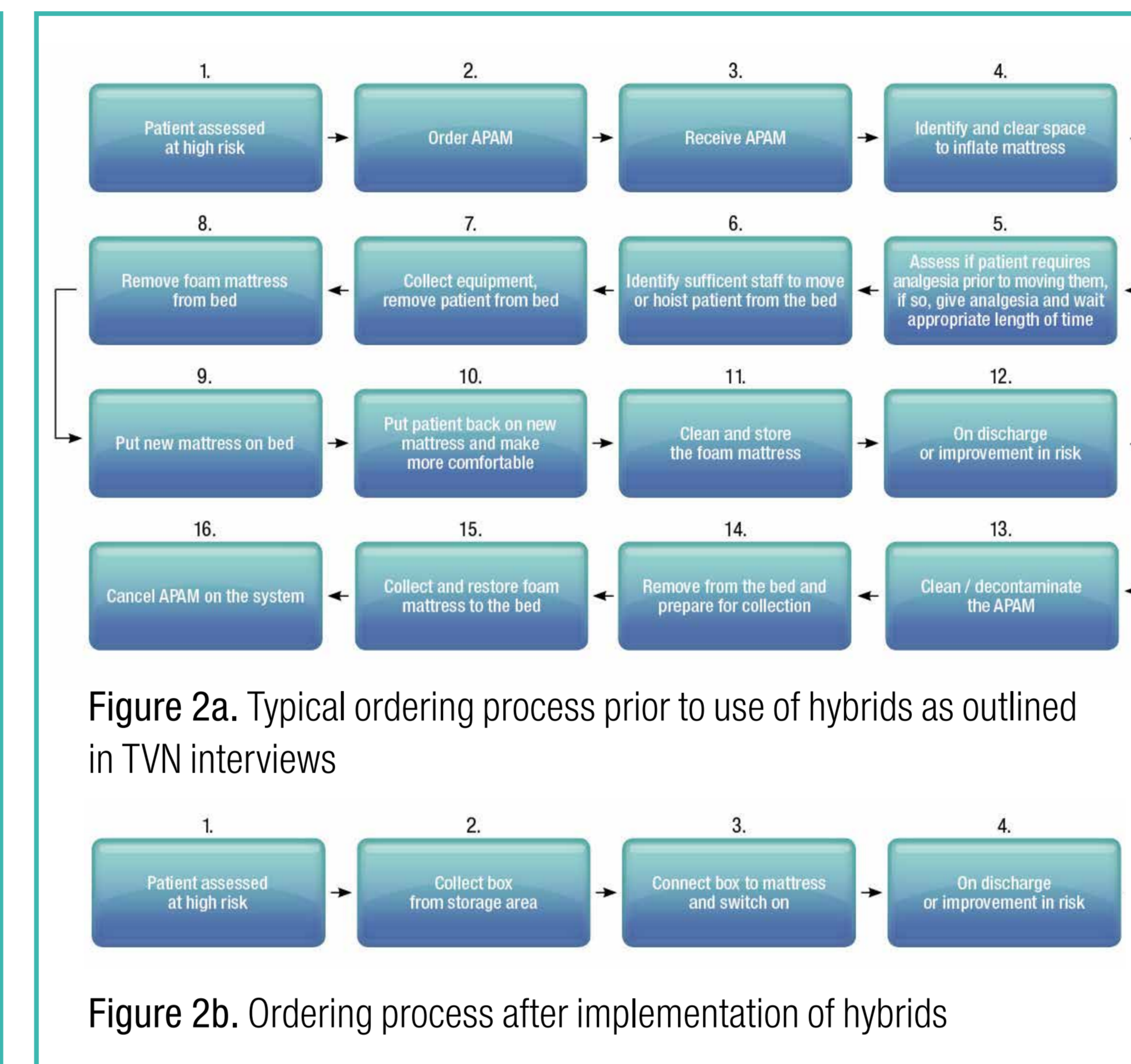
### Better Use of Clinical Resources

All organisations reported:

- That the availability of appropriate equipment was no longer a recurring theme in their root cause analysis.
- Ease of equipment availability and associated benefits in delivering more responsive nursing care and releasing time to care.

- Changes to make up of work force, with increasing number of overseas nurses who do not have English as a first language and who trained and worked in systems that operate differently to the UK system
- Reduction in actual nursing numbers
- An ongoing strategic focus on reduction of PU
- A plateau in the number of pressure ulcers
- Increased complexity of general patient care related to demographic changes
- Increased complexity of care delivery and choice of equipment
- Absence of high level evidence to aid in selection of pressure ulcer prevention equipment
- High levels of documentation and administration take clinical time away from care delivery
- Spend on equipment escalating — with no obvious patient benefits (defined by using a standard measure).

Figure 1. Challenges in care delivery



### Quality and Efficiency Across Patient Pathways: Simplification of Processes

All organisations were able to simplify their mattress selection criteria; for example one organisation reduced the protocol from 4 pages of A4, to 1 page of A4, making decision making much simpler for staff and also reducing the likelihood of inappropriate use of equipment. In addition to the ease of upgrading the mattress to an APAM, the use of hybrids simplified the mattress selection process removing layers of decision making from challenged ward level clinicians (Figure 2a and b).

### A Step Change in Care Delivery

During the period post implementation across the 8 sites there have been a total of 650,260 patients admitted. With 75% coverage of beds with hybrid mattresses in place, this represents a significant number of patients being cared for on the system. Following implementation of the powered hybrids, the data demonstrates a clear improvement in the number of PUs (see Figure 3 ), alongside this reduction the TVNs believed there was a reduction in the severity of damage occurring. Alongside this improvement all organisations have demonstrated better use of clinical resources that has resulted in both significant cost savings and improved operational effectiveness.

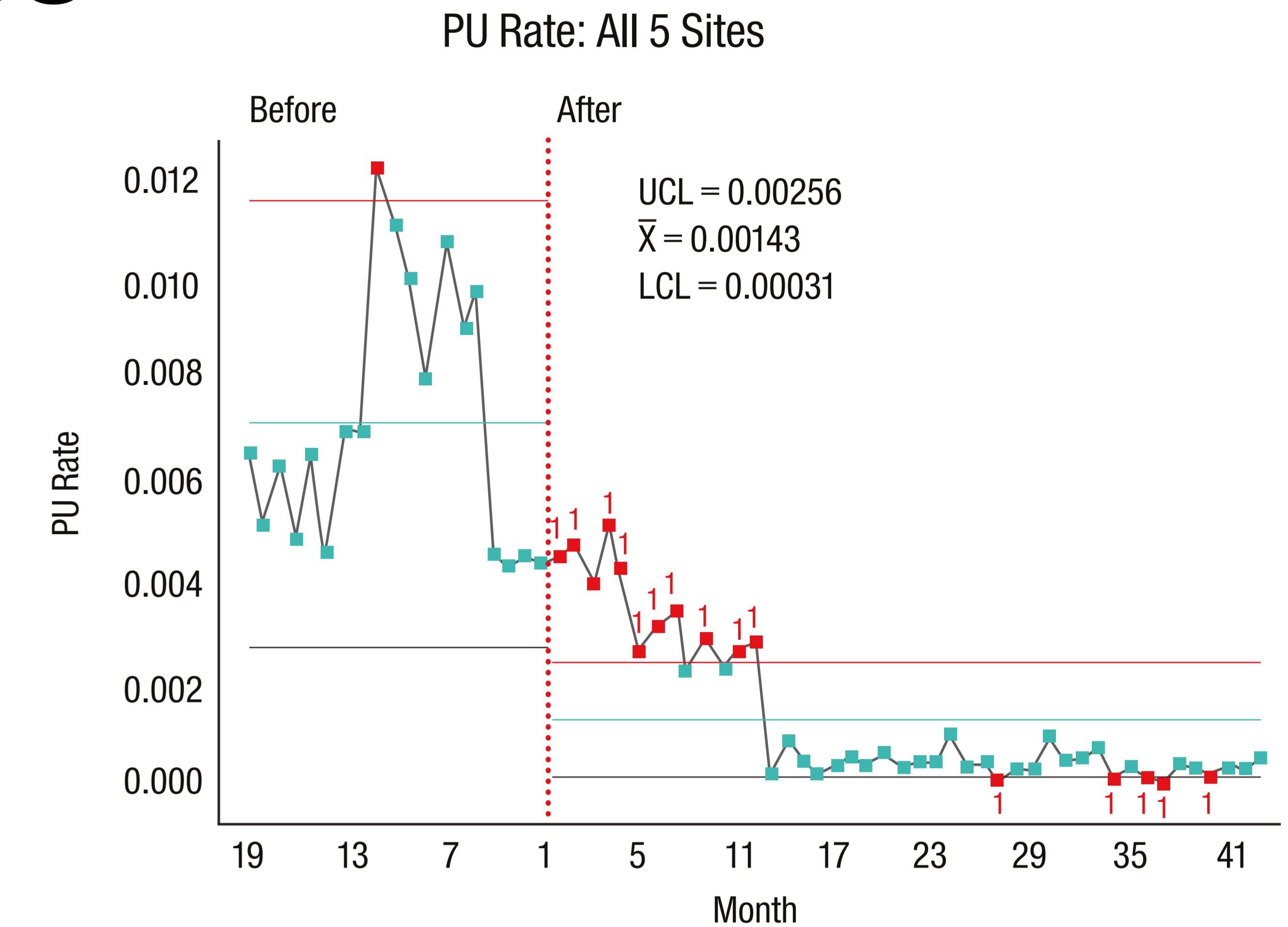
### Acknowledgement:

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For their commitment and assistance without which this would not have been possible.

Figure 3. illustrating a 56% reduction in PU rate



## Conclusion

This evaluation represents a real world approach to evaluating large-scale change, whilst acknowledging the multifaceted approach that makes up PU prevention strategies. It differs from traditional PU equipment research in that by looking at a broad range of outcomes in real clinical settings it identifies that a product’s effectiveness is not just about its clinical efficacy but also its ability to alter the process of PUP/care delivery. It is important to note that there were no patients excluded and no research nurses collecting data. This evaluation is based on NHS data generated from the daily care of patients delivered by its nurses, and no additional resources were allocated to the implementation projects other than those that would have normally been used. This is a real strength and gives the data generalisability to other organisations.

### A STEP CHANGE IN CARE DELIVERY

