

# Evaluation of a New Deeply Immersive Targeted Microclimate Management Support Surface

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**No patients acquired a pressure injury on the DI-TMCM\* support surfaces (84 patients over 417 patient days)**

## Pressure Injury Healing on the Deeply Immersive Targeted Microclimate Management (DI-TMCM) Support Surface

Patients (n=11) with existing pressure injuries were placed on the DI-TMCM surface. High risk factors for PIs were documented and pressure injury progression was tracked throughout the patients' stay in the ICU.

High Risk Criteria	Patient Characteristics
Average Age	67.6
Male/Female	7/4
Average Length of Stay	17.3 days
PI Present on Admission	91%
Braden $\leq$ 18	91%
Cardiovascular Disease	64%
Diabetes Mellitus	36%
Average ventilation days	11.5 days
Albumin < 3.5	91%

Patient	Pressure Injury location	Dimensions in cm (surface area cm <sup>2</sup> ) when placed on DI-TMCM surface	Dimensions in cm (surface area cm <sup>2</sup> ) when discharged from DI-TMCM surface	Surface Area Reduction
1	Coccyx	0.5 x 0.3 (0.15)	0.2 x 0.3 (0.06)	60%
2	Coccyx	10.0 x 10.0 (100.0)	7.0 x 7.0 (49.0)	51%
3	Coccyx	11.0 x 13.0 (143.0)	10.0 x 8.4 (84)	41%
4	Coccyx	3.0 x 3.0 (9.0)	0.0 x 0.0 (0.0)	100%
5	Coccyx	3.0 x 0.5 (1.5)	0.0 x 0.0 (0.0)	100%
6	Coccyx	6.0 x 1.5 (9.0)	2.5 x 1.5 (3.75)	58%
7	Coccyx	3.0 x 4.5 (13.5)	0.0 x 0.0 (0.0)	100%
8	Coccyx	2.5 x 3.5 (8.75)	1.2 x 3.0 (3.6)	59%
9	Back	5.0 x 2.0 (10.0)	0.0 x 0.0 (0.0)	100%
10	Right Buttock	9.0 x 5.0 (45.0)	8.5 x 4.0 (34.0)	24%
11	Coccyx	1.2 x 2.0 (2.4)	1.0 x 2.0 (2.0)	17%

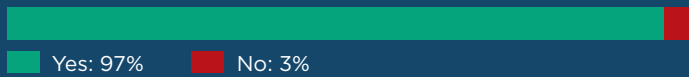
\*Adapt Air Pro™ by Agiliti Health, Inc.

# Clinically Recommended

100% of clinicians surveyed (n=33) recommend the DI-TMCM surface

## CLINICIAN SURVEY RESULTS

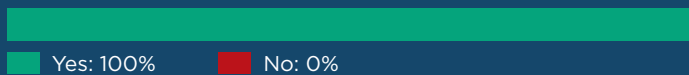
Are you able to adjust the firmness and softness level to the patient's comfort needs?



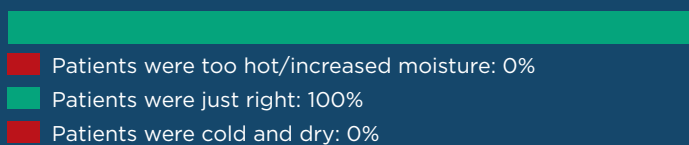
How easy is it to move/reposition patients?



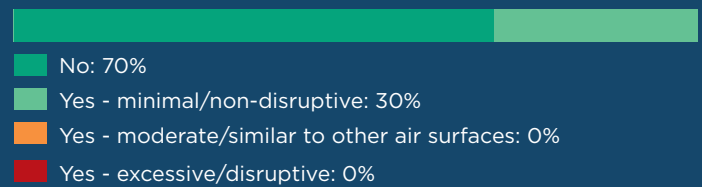
Was autofirm firm enough for patient repositioning/transfer?



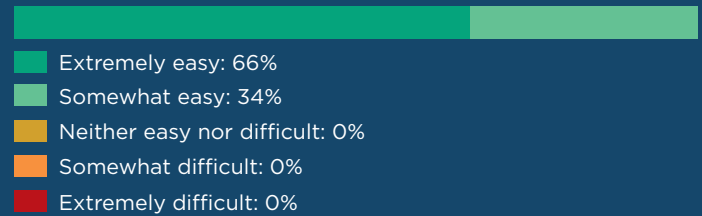
How did the surface manage microclimate for your patients?



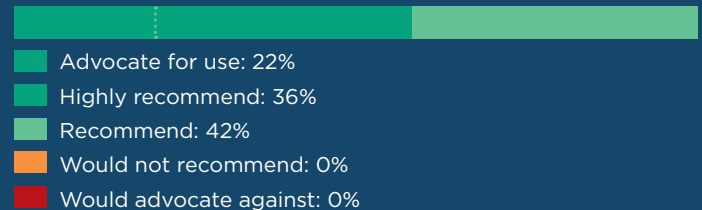
Did you notice noise from the pump?



How user friendly was the pump and support surface (were the buttons self-explanatory)?



Would you recommend this support surface based on your experience?



## INTRODUCTION

An estimated 3 million patients per year are treated for pressure injuries (PIs) in the United States with cost approaching \$17.8 billion.<sup>1</sup> PIs are the most prevalent in intensive care units (ICUs) with incidence of 8%-40% resulting in increased length of stay, higher mortality rates, and increased financial burden.<sup>2</sup> Support surface selection plays an important role in PI prevention and treatment due to their influence on soft-tissue perfusion.<sup>3</sup> Patient comfort and caregiver acceptance are also important to improve clinician workflow and patient outcomes.<sup>4</sup> A new deeply immersive targeted microclimate management (DI-TMCM) support surface was evaluated to understand ease of use, caregiver and patient acceptance, and prevention and treatment of pressure injuries.

## METHODS

Two surgical ICUs at two sister hospitals utilized a convenience sample of 84 critically-ill patients. Each patient was placed on the DI-TMCM support surface as they were admitted to the units. Initial assessments included skin, existing PIs, and risk factors for PIs. Data was collected until patients were discharged from the ICU. Staff and patients were surveyed to gather feedback on ease of use and overall acceptance.

## RESULTS

The average length of stay was 8 days on the DI-TMCM surfaces. No patient developed a pressure injury, while 11 patients with existing pressure injuries showed signs of healing through size reductions or resolution. One patient developed a deep tissue PI on a different rental bed and

# High Patient Satisfaction

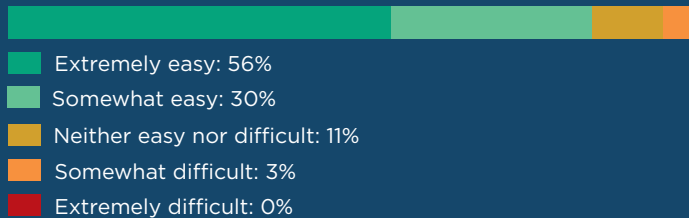
96% of patients surveyed (n=27) say that the DI-TMCM surface was comfortable

## PATIENT SURVEY RESULTS

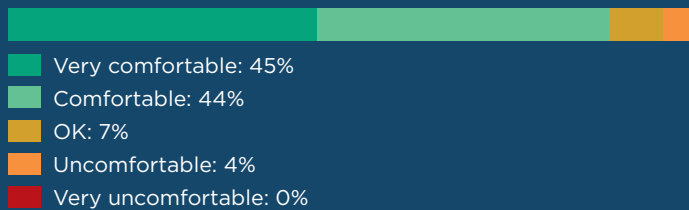
Did the support surface meet your expectations in terms of firmness/softness?



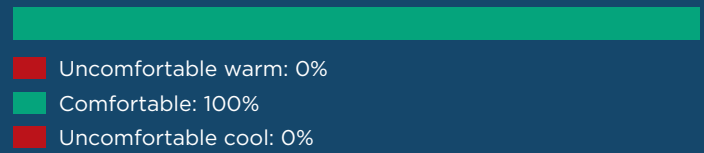
How easy is it to move around/reposition yourself on the surface?



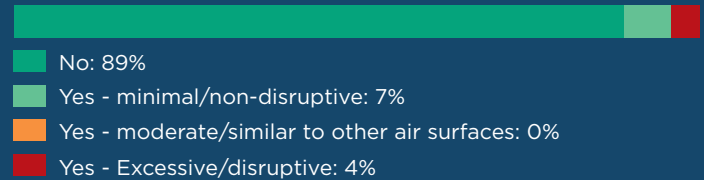
How comfortable was the mattress?



How would you describe the temperature you experienced on the mattress?



Did you notice any noise from the surface?



High-Risk Criteria	Patient Characteristics
Average Age	63
Male/Female	44/40
Average Length of Stay	9.9 days
PI Present on Admission	11%
Braden $\leq$ 18	65%
Cardiovascular Disease	64%
Diabetes Mellitus	41%
Average ventilation days	5.77
Albumin < 3.5	62%

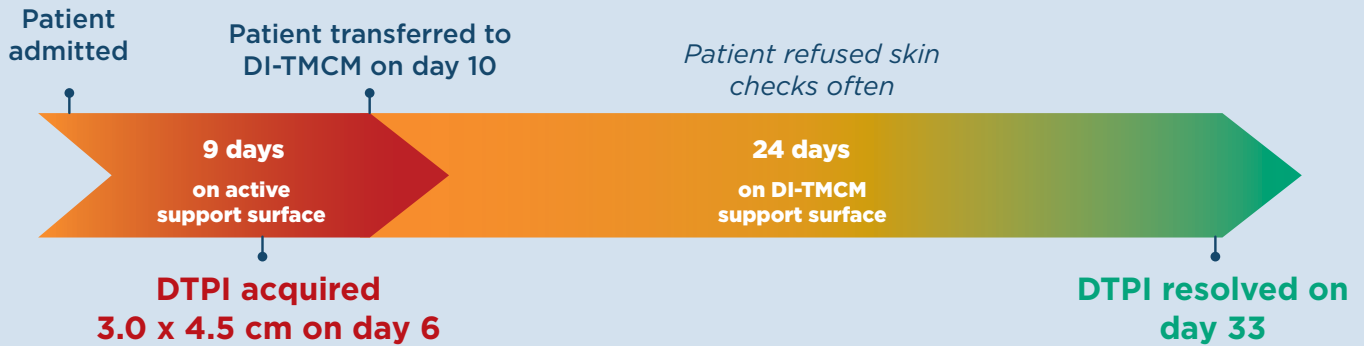
was transferred to the DI-TMCM surface where the PI resolved. Caregivers (n=33) reported the surfaces were easy-to-use (100%) and successfully managed pressure redistribution (100%) and microclimate management (100%) for their patients. Patients (n=27) reported the surfaces were very comfortable (96%) and kept them at a good temperature, not too hot or cold (100%).

## DISCUSSION

Critically-ill patients placed on the DI-TMCM support surface in surgical ICUs did not develop PIs, while existing PIs progressed in healing. Caregivers overwhelmingly felt the surface was easy-to-use and clinically efficacious while patients reported high comfort. Based on these findings a larger study comparing the performance of the DI-TMCM surface to current market surfaces is warranted.

# HAPI (DTPI) resolved on DI-TMCM Surface

22 yo, male, presented with opioid overdose. History of Hepatitis C, heroine use, IV drug use, and sepsis related to endocarditis. Patient was placed on the hospital's high-risk integrated active support surface for 9 days. DTPI was observed on day 6. Patient was then transferred to DI-TMCM surface on day 10 and DTPI was resolved 23 days later.

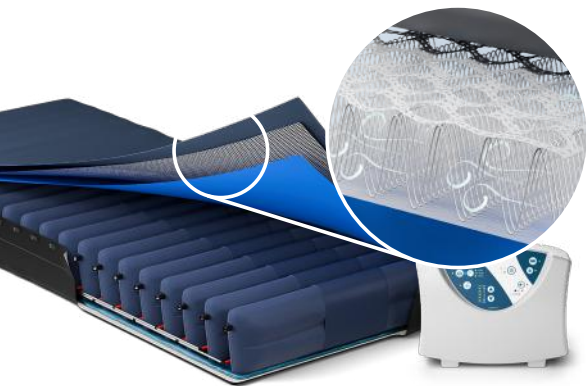


## Deeply Immersive Targeted Microclimate Management Support Surface (DI-TMCM)

The DI-TMCM support surface was designed to maximize immersion to enhance pressure redistribution and reduce peak pressures while providing airflow directly to the top cover to maximize heat and moisture removal from the patient interface.

### Targeted Airflow Microclimate Management

utilizes a breathable top cover, 3D mesh and airflow directly to the space at the patient interface to create a gradient that pulls heat and moisture vapor away from the patient.



**Deep immersion** is achieved through vertical cell technology, taller air cells, and air control algorithms.



### Vertical Cell Technology

Internal I-beam design provides flexible structure to air cells, helping maintain vertical shape to maximize patient/surface contact and pressure redistribution, leading to improved immersion potential.



### Air Cell Height

The taller the air cell, the more opportunity for deeper immersion.



### Air Control Algorithms

Patented immersion algorithm measures dynamic airflow to reach targeted air cell pressure faster and more accurately which requires fewer air cell adjustments keeping patients in therapy time longer and noise to a minimum.



### REFERENCES

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