Pressure Level Measuring Test Results for Opera® Impulse

Comparison test between the Opera® Impulse and an anonymised Hospital Foam Mattress

Data contains localised pressure data from 1024 sensors
with Isobar display images

opera

Preliminary Remarks of this Test

Test sample: Opera® Impulse

Product's Intended Use:

The Opera® Impulse mattress system is used in therapy to prevent pressure sore for patients confined to bed for long periods of time. The mattress is placed on the existing bed frame.

Composition:

The mattress system that consists of a replacement mattress with 8 pieces 5 inches height horizontal air cells and Elastic foam on air cells.

The Opera® Impulse pressure relief system begins to create a custom pressure relieving profile immediately after a patient is placed upon the system. Upon ingress; a natural chain of events begins in each of its alternately connected air sectors. First, the pressure level changes in each affected sector. Second, the air inside each sector is then displaced. When the pressure inside a sector reaches a higher than clinically effective internal level, an output valve releases air to achieve a therapeutic, low-pressure balance. The result is a support surface that achieves incredibly low interface pressures without the need for pumps, blowers or a series of microprocessors.

Understanding Pressure Ulcers

What is a Pressure Ulcer?

A pressure ulcer, also known as a bed sore or decubitus ulcer, is the progressive breakdown of the patient's skin and underlying tissue. Pressure ulcers most often occur on the parts of the body where the bone is closest to the skin such as the heels, ankles, hips, tailbone and elbows. Pressure ulcers develop quickly but can be prevented and most pressure ulcers will heal with treatment. (Mayo Clinic, 2018)

What Causes Pressure Ulcers?

Pressure ulcers can be caused by any of these conditions being present on the patient's skin: pressure, shear, friction, moisture and raised temperature. The most influential of these is pressure on the patient's skin.

The patient's weight causes pressure to be applied to their skin and tissue, compressing it between the support surface and their bone structure. When external pressure are higher than the capillary blood-flow pressure in the patient's tissue, the capillaries can become occluded; diminishing blood supply and causing tissue damage from lack of oxygen.

How can Pressure Ulcers be Prevented?

Pressure ulcers can be prevented by interface pressure distribution and regular repositioning of the patient. Interface pressure distributes the patients weight more evenly across their body and away from the critical areas where pressure ulcers can develop. Repositioning the patient regularly decreases the duration of pressure, reducing the occurrence of capillary occlusion.

Therapeutic Support Surfaces

Alternating Pressure Support Surfaces

Alternating Pressure Support Surfaces consist of a number of sealed air cells that alternatively inflate and deflate. The inflated cells provide adequate support to the patient whilst the deflated cells provide pressure relief, letting capillaries to recover their original size and shape to allow blood to flow normally.

Constant Low-Pressure Support Surfaces

Constant low-pressure support surfaces distribute the patient's weight more evenly and decreasing the resulting pressure on their body and thereby reducing the severity of capillary occlusion.

The Opera® Impulse System

Introduction

The Opera® Impulse system offers wound care therapy designed specifically to take care of patients who are at risk of developing pressure ulcers, or already enduring distress and discomfort from pressure ulcers. Details were considered thoroughly in the design of our mattresses ensuring the gentlest healing environment for sensitive skin. With teams of research and design experts working tirelessly throughout the years, the Impulse is a labour of love.

How the Opera® Impulse System Benefits Patients

The Opera® Impulse is a dynamic replacement mattress system, combining both high performance static foam, and active alternating air cell technology for exceptional patient comfort and healing.

Alternating therapy can be quickly and easily applied by connecting the ultra-quiet pump, whilst still prevailing a peaceful sleeping environment.

Opera® Impulse Mattress

The Opera® Impulse mattress includes a high-performance foam layer featuring a zonal area design, which are channels for hose and cell connections to avoid pressure points on the surface, proving an effective redistribution of pressure on the sacrum, head, shoulder blades and heel areas and supports Patients up to 250kgs.

Opera® Impulse Power Unit

The Opera® Impulse power unit base Intelligent Pressure Sensing (IPS) Technology that responds to patient movements on the mattress by automatically adjusting internal mattress pressure. This allows the Impulse power unit to regulate the interface pressure between the patient and the mattress, continuously prevailing total envelopment.

Product Comparison: The Opera® Impulse vs A Standard Foam Mattress

Dynamic Mode

Testing Procedure

The procedure used to test the system is as follows:

1. A pressure mapping test mat is connected to a computer and laid on top of a standard foam mattress
2. The patient lies on the standard foam mattress and data is sent from the test mat and recorded by the computer
3. The test mat is moved onto the mattress under test and the patient lies on the test mat again
4. The correct mode and weight settings for the test are selected on the power unit
5. Once the system is operating normally, data is sent from the test mat and recorded by the computer

Interpreting Test Data

Method
The test data is interpreted by finding the maximum interface pressure between the patient and foam mattress and the maximum interface pressure between the patient and the **Impulse** mattress. **The results** are compared by calculating the percentage improvement that the **Impulse** mattress has over the foam mattress.

Test Results

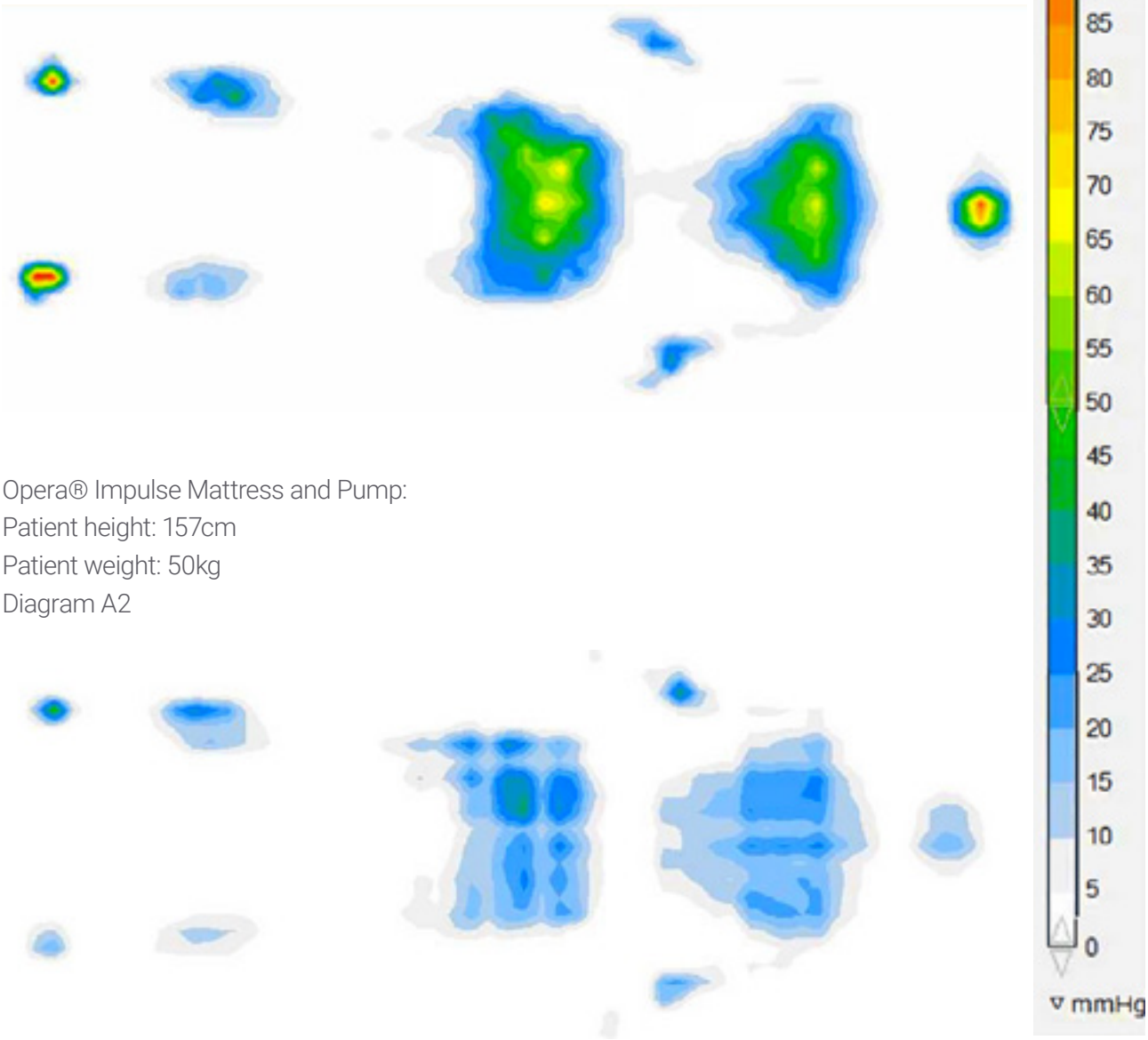
Regular® Hospital Foam Mattress	**Left mmHg**	**Right mmHg**	**Color Chart Ref.**
Head	100	100	A1
Shoulders	65	53	A1
Buttocks	71	65	A1

Opera® Impulse Hybrid Mattress	**Left mmHg**	**Right mmHg**	**Improvement on Standard Foam Mattress**		**Color Chart Ref.**
			Left	**Right**	
Head	16	16	84%	84%	A2
Shoulders	21	17.5	67.70%	67.0%	A2
Buttocks	20.5	24.5	71.10%	62.3%	A2

Summarized Test Result:

The interface pressure between the patient and the mattress has been shown to be improved when an Opera® Impulse system is chosen as a replacement for a standard foam mattress. The effect will be that the system will aid the prevention and cure of decubitus pressure ulcers.

Standard Foam Mattress:
Patient height: 157cm
Patient weight: 50kg
Diagram A1



Opera® Impulse Mattress and Pump:
Patient height: 157cm
Patient weight: 50kg
Diagram A2

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