

NEO-M DEVELOPMENT REPORT 2025

Bedsores Prevention Electric Mattress NEO-M



neorable

Index.

개발배경

C H A P T E R

I

Background
Introduction

제품설명

C H A P T E R

II

Product
Description

C H A P T E R I

Background Introduction

개발배경

1-1. Bedsore issues and management burden

The inescapable
severity and Barrier to management
“**Bedsore**”

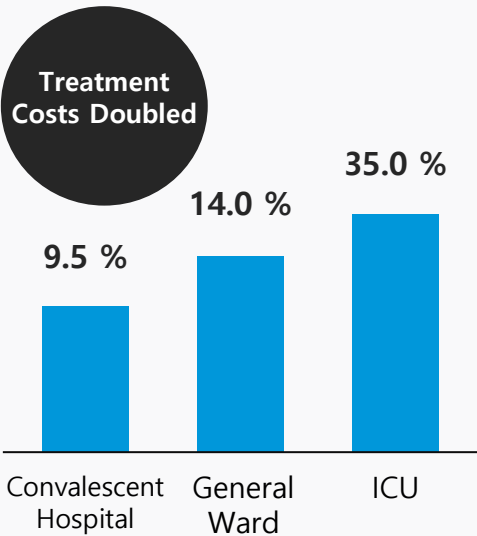
Current Status of
Bedsore in Hospitals



Medical staff perform
470,000 position changes
Across 68,116 beds annually

The number of
actions triggers
the claim

Hospital-acquired pressure
ulcer incidence rate



Current State of the Hospital Market

Change position at least every 2 Hours

Excessive nursing workload

Musculoskeletal injuries during position
changes for besore prevention



Excessive nursing workload,
Workplace accidents,
Deterioration of hospital quality
indicators,
Increased risk of medical lawsuits

1-2. Limitations of existing solutions

Neoable designed
“**Next-Generation bedsore prevention technology**”
Based on feedback from the field.



Limitations of existing mattress

- Repeated position changes
→ **Increased caregiver fatigue**
- Simple rotation method
→ **Inadequate pressure distribution**
- Inability to detect posture changes
→ **Incomplete management**



The Goal of the New Mattress

- Precise pressure control by body part
- 24-hour automated preventive care
- Real-time smart detection of patient status



NEO-M Smart Mattress

- Precise detection of bedsore risk
- Active control for root-cause prevention

C H A P T E R II

Product Description

제품 설명





평균 압력
(kPa)

1.6

상부 각도
(degree)

0°



압력분산모드



이송모드



CPR

전체 시간

00:00

남은 시간

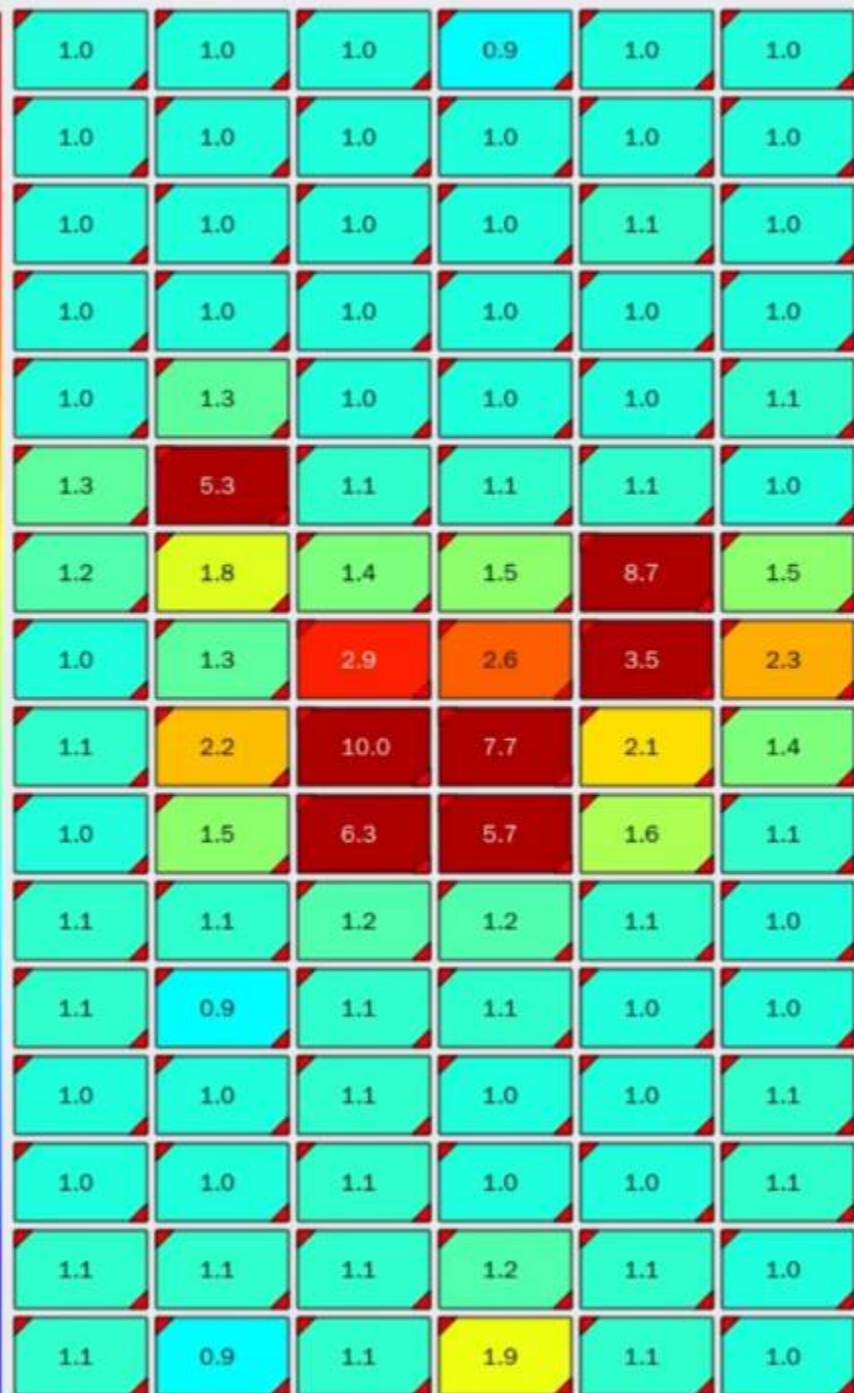
00:00



설정

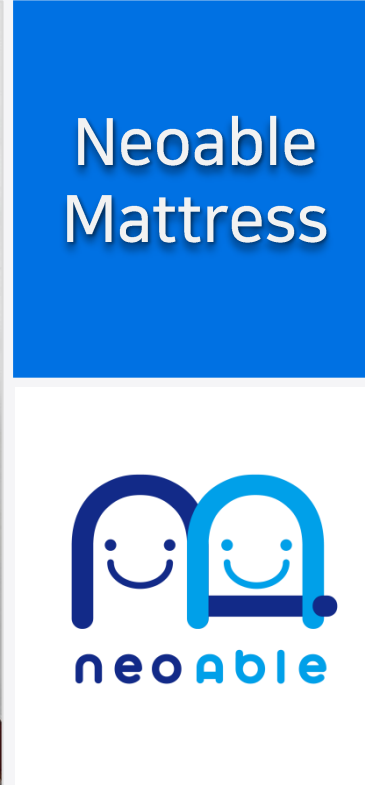
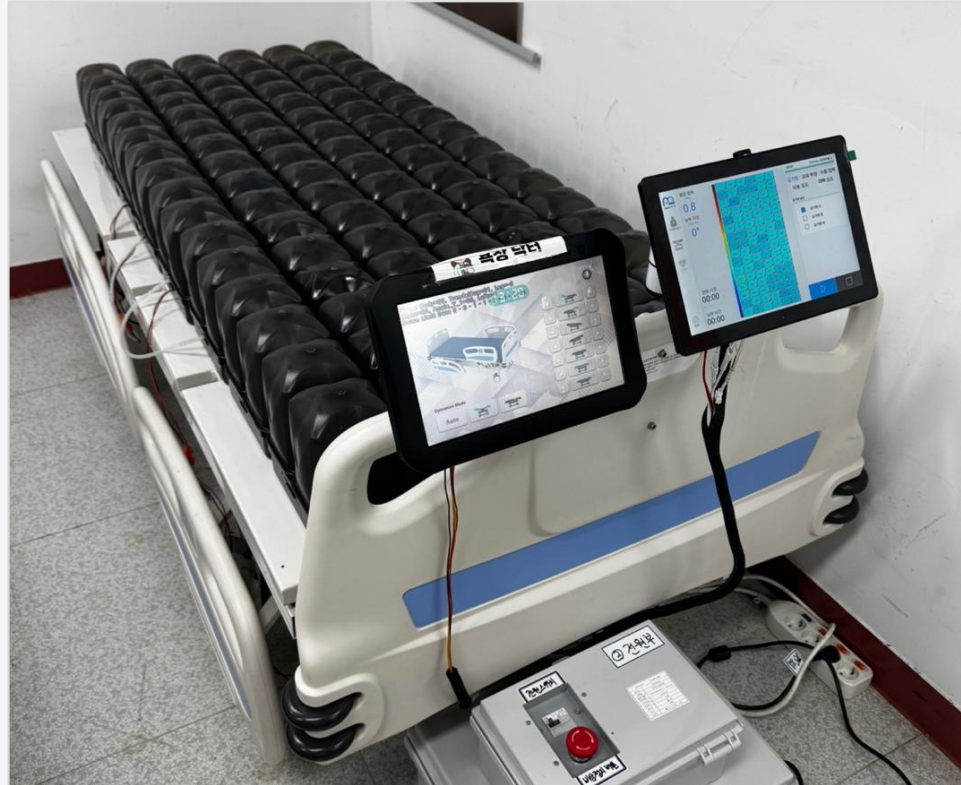
3.4

0.1



2-1. Overall

Bedsores Prevention Electric Mattress Introducing the “NEO M”



2-2. Product Differentiation

Compared to Existing Mattresses The Distinctiveness of the "Neoable Mattress"



Modularization of Air Cells

- 2X2 air cell module design
- Custom assembly for specific usage environments
- Standard assembly of 129 air cells
- Highly flexible mattress specifications

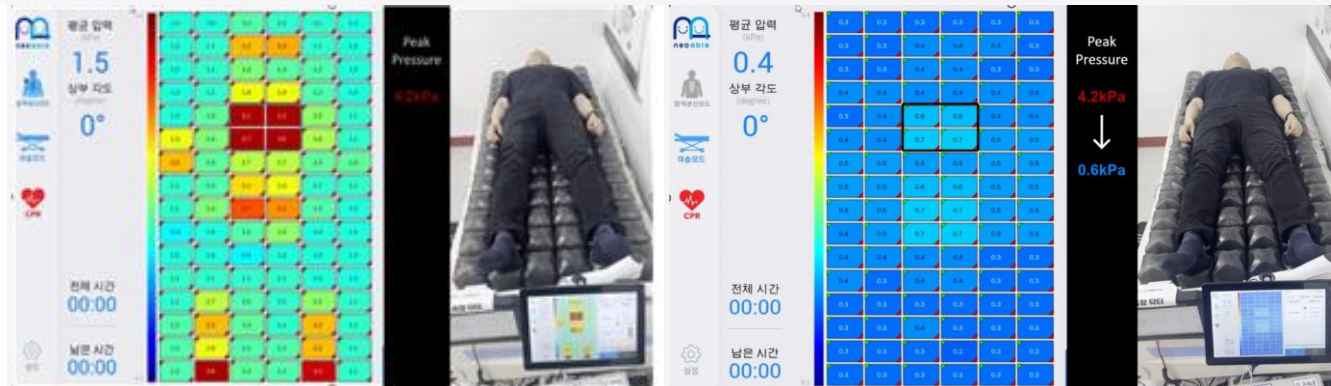


Body Pressure Measurement And Pneumatic Control

- Each air cell incorporates a pneumatic sensor and a pneumatic control valve for individual air cell control
- Pneumatic measurement and control with 0.1kPa accuracy
- Real-time monitoring of user body pressure

Built-in AI software

- AI Posture Analysis
- Pressure Point Analysis Algorithm
- User-Customized
- Bedsore Prevention AI Scenario
- Motion Control



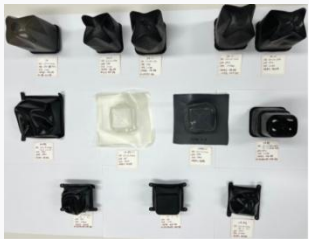
User Safety Management Solution

- Real-time monitoring and alerts for user bedsore risk/fall risk
- Multi-monitoring
- Safety management reports

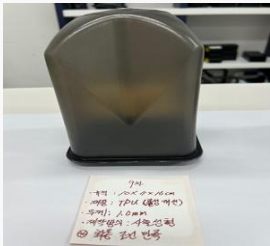
Neoable Mattress

H/W Development and Manufacturing

Development Of the Airbag over 9 phases

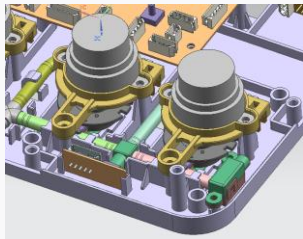


Size, material, thickness, height
Various attempts

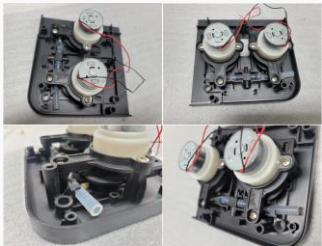


Development of TPU Material Air Bags

Air Volume Control Valve Development

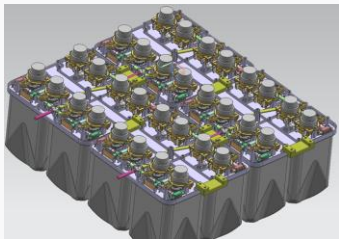


Inlet/Outlet Valve
Component Design



Inlet/Outlet Valve (Patent Pending)

Modular Mechanism Design



Module Connection Structure Design



2X2 Air-cushion Module
(Patent Pending)

NEO-M Production



Number of Air cells

96

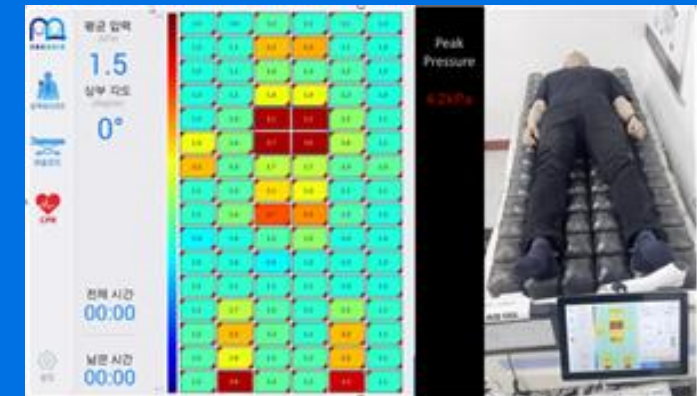
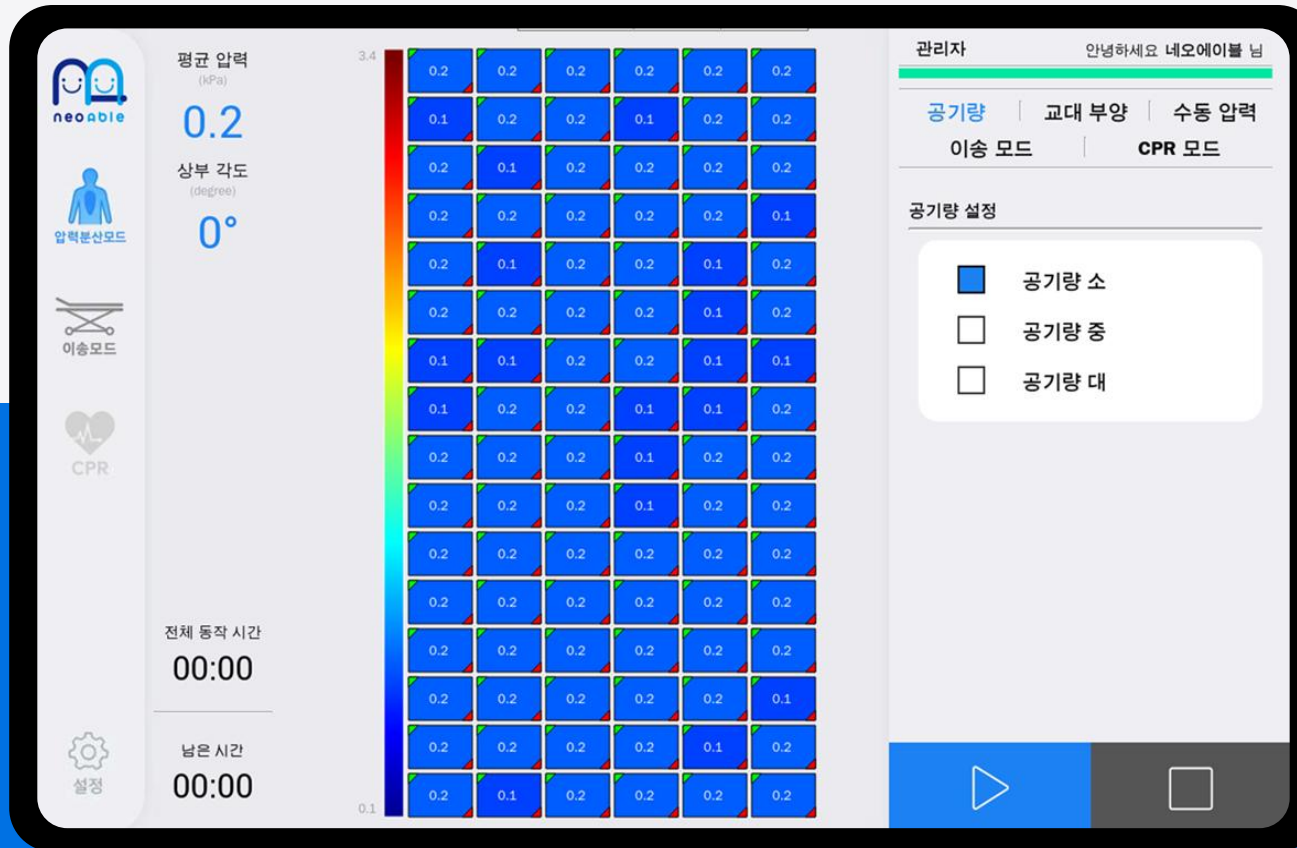
2-4. S/W Design

Overview

NEOABLE – NEO M

Bedsore Prevention Electric Mattress GUI,

This GUI focuses on concisely displaying the wide range of functions offered by this electric mattress.



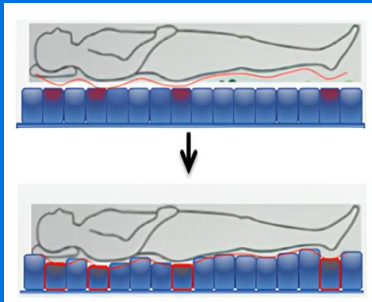
Design Concept

Reflecting the product's medical device characteristics and usability,
We employed a white tone with accent blue to convey a hygienic image and intuitive design.

Neoable Mattress

AI Air Pressure Control **Function Mode**

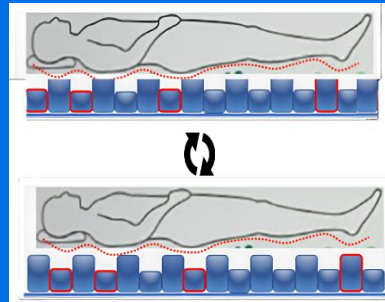
1



Pressure Distribution Mode

Along the curves of the human body
Function to distribute pressure in areas with high body pressure

2



Alternating Support Mode

The odd/even lines of the mattress air cells and specific zones alternately expand and contract.

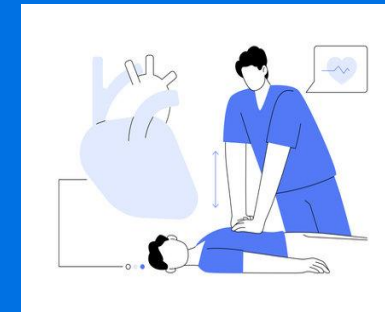
3



Transfer Mode

A function that fills the mattress surface with high pressure to level it out for patient transfer assistance to another bed.

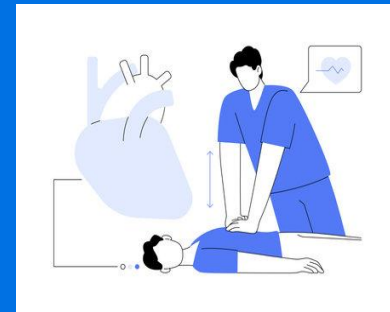
4



CPR Mode

A function that assists CPR by maintaining pressure to prevent the air cell from being compressed by body weight

5

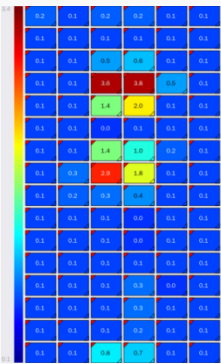


Alert/Report

Alarm for events such as position changes, patient disengagement, or device malfunctions.
Pressure changes, device status, Event occurrence report

Real-time pneumatic data analysis-based
Posture Analysis and Bedsore Prevention Scenario Solution

Overall Process Flowchart



① Pneumatic
Data Analysis

② Posture Analysis
/Bedsore Risk
Analysis

Trained posture analysis model:

Supine position

Bedsore high-risk areas:

Shoulder blades/Sacrum(buttocks)/Heels

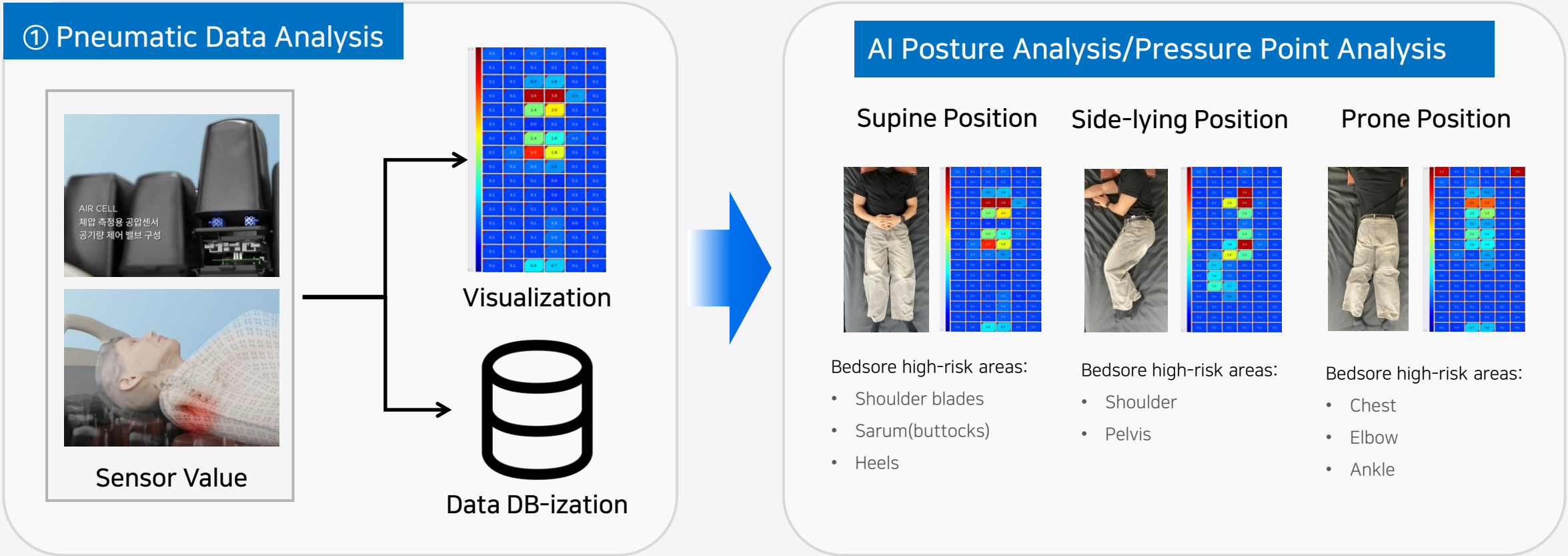
③AI Bedsore
Prevention
Scenario

④AI Scenario
Operation Control

Mattress Air Cell Operation Control
Customized to Body Shape
Pressure Distribution/Relief

Bedsore Prevention Scenario Solution

Analysis Phase Process



Bedsores Prevention Scenario Solution

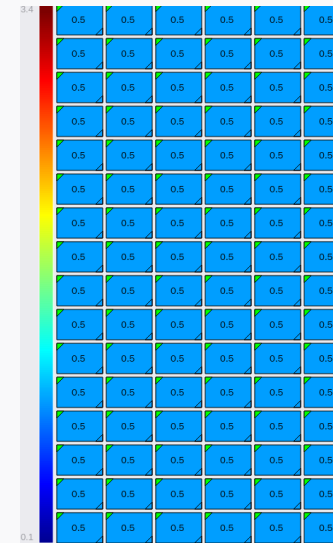
Prevention / Control Process

③ Bedsores Prevention Scenario



- ① Based on the patient's **position** and **bedsores risk level**, "Map areas requiring pressure relief and pressure redistributions"
- ① Generate an AI-based **bedsores prevention guide**

④ AI Scenario Operation Control



Valve operation control of the mapping air cell



Dangerous pressure dispersion
Dangerous pressure removal



Conversion to patient "Off-loading" state