Prevention Approach Comparison:

Recovery Assurance vs. Pressure Redistribution

Systematic reviews consistently conclude that no support surface class has demonstrated superiority in preventing pressure ulcers, and that prevention performance cannot be reliably inferred from interface pressure reduction alone (McInnes et al., Cochrane 2015; Shi et al., PLoS One 2018). The governing physiologic requirement is not pressure reduction but assurance of capillary reperfusion at high-risk anatomic sites — a condition met only by complete, scheduled, verifiable unloading. The comparison below evaluates two approaches against that requirement.

CRITERION	VISA CARE SYSTEM (SpanBar / VSM 5 Architecture)	REDISTRIBUTION-BASED HYBRID MATTRESS STANDARD
Complete unloading at skin interface	True contact break: support unit and per-unit cover retract together. Zero residual pressure at skin level. **DETERMINISTIC**	Continuous cover remains during cell deflation. Hammocking reintroduces load from adjacent supported regions. **STRUCTURAL LIMITATION**
System resolution vs. anatomic risk site	Per-module addressability commensurate with individual bony prominence scale (sacrum, trochanters, heels). **ANATOMICALLY SPECIFIC**	Air cell span and continuous cover reduce effective resolution to full-surface scale. Cannot independently target bony prominences. **INSUFFICIENT RESOLUTION**
Shear generation by mechanism	Vertical-only motion. No lateral displacement by design. Zero iatrogenic shear. **NO SHEAR**	Cyclic inflation/deflation generates continuous multidirectional deformation gradients in tissue already under ischemic load. **IATROGENIC SHEAR RISK**
Scheduled recovery events	Clinician-defined 2-6 min cycles via pendant. Fully autonomous. Independent of staffing availability. **AUTONOMOUS**	Passive redistribution only. No defined unloading schedule. Repositioning remains a separate, staff-dependent protocol. **PASSIVE ONLY**
Verifiability of recovery event	Mechanical contact break is observable and documentable. Cycle completion is auditable. **VERIFIABLE**	Interface pressure under continuous cover cannot confirm skin-level unloading. Redistribution is not a verifiable recovery event. **NOT VERIFIABLE**
Independence from caregiver execution	Recovery events produced by the system. No caregiver required at the moment of unloading. **STAFF-INDEPENDENT**	Surface reduces average exposure. Prevention of ischemic injury remains dependent on caregiver repositioning at correct intervals. **STAFF-DEPENDENT**

CRITERION	VISA CARE SYSTEM (SpanBar / VSM 5 Architecture)	REDISTRIBUTION-BASED HYBRID MATTRESS STANDARD
Sanitation architecture	3-tier quick-release: cover, foam, bar remove independently without tools. Waterproof elastic-bound per-unit covers. **SUPERIOR**	Zippered continuous cover. Washable to 80 degrees C. Adequate for standard protocol; no component-level independent access. **ADEQUATE**
Regulatory & clinical status	Pre-market. Provisional patent filed. Clinical validation in preparation. No cleared status at this time. **PRE-MARKET**	CE marked. MDR 2017/745 compliant. Established clinical evidence base and institutional purchasing pathways. **CLEARED & ESTABLISHED**
Platform flexibility	Same actuator assembly reconfigures for LTC, bariatric, pediatric, heel offloading, surgical, wheelchair via dimensional selection only. **UNIVERSAL PLATFORM**	Standard and extended size variants. Fixed mattress architecture. Single application category. **LIMITED VARIANTS**
	7 of 9 criteria: mechanistic advantage	**1 of 9 criteria: advantage (1 comparable)**

Green shading: mechanistic advantage on criterion. Red shading: limitation or disadvantage. Neutral shading: comparable or contextually dependent. The regulatory status row is intentionally included and accurately favors the cleared standard — VISA Care System clinical validation is in preparation.

The persistence of pressure ulcer incidence across settings using best-available cleared surfaces reflects a problem definition constrained by an insufficient surrogate endpoint. Interface pressure reduction is measurable. It is not validated as a reliable predictor of tissue outcome at depth. A system designed from the outset around the governing physiologic requirement — guaranteed, complete, scheduled tissue recovery — represents a fundamentally different class of intervention. Clinical validation designed around recovery-event endpoints, rather than pressure surrogates, is the appropriate next step. We welcome that conversation.