

AI-Assisted Protocol Comparison with the 2024 SOAP/ASRA Consensus on PDPH



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The Platform: C8 Health, an AI-enabled platform for clinical use.

Rationale

Institutional protocols often become misaligned with national guidelines as new evidence emerges.

Target Document

The 2024 SOAP/ASRA Consensus Report on PDPH.

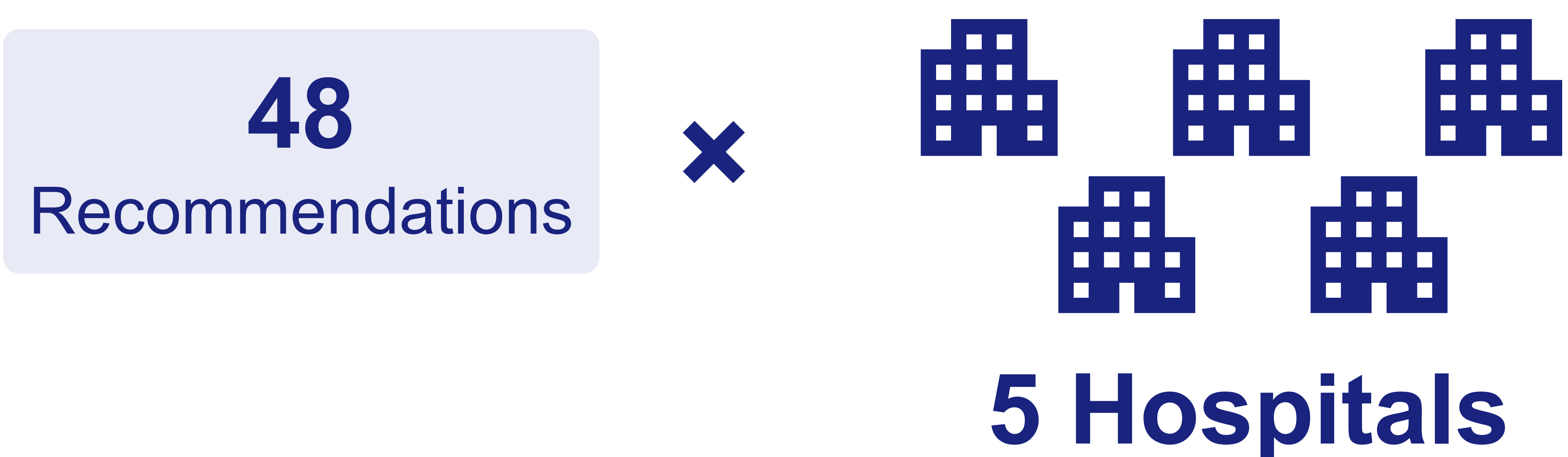
Hypothesis

AI tools can rapidly and precisely compare protocols and flag misalignment at scale.

Study Design & Methods



Study Sample & Scale



Resulting in 240 unique item-site pairs

Validation & Statistics

Gold Standard: Manual human adjudication (96 item-site pairs).

Analysis: Confusion-matrix against gold standart.

Chi-square vs. Grades of Evidence.

AI Pipeline: LLM Adjudication Steps

01
Extraction

02
Mapping

03
Comparison

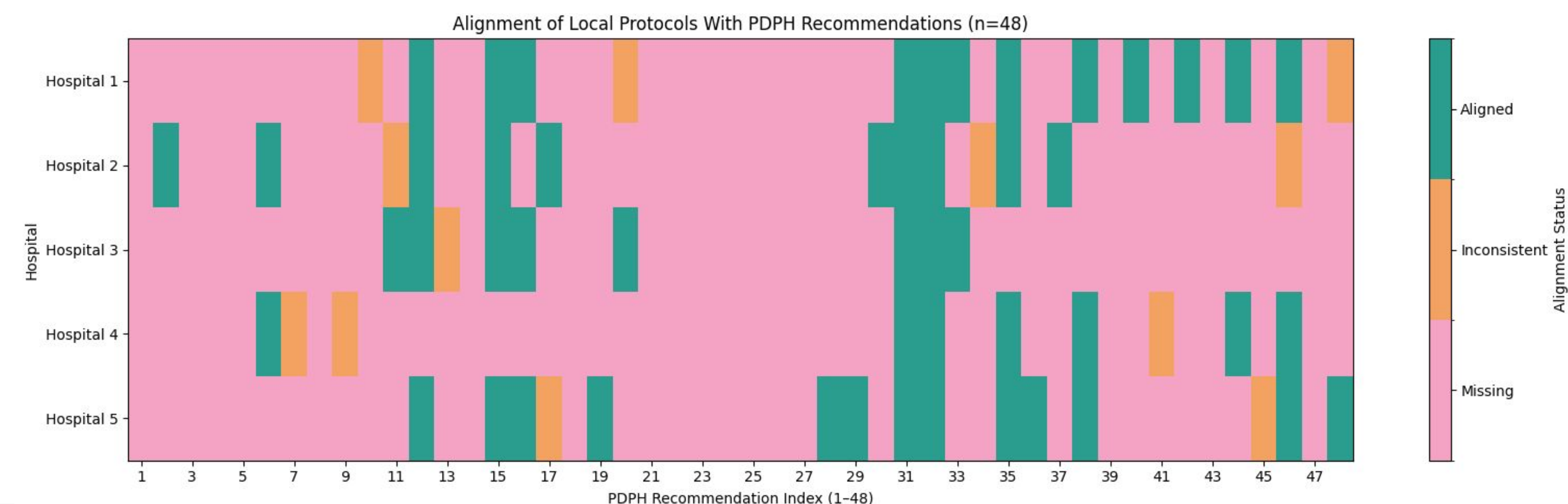
04
Validation

Methodology & Validation

Results: Institutional Alignment & AI Validation



Overall Alignment (240 Comparisons)



AI Performance vs. Anesthesiologists' Validation

96%
Accuracy

97%
Recall

97%
Precision

Systematic Findings & Clinical Trends

Highly Aligned Protocols:

- Hydration & Multimodal Analgesia
- EBP Sterility Standards
- Follow-up until resolution

Frequently Missing / Gaps:

- Specific procedural characteristics
- Avoidance of unsupported therapies
- PCP handoff documentation

Alignment Strongly Correlated with Levels of Evidence (p-value < 0.01)

Conclusion and Discussion

Feasibility & Accuracy

96% Accuracy: AI-assisted audits offer a scalable framework for continuously assessing institutional protocol against the latest guidelines.

Identifying Systemic Gaps

The model also highlights systematic omissions across multiple institutions, suggesting certain recommendations may not universally apply to anesthesia practice.

Practice Impact

Rapidly identifies gaps to facilitate timely institutional updates that can impact patient safety and quality of obstetric anesthesia care.