



The AI-Native Children's Hospital

How Generative AI and Spatial Computing Are Redefining
Pediatric Patient Experience, Clinical Training, and Post-Discharge Safety

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The Problem

Pediatric anxiety leads to high sedation rates and home care errors cause preventable readmissions



of pediatric MRI patients are under 5
and need sedation



experience adverse events from
sedation



of all patients face adverse events
post-discharge

The Clinical & Financial Impact

Each sedation event costs \$1,500–\$3,000 and consumes 2–4 hours of clinical resources. The FDA issued a 2019 warning about anesthetic effects on developing brains. Meanwhile, 30–79% of pediatric readmissions are considered preventable, driven by inadequate discharge education and medication errors. Current tools — pamphlets, videos, brief verbal instruction — were designed for a pre-AI era.

The Evolution of XR in Healthcare

From static experiences to AI-native intelligent environments

THEN

First-Generation XR

- Custom Unity/Unreal builds per module
- 8–12 weeks development, \$50K–\$150K each
- Static, scripted, non-adaptive experiences
- Same content for every patient regardless of age
- Single-device deployment (iPad or headset)
- No intelligence layer — passive consumption

NOW

AI-Native Architecture

- AI generates 3D worlds from text prompts in minutes
- Days to deploy, 10× cost reduction
- Adaptive AI mentors personalize every interaction
- Adjusts to child's age, language, and emotional state
- Multi-device: AR, VR, web, mobile, bedside screens
- Dual-AI: generative world + intelligent mentor

Five Solutions for the AI-Native Hospital

An interlocking ecosystem that transforms the complete patient journey

1

Sentient Worlds

AI-generated immersive environments with structured Mastery Loops

2

The Intelligent Mascot

Transform hospital mascots from static images to adaptive AI companions

3

Assist IQ — Post-Discharge Co-Pilot

AR-powered home care guidance that extends safety beyond hospital walls

4

Digital Twin Facility

AR wayfinding, procedure prep, and interactive education across the building

5

The Innovation Hub

No-code tools that turn clinical teams into creators and IP generators

The Caregiver Mastery Loop

Show Me

AI demonstrates the procedure with narrated guidance

Train

User practices with real-time hints and corrective feedback

Let Me Try

Independent simulation with cause-and-effect consequences

Evaluate Me

AI-powered competency assessment through observed actions

Representative Environments

- MRI preparation journey
- Heart surgery walkthrough
- Emergency dept orientation
- Chemotherapy education
- NICU parent preparation
- Tracheostomy home care
- Neurology procedure prep
- Diabetes self-management
- Asthma action plan
- Post-op ambulation game
- Facility wayfinding
- Anesthesia for kids

The Intelligent Mascot

Transform hospital mascots from static images to adaptive AI companions

Mascots Today

- Static images on walls and marketing
- Pre-scripted app interactions
- Same experience for every child
- Limited to one or two use cases
- No memory across visits

AI-Powered Mascot

- Conversational AI adapts to each child's age
- Deploys across every department and procedure
- Remembers the child, personalizes each visit
- AR, VR, mobile, web, and bedside screens
- Becomes the one consistent, friendly presence

Vision: The mascot greets at check-in, guides through procedures, celebrates recovery milestones, and checks in post-discharge — the universal digital companion.

Assist IQ — Post-Discharge Co-Pilot

Context-aware AR guidance that extends hospital-quality care into the home



Sterile Dressing Changes

AR overlay shows correct technique on the actual wound site with step-by-step verification



Tracheostomy Management

Real-time visual guidance for suctioning, trach tie changes, and emergency decannulation



Home Ventilator Setup

AI confirms each connection and explains alarms as parents set up portable ventilators



Medication Guidance

Dosage verification, timing reminders, and escalation alerts when the AI detects problems

Digital Twin Facility



AR Wayfinding

Mascot-guided navigation on patients' phones



Procedure Prep Rooms

Immersive experiences before imaging and specialist visits



Waiting Area Education

AI modules explain conditions using hospital protocols



Interactive Installations

Physical design elements trigger AR experiences

The Innovation Hub



No-Code Creation

Clinicians build their own XR modules without coding



IP Licensing

Hospitals license proprietary protocols through AI marketplace



Intern Programs

100 interns/year become trained content creators



Flywheel Effect

Each module created increases platform value for all

Strategic ROI for Health Systems

Four pillars of return that justify the investment



Efficiency

\$3M+

Annual savings from reduced sedation events. 225 fewer sedations/month = recaptured scanner capacity, anesthesiologist time, and nursing resources.



Safety

10–15%

Reduction in preventable readmissions through competency-verified post-discharge care. Each avoided readmission saves \$12K–\$18K.



Standardization

10×

Faster deployment across multi-hospital systems. Create once, adapt for every facility, language, and protocol automatically.



Revenue

New

Turn clinical IP into licensable assets. Hospitals that create modules can sell them to peer institutions through the digital marketplace.

Implementation Framework

A phased transformation that builds momentum through demonstrated results

Phase 1: Prove

Months 1–3



Deploy Sentient Worlds across 3–4 high-impact departments. Launch intelligent mascot. Measure sedation reduction and patient satisfaction.

Phase 2: Expand

Months 4–6



Extend to additional departments and campuses. Launch Assist IQ for high-risk discharges. Begin clinical training academy.

Phase 3: Scale

Months 7–12



Deploy system-wide. Publish outcomes data. Begin marketplace module licensing. Establish permanent innovation hub.

Phase 4: Lead

Year 2+



Become the published case study for AI in pediatric care. License proprietary protocols globally. Define the industry standard.

The shift from static AR to adaptive AI is not a cosmetic upgrade.

It is a safety and efficiency imperative
for the next generation of pediatric facilities.

*The only question is which health system
will be the first to define the new standard.*

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