

Simulating a Voice-Ready Pediatric Obesity Intake Workflow to Reduce Health Literacy Burden in Safety-Net Care

A Pre-deployment Testing Approach

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THE PROBLEM

In Central Brooklyn families often face language, literacy, transportation, and time barriers that make paper-based forms difficult to complete. When forms are rigid and reading-intensive, visits shift toward clarifying responses. This reduces time for counseling, shared decision-making, and care planning. This leads to a loss of treatment dose and a less effective intervention.

OUR APPROACH

We redesigned a paper-based pediatric intake into a voice-ready, plain language workflow to reduce literacy burden and improve structured data capture. For caregivers facing language, literacy, or time barriers, voice removes the need to read and allows them to respond naturally instead of decoding a form.

Working with Live Light Live Right clinic:

- Rewrote 19 intake questions in plain language (~6th grade)
- Converted paper forms into a digital, voice-ready workflow
- Used confirmation prompts to improve accuracy
- Translated responses into structured clinical data

QUESTIONS REDESIGNED
19
Plain-language intake

CDC CLEAR COMMUNICATION
94 / 100
High clarity score

DESIGN & METHODS

We used a four-step simulation cycle to test and refine a voice-ready intake workflow before real-world deployment.



METHODS SNAPSHOT

- Rule-based simulation (SUNY AI Platform)
- 31 caregiver scenarios reflecting real-world variability (language, literacy, response ambiguity)
- Metrics: completion, accuracy, clarification prompts

INTAKE WORKFLOW COMPARISON

	Traditional	Voice-Ready
Format	Paper-based form	Conversational digital intake
Language	≥8th grade reading level	~6th grade plain language
Response	Fixed, exact entries	Natural language responses
Clarification	Staff-dependent	Built-in prompts and confirmation
Testing	Post-deployment	Pre-deployment simulation

RESULTS

SIMULATION PERFORMANCE			
The workflow performed reliably across all simulated caregiver scenarios.			
31 / 31 Scenarios completed	0 Workflow failures	100% Completion rate	95% Decision accuracy

- Workflow maintained high completion and accuracy across varied caregiver scenarios.

WHAT WE OBSERVED

- Workflow handled all scenarios with real-world variability.
- Two responses required clarification due to out-of-range inputs.
- Some caregiver responses were ambiguous without follow-up prompts.

WHAT WE FIXED

- Added follow-up prompts to clarify unclear answers
- Added range checks for out-of-range inputs.
- Preserved plain language wording while improving logic and structure

CONCLUSION

Simulation identified and resolved intake risks before patient use, enabling a workflow that protects counseling time and strengthens implementation readiness. Pre-deployment testing is a critical governance step for patient-facing AI in safety-net settings serving multilingual, low literacy communities.

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WHAT THIS MEANS IN PRACTICE

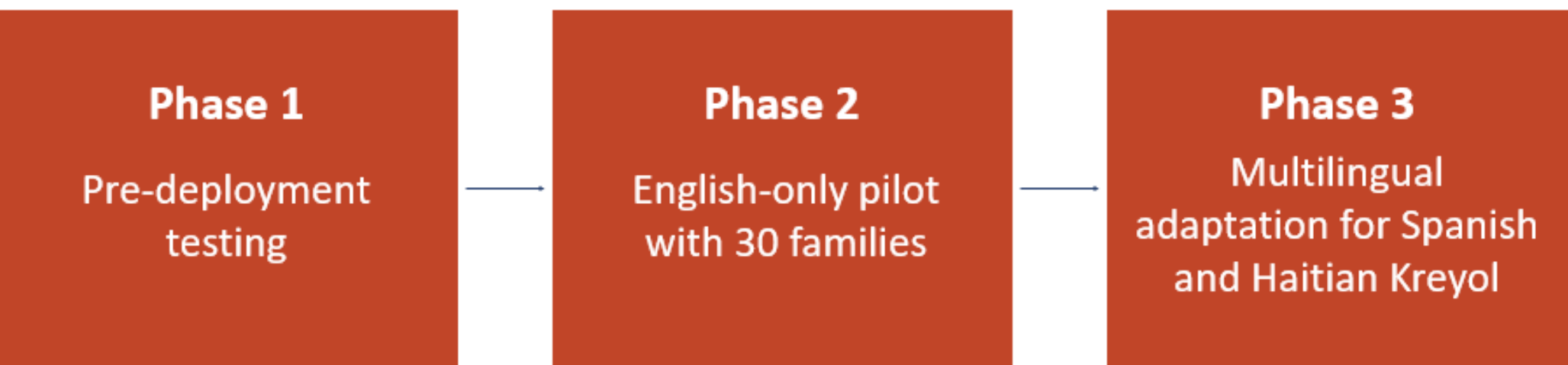
This project shows that small safety-net clinics can redesign intake workflows to be more literacy-friendly without major technology investments. Testing the workflow before launch helps identify and fix problems early. Allowing caregivers to respond in everyday language reduces burden while preserving useful clinical data. The same approach can be adapted for other settings, conditions, and patient populations.

REPLICATION TOOLKIT

- Intake redesign framework
- Scenario-based simulation testing guide
- Rule-based workflow logic mapped to structured clinical data outputs
- Document implementation barriers and requirements

NEXT STEPS

- Implement in a live clinical workflow.
- Measure caregiver completion, usability, and staff time.
- Evaluate impact on visit flow and engagement.
- Use results to guide replication and future multilingual adaptation.



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