Virtual Patient: Vaccine Hesitancy

An AI-Powered Simulator for Mastering Immunization Counseling

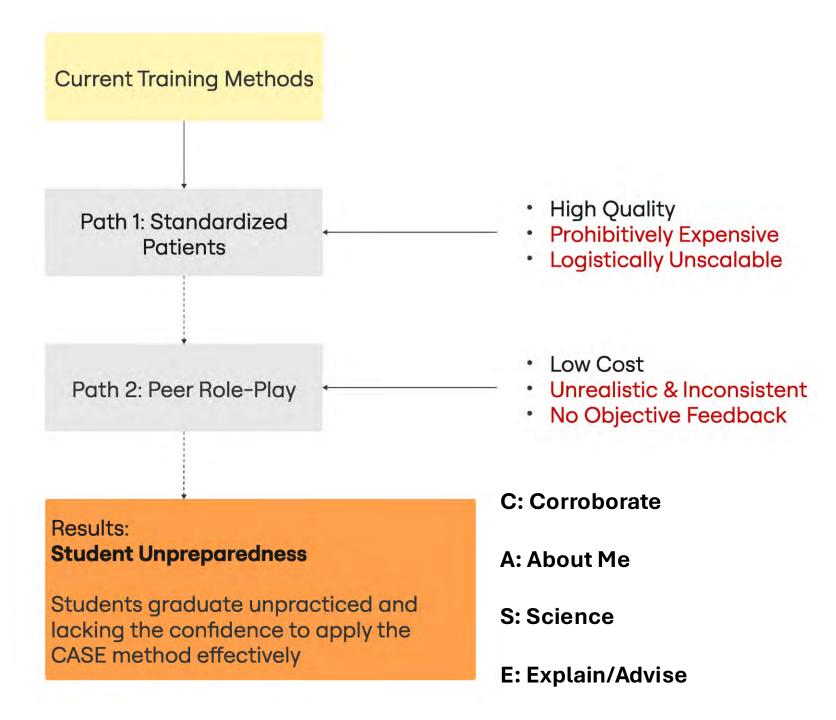
Andrew Tang, PharmD

Ascension Columbia St. Mary's Hospital | PGY-1 Resident

November 5, 2025

The Critical Training Gap

Pipeline Visual



Our Solution: A Hybrid Al Strategy

Phase 1: Development

Data Generation:

Use Claude's creativity to generate thousands of "Graded" CASE method conversations

Model Fine-Tuning:

Distill all above data into a small, fast, open-source model

Package for Offline Use:

"Patient" and "Grader" AI into a single, secure application

Phase 2: Testing & Deployment

Student Practice:

Students interact with the "Digital Patient" Al on their own device

Grading & Analysis:

Local "Grader AI" analyzes the chat log against the CASE method rubric

Instant Feedback: **Online**

Student to obtain their private report + option to **submit report** to faculty

How It Works: The Student Experience (Part 1)



John A. Doe - SIM PT DOB: 01/01/1960 CC: Annual Physical Exam

Time Remaining: 08:03

MONDAY - OCTOBER 13, 2025 ENCOUNTER: IMZ FOLLOW-UP

Message (Today) PM 12:21

Hello Mr. Doe, this is Andrew from Pharmacy. You're due for your yearly flu shot, when would be a good time to schedule this vaccine?

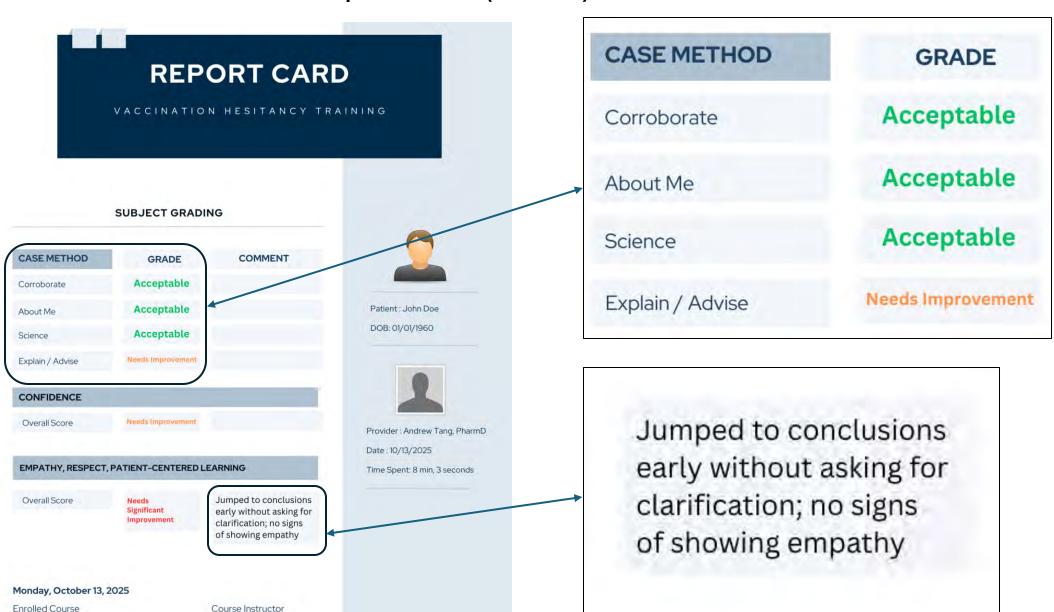
NO THANKS. Past few times I've gotten it, it actually gave me the flu. I was sick for a week last year right after I got it. I'm not doing that again.

That sounds miserable, and I'm sorry you went through that. It's completely understandable why would wouldn't want to get it again. It's also true that some people can feel run-down or achy for a day or two after.

How It Works: The Student Experience (Part 2)

Professor Jane Doe

PHAR 1234



Project Roadmap & Needs

Current Status

- Problem Validated
- ✓ Core Curriculum Secured
- CASE Method Rubric
- Architecture Defined

Next Steps

- Phase 1: Recruit Core Technical Team
- Phase 2: Develop Dataset (with Claude) & Fine-Tune Local Model
- * Phase 3: Build Prototype
 App & Educator Dashboard
- Phase 4: Pilot with 1st Student Cohort

Resources & Risks

Resources Needed:

- ML/Al Partner:
 - Experience with model finetuning & local deployment
- Back-End Partner:
 - Build secure API & educator dashboard
- \$\Pi\$ UX/UI Partner:
 - Assist in designing the student simulation interface

Risks: Hardware constraints;

A Privacy-First, Scalable Framework for Healthcare Education

Immediate Impact	Scalable Impact	
Concordia University - WI	Pharmacy Curriculum	Health Sciences Education
✓ Students can practice and master the CASE method	Project can be scaled as a tool for over 140 accredited colleges and schools of pharmacy in the US.	This Al Framework can be adapted for:
✓ Faculty get a scalable, objective assessment tool		Nursing StudentsMedical Students
✓PII* / FERPA* risk is addressed with a "privacy-by-design" hybrid model		 Any IPE-based* difficult conversations

^{*}PII - Personally Identifiable Information; FERPA - Family Educational Rights And Privacy Act; IPE - Interprofessional Education

Join Us!

HOW YOU CAN HELP:

STUDENTS:

- Are you interested in Al/Machine Learning, Back-End, or UX Design?
- Let's chat about a high-impact portfolio project

FACULTY & ADVISORS:

- Have you managed a similar tech project? I'm seeking a 30-minute advising session.
- Do you know a subject-matter expert or previous project manager that I should reach out to?

Help us turn hesitancy into confidence!

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- 4. Centers for Disease Control and Prevention. (2024). *Epidemiology and prevention of vaccine-preventable diseases*. U.S. Department of Health & Human Services. https://www.cdc.gov/pinkbook/hcp/table-of-contents/index.html
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Thank You!

Let's Connect

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