

DEMOCRATIZING GERIATRIC FOOT CARE VIA AI SCREENING AND 3D ORTHOTICS

The Problem: Mobility dictates the quality of life for the aging population. Yet, geriatric foot pathologies are often undiagnosed until they cause debilitating pain or falls.

The Gap: Traditional podiatric care is reactive and geographically constrained.

OBJECTIVES

To test the real-world viability of SoleFit—an AI-driven remote screening ecosystem—by assessing:

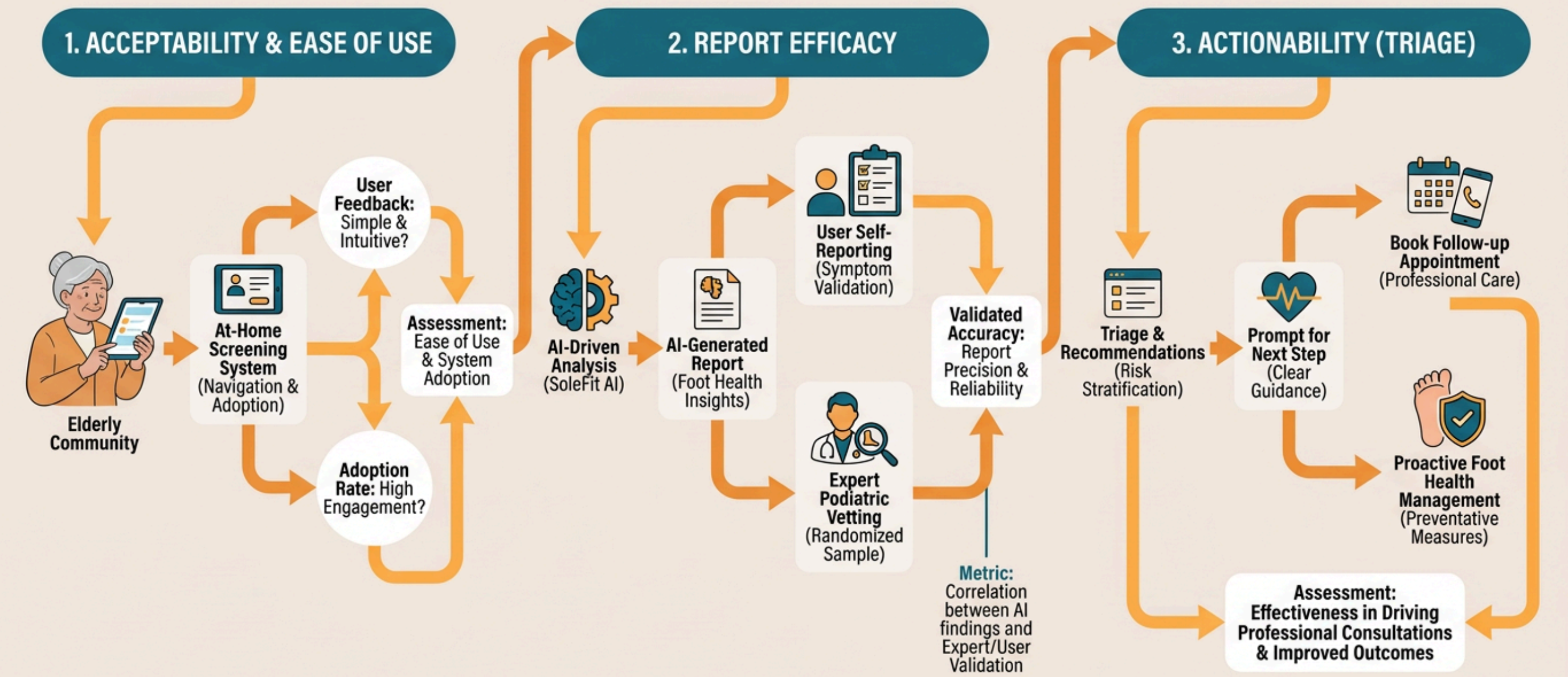
Acceptability & Ease of Use: How easily the elderly community can navigate and adopt the at-home screening system.

Report Efficacy: The accuracy of the AI-generated reports, validated through user self-reporting and expert podiatric vetting of a randomized sample.

Actionability (Triage): The system's effectiveness in prompting users to take the next step and book follow-up appointments with foot health professionals.

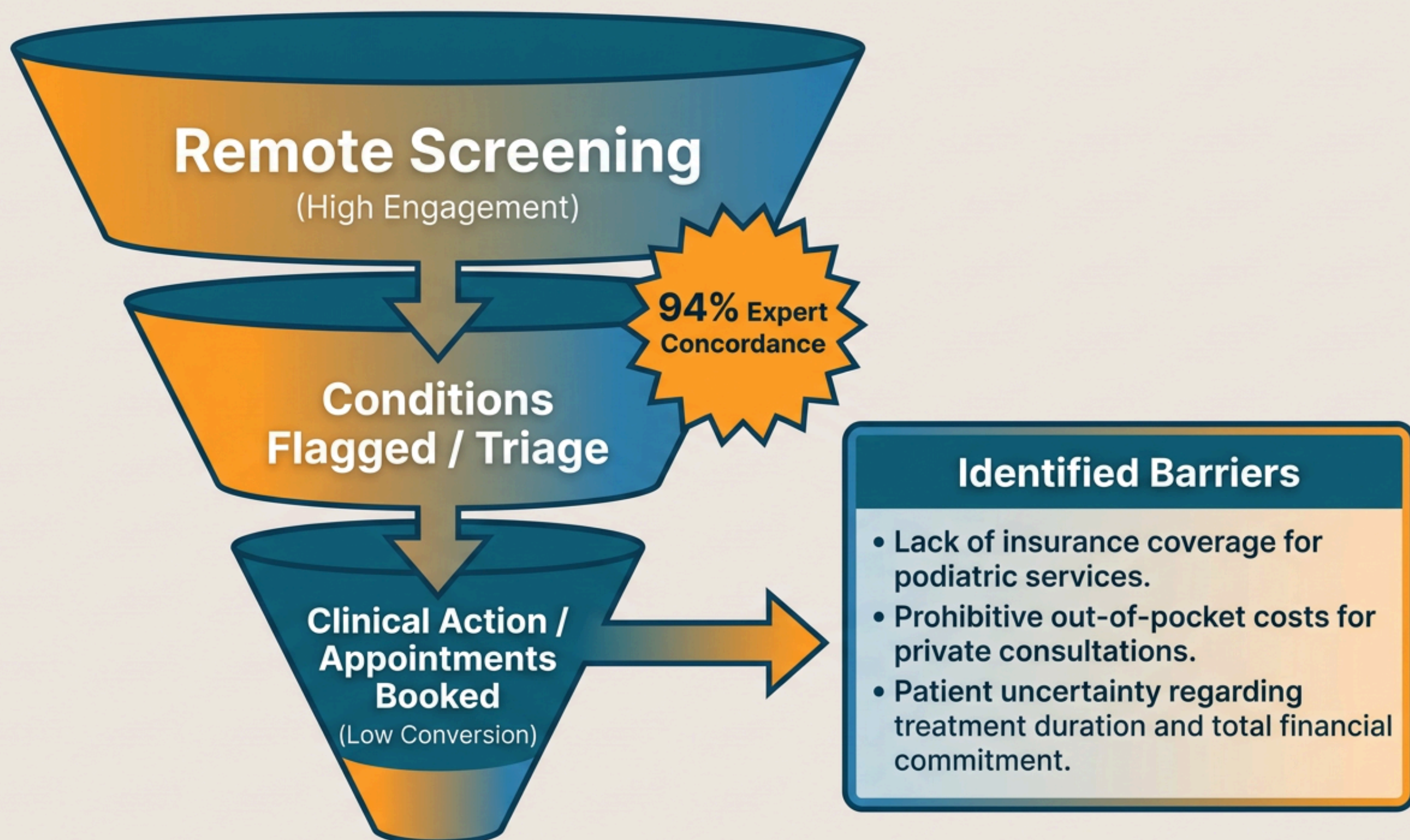
SOLEFIT: AI-DRIVEN REMOTE SCREENING ECOSYSTEM VIABILITY ASSESSMENT

Research Objective: Evaluate Real-World Viability by Assessing Acceptability, Efficacy, and Actionability



METHODOLOGY

- **AI Remote Capture:** A smartphone-based computer vision algorithm captures 2D morphological foot data.
- **Biomechanical Analysis:** The AI analyzes arch height, pronation/supination indices, and pressure distribution risks to generate an instant "Foot Health Report."
- **Dataset & Validation:** The dataset comprised 250 cases. Symptom matching was first validated through human review (users with known issues verifying their reports), then subjected to professional validation by a podiatric expert (using a randomized sample of 25 reports).
- **Actionability Tracking:** The study monitored user behavior post-screening to track how many subjects booked follow-up appointments with foot health professionals.



CONCLUSION

- **High Diagnostic Concordance:** The system proved highly accurate as a screening tool. Symptom matching was validated via user review, and subsequent professional podiatric validation of a randomized sample (n=25) achieved a 94% concordance rate.
- **Triage Efficacy vs. Clinical Action:** While the platform successfully democratized screening and effectively flagged severe biomechanical conditions, it exhibited limited success in inducing high-risk patients to seek professional clinical intervention.
- **Systemic Barriers to Care:** Qualitative user feedback identified three primary socioeconomic barriers preventing follow-up care:
 1. Lack of insurance coverage for podiatric services.
 2. Prohibitive out-of-pocket costs for private consultations.
 3. Patient uncertainty regarding treatment duration and total financial commitment.