Leveraging Agentic AI to Enable Distributed Care for Rural Health Transformation

Today's rural healthcare systems are facing a perfect storm - an aging population surge, escalating chronic disease rates, and persistent workforce shortages.

The CarePath solution from Akelex, HealthSaaS, and PocketRN can monitor thousands of patients simultaneously. Our Telehealth Triage Team utilizes AI Agents and Agentic Workflow to deliver precise escalation notifications to EMS, Community-Based Paramedicine, Urgent Care Clinics, or Follow-Up Services. This approach helps address workforce shortages, optimizes revenue cycle operations, and creates a sustainable value-based care infrastructure.

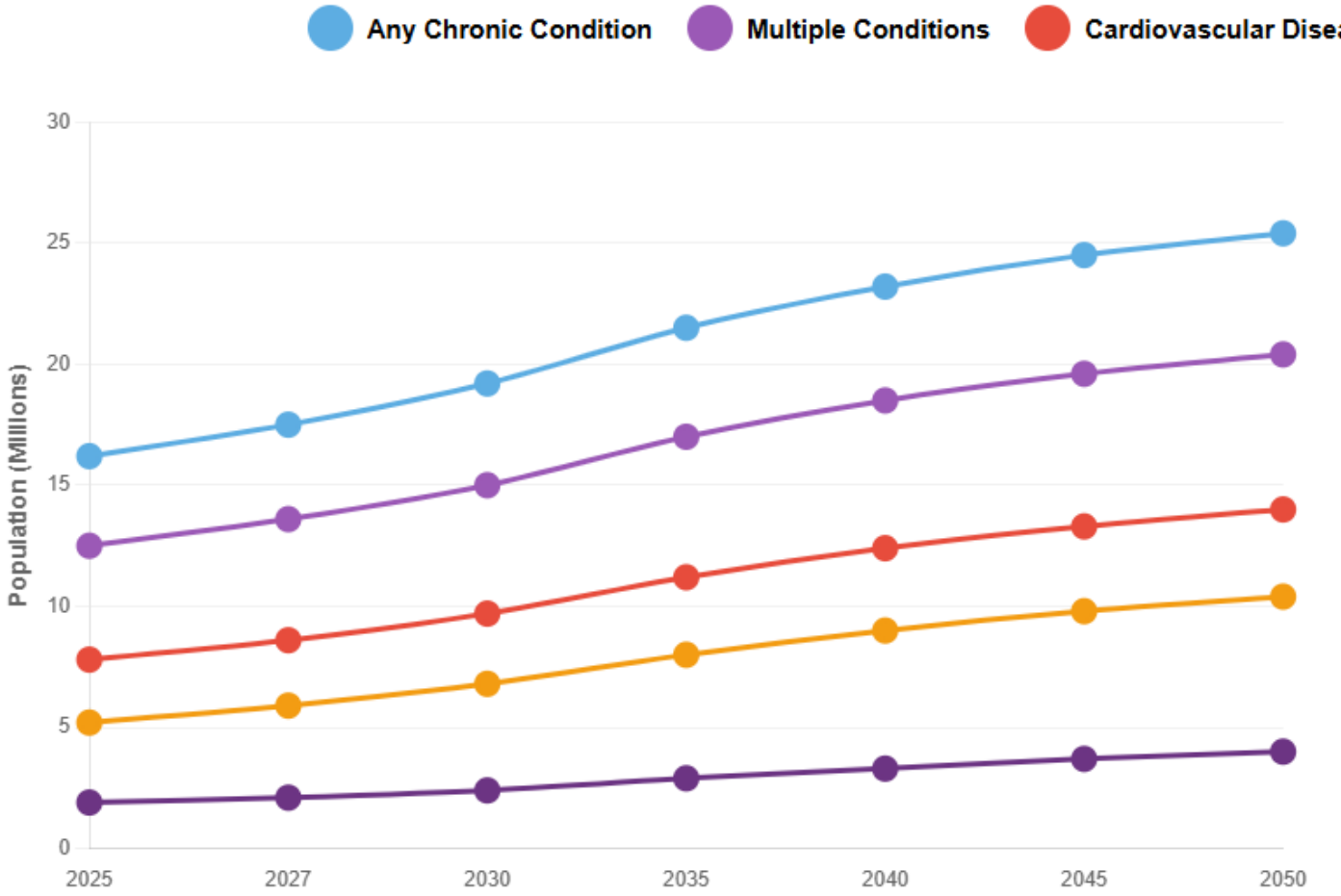
By automating engagement and delivering the **Right information** to the **Right person** at the **Right time**, our Agentic AI workflow extends rural patient care beyond the limitations of primary care and brick-and-mortar resources, bringing specialized expertise to underserved communities.

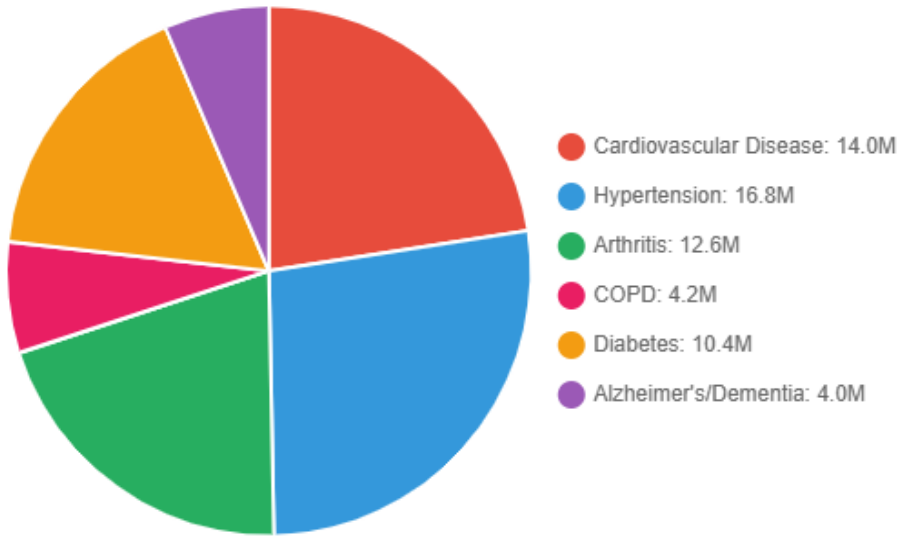
AkēLex Smart Healthcare.

HealthSaaS™

Pocket RN

Chronic Conditions: Rural US Adults Age 40+ (2025 – 2050)





Sources:

- *CDC National Center for Health Statistics. Trends in Death Rates in Urban and Rural Areas: United States, 1999-2019 (2021)*
- *CDC. Rural-Urban Disparities in State-Level Diabetes Prevalence Among US Adults, 2021. Prev Chronic Dis. 2025;22:E05*
- *CDC. Leading Causes of Death in Rural America (2024)*
- *Rural Health Information Hub. Chronic Disease in Rural America Overview (2024)*
- *Boersma P, et al. Prevalence of Multiple Chronic Conditions Among US Adults, 2018. Prev Chronic Dis. 2020;17:200130*

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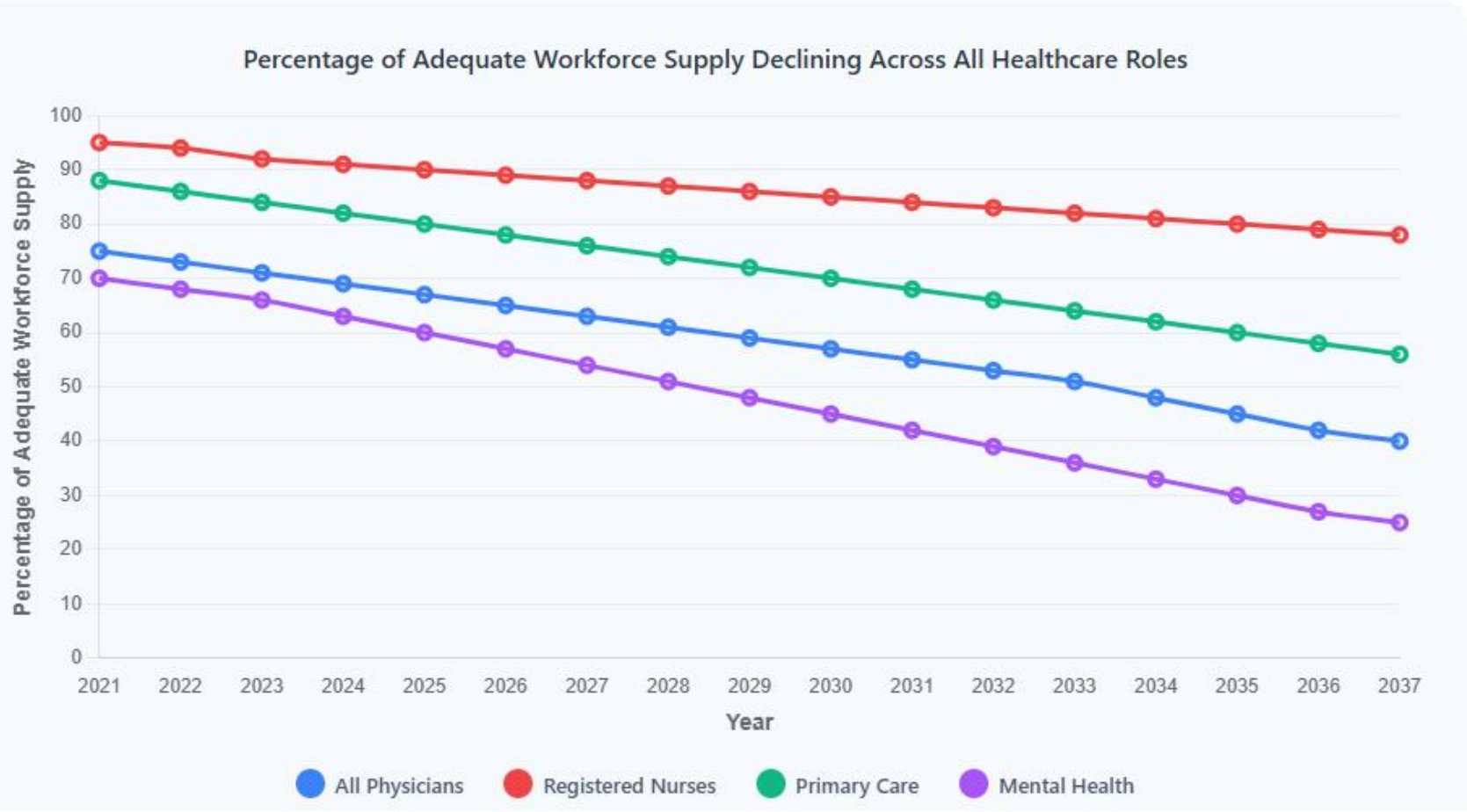
US Rural Health Workforce Shortage Projections Through 2037



60%
Rural Physician Shortage by 2037

87,150
Primary Care Physician Deficit (Rural Areas)

13%
Rural RN Shortage (vs 5% Urban)

91%
Rural Counties with Primary Care Shortages

Sources:
1. HRSA National Center for Health Workforce Analysis (NCHWA). "Physician Workforce: Projections, 2022-2037." U.S. Department of Health and Human Services, November 2024.
2. HRSA National Center for Health Workforce Analysis. "State of the Primary Care Workforce, 2024." U.S. Department of Health and Human Services, November 2024.
3. HRSA National Center for Health Workforce Analysis. "Nurse Workforce Projections, 2022-2037." U.S. Department of Health and Human Services, November 2024.
4. HRSA National Center for Health Workforce Analysis. "State of the Behavioral Health Workforce, 2024." U.S. Department of Health and Human Services, November 2024.
5. U.S. Senate Joint Economic Committee. "Addressing Rural Health Worker Shortages Will Improve Population Health and Create Job Opportunities." January 2024.

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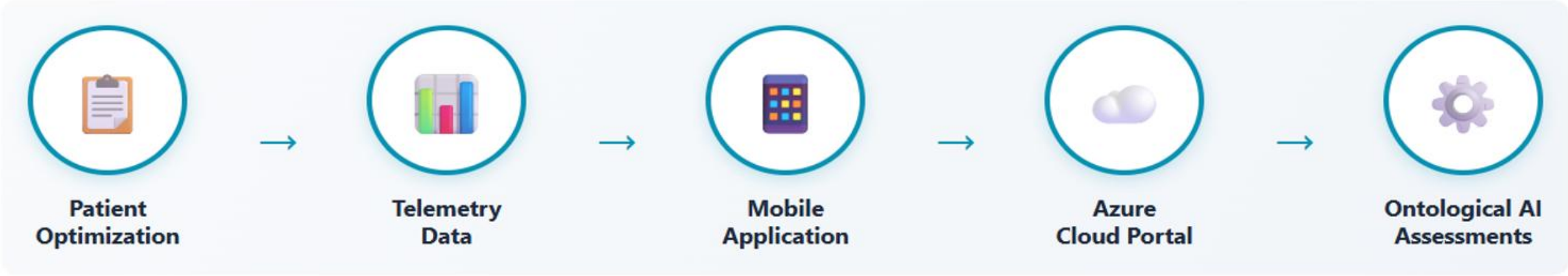
Our Distributed Care Solution



Agentic Workflow – Delivers the Right Information, to the Right Person, at the Right time

Telehealth Triage
Uses AI Agents for escalation routing

- **EMS** — Emergency Medical Services
- **Community Based Paramedicine** — Community health support
- **Urgent Care** — Non-emergency urgent care
- **Follow Up** — Scheduled follow-up care

Therapeutic Optimization with ORDS Methodology

Optimal: Care aligns perfectly with evidence-based best practices for the individual specific profile

Reasonable: Care follows acceptable clinical standards with minor opportunities for enhancement

Defensible: Care meets minimum standards but has identifiable gaps that must be addressed

Suboptimal: Care patterns indicate significant therapeutic optimization opportunities requiring intervention

Ontological AI Assessments & Telehealth Triage

Ontological AI synthesizes patient demographics, trending biosensor measurements, digital questionnaire responses, and medication adherence data to deliver evidence-based assessments supported by peer-reviewed medical literature.

Comprehensive AI analysis enables the Telehealth Triage Team to monitor thousands of patients simultaneously, with AI Agents and Agentic Workflow driving precise escalation and personalized interventions.

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A Force Multiplier for Rural Healthcare

Traditional Rural Health
Role Based Care Model

- Manual vital sign collection and monitoring
- Reactive crisis management approach
- Limited specialist access requiring patient travel
- Workforce shortage constraints
- Time-intensive documentation burden
- Facility-based care delivery
- Limited preventive care capacity

Technology Enhanced
Skills Based Model

- **1000s of patients monitored simultaneously**
- **Automated Data Collection**
  Bluetooth-enabled devices capture vital signs continuously
- **AI-Powered Intelligent Triage**
  ORDS methodology identifies patients needing intervention
- **Proactive Prevention**
  Evidence-based interventions before conditions deteriorate
- **Virtual Nursing Support**
  Remote nurses provide care coordination and patient education
- **Remote Specialist Oversight**
  Expert care delivered at home without patient travel

Real-time wellness data provides objective insights that support evidence-based care strategies, ensuring resources are allocated effectively and interventions are precisely timed.

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Distributed Care Triage Notifications

Intelligent assessments leverage ontological AI analysis of patient demographics, trending biosensor measurements, digital questionnaire responses, and medication adherence data to deliver precise, actionable insights for care teams across the Distributed Care Network.
These insights enable care providers to prioritize effectively and conduct more focused, personalized interactions with patients.

Emergent Notification

- Respond ASAP
- Critical vital sign or Journal entry
- First nurse available

CRITICAL

Urgent Notification

- Nurse visit within 72 hours
- Negative trend in data
- Missing data

URGENT

Routine

- Nurse follow up within five days
- Suboptimal trend
- Patient Questions or Concerns

ROUTINE

Informational

- Part of the monthly health review
- Disease Management
- Wellness Coaching

OPTIMIZATION

AI-Powered Distributed Care

AI Agents and Agentic Workflow offer a transformative solution by enabling distributed care models to extend limited clinical resources across vast rural geographies.

When intervention is needed, the Telehealth Triage Team leverages AI Agents to intelligently route notifications to EMS, Community-Based Paramedicine, Urgent Care, or Follow-Up Services. Patients receive the right level of care, from the right resource, at the right time, while optimizing resource allocation.

Telehealth Triage
Will use AI Agents for escalation routing

- **EMS** — Emergency Medical Services
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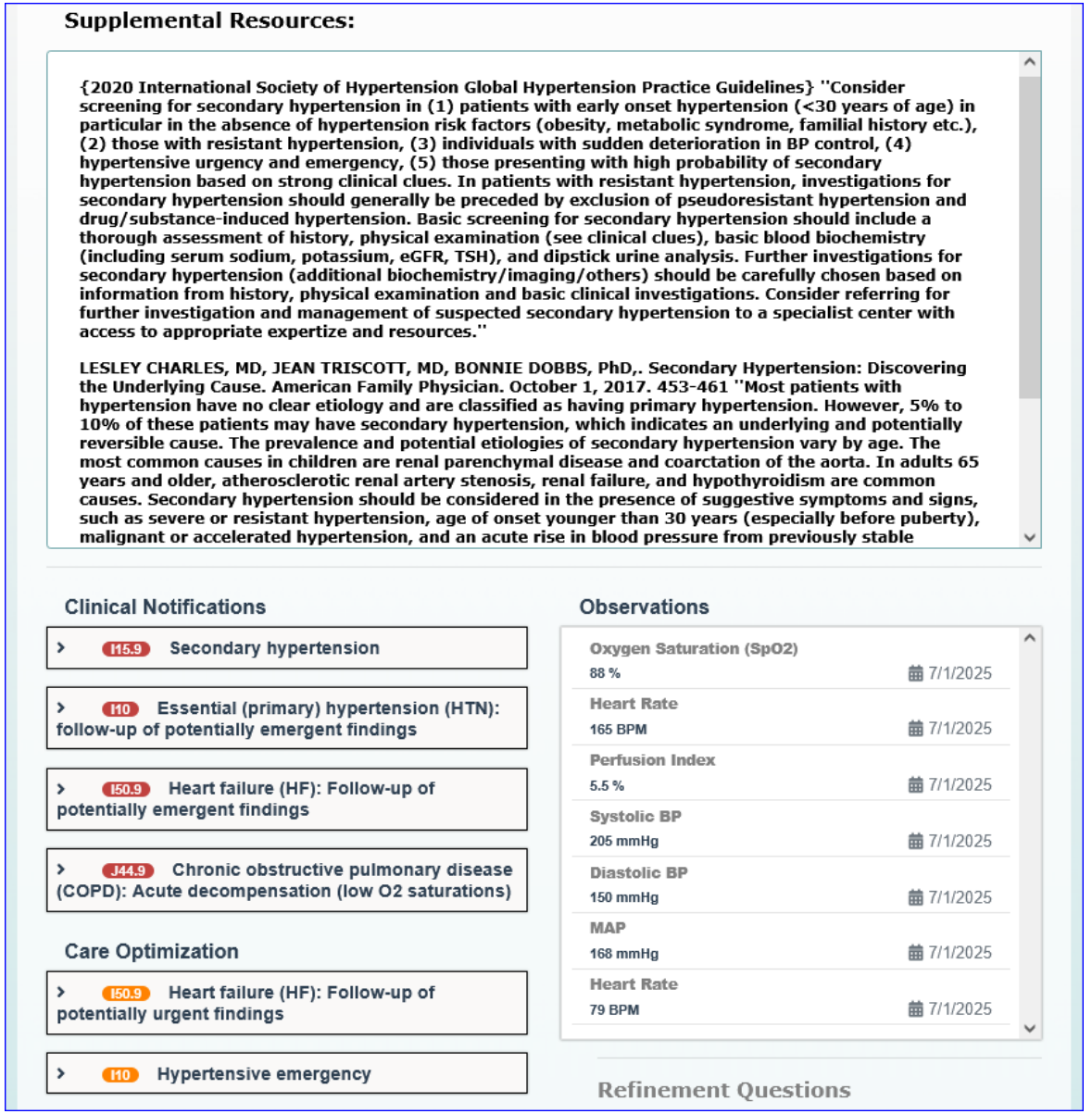
Device Data - Ontological AI Assessment



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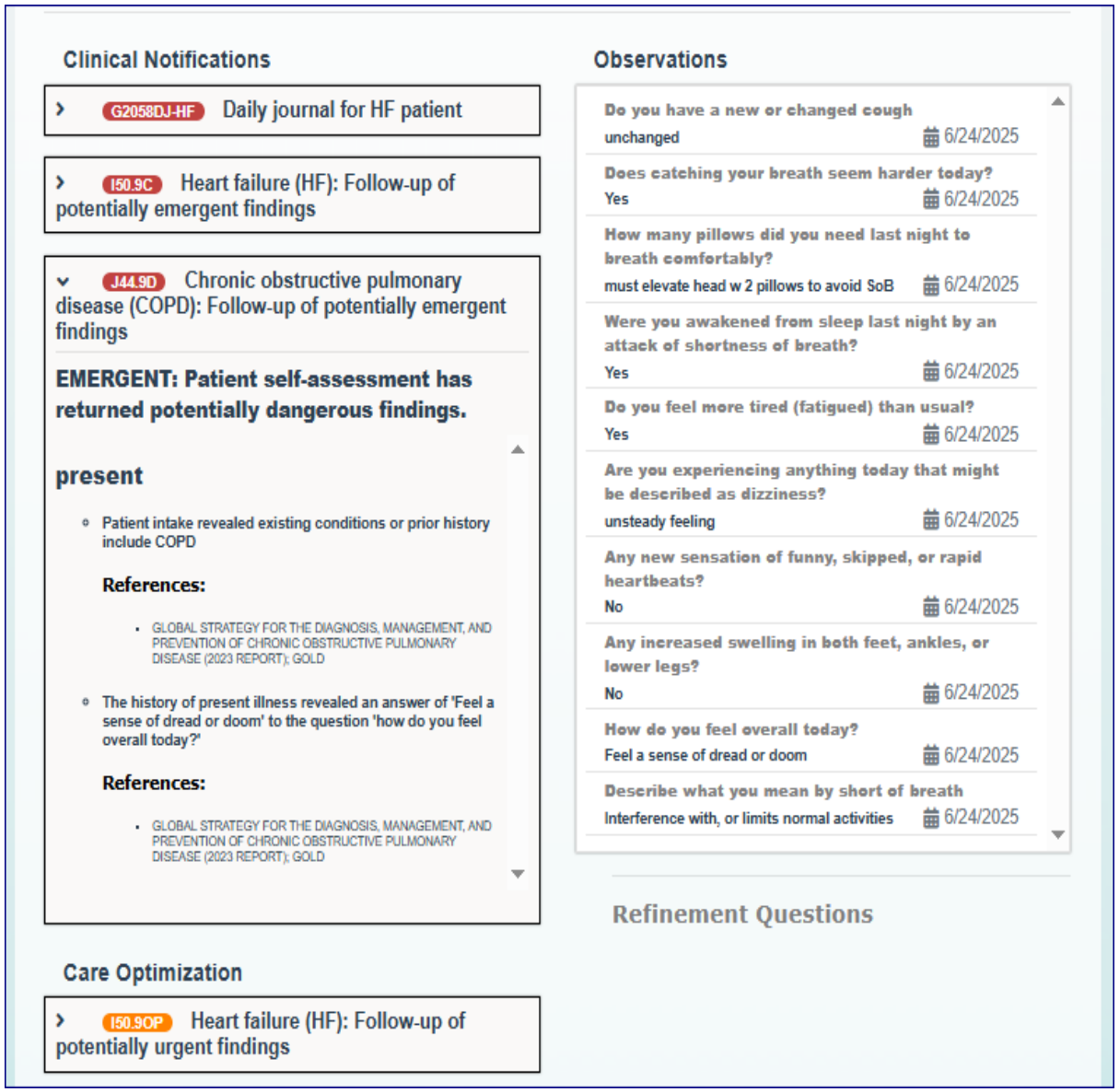
Digital Questionnaire - Ontological AI Assessment



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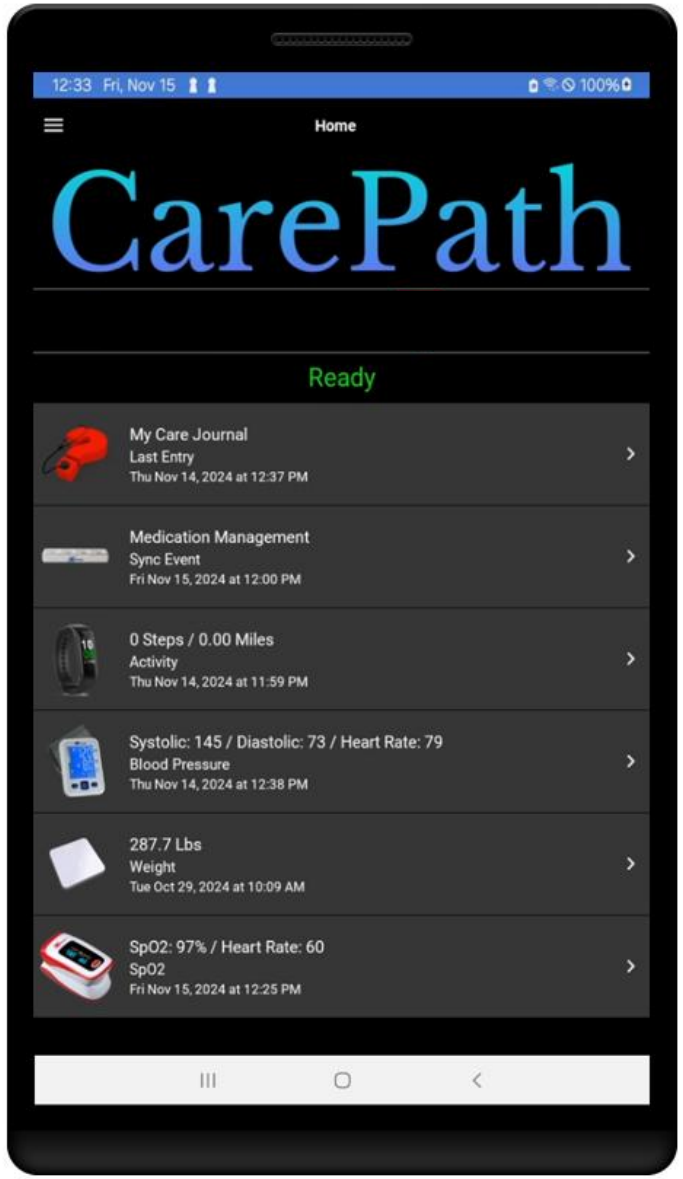
Connected Devices



Bluetooth® 5.0

BP Monitor

- Two User capabilities
- AC Adapter Option
- Includes Cuff & Storage Bag

Pulse Oximeter

- Easy to read LED Display
- Slip resistant padding
- SpO2 and heart rate

Glucometer

- Five second test time
- 1,000 test memory
- Lancing device & Ten Strips

Weight Scale

- Large, easy to read digital display
- Safe, Low-Profile Design (3/4")
- Measures up to 397 pounds

Smart Pillbox

- Four Daily Compartments with Audible Alarms
- LED Indicator for each compartment
- Industry standard blister packs are sorted by caregiver or Pharmacy Partner

Thermometer

- Ear or Forehead Measurement
- Fever Warning
- Stores Twenty Readings

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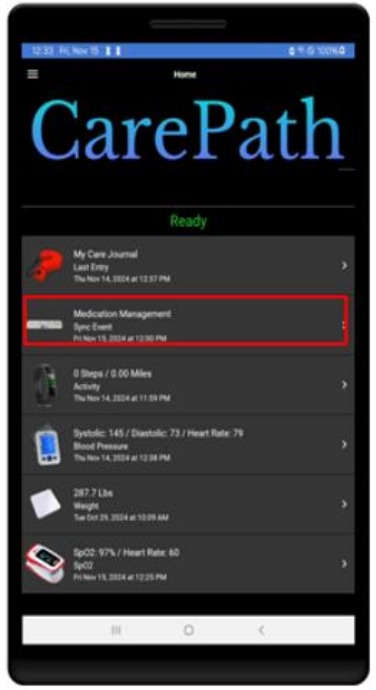
Medication Adherence

Navigating medication schedules poses a considerable challenge for rural patients who are who striving to maintain their independence. Even with assistance from caregivers and family, many find it hard to consistently follow their medication regimens.



Program up to 4 compartments per day

LED's and an audible alarm indicate which compartment is next

Audible alarm and LED's continue until a compartment is opened (up to 90 min)

MedWell works with pre-filled Blister Packs or it can be self-sorted and filled

The right medication at the right time shouldn't be left to chance - it should be driven by intelligent technology and expert care.

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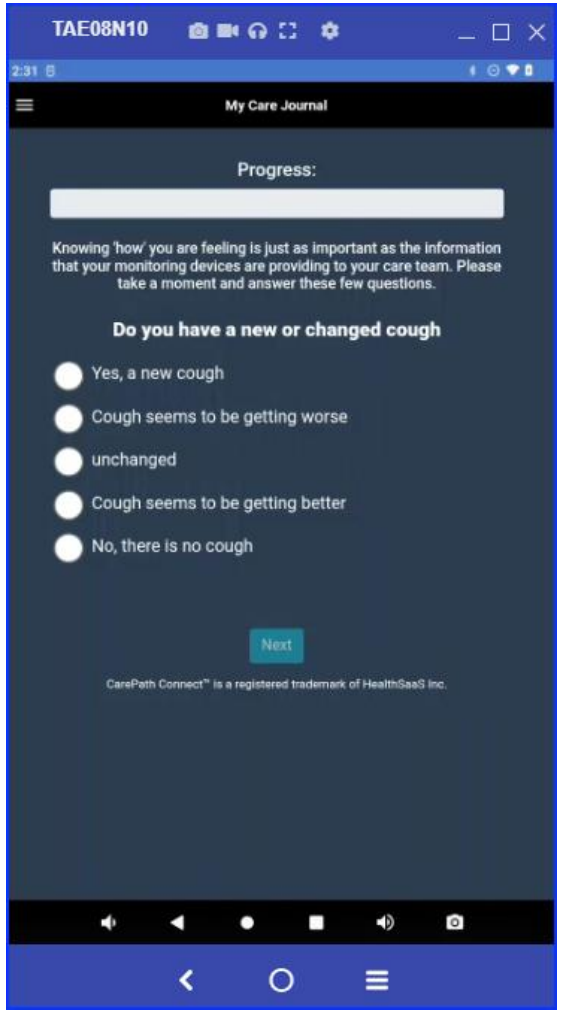
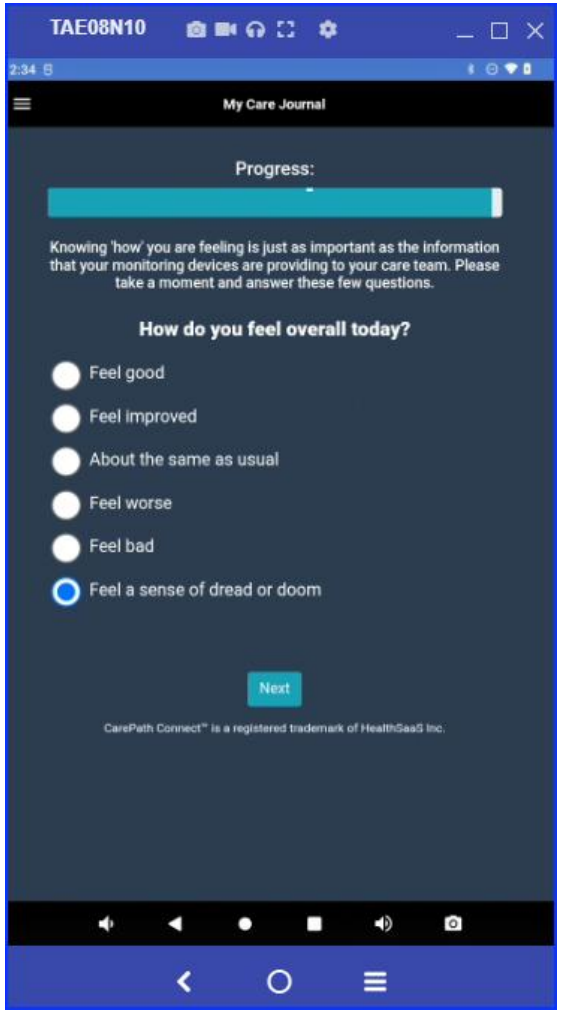
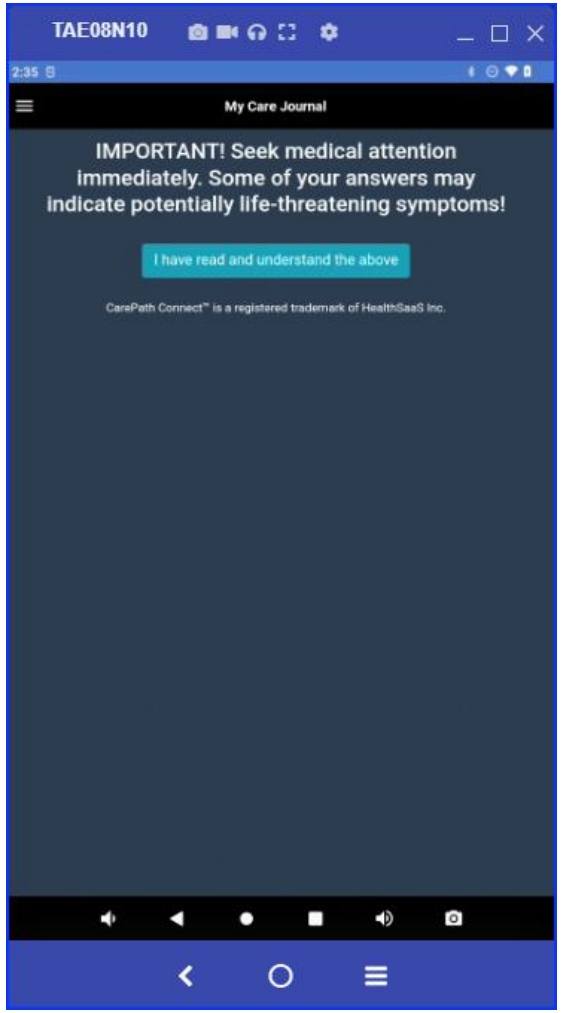
Care Journals

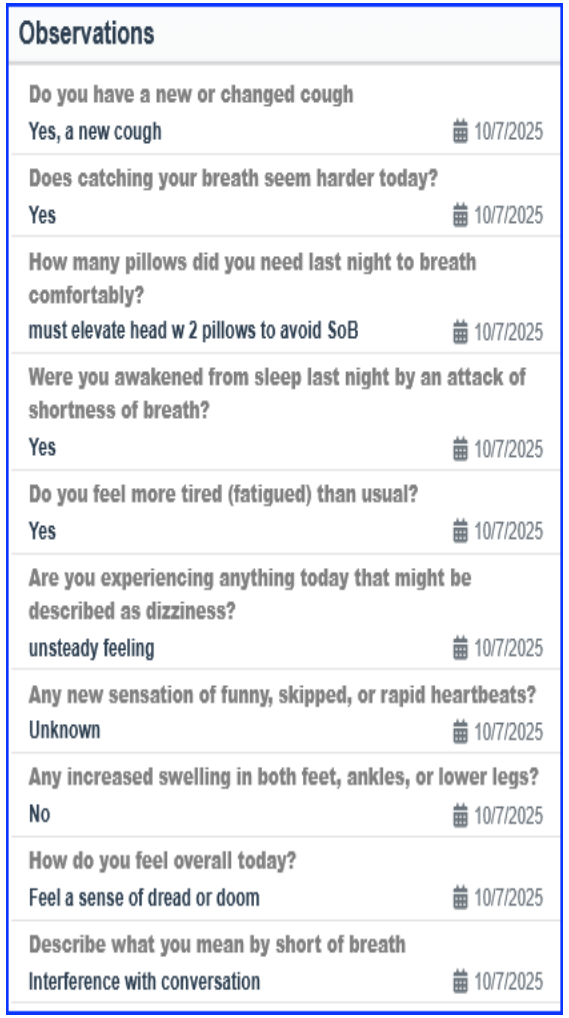
Enhanced Clinical Decision-Making

When objective data and subjective feedback are combined for Ontological AI review,
it yields more accurate, comprehensive, and personalized evaluations, ultimately improving care decisions.









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Our Ontological-Agentic AI approach doesn't just alert; it actively learns, predicts, and helps patients thrive in place.

Our Agentic AI Advantage – Right Information, Right Time, Right Person

Intelligent routing delivers critical information directly to the appropriate care team, closing communication gaps and accelerating response times.

Let's start the conversation

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Supplemental Slide

Collaboration With the American Heart Association

Therapeutic Optimization and Continuous Quality Improvement CQI Collaboration

AkēLex

High Authority Content

AHA population-based guidelines

Outcome validation, Continuous Quality Improvement (CQI) of source content

Value-based outcomes assessment

Actions

CQI ORDS assessment of AkeLex knowledge engine performance
Client performance reporting
Identification of potential service enhancements

Demonstrated fidelity of transformation to digital platform
AHA ⟷ AkeLex

KRB

Knowledge Repository Builder

AKE

Adaptive Knowledge Engine

AkēLex Smart Healthcare. HealthSaaS™

Agentic Workflow for Value Based Care Patient Engagement Platform

Interactive AI platform applies resulting knowledge to track **O-R-D-S scoring*** of Health, Wellness, Prevention, Engagement, Therapeutic Optimization and Quality of Life metrics. Agentic routing to appropriate human resources for resolution.

Microsoft .NET · Azure · Microsoft Fabric

Structured assessment data stored in AkeLex case server (AI-based resident record)

De-identified outcomes data sets power value-based outcome assessment and CQI

Artificial General Intelligence (AGI) project with goal of automated knowledge acquisition

AkēLex TRINITY AGI

*** O-R-D-S scoring: *O*ptimal, *R*easonable, *D*efensible, *S*uboptimal**

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