

# 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.

Our solution enables clinical teams to monitor thousands of patients simultaneously through intelligent automation that improves access, addresses workforce shortages, optimizes revenue cycle operations, and creates sustainable value-based care infrastructure.

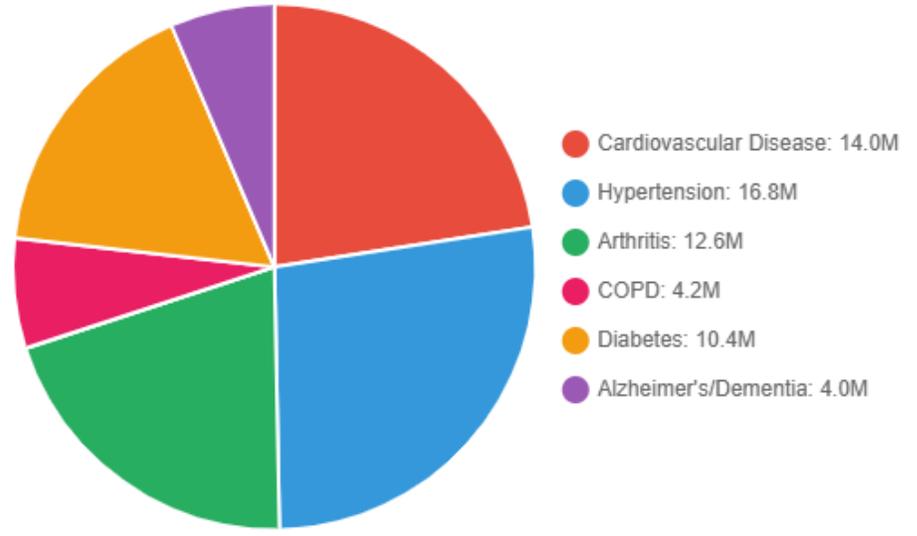
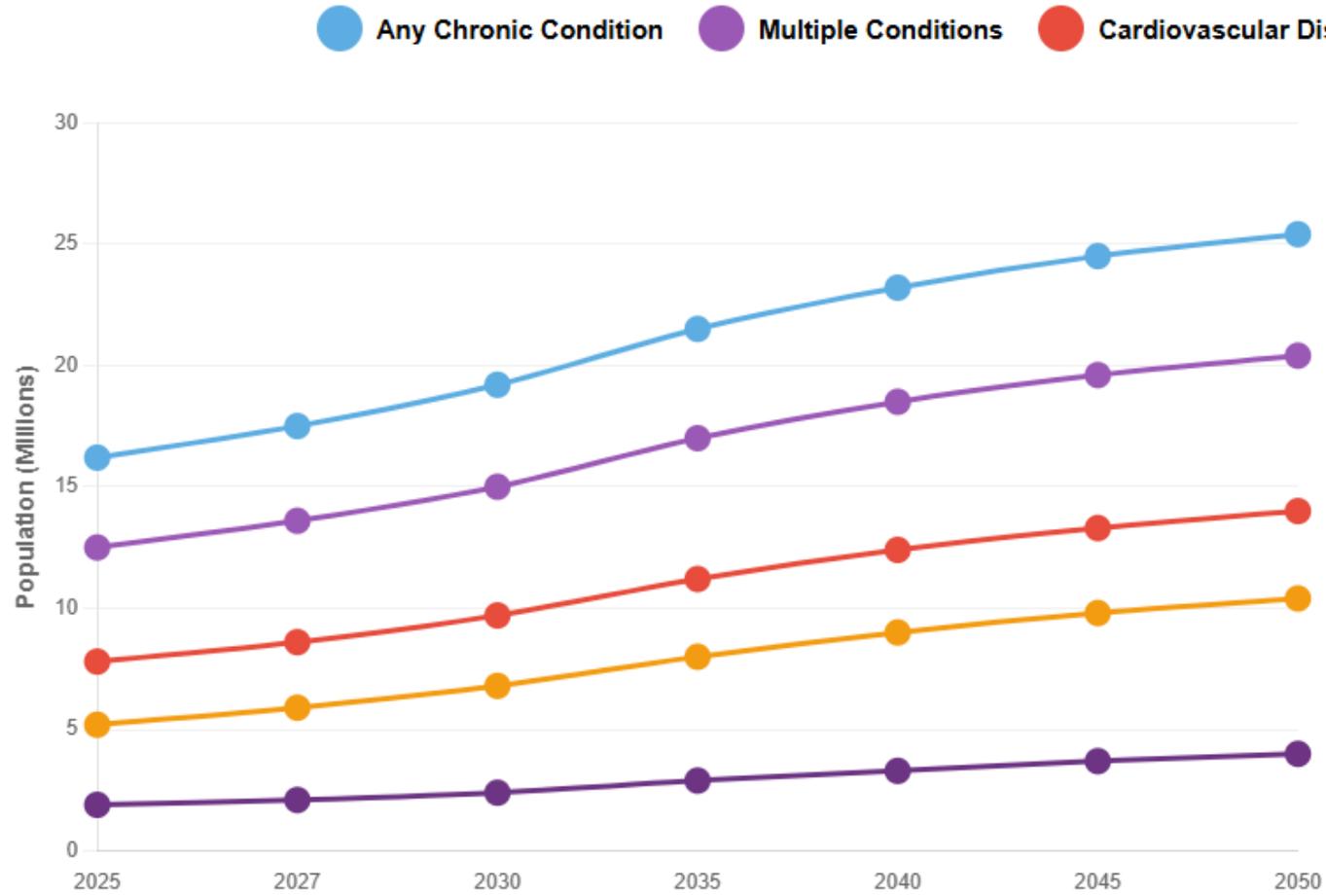
By automating engagement and delivering the **Right information** to the **Right person** at the **Right time**, our Agentic AI workflow extends rural patient care beyond limited primary care and brick-and-mortar resources, bringing specialized expertise to underserved communities.

**AkeLex**  
Smart Healthcare.

**H<sup>s</sup>HealthSaaS™**

**Pocket RN**

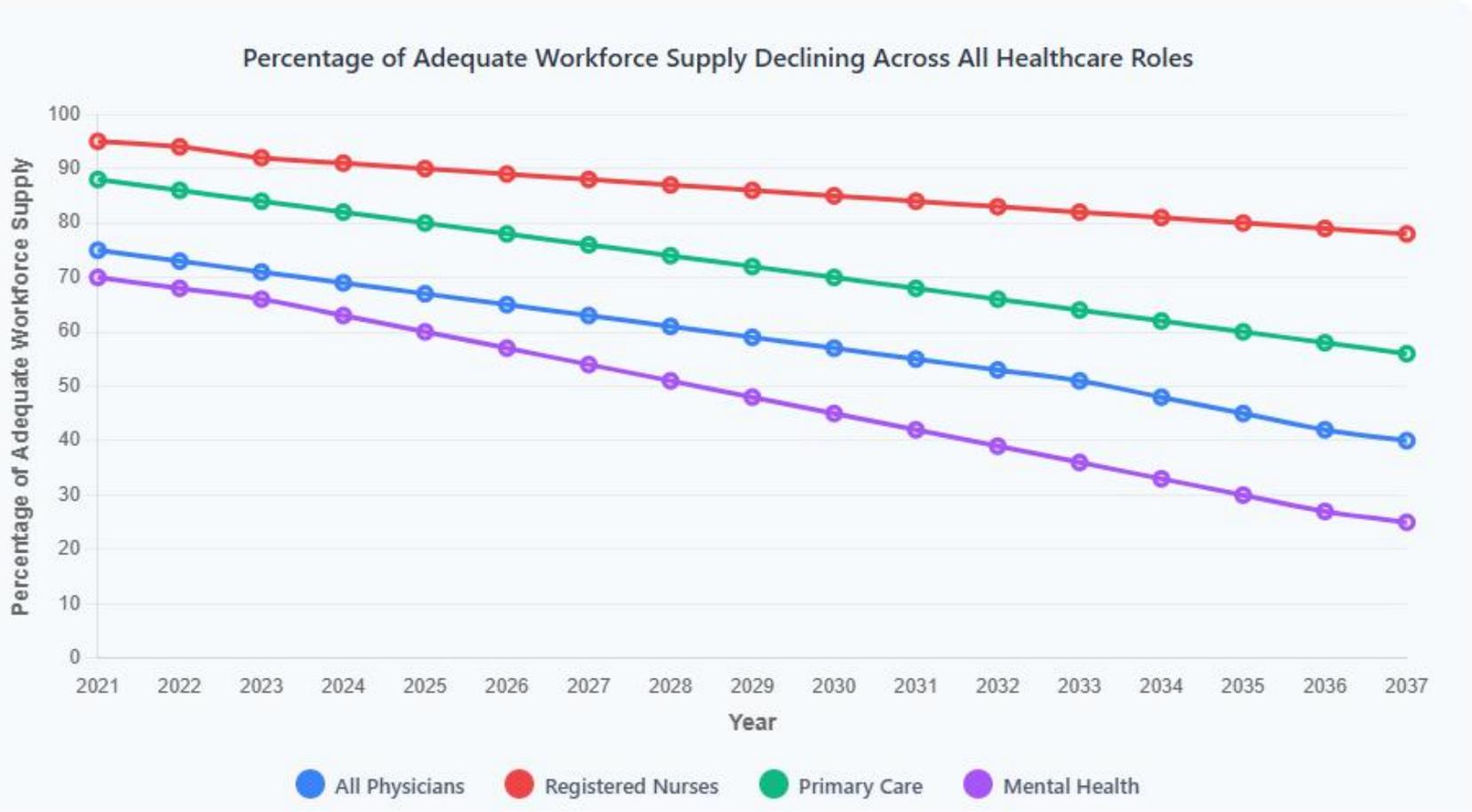
# Chronic Conditions: Rural US Adults Age 40+ (2025 – 2050)



**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

# US Rural Health Workforce Shortage Projections Through 2037



**60%**  
Rural Physician Shortage by 2037

**87,150**  
Primary Care Physician Deficit (Rural Areas)

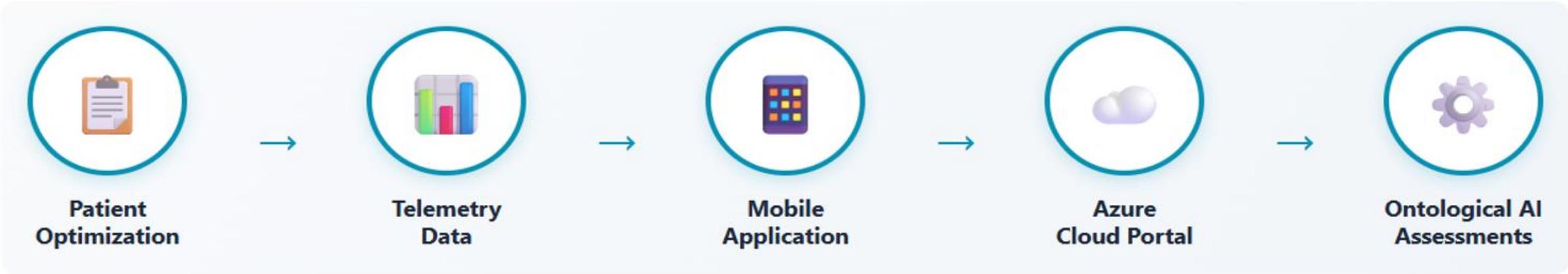
**13%**  
Rural RN Shortage (vs 5% Urban)

**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.

# Our Distributed Care Solution



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

Virtual Nurses can utilize AI Agents and Telehealth Triage for escalation as necessary

**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

-  **EMS**  
Emergency Medical Services

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-  **Community Based Paramedicine**  
Community health support

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-  **Urgent Care**  
Non-emergency urgent care

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-  **Follow Up**  
Scheduled follow-up care

**Ontological AI Assessments**

Synthesizes health profiles, medical history, connected device data, medication adherence data, and digital questionnaire responses to deliver evidence-based assessments supported by peer-reviewed medical literature.

This comprehensive analysis enables precise risk stratification and appropriate care team triage, ensuring patients receive timely, personalized interventions based on their unique health status.

# 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

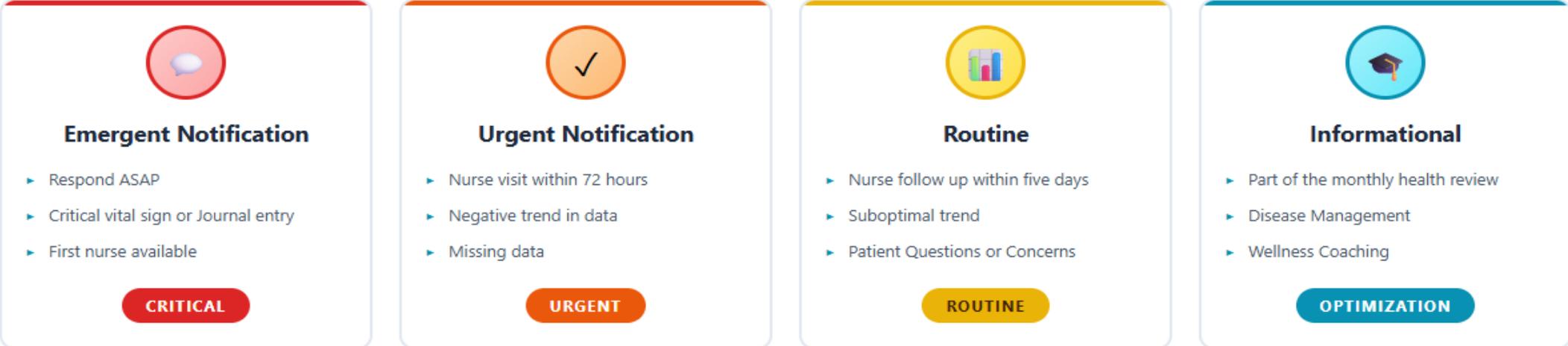
## Technology Enhanced Skills Based Model

- **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.**

# 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.



Virtual Nurses can utilize AI Agents and Telehealth Triage for escalation as necessary



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

## AI-Powered Distributed Care

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

If necessary, Nurse Triage Call Center resources can leverage 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.

# Device Data - Ontological AI Assessment

CarePath

CarePath - UAT

ADD/INTAKE
PATIENT LIST
PATIENT
ADMIN
LOG OUT

Patient > Assessment
Fred Doctor  
Samsung, Frank

Assessment

Generated: Tuesday, July 1, 2025 4:55 PM
Return to Patient List

⚠ Results indicate potentially life-threatening conditions requiring immediate attention.

NOTIFICATIONS

Consistently elevated blood pressures near or above critical levels may be an indication of a secondary cause for the HTN.

Primary consensus guidelines all define SBP > 180 mmHg and/or DBP > 120 mmHg as hypertensive crisis with or without any associated symptoms.

**EMERGENCY:** A blood pressure reading in 'critical HTN' range (SBP > 180 mmHg or a DBP > 120 mmHg) has been recorded. The patient denies any associated symptoms.

**URGENT:** Heart rate over 100 is associated with high risk in heart failure patients.

**EMERGENCY:** Lowered O2 saturation and relative tachycardia (70 - 100 bpm) may be a sign of clinical decompensation. Urgent patient assessment is recommended.

**EMERGENCY:** Patient's O2 sat has dropped below level for notification.

**EMERGENCY:** O2 saturation has fallen below the standard threshold for notification. (If this is chronic baseline < 94%, discuss adjusting notification thresholds w primary care.)

**URGENT:** Lowered oxygen saturation in a patient with known HEART FAILURE. Should be assessed for early decompensation.

With hypertensive urgency (DBP > 120) check for any symptoms of true Hypertensive emergency

PATIENT HISTORY

- Age: 61 years, 8 months
- Height: 188 cm cm
- Male
- Caucasian: N European
- Hypertension (HTN)
- COPD
- Asthma
- Heart failure (HF)

MEDICATIONS

- BAYER EXTRA STRENGTH ASPIRIN FOR MIGRAINE PAIN
- Daily Vitamin
- FLEXERIL
- OXYCODONE 2.5/APAP 500
- TRIAMCINOLONE

VITAL SIGNS

- Systolic BP: 205 mmHg
- Diastolic BP: 150 mmHg
- MAP: 168 mmHg
- Heart Rate: 165 BPM
- Oxygen Saturation (SpO2): 88 %
- Perfusion Index: 5.5 %
- Body Weight: 122.5 Kg

Supplemental Resources:

{2020 International Society of Hypertension Global Hypertension Practice Guidelines} "Consider screening for secondary hypertension in (1) patients with early onset hypertension (<30 years of age) in particular in the absence of hypertension risk factors (obesity, metabolic syndrome, familial history etc.), (2) those with resistant hypertension, (3) individuals with sudden deterioration in BP control, (4) hypertensive urgency and emergency, (5) those presenting with high probability of secondary hypertension based on strong clinical clues. In patients with resistant hypertension, investigations for secondary hypertension should generally be preceded by exclusion of pseudoresistant hypertension and drug/substance-induced hypertension. Basic screening for secondary hypertension should include a thorough assessment of history, physical examination (see clinical clues), basic blood biochemistry (including serum sodium, potassium, eGFR, TSH), and dipstick urine analysis. Further investigations for secondary hypertension (additional biochemistry/imaging/others) should be carefully chosen based on information from history, physical examination and basic clinical investigations. Consider referring for further investigation and management of suspected secondary hypertension to a specialist center with access to appropriate expertise and resources."

LESLEY CHARLES, MD, JEAN TRISCOTT, MD, BONNIE DOBBS, PhD,. Secondary Hypertension: Discovering the Underlying Cause. American Family Physician. October 1, 2017. 453-461 "Most patients with hypertension have no clear etiology and are classified as having primary hypertension. However, 5% to 10% of these patients may have secondary hypertension, which indicates an underlying and potentially reversible cause. The prevalence and potential etiologies of secondary hypertension vary by age. The most common causes in children are renal parenchymal disease and coarctation of the aorta. In adults 65 years and older, atherosclerotic renal artery stenosis, renal failure, and hypothyroidism are common causes. Secondary hypertension should be considered in the presence of suggestive symptoms and signs, such as severe or resistant hypertension, age of onset younger than 30 years (especially before puberty), malignant or accelerated hypertension, and an acute rise in blood pressure from previously stable

Clinical Notifications

115.9 Secondary hypertension

110 Essential (primary) hypertension (HTN): follow-up of potentially emergent findings

150.9 Heart failure (HF): Follow-up of potentially emergent findings

J44.9 Chronic obstructive pulmonary disease (COPD): Acute decompensation (low O2 saturations)

Care Optimization

150.9 Heart failure (HF): Follow-up of potentially urgent findings

110 Hypertensive emergency

Observations

Oxygen Saturation (SpO2)	7/1/2025
88 %	
Heart Rate	7/1/2025
165 BPM	
Perfusion Index	7/1/2025
5.5 %	
Systolic BP	7/1/2025
205 mmHg	
Diastolic BP	7/1/2025
150 mmHg	
MAP	7/1/2025
168 mmHg	
Heart Rate	7/1/2025
79 BPM	

Refinement Questions

# Digital Questionnaire - Ontological AI Assessment

## CarePath

CarePath - UAT

ADD/INTAKE PATIENT LIST PATIENT ADMIN LOG OUT

Patient Assessment History Details Fred Doctor Samsung, Frank

Return to History List

Generated: Tuesday, June 24, 2025 1:36 PM Closed: Tuesday, June 24, 2025 10:36 PM

**Results indicate potentially life-threatening conditions requiring immediate attention.**

### NOTIFICATIONS

**IMPORTANT!** Seek medical attention immediately. Some of your answers may indicate potentially life-threatening symptoms!

**EMERGENCY:** Direct patient query has returned answers that may be clinically emergent.

**EMERGENCY:** Patient self-assessment has returned potentially dangerous findings.

**ROUTINE:** Patient reported data suggesting paroxysmal nocturnal dyspnea (PND) may indicate worsening heart failure.

**URGENT:** Direct patient query has returned answers that may indicate the need for intervention or adjustment of the patient's care plan.

<h4>PATIENT HISTORY</h4> <ul style="list-style-type: none"><li>Age: 61 years, 8 months</li><li>Height: 188 cm</li><li>Male</li><li>Caucasian: N European</li><li>Hypertension (HTN)</li><li>COPD</li><li>Asthma</li><li>Heart failure (HF)</li></ul>	<h4>MEDICATIONS</h4> <ul style="list-style-type: none"><li>BAYER EXTRA-STRENGTH ASPIRIN FOR MIGRAINE PAIN</li><li>Daily Vitamin</li><li>FLEXERIL</li><li>OXYCODONE 2.5/APAP 500</li><li>TRIAMCINOLONE</li></ul>	<h4>VITAL SIGNS</h4> <ul style="list-style-type: none"><li>Body Weight: 122.5 Kg</li></ul>
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### Clinical Notifications

- G2058DJ-HF Daily journal for HF patient
- I50.9C Heart failure (HF): Follow-up of potentially emergent findings
- J44.9D Chronic obstructive pulmonary disease (COPD): Follow-up of potentially emergent findings

**EMERGENCY: Patient self-assessment has returned potentially dangerous findings.**

present

- Patient intake revealed existing conditions or prior history include COPD

**References:**

- GLOBAL STRATEGY FOR THE DIAGNOSIS, MANAGEMENT, AND PREVENTION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (2023 REPORT); GOLD

- The history of present illness revealed an answer of 'Feel a sense of dread or doom' to the question 'how do you feel overall today?'

**References:**

- GLOBAL STRATEGY FOR THE DIAGNOSIS, MANAGEMENT, AND PREVENTION OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (2023 REPORT); GOLD

### Care Optimization

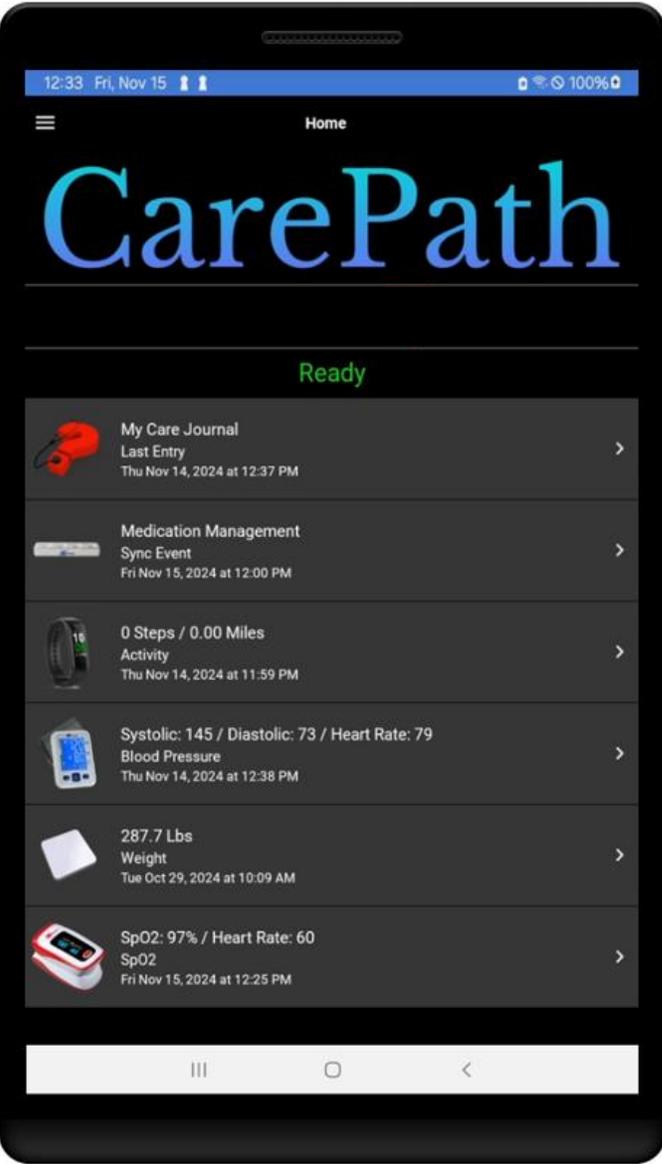
- I50.9OP Heart failure (HF): Follow-up of potentially urgent findings

### Observations

- Do you have a new or changed cough unchanged 6/24/2025
- Does catching your breath seem harder today? Yes 6/24/2025
- How many pillows did you need last night to breathe comfortably? must elevate head w 2 pillows to avoid SoB 6/24/2025
- Were you awakened from sleep last night by an attack of shortness of breath? Yes 6/24/2025
- Do you feel more tired (fatigued) than usual? Yes 6/24/2025
- Are you experiencing anything today that might be described as dizziness? unsteady feeling 6/24/2025
- Any new sensation of funny, skipped, or rapid heartbeats? No 6/24/2025
- Any increased swelling in both feet, ankles, or lower legs? No 6/24/2025
- How do you feel overall today? Feel a sense of dread or doom 6/24/2025
- Describe what you mean by short of breath Interference with, or limits normal activities 6/24/2025

### Refinement Questions

# Connected Devices



## Bluetooth<sup>®</sup> 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

# 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)

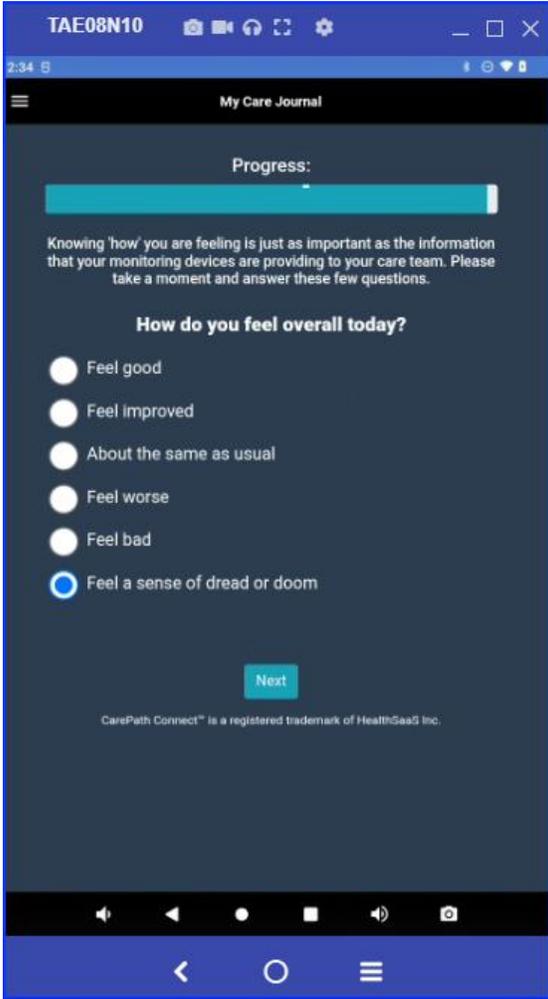
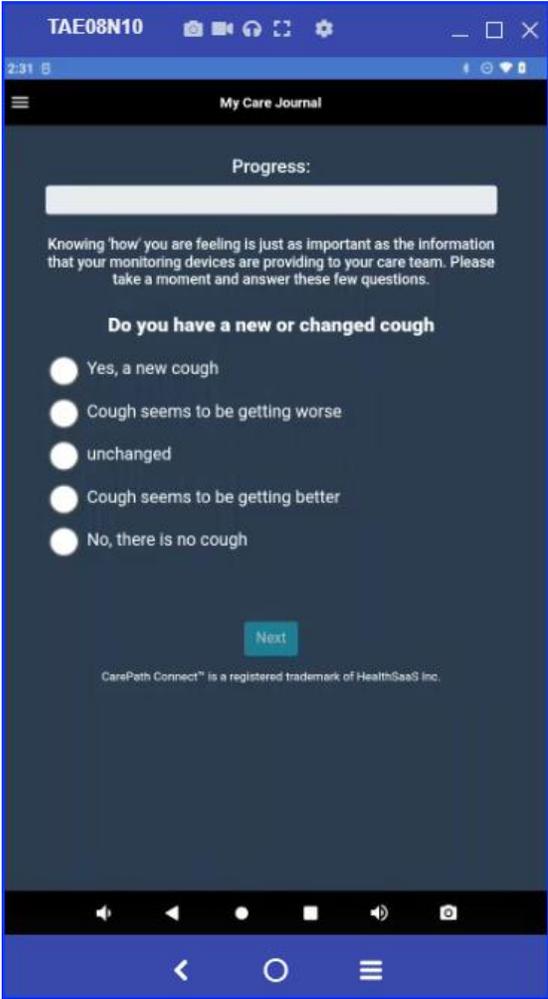
MedWell works with pre-filled Blister Packs or it can be self-sorted and filled

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

# 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.



Observations	
Do you have a new or changed cough	Yes, a new cough 10/7/2025
Does catching your breath seem harder today?	Yes 10/7/2025
How many pillows did you need last night to breath comfortably?	must elevate head w 2 pillows to avoid SoB 10/7/2025
Were you awakened from sleep last night by an attack of shortness of breath?	Yes 10/7/2025
Do you feel more tired (fatigued) than usual?	Yes 10/7/2025
Are you experiencing anything today that might be described as dizziness?	unsteady feeling 10/7/2025
Any new sensation of funny, skipped, or rapid heartbeats?	Unknown 10/7/2025
Any increased swelling in both feet, ankles, or lower legs?	No 10/7/2025
How do you feel overall today?	Feel a sense of dread or doom 10/7/2025
Describe what you mean by short of breath	Interference with conversation 10/7/2025

**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

**Contact Information**

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# Supplemental Slide

**Collaboration With the American Heart Association**

# Therapeutic Optimization and Continuous Quality Improvement CQI Collaboration

