A Place At Home

Reducing Readmissions with a Wearable-Enabled, Closed-Loop Home Care Model: A Payer-Focused White Paper

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Executive Summary

Payers continue to absorb avoidable downstream costs because preventable readmissions concentrate in the first 7–14 days after discharge, a period characterized by functional decline, medication complexity, caregiver gaps, and home environmental hazards. The Centers for Medicare & Medicaid Services (CMS) Hospital Readmissions Reduction Program (HRRP) ties payment to performance using the excess readmission ratio (ERR) for six high-volume conditions (acute myocardial infarction, heart failure, pneumonia, chronic obstructive pulmonary disease, coronary artery bypass graft surgery, and elective hip/knee replacement) (Centers for Medicare & Medicaid Services [CMS], n.d.-a; n.d.-b). A consistent subset of hospitals exceeds benchmarks each year, and state-level variation suggests opportunities for targeted post-discharge stabilization (CMS, 2026a, 2026b).

This white paper proposes a wearable-enabled, closed-loop home care model that combines continuous physiologic and behavioral signals with structured caregiver observations and rapid clinical review. Evidence from randomized trials and meta-analyses indicates that home-based monitoring and multiparameter remote management can reduce heart-failure hospitalizations and, in several syntheses, all-cause mortality compared with usual care when proactive workflows are used (Clemente et al., 2024; D'Amario et al., 2023). Transitional care interventions, particularly those of low-to-moderate complexity with symptom monitoring and discharge planning, are associated with lower 30- to 180-day readmissions (Tyler et al., 2023; Landi et al., 2024). The proposed model aligns with payer incentives, offers a pragmatic operating blueprint, and supports a positive return on investment (ROI) under conservative assumptions.

1. Background & Market Context

More than a decade after HRRP's introduction, readmissions remain a persistent quality and cost challenge. HRRP penalties—capped at 3% of base operating DRG payment—are applied when a hospital's risk-standardized readmissions exceed expected levels for targeted conditions (CMS, n.d.-a). CMS publicly refreshes HRRP data in the Provider Data Catalog; recent releases show continued variability across conditions and states, indicating performance headroom for interventions that operate outside hospital walls (CMS, 2026a, 2026b). For Medicare Advantage (MA) and other risk-bearing payers,

reducing near-term readmissions and emergency department (ED) use improves total cost of care and quality ratings.

The near-term window after discharge is uniquely hazardous. Older adults frequently experience falls and functional decline; CDC estimates that one in four adults aged 65+ reports a fall annually, driving millions of ED visits and substantial costs largely borne by Medicare (Centers for Disease Control and Prevention [CDC], 2024; National Council on Aging [NCOA], 2025). Recent analyses estimate nearly $20 billion annually in combined inpatient and ED treatment costs for fall injuries among older adults, underscoring the magnitude of the post-discharge risk environment (Reider et al., 2024).

2. CMS HRRP Signals and State Variation

Florida 30-Day Readmission Risk by Condition
(Heat Map: Green = Lower Risk, Red = Higher Risk)

Condition	% FL Hospitals Exceeding CMS Benchmark
Heart Failure	69.2%
CABG	63.1%
AMI	59.7%
COPD	58.1%
Hip/Knee	56.6%
Pneumonia	54.9%

Figure 1: Mean Excess Readmission Ratio (U.S. vs. Florida) by condition.

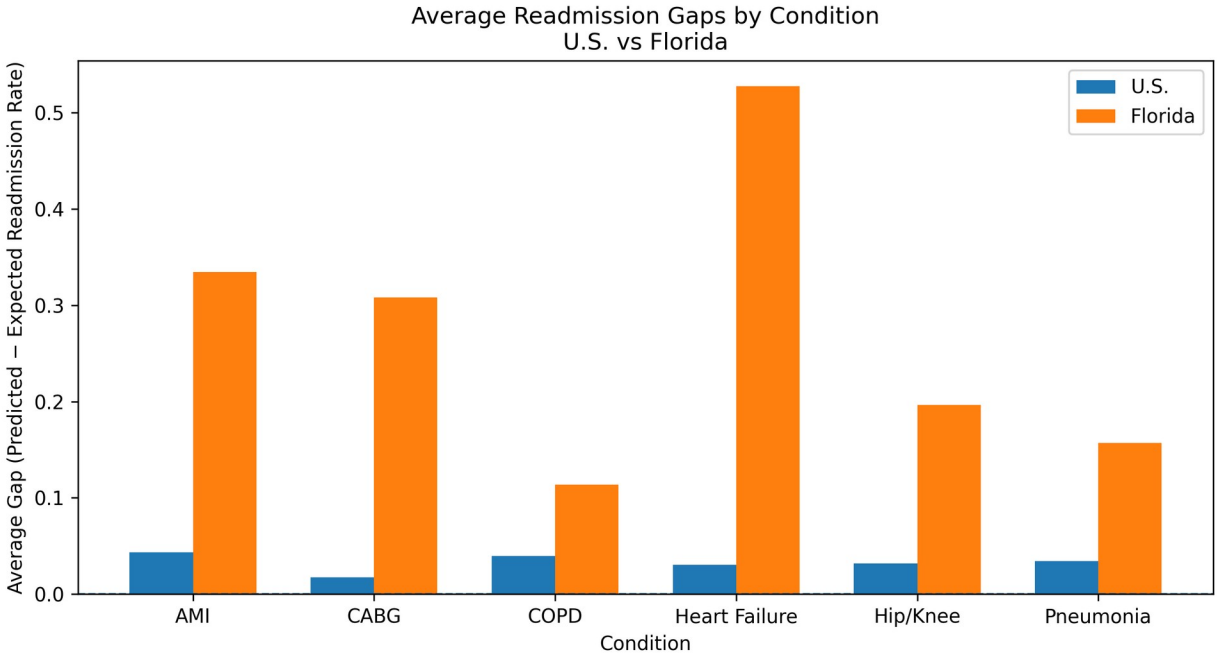

Figure 2: Share of hospitals exceeding CMS benchmark (ERR > 1.0), U.S. vs. Florida.

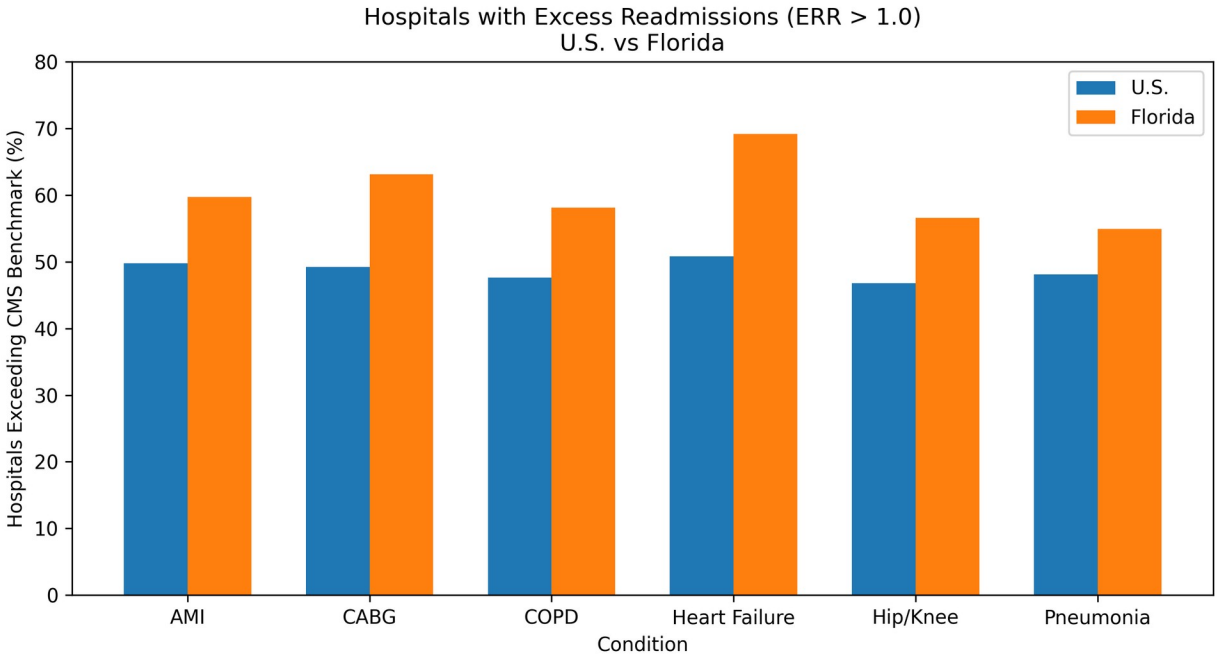

Figure 3: Benchmark exceedance by geography (Florida vs. non-Florida).

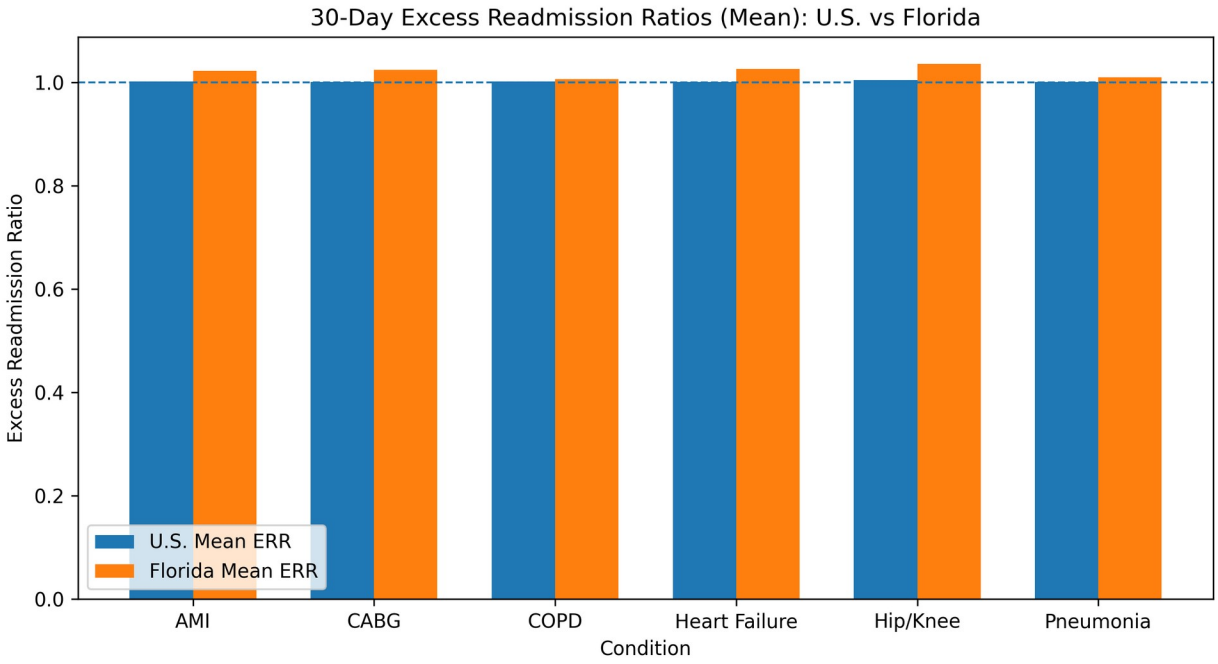

Figure 4: Average readmission gap (predicted minus expected), U.S. vs. Florida.

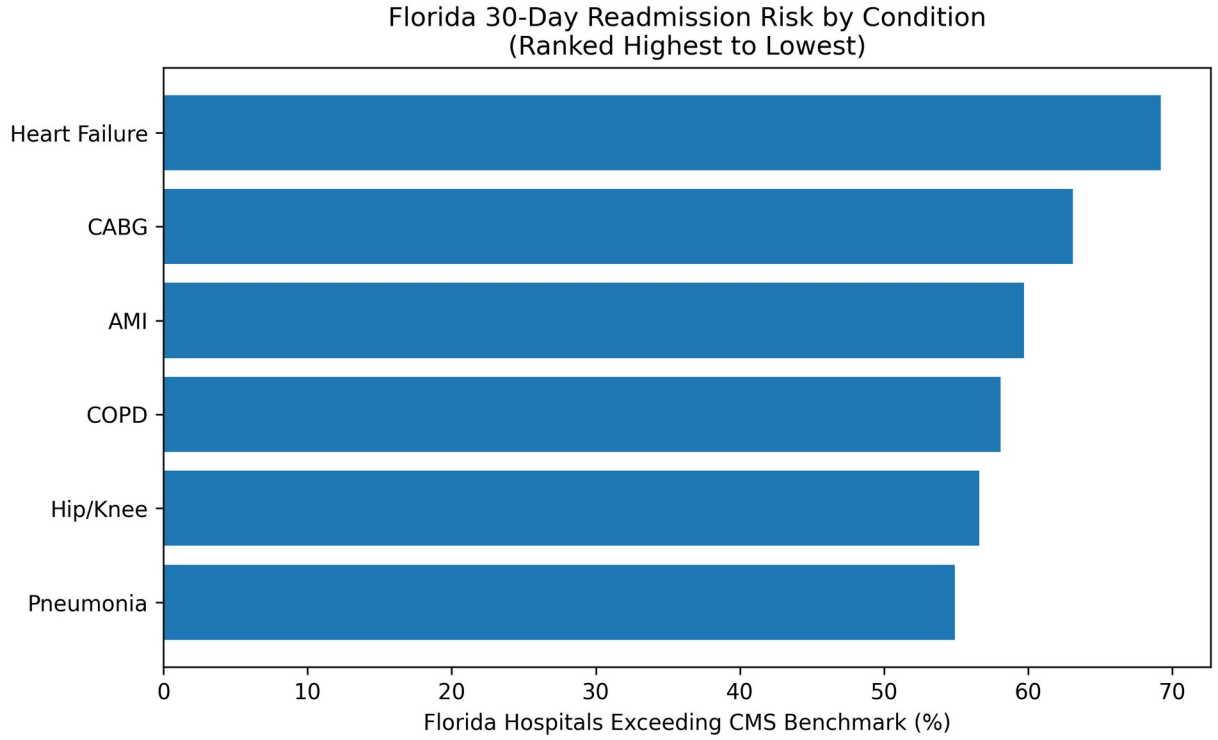

Figure 5: Ranked readmission risk by condition in Florida.

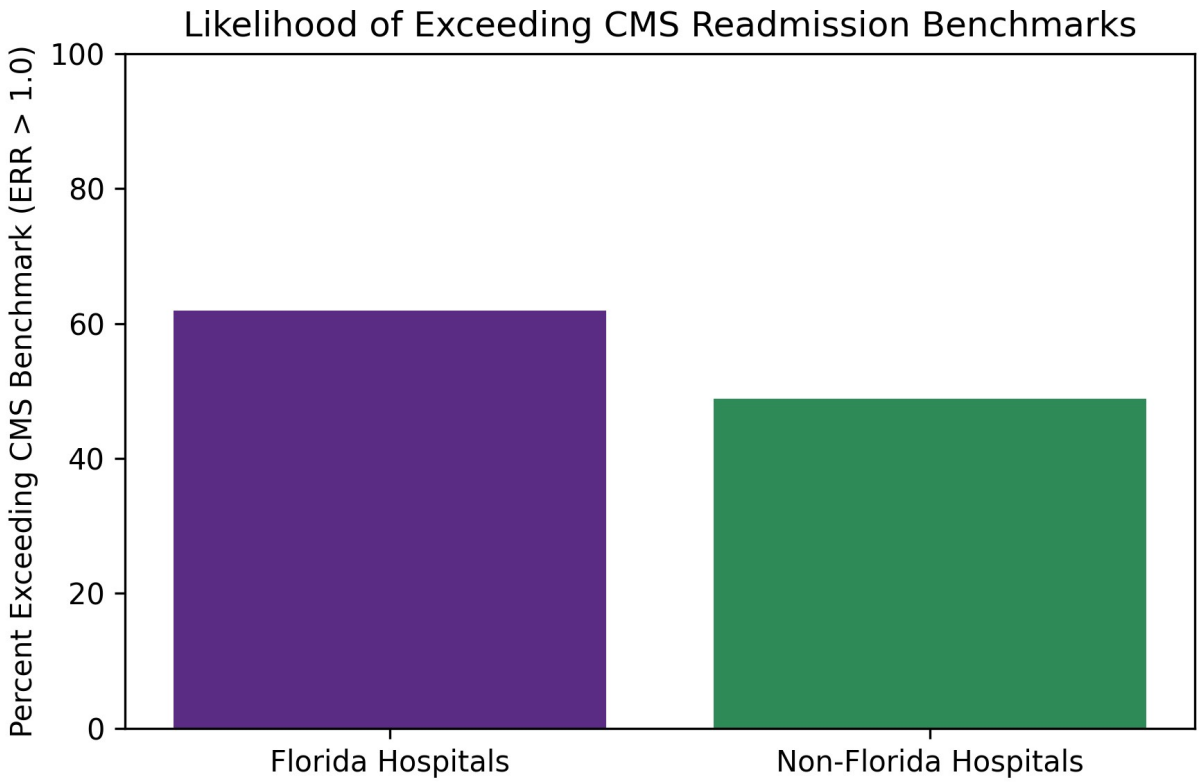

Figure 6: Florida readmission risk heat map by condition.

HRRP uses the Excess Readmission Ratio (ERR)—the ratio of predicted to expected readmissions—for each targeted condition to assess performance at the hospital level (CMS, n.d.-a; n.d.-b). The FY 2025 public dataset provides hospital-level ERRs and event counts across the six measures, enabling analyses of national averages and state-by-state prevalence of benchmark exceedance (CMS, 2026a). In Florida, for example, hospitals exhibit higher mean ERRs across several conditions and higher proportions of facilities above benchmark relative to national averages, pointing to community and post-acute drivers rather than inpatient quality alone (CMS, 2026a, 2026b). These patterns justify payer investments in community-based stabilization that spans the first month after discharge.

3. Clinical Problem: Early Post-Discharge Vulnerability

The first 7–14 days after discharge concentrate preventable risk. Patients face deconditioning, gait instability, sleep disruption, changes in medication regimens, and home hazards such as poor lighting and clutter. Falls frequently occur before the first follow-up and can trigger fear of mobility and a cascade of decline. CDC surveillance shows high prevalence and rising consequences of older adult falls; NCOA summarizes direct

medical costs, most of which are paid by Medicare (CDC, 2024; NCOA, 2025). Beyond injuries, medication confusion and low adherence destabilize chronic disease, especially heart failure, where fluid shifts and activity restriction elevate the risk of ED use and readmission (Clemente et al., 2024).

4. Evidence Base: Transitional Care, Remote Monitoring, and Wearables

Transitional care interventions improve outcomes when they extend into the home. A network meta-analysis of 126 randomized trials found that low- and medium-complexity interventions reduced 30-day readmissions compared with usual care and that all complexities reduced 180-day readmissions (Tyler et al., 2023). A 2024 systematic review identified organizational components most associated with readmission reduction and positive economics, highlighting the necessity of post-discharge symptom monitoring and discharge planning (Landi et al., 2024).

Remote monitoring strengthens transitional care by surfacing deterioration earlier. In heart failure, a meta-analysis of randomized trials (n=4,629) found that home-based monitoring reduced all-cause mortality (RR 0.75) and heart-failure hospitalizations (RR 0.75) over 6–15 months (Clemente et al., 2024). Multiparameter remote monitoring similarly reduced the composite of all-cause death and HF hospitalization (IRR 0.83) (D'Amario et al., 2023). Reviews of digital biomarkers and smart scales describe mechanisms by which upstream physiologic signals predict decompensation, enabling timelier therapy adjustments (Wattanachayakul et al., 2024). Complementing these findings, a 2025 meta-analysis of wearable-guided HF care reported significant reductions in HF hospitalizations and all-cause mortality versus standard care (Murray et al., 2025).

5. The Wearable-Enabled, Closed-Loop Home Care Model

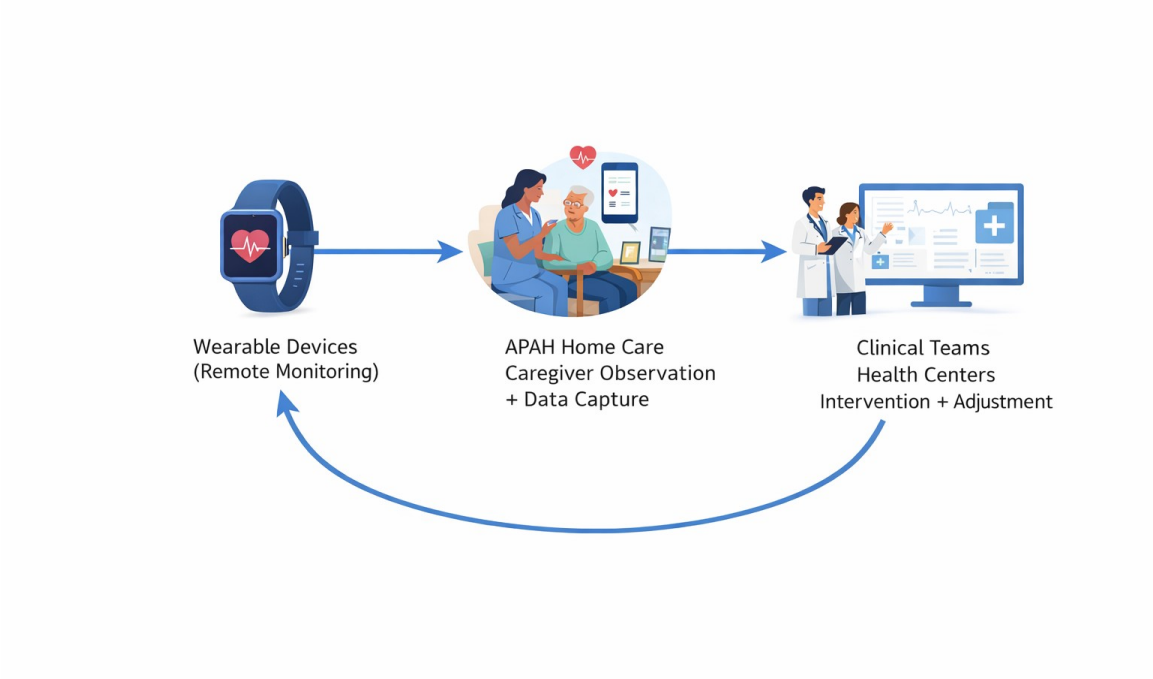

Figure 7: Closed-loop framework (Wearable → Home Care → Clinical feedback loop).

The proposed model integrates: (1) low-burden wearables capturing mobility trends, heart rate and variability, sleep, posture, and falls; (2) structured caregiver observations—ADL performance, appetite, hydration, mood, medication cues, and home hazards; (3) daily clinical triage with rules for trend-based alerts; (4) intervention playbooks (medication review/titration, hydration/sodium coaching, PT/OT referral, durable medical equipment and home safety modifications, caregiver coaching); and (5) a feedback loop confirming response within 24–72 hours and de-escalating when stable. This design mirrors elements identified as effective in the literature, continuous/daily monitoring; multiparameter inputs; rapid clinical response; and practical home modifications (Tyler et al., 2023; Landi et al., 2024; Clemente et al., 2024; D'Amario et al., 2023).

6. Payer Value Proposition & ROI Scenarios

Assumptions. The following illustration assumes a cohort of 1,000 recently discharged, high-risk members. Baseline 30-day readmission rates range from 18% to 22%, depending on condition mix. The average allowed cost per readmission is estimated between $10,000 and $15,000. Program costs are modeled at $60 to $90 per member per month over a two-month engagement period. Expected relative reductions in 30-day readmissions fall

within the 15% to 25% range, based on results from published meta-analyses and health-system reporting (Clemente et al., 2024; D'Amario et al., 2023).

Scenario A (Conservative). Using a 20% baseline readmission rate and a 20% relative reduction, the modeled post-intervention rate is 16%, equating to approximately 40 avoided readmissions. Using an average allowed cost of $12,000 per hospitalization, avoided utilization totals an estimated $480,000. Program costs for 1,000 members at $80 per member per month over two months total approximately $160,000. The resulting net savings of roughly $320,000 occur within the initial 60-day period, with additional gains expected by 90 days. For Medicare Advantage plans, such reductions in readmissions and emergency department use, combined with improvements in medication adherence and care-coordination measures, contribute positively to Star Ratings and overall total cost of care performance (Centers for Medicare & Medicaid Services [CMS], 2026a; Tyler et al., 2023).

7. Implementation Blueprint

Eligibility and Stratification. Identify recently discharged patients with diagnoses such as heart failure, acute myocardial infarction, coronary artery bypass grafting, chronic obstructive pulmonary disease, and total hip or knee arthroplasty. Prioritize individuals with functional risk factors (e.g., recent falls, slow gait, home environmental hazards), polypharmacy, or a history of high utilization.

At-Discharge Onboarding (Day 0). Provide the wearable device and ensure proper setup. Conduct teach-back education with the patient and caregiver, review and reconcile medications, and complete a preliminary home-safety checklist to identify immediate risks.

First 72 Hours. Verify consistent device wear and successful data transmission. Conduct daily caregiver check-ins and initiate physical or occupational therapy screening when mobility, balance, or safety concerns are identified.

Monitoring Cadence. Implement daily dashboard reviews by a nurse or advanced practice provider. Hold weekly case reviews with the supervising clinician. Monitor for trend-based alerts, including changes in mobility, declines in heart-rate variability, nocturnal restlessness, or periods of inactivity.

Escalation Playbooks. Utilize structured intervention pathways, including medication review or titration, dietary or hydration coaching, telehealth visits, urgent in-home assessments, or same-day clinic appointments. Emergency department referral should be reserved for situations that cannot be safely managed in the home.

Documentation and Data Management. Maintain secure, role-based data exports to payer and provider dashboards. Document all interventions and outcomes at the member level. Preserve audit trails and ensure informed consent processes are upheld.

Completion and Step-Down (Day 30–60). Assess clinical stability, functional progress, and adherence. Transition the patient to lower-intensity monitoring or discharge from the program once stabilization and risk mitigation goals are achieved.

8. Governance, Equity, and Privacy

Equitable design requires language access, simplified instructions, caregiver backup plans, and replacement devices to avoid attrition bias. Privacy and security controls should follow principles of minimum necessary data, encryption, role-based access, time-bound retention, and clear member consent. Governance should include a cross-functional steering committee (payer + provider + APAH) to approve thresholds, escalation playbooks, and monthly outcomes review (Tyler et al., 2023; Landi et al., 2024).

9. Contracting Models & Roadmap

Per-Member-Per-Month (PMPM) Model. This structure applies a fixed per-member fee over a 60-day post-discharge period. The payer retains the financial benefit from reductions in avoidable utilization, including decreases in readmissions and emergency department visits.

Shared-Savings Model. Under this arrangement, the payer and the provider agree on performance benchmarks for 30-day and 90-day readmissions and emergency department utilization. Validated savings beyond program costs are shared between parties according to predetermined percentages.

Performance-Based Bonus Model. This hybrid option incorporates a base PMPM payment supplemented by incentive bonuses when the program exceeds predefined performance thresholds. For example, a bonus may be awarded if the intervention achieves a relative reduction in readmissions of 25% or greater.

Roadmap. Implementation proceeds in phases. Phase 1 involves a six-month pilot focused on members discharged following heart failure or coronary artery bypass graft surgery. Phase 2 expands the program to include individuals recovering from chronic obstructive pulmonary disease and orthopedic procedures. Phase 3 broadens eligibility to additional chronic care populations. These staged expansions align with conditions included in the Hospital Readmissions Reduction Program and with publicly reported

CMS performance data that support ongoing evaluation and benchmarking (Centers for Medicare & Medicaid Services [CMS], n.d.-a; CMS, 2026a).

10. Measurement Framework & Reporting

Utilization Measures. Key utilization metrics include 7-, 30-, and 90-day hospital readmissions, emergency department visits, and total hospital days.

Clinical Measures. Clinical indicators may include heart-failure-related weight and symptom trends, documented falls resulting in injury, medication-adherence proxies, and patient-reported outcome measures such as the EQ-5D or brief mood-screening tools.

Process Measures. Process metrics should capture device wear-time adherence, the average time from alert to clinical action, completion rates for prescribed interventions, and caregiver visit completion rates.

Financial Measures. Financial outcomes should quantify allowed costs on a per-member-per-month basis, estimated savings from avoided readmissions, comparisons of program costs versus financial returns, and net present value or return-on-investment calculations.

Reporting should also include stratified analyses by clinical condition, age group, dual-eligibility status, and social-risk indicators to ensure equity and to identify differential impacts across populations (Tyler et al., 2023; Landi et al., 2024).

Conclusion

Aligning payer incentives with proactive, in-home stabilization is the fastest path to reduce avoidable readmissions. By combining low-burden wearables, structured caregiver observations, and disciplined clinical triage, the proposed model addresses the real-world drivers of readmissions that claims data often miss. The evidence base from transitional care trials and remote monitoring meta-analyses supports clinically meaningful reductions in utilization and, in several syntheses, mortality. With prudent governance and payer-aligned contracting, this approach offers a financially sustainable path to better outcomes and lower total cost of care.

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