

# 54.69% Reduction in Heart Failure Readmissions

## Summary of success

The implementation of **Tucuvi's Clinical Voice AI** at **Hospital de Dénia** has transformed the **follow-up of heart failure and post-cardiac surgery patients**. Through autonomous phone conversations, **LOLA** enabled early detection of decompensations, reduced avoidable hospital admissions, and improved coordination with primary care.

Hospital de Dénia significantly **reduced heart failure readmissions by 54.69%** compared to the period before LOLA. Beyond that, LOLA had a substantial impact on nursing workflows, **freeing up 492 nursing hours in just eight months**. This is equivalent to 36% of the time previously dedicated to manual follow-up, or roughly 62 shifts (based on a 7-hour workday).

This time savings allowed the clinical team to optimize discharge planning, proactively monitor high-risk patients, and prioritize care based on real-time clinical alerts.

## 54.69%

Hospital readmissions reduced (From 6.4% to 2.9% among heart failure patients)

## 25,000€

Cost savings in just 8 months by preventing heart failure readmissions

## 492<sub>h</sub>

Nursing hours freed up

## 89%

Patient adherence

## “

Thanks to LOLA, we've been able to optimize our work, organize ourselves better, and prioritize care for patients who are unwell before they get worse.

María Ferrairo, nurse at the HF Unit

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## ANALYSIS AND INSIGHTS

## Introduction

**Heart failure (HF)** is a **chronic, degenerative condition** where the heart struggles to pump blood effectively, hindering oxygen and nutrient delivery to the body. This can lead to **decompensation episodes**, characterized by a sudden and rapid worsening of symptoms.

At **Hospital de Dénia**, the **Heart Failure Unit** manages a complex patient population requiring **close, continuous monitoring** to prevent avoidable hospital visits and improve outcomes. Historically, follow-up for HF and cardiac surgery patients **relied on scheduled in-person consultations**.

However, while these visits played an important role, they weren't enough to ensure **continuous oversight**. The reactive nature of traditional phone calls—often prompted only when patients reported worsening symptoms or after emergency visits—limited the ability to **intervene in a timely manner**. As a result, some **patients decompensated between scheduled follow-ups**, challenging the early detection of deterioration and the efficient allocation of clinical resources.

In 2024, Hospital de Dénia launched an intensive follow-up program featuring Tucuvi's clinical AI agent, **LOLA**. Designed to complement existing care pathways, LOLA provides personalized, **regular telephonic follow-up based on each patient's clinical status**.

The program targets two key patient groups:

- **Heart Failure Unit patients:** Individuals who join the cardiology unit after hospital discharge. Their standard care includes a nursing call 3 days post-discharge, an in-person consultation at 15 days, and then follow-up visits every 3 months during the first year (at months 3, 6, 9, and 12). After 12 months, if stable, patients are referred to primary care; otherwise, most remain under the cardiology unit's care with continued quarterly visits. Patients who feel unwell between visits can contact the unit directly or use an internal support line.
- **Post-cardiac surgery patients:** Individuals discharged after cardiac surgery, typically followed by cardiology with quarterly in-person visits. At Hospital de Dénia, follow-up for this group was previously irregular or reactive, often depending on symptom worsening leading to emergency visits.

LOLA's autonomous calls enable earlier detection of decompensation signs, facilitate prompt clinical intervention, and reduce the manual follow-up burden on the nursing team.

## Strategy and Implementation

The overarching objective was to establish a **comprehensive, proactive, and personalized follow-up program for heart failure and post-cardiac surgery patients at Hospital de Dénia**.

This initiative aimed to enhance the early detection of decompensation, reduce hospital readmissions and emergency visits, and optimize the utilization of nursing resources, thereby fundamentally improving their existing patient care system.

## Solution

Tucuvi partnered closely with Hospital de Dénia's clinical nursing team to design a tailored follow-up program for heart failure and post-cardiac surgery patients.

LOLA, the clinical AI agent, was configured to **conduct autonomous calls based on personalized schedules that reflected each patient's stability and clinical protocol**. These calls utilize evidence-based clinical protocols, mirroring the data traditionally collected by nursing staff.

This enables:

- **Early detection** of symptom worsening and signs of decompensation.
- Prompt escalation of **alerts** to the nursing clinical team and cardiologists for timely intervention.
- **Prioritization** of patients requiring in-person visits or treatment adjustments.

This approach complements existing in-person visits and strengthens coordination with primary care providers, ensuring a comprehensive, continuous care pathway.

## Implementation

Here's how Hospital de Dénia transformed heart failure and post-cardiac surgery patient follow-up over several weeks:

### Protocol Configuration (Weeks 1-4)

Tucuvi worked closely with the clinical team to fine-tune follow-up protocols based on the hospital's existing clinical guidelines and nursing practices. LOLA was configured to complement these protocols by providing personalized call schedules based on patient stability:

- Heart Failure patients receive periodic calls, mostly monthly, but some biweekly or quarterly depending on clinical status.
- Post-cardiac surgery patients receive calls every 15 days indefinitely until clinical stabilization or discharge by cardiology department.

### Healthcare Professional Training (Week 5)

The clinical team received comprehensive training on the Tucuvi Health Manager platform. They were also provided with patient onboarding materials designed to maximize patient engagement and adherence from day one.

### Go-Live and Ongoing Support (Week 6 and beyond)

After initiating patient calls, Tucuvi maintained close collaboration with the clinical team through regular meetings—initially weekly for intensive monitoring and issue resolution, then transitioning to monthly reviews to optimize the program. This adaptive approach ensured seamless integration and continuous optimization of the follow-up program.

## RESULTS AND CONCLUSIONS

Since the launch of the follow-up program, the implementation of LOLA has significantly improved the continuity of care, cost savings, clinical efficiency, and patient outcomes at Hospital de Dénia.

### For Healthcare Provider:

- **Estimated Cost Savings:** With an average hospital stay of 5.1 days for heart failure and a cost of €500, **each avoided admission represents a saving of €2,550**. This 54.69% reduction, representing approximately 10 to 11 avoided hospitalizations, translates to estimated savings of **€25,500 in over just a few months**.
- **Operational efficiency:** Over 8 months, LOLA made **3,961 follow-up attempts**, resulting in 1,761 completed calls (an average of 2.2 attempts per patient to successfully reach them). A human nurse would have needed to make every one of those 3,961 calls manually to achieve the same outcome. This process saved the clinical team **492 hours** — an average of **15.3 hours per week**. That's equivalent to 38% of a full-time nurse's schedule. On an individual level, LOLA saved an average of 3.4 hours per patient or 23.6 minutes per call — an efficiency level difficult to reach manually without increasing clinical team resources.
- **54.69% Reduction in Heart Failure Readmissions:** Among patients monitored by LOLA, **the readmission rate due to heart failure decreased from 6.4% to 2.9%**, with only 4 readmissions recorded among 134 patients. This represents a 54.69% reduction in readmissions for this high-risk population.

### For Healthcare Professionals:

- **Manual burden eliminated:** LOLA fully absorbed the routine follow-up workload, **freeing the team from manually completing over 1,700 calls**. Nurses no longer rely on urgent incoming patient calls, and can now focus on reviewing alerts, prioritizing critical cases, and performing clinical interventions.
- **Improved discharge planning:** The time gained has enabled the team to establish a structured and proactive discharge review process — something that was difficult to implement before due to time constraints. **Nurses now review every hospital discharge daily, ensuring proper follow-up from day one and reducing post-discharge risks.**
- **Enhanced coordination with Primary Care:** Thanks to LOLA's alerts and risk stratification, the team carried out **15 timely referrals to Primary Care** for blood pressure management and diagnostic workups, ensuring patients remained stable across settings.

### For Patients:

- **Early Detection and Prevention of Decompensations:** **31 medication adjustments were made remotely** for 20 different patients, identified through LOLA's follow-up, to address symptoms like fatigue, edema, and reduced urination—all flagged by LOLA's alerts. Oral furosemide was specifically remotely adjusted for patients due to worsening symptoms. None of these patients died after intervention, and only one required hospitalization weeks later due to symptom progression.
- **Decompensations Managed on Time:** 15 out of 134 patients (9%) showed early signs of decompensation detected by LOLA. All were seen promptly, and **none required hospitalization**. These cases led to 15 referrals to the heart failure nursing unit for intravenous diuretics and 5 direct cardiology referrals for severe symptoms like pulmonary congestion or chest pain.



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