

## POST-DISCHARGE ARRHYTHMIA

# PATIENT'S HOME BASED CARE

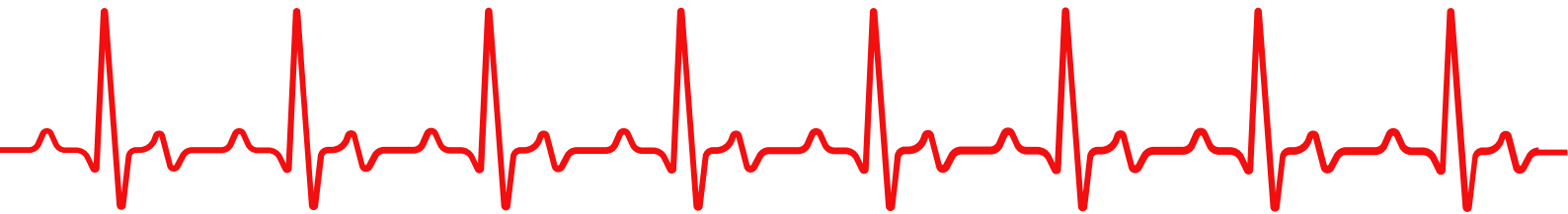


Home-based care involves the provision of medical services within the patient's residence. Occasionally, it encompasses visits to outpatient clinics although the primary care is delivered at home.<sup>[1]</sup> This approach grew significantly during the Coronavirus Disease 2019 (COVID-19) pandemic, offering an alternative to hospital care.<sup>[2]</sup> The aim is to enhance self-management, improve patient outcomes, and reduce health system usage through remote monitoring.<sup>[3]</sup> Technological advancements like the Digital Therapeutics program LYFE, developed by Lupin Digital Health, support remote monitoring, consultations, and chronic condition management, minimising hospital visits. These innovative care models can achieve high levels of care and patient satisfaction compared to traditional inpatient care.<sup>[4]</sup>

# Arrhythmia

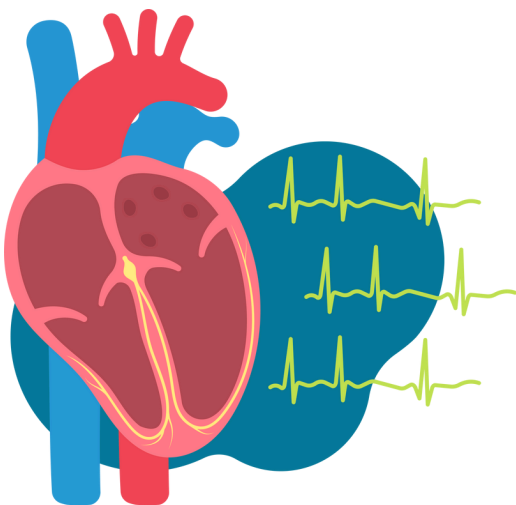
## DEFINITION, PREVALENCE, AND IMPORTANCE OF ADDRESSING ARRHYTHMIA

Arrhythmia refers to any abnormality in the rate or rhythm of a person's heartbeat. During an arrhythmia, the electrical impulses in the heart can be excessively rapid, excessively slow, or erratic, resulting in an irregular heartbeat.<sup>[5]</sup> It affects about 0.5% of people in India alone.<sup>[6]</sup> Addressing arrhythmia is crucial for preventing serious health complications, improving quality of life, enabling early detection and personalised treatment, and reducing healthcare costs. Effective management of arrhythmia is essential for individual health and broader public health outcomes.

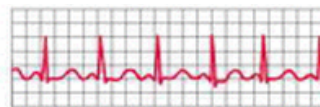


## TYPES OF ARRHYTHMIA

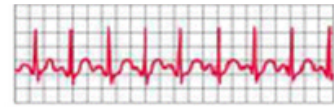
There are typically three types of arrhythmia: bradycardia, tachycardia, and atrial fibrillation.



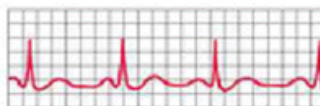
Normal Heartbeat



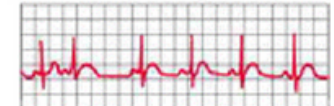
Tachycardia - Fast Heartbeat



Bradycardia - Slow Heartbeat

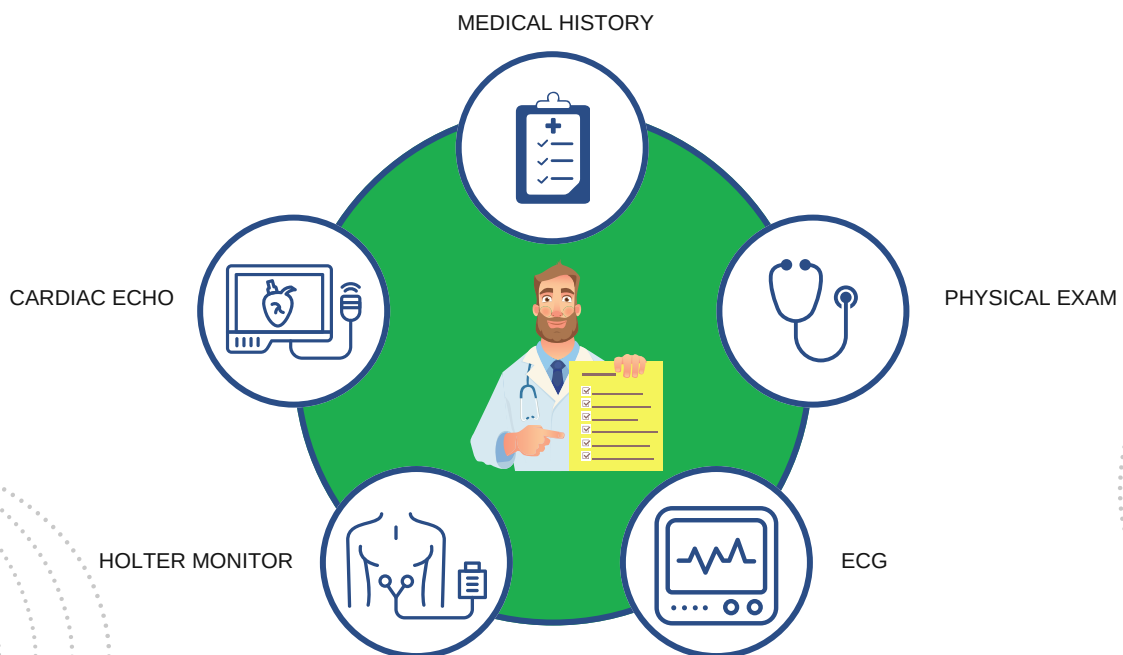
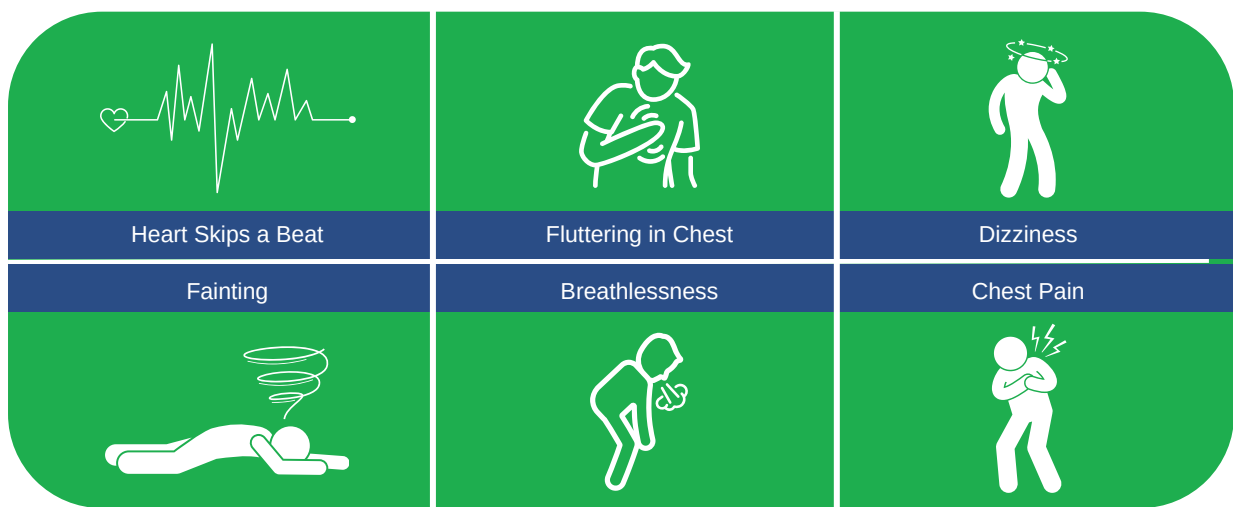


Atrial Fibrillation - Irregular and Fast Heartbeat



# Diagnosis

A doctor can sometimes diagnose an arrhythmia simply by checking the pulse rate and conducting a physical examination. Symptoms like dizzy spells or fainting can indicate an intermittent arrhythmia. To confirm an arrhythmia and determine its type, tests like an electrocardiogram (ECG), cardiac echo, and Holter monitor are used.



# Current Treatment Strategies/Surgical Intervention Diagnosis

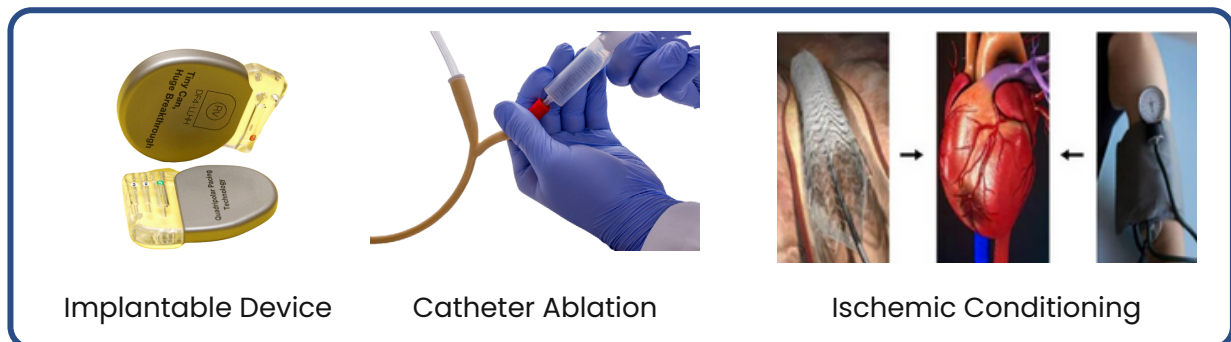
Different types of arrhythmia have their specific treatment options. Additionally, addressing underlying conditions, such as coronary heart disease or hypertension is often crucial for managing certain arrhythmia. Potential treatments include:

## Pharmacologic Therapy <sup>[7]</sup>

CLASS	DRUGS	INDICATION
Sodium channel blockers	Quinidine, Lidocaine, Propafenone	Recurrent arrhythmia
Beta blockers	Metoprolol, Atenolol, Bisoprolol, Nebivolol	Risk of sudden death
Potassium channel blockers	Sotalol, Amiodarone, Bretylium, Dronedaron	Severe complications
Calcium channel blockers	Diltiazem, Verapamil	Severe complications
Others	Digoxin, Atropine	Helpful in cardiac arrest (loss of heart function)

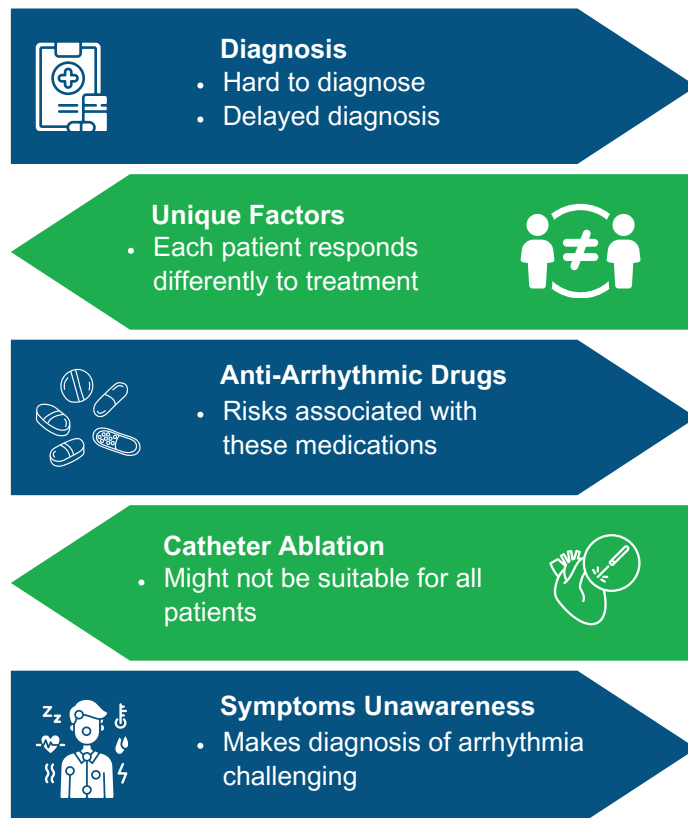
# Non-Pharmacologic Interventions

Cardiac pacing, implantable defibrillators, catheter ablation, and ischemic conditioning are key treatments for arrhythmia and heart failure. While effective, these methods have drawbacks like cost and complications.<sup>[8]</sup>

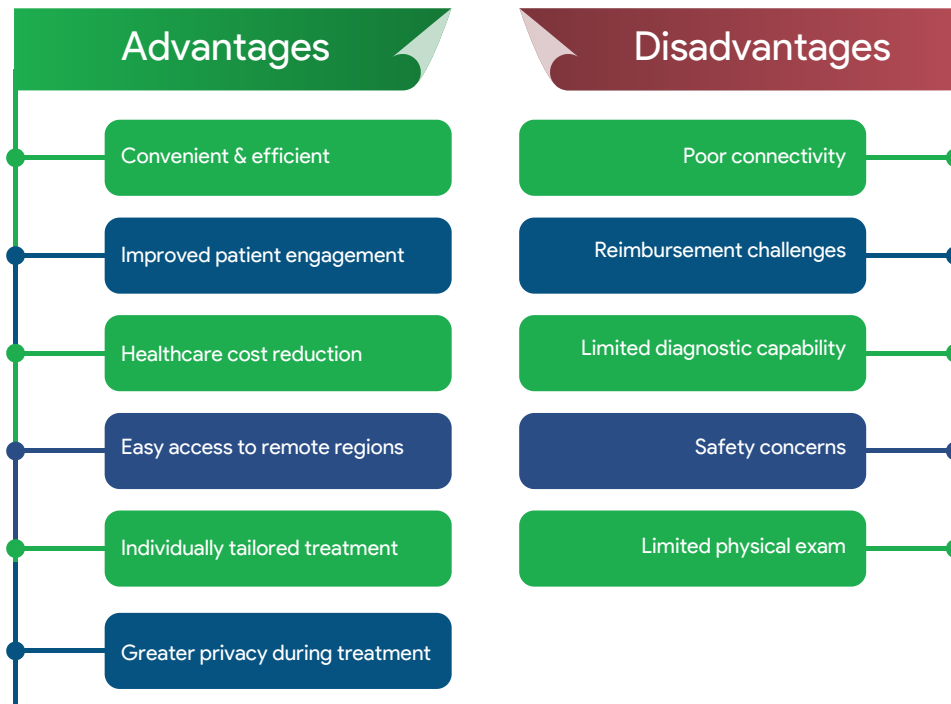


## Current Challenges in Treatment of Arrhythmia

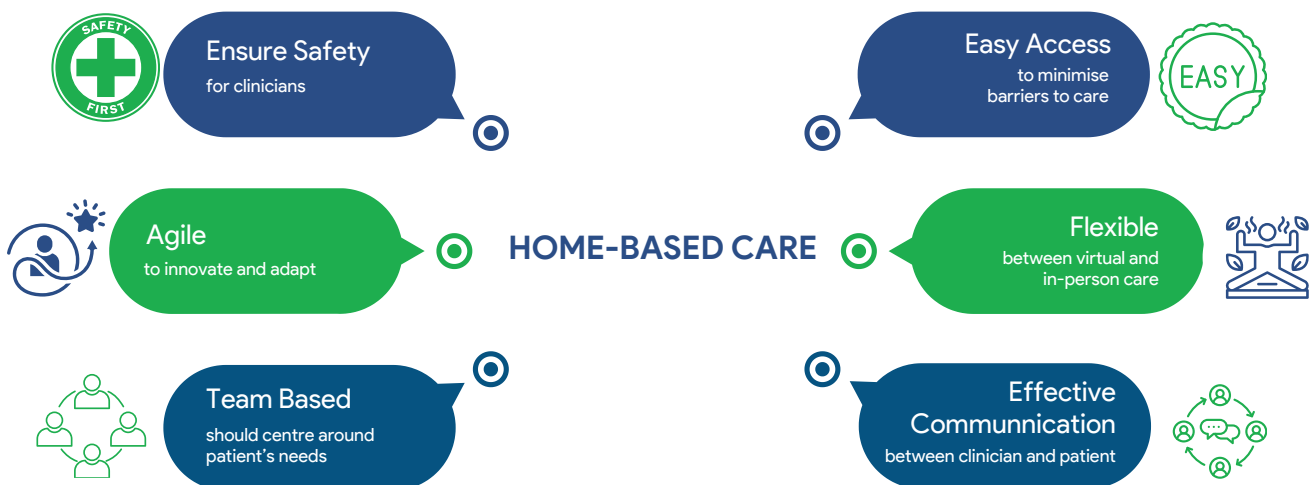
There are several reasons why diagnosing and treating arrhythmia is challenging.<sup>[9]</sup>



# Advantages and Disadvantages of Basic Remote Cardiac Care <sup>[10,11]</sup>



## Guiding Principles and Objectives for Developing a Home-Based Care Program



# Key Objectives



Cost Reduction



Patient Engagement



Access to Care



Revolutionising Experiences



Improving Outcomes

## Key Performance Indicators

We suggest using the following key performance indicators to evaluate the success of home-based care programs.

### Clinical Outcomes

- Reduction in mortality, disease progression and re-hospitalisation rates.
- Decreased duration of hospitalisation
- Improvement in adherence to follow-up and guideline-directed medical therapy

### Patient Experience

- Patient satisfaction scores
- User-friendliness of patient portal
- Likelihood to recommend home-based care referral
- Patient retention rates

### Healthcare System

- Ease of business
- Managing patient volume well
- Avoiding leakages and optimising revenue
- Improved care coordination
- Reduction in cost of care

### Payer Related

- Reduction in total cost of care availed by insurance

### Clinician Experience

- Reduction in clinician burnout
- Improved clinical involvement

## Ongoing Challenges Related to Home-Based Health Care <sup>[12]</sup>

1

Patient preference & safety

3

Clinician's concern & unregulated care

2

Insurance related challenges

4

Lack of supporting infrastructure

# Challenges and Mitigation Strategies for Home-Based Care

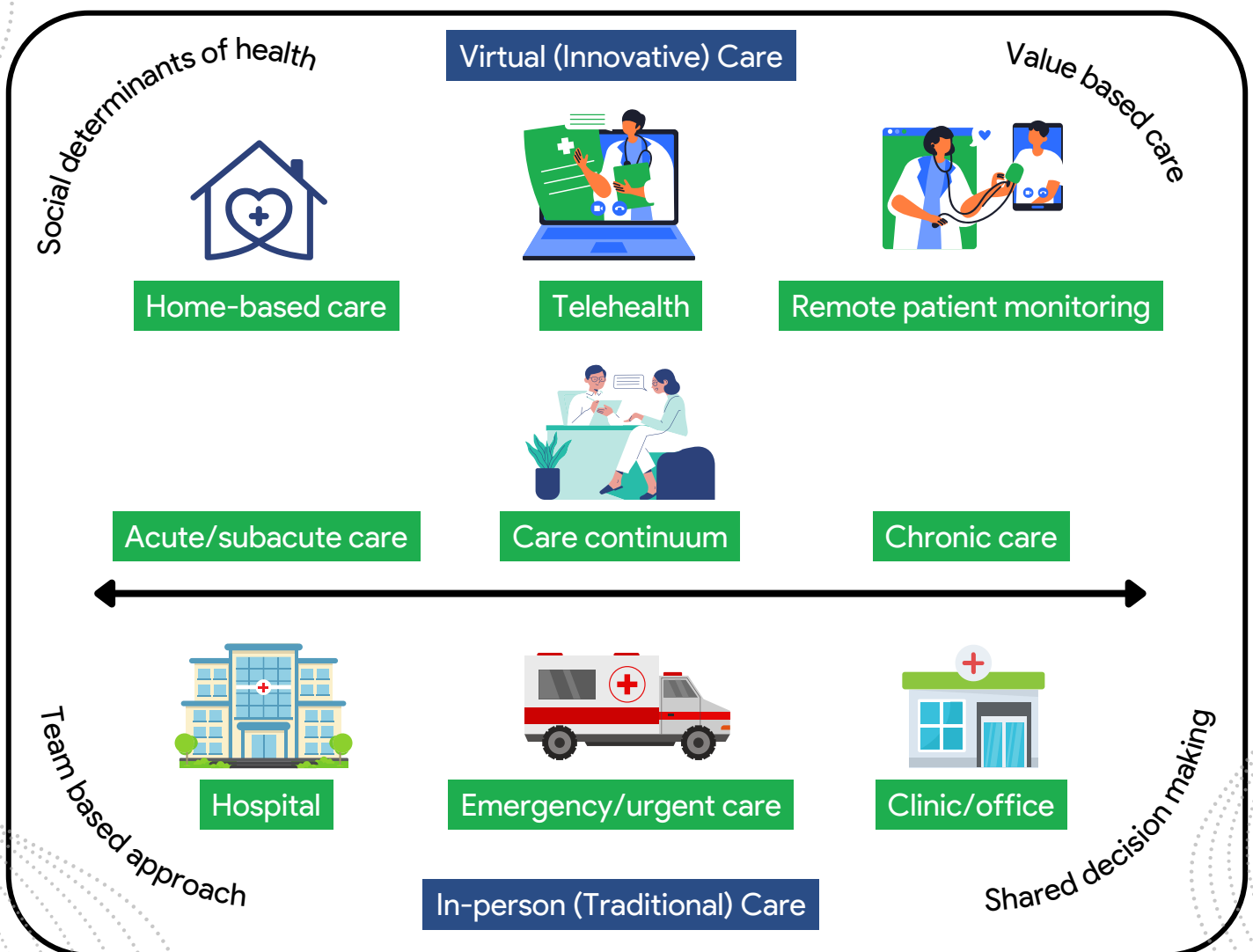
Despite this multiple challenges, such as affordability, access, and health equity exist. We have various mitigation strategies to address these issues:

Problems Related to	Challenges	Mitigation Strategies
Patients	Traditional view of health care delivery outside at OPD/IPD and at hospital	Incorporation into traditional healthcare delivery protocols of OPD/IPD
	Technical challenges	Easy digital tools/technology support
Patient safety	Environmental hazards (fall risk, infection prevention)	In-home assessment for home-based care and safety assessments
	Challenges with caregiver hand-off and communication	Simplified and standardised hand-off check lists/tools
	Escalation of service, when needed	Appropriate monitoring equipment and ability to access emergency care
Clinician	Longer waiting period/smaller consultation time/ longer transportation time and time to visit cardiologist	Transforming healthcare payment structures to emphasise value-based reimbursement to enhance affordability and accessibility by leveraging widely accessible telehealth and virtual care technologies
	Medical training	Incorporation of home-based care in medical education curriculums
Infrastructure	Lack of assistive Durable Medical Equipment (DME) for the home	Boost DME supply chain
	Need for in-home support services (e.g. cooking, bathing)	Expanded coverage of in-home services
	Need for other support services (e.g., laboratory, pharmacy, information technology)	Centralised management of mobile support services
	Need for uniform electronic medical record and data integration	Standardised interoperability of electronic medical record systems
Regulatory	No uniform standards for care delivery	Standardised methods to define and measure quality and outcomes in home-based care

# How is Innovative Care Different from Traditional Care?

An integrated model enables the provision of virtual-first, home-based care to patients with diverse wellness and healthcare needs, free from time constraints

## Innovative Care vs. Traditional Care



# Arrhythmia Clinical Care Pathway Incorporating Home-Based Care

## Hospital



Chronic arrhythmia management as part of inpatient hospitalisation and outpatient care

Routine inpatient or outpatient chronic arrhythmia care

## Home



Home-based care, including in-home evaluation

At-home care is similar to outpatient clinic-based care

## Home/Clinic/Office



Ambulatory arrhythmia care

- Follow-up visits at home or in-clinic with similar capabilities at both locations
- 12-lead ECG for drug monitoring
- Cardiac rhythm monitoring as indicated
- Additional testing as indicated



- Clinical assessment, with evaluation of symptoms and a physical examination
- Medication history and reconciliation
- A 12-lead ECG and/or cardiac telemetry monitoring
- Laboratory testing
- Additional testing as needed (e.g. echocardiogram, chest x-ray, ultrasound, etc.)
- Patient education
- Care coordination, with establishment of a follow-up plan

Asynchronous or follow-up virtual visit with a member of the outpatient clinic

## Conclusion

Home-based cardiac care, particularly in managing arrhythmia, represents a pivotal shift in the healthcare industry, catalysed by technological advancements. It offers substantial benefits such as improved convenience, cost-effectiveness, and patient satisfaction. However, challenges such as connectivity issues and limited diagnostic capabilities persist. Moving forward, integrating home-based care into clinical pathways demands careful navigation of regulatory frameworks and continuous innovation to optimise patient outcomes, safety, and efficacy. By leveraging these insights, healthcare systems can effectively evolve towards patient-centred models that blend traditional and innovative approaches to cardiac care.

## References

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