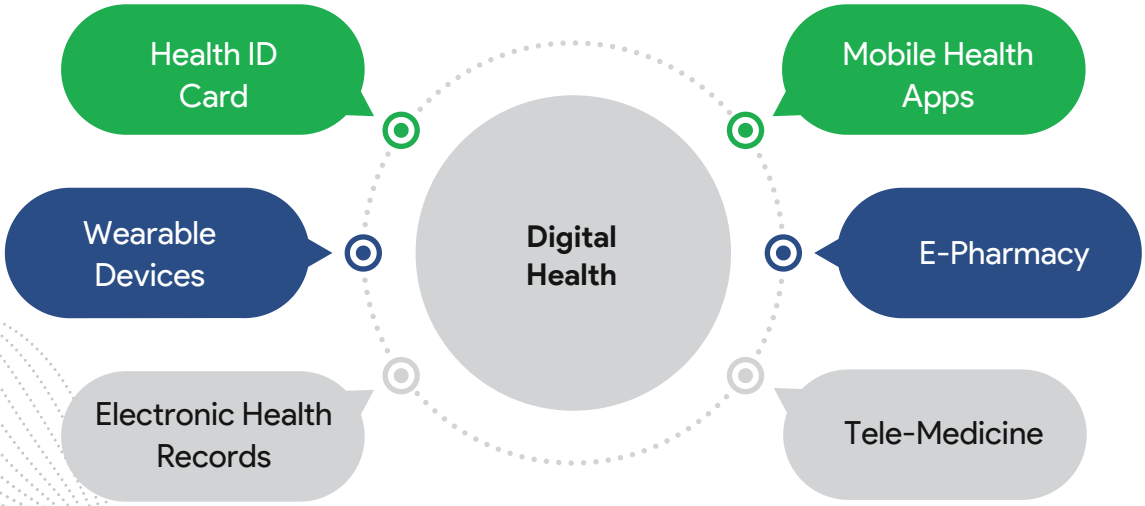
LUPIN DIGITAL HEALTH

POST-HF INDEX HOSPITALISATION

PATIENT'S HOME BASED CARE

Home-based care encompasses services provided either by licensed healthcare professionals or to be undertaken by patients post-operatively at their homes. These services are provided to adults, seniors, and pediatric clients who need support post-hospitalisation or to maintain independence at home, thereby minimising hospital revisits.[1]

The primary aim of home-based care continues to be ensuring patients have self or family care while minimising unplanned hospitalisations. These sudden hospitalisations can result in complications, elevated morbidity, added stress for both patients and caregivers and higher costs for providers and payers.[2] Thus, home-based care becomes beneficial.



The Covid-19 pandemic led to the worldwide uptake of digital health solutions. In response, India is developing a complete digital health system for all citizens, focusing on telemedicine and remote clinical management to improve accessibility and efficiency.[3]

Technological advancements like the Digital Therapeutics program LYFE, developed by Lupin Digital Health, enables remote monitoring, delivery of cardiac rehab components and reduces hospital visits. It offers convenience, access to professionals and better health management at home. This shift emphasises efficiency, accessibility, and patient-centric care in healthcare services.

HEART FAILURE

Heart failure (HF) is the condition where the heart is not able to pump enough blood because of which enough oxygen does not reach all body cells, this can further cause shortness of breath (congestion) and some may face coughing or fatigue.[4]

Prevalence and mortality of HF in India [5]

Prevalence

8 to 10 Million
(1% of Population)

Mortality 0.1 to 1.6 million/year

Definition & Classification of Heart Failure (HF) [6]

Ejection fraction is the proportion of blood in the heart that is pumped out by the left ventricle in a single beat.

HF with reduced EF (HFrEF)
LVEF ≤ 40%

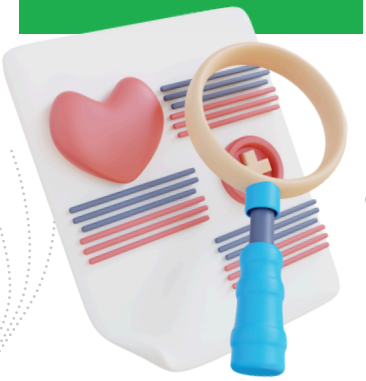
HF with mildly reduced EF (HFmrEF)
LVEF 41%- 49%

HF with preserved EF (HFpEF)
LVEF ≥ 50%

HF with improved EF (HFimpEF), HF with baseline LVEF of <40%, a 10 point increase from baseline LVEF and a second measurement of LVEF of >40%

LVEF - Left Ventricular Ejection Fraction

Diagnosis of HF [7]



- Breathlessness
  - Clinical History
  - Initial Investigation
    - Chest Radiograph
    - CBC, Renal Function Tests, Urine Analysis
    - Electrocardiogram
  - Physical Examination

Suspected HF

- Natriuretic Peptide Assessment
- Confirmed HF
  - HFrEF-LVEF 40%
  - HFmrEF-LVEF 41% - 49%
  - HFpEF-LVEF 50%
- Ventricular Function Assessment

Treatment Strategies

As per expert opinion from India, management of HF supports the use of quadruple therapy by following guideline recommendations from the European Society of Cardiology (ESC) and the American College of Cardiology/American Heart Association/Heart Failure Society of America.[7]

Drug: Angiotensin Receptor-Neprilysin Inhibitors (ARNIs)
Recommendation: HFrEF, HFmrEF, HFpEF

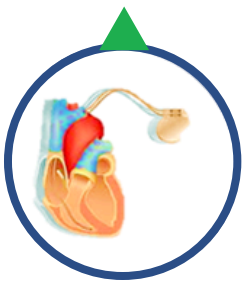
Drug: Beta-Blocker
Recommendation: HFrEF, HFmrEF

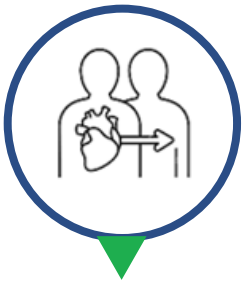
Drug: Mineralocorticoid Receptor Antagonists (MRAs)
Recommendation: HFrE, HFmrE, HFpEF

Drug: Sodium-Glucose Cotransporter-2 (SGLT2) Inhibitors
Recommendation: HFrE, HFmrE, HFpEF

Surgical Interventions for Management of HF [8]

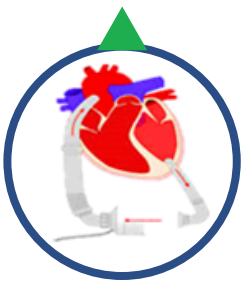
Implantable Cardioverter Defibrillator (ICD)





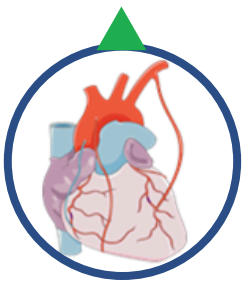
Heart Transplantation

Left Ventricular Assist Device (LVAD)



Percutaneous Coronary Intervention (PCI)

Coronary Artery Bypass Grafting (CABG)



Current Challenges in Treatment of HF

ONGOING CHALLENGES RELATED TO HOME-BASED HEALTH CARE

- Operational inconsistency in quality
- Lack of standard protocols for training
- Inadequate infrastructure
- Employee retention and utilisation
- Competitive landscape: Disorganised players in the market vs. structured players

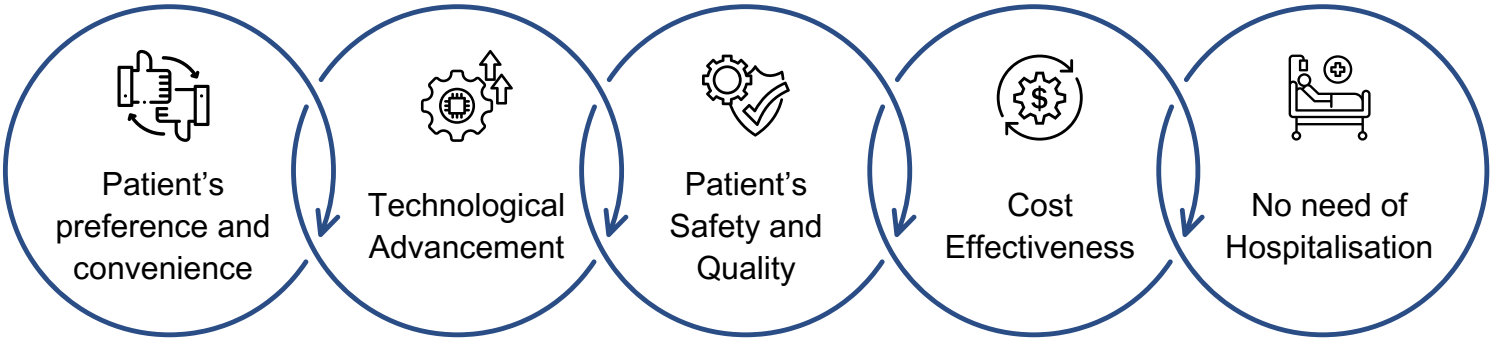
ADVANTAGES AND DISADVANTAGES OF BASIC REMOTE CARDIAC CARE

- Cost Effectiveness
- Wide Accessibility
- Early Intervention and Monitoring
- Intensive Care without Hospitalisation
- Empowers Patients and Caregivers
- Privacy while Receiving Treatment
- Digital Tool (online appointment, e-pharmacy)

- Restricted to basic monitoring and first aid
- Limitation to use equipments
- Requires trained healthcare professionals
- Safety Concerns

GUIDING PRINCIPLES

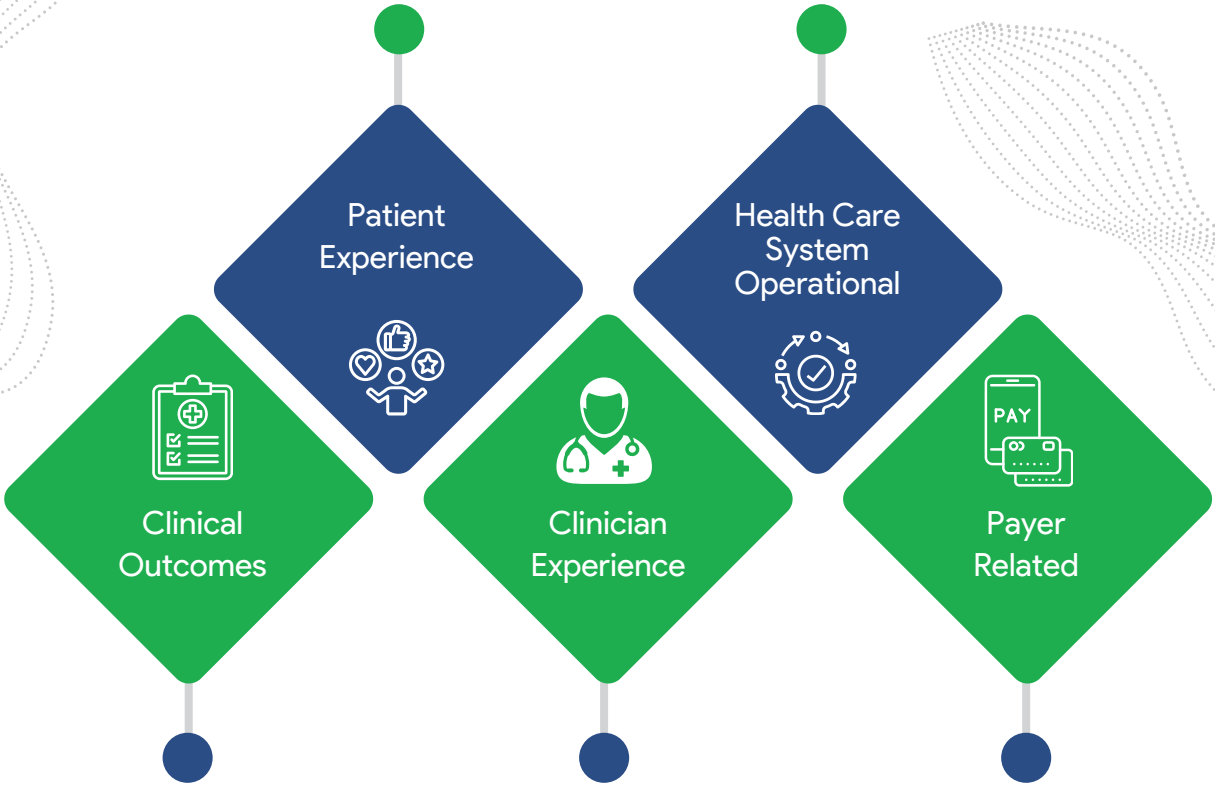
KEY OBJECTIVES FOR DEVELOPING A HOME-BASED CARE PROGRAM



KEY PERFORMANCE INDICATORS TO MEASURE THE SUCCESS OF HOME-BASED CARE PROGRAMS

- Patient feedback ratings
- Ease of use of patient portal
- Recommending/referring other patients
- Patient retention statistics

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



- Reduction in mortality
- Reduction in disease progression
- Reduction in re-hospitalisation rate
- Reduction in hospitalisation days
- Improvement in adherence to follow-up visits
- Improvement in adherence to GDMT

- Clinician involvement at ease

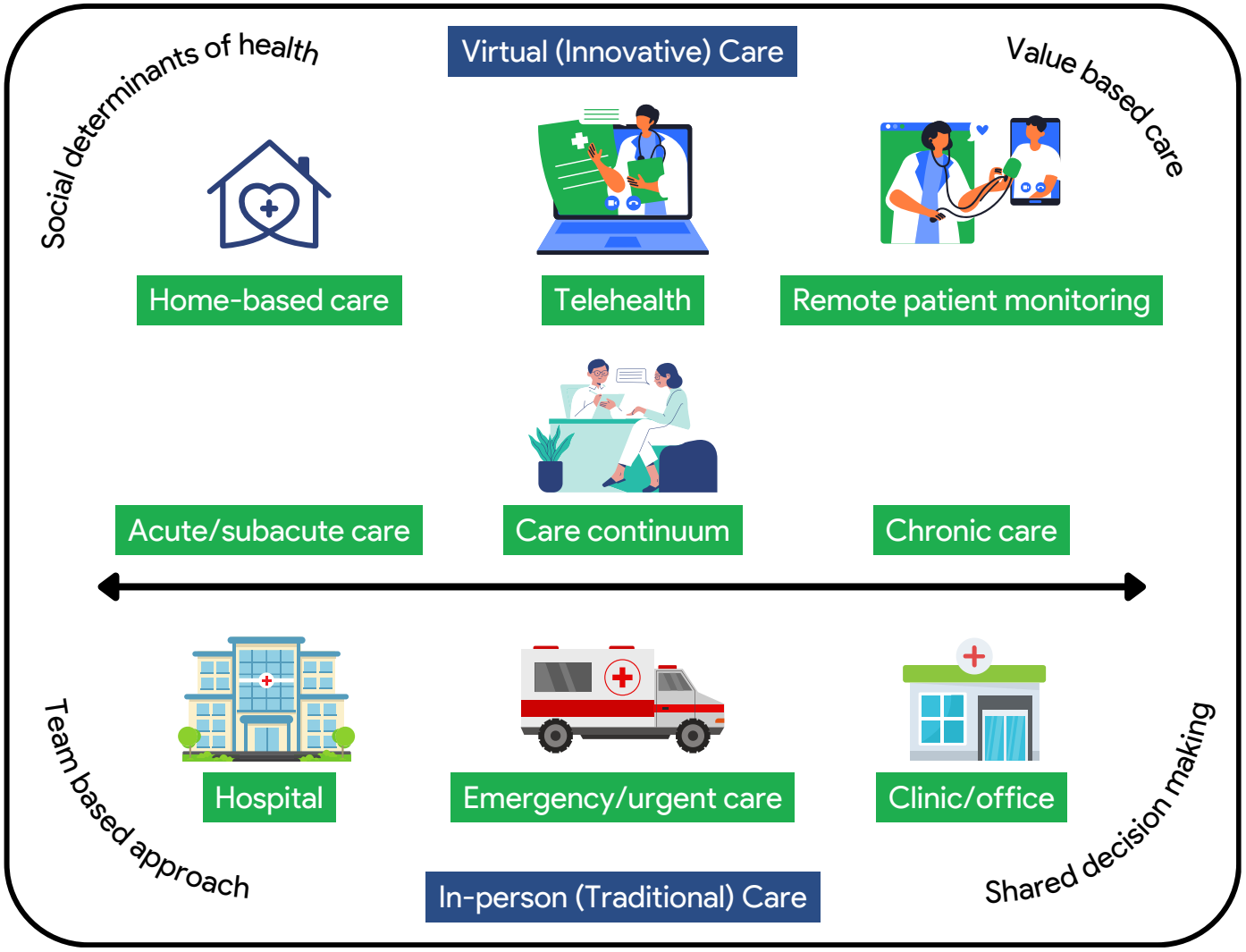
- Reduction in total cost of care availed by insurance

CHALLENGES AND MITIGATION STRATEGIES FOR HOME-BASED CARE

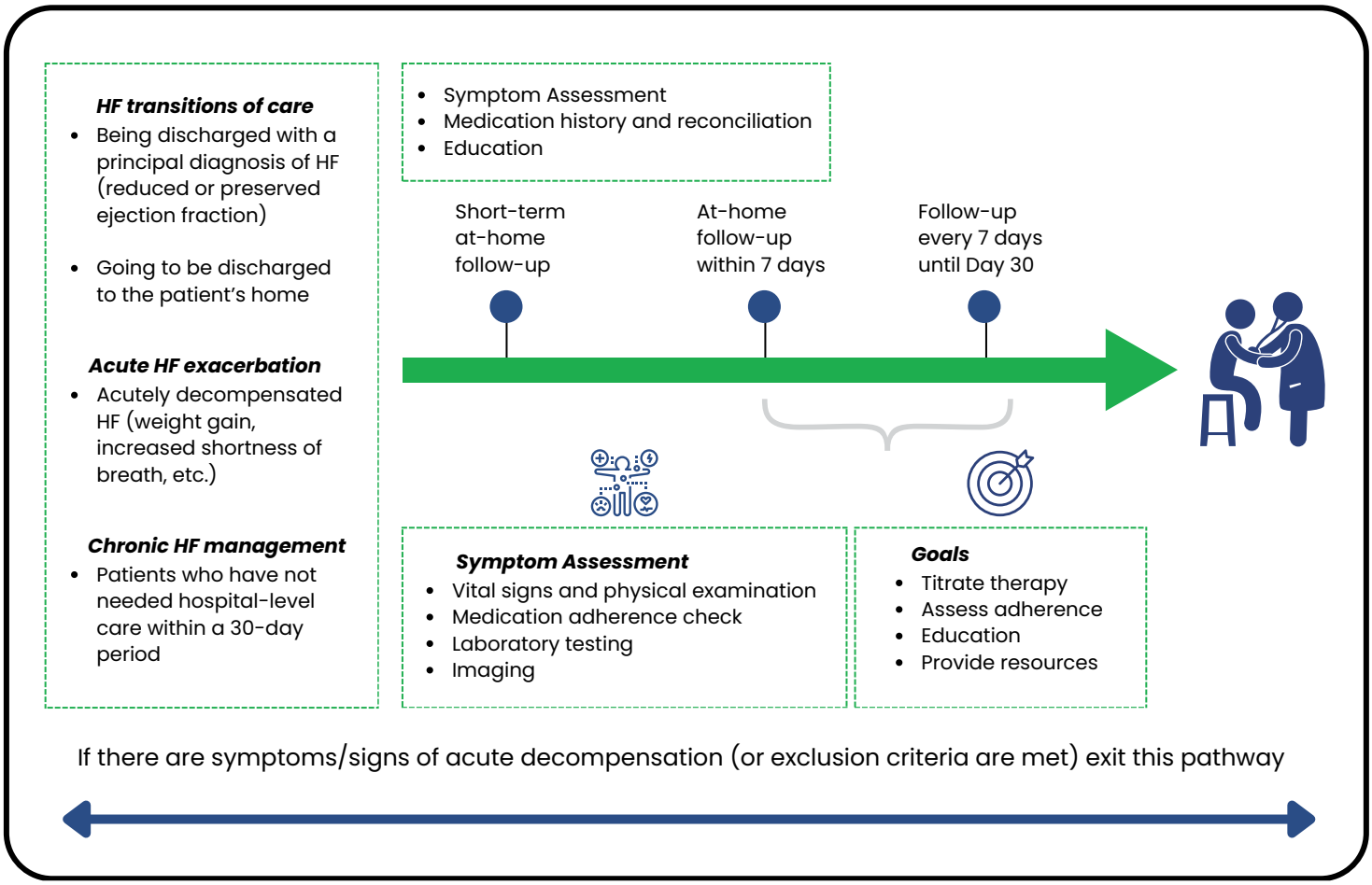
Problems related to	Challenges	Mitigation Strategies
Patients	Traditional view of health care delivery at hospital/OPD	Incorporation into traditional healthcare delivery protocols of OPD/IPD
	Technical hurdles	Easy digital tools/technology support
Patient safety	Environmental hazards (fall risk, infection 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 spend to visit cardiologist	Transforming healthcare payment structures through value-based reimbursement and leveraging telehealth/virtual care to enhance affordability and accessibility
	Medical training	Incorporation of home-based care in medical education curriculums
Infrastructure	Insufficient availability of durable medical equipment (DME) for home use	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
	Requirement for standardised electronic medical record and seamless data integration	Standardised interoperability of electronic medical record systems
Regulatory	Lack of standardised norms for delivering care	Standardised methods to define and measure quality and outcomes in home-based care

HOW IS INNOVATIVE CARE DIFFERENT FROM TRADITIONAL CARE?

This model provides patient-centred care across all health needs, unrestricted by time or location. It uses a team-based approach with patient involvement, covering outpatient services, remote monitoring, and behavioral health. It also manages transitions between care settings and offers post-acute support like home rehabilitation and palliative care, ensuring seamless care and addressing medical and social health factors.



HF CLINICAL CARE PATHWAY INCORPORATING HOME-BASED CARE



CONCLUSION

The post-HF home-based care workbook is designed to empower health care team members with essential tools and resources for providing exceptional, patient-centred care in home settings. By promoting this approach, we aim to boost clinician satisfaction and effectively address patient needs. Ultimately, the objective is to enable seamless transitions for both patients and clinicians between traditional hospital care and innovative home-based solutions.

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