Project Title

CareHub: Reducing Heart Failure Re-admissions

Organisation(s) Involved

National University Heart Centre Singapore, National University Hospital, National University Health System, National University of Singapore Yoo Loo Lin School of Medicine

Project Category

Care Redesign, Quality Improvement

Keywords

Care Redesign, Quality Improvement, Clinical Improvement, Chronic Disease Management, Post-Discharge Care, Care Continuity, Transitional Care, Community Care, Timely Interventions, Early Detection, Risk Stratification Tools, High Risk Patients, Heart Failure Patients, Co-morbidity, Cardiology, Multidisciplinary Care Coordination, Tele-monitoring, Re-Admission Rate, National University Heart Centre CareHub

Name and Email of Project Contact Person(s)

Name: Weiqin Lin

Email: weiqin_lin@nuhs.edu.sg

CareHub:
Reducing Heart Failure Re-admissions

Weiqin LIN[†‡], Wan Xian CHAN[†‡], Helen CHEN[†], Yee Kian TAY[†], Jeffrry Kwan Sui YOO[†], Myat Myint Myint KYAING[†], Sork Chin TEO[†], Subha RAJAIYA[†], Cindy Hsui Ling ONG[†], Shuting LIN[†], Gui Hua HUANG[†], Li ZHOU[†], Cheng Zhan CHUA[†], John Chee Meng WONG[†]

[†]National University Health System, Singapore. [‡]National University Heart Centre, Singapore

CURRENT ISSUES

• Heart failure patients have multiple co-morbid conditions and often complicated social circumstances, resulting in a high risk of hospital re-admission despite optimal inpatient treatment for decompensation

• Many factors contribute to high re-admission rates
  o Inpatient Care
    ▪ Late recognition of patients at high re-admission risk
    ▪ Inadequate education of condition
    ▪ Poor family communication and education
    ▪ Suboptimal empowerment of patient/ family in self-care
    ▪ Unresolved social issues
  o Post-discharge Issues
    ▪ Absence of medical guidance when patient/ family faced with difficulties
    ▪ Poor access to home medical/ nursing care
    ▪ Lack of link-up with community care facilities
    ▪ Suboptimal conveyance of patient's condition to community care partners
    ▪ Poor care coordination between various healthcare providers

AIMS OF CareHub

• Early identification of patients at high re-admission risk

• Multi-disciplinary approach to formulate best discharge plan for inpatients

• Unification of post discharge transition care services under one roof

• Serve as link between the hospital and community resources

• Provide post discharge phone calls and a nurse-manned hotline service supported by specific clinic protocols/ pathways

CARE RE-DESIGN

Inpatient:

Early risk stratification with validated tool (LACE: Length of stay, Acuity of admission, Co-morbidities, Emergency department visits past 6 months) by dedicated computer system

Daily multi-disciplinary (ward nurse, ward doctor, care coordinator, social worker) huddle to formulate better discharge care plan

Early care coordination/ management, early allied health involvement (physiotherapist, occupational therapist, pharmacist)

Consolidation of all patient's information into one accessible document (demographics, social set up, financial situation, medical issues, functional status, goals of care, future medical appointments)

Post Discharge:

• Consolidation of post-discharge care under one roof (Telehealth monitoring; Home nursing/ home medical/ hospice, Day care; Step down care facilities; Case management)

• Post discharge phone call

• Weekly post-discharge multi-disciplinary round

• Nurse-manned hotline service supported by specific protocols (eg chest pain, breathlessness), for clinical assessment, timely interventions and early assess to physician review

• Continued care coordination

EARLY RESULTS (STUDY ONGOING)

• **Preliminary analysis**
  o First 53 patients enrolled into CareHub from April 2016 to June 2016 were analysed according to their pre-enrolment and post-enrolment hospital utilisation
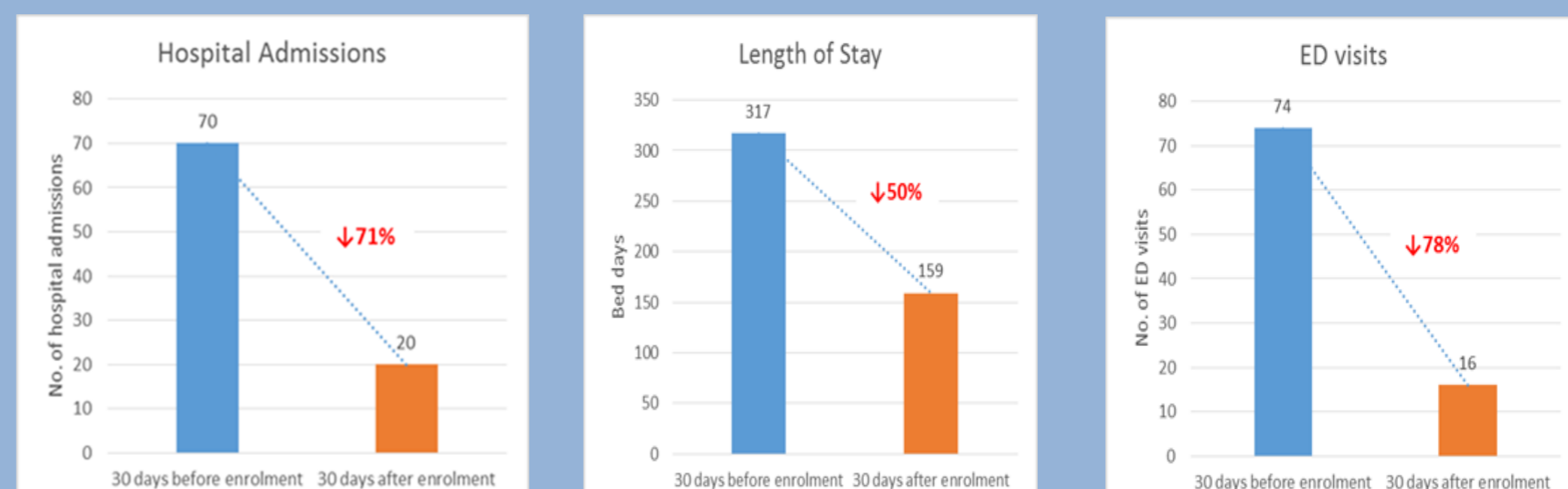
• **Randomised-Controlled Data**
  o High risk patients meeting the LACE score criteria over a 4-month period (July 2016 to October 2016, inclusive) were randomly assigned into intervention group (CareHub enrolment) or into control group (usual care)
  o 88 patients were enrolled into CareHub within this period, while 72 patients were recruited into the control arm
  o 3-month post-randomisation hospital utilisation data was obtained

Group	N	Average 3-month Post Randomisation Hospital Utilisation Rate		
		Re-admission	SOC Visit	ED Visit
Intervention (CareHub enrolment)	88	0.20	1.00	0.73
Control (Usual Care)	72	0.26	0.78	0.57

  o Trend toward decreased re-admission rates in the intervention arm compared to the control arm
    ▪ Paradoxical increase in specialist outpatient clinic (SOC) and emergency department (ED) visits for intervention arm
    ▪ Likely due to early detection of medical issues during phone-call follow ups or patients actively calling up nurse-manned hotline
    ▪ Despite increased SOC and ED visits, no corresponding increase in re-admission rates in the intervention arm

CONCLUSION

• Patients with chronic health conditions often have complicated social/ financial issues which present as major obstacles as they navigate the increasingly complex healthcare system

• Many hospital programmes and community resources are available to help these patients cope with living with disease in the community and avoid admissions. However, poor care coordination and complicated workflows preclude patients from deriving maximal benefits

• The need for a lean, streamlined and consolidated approach to chronic disease care and transition care is of utmost urgency

• Having a streamlined and consolidated transition care programme might be the key to conserving healthcare resources and manpower

• A cohesive and intuitive model of transition care can also help to improve patient safety and at the same time, decentralise chronic disease care to the community

National University Heart Centre, Singapore
A member of the NUHS

NUS National University of Singapore Yong Loo Lin School of Medicine

NUH National University Hospital

NUHS National University Health System