

# Impact of early intervention and rehabilitation on functional decline in patients hospitalised for acute heart failure

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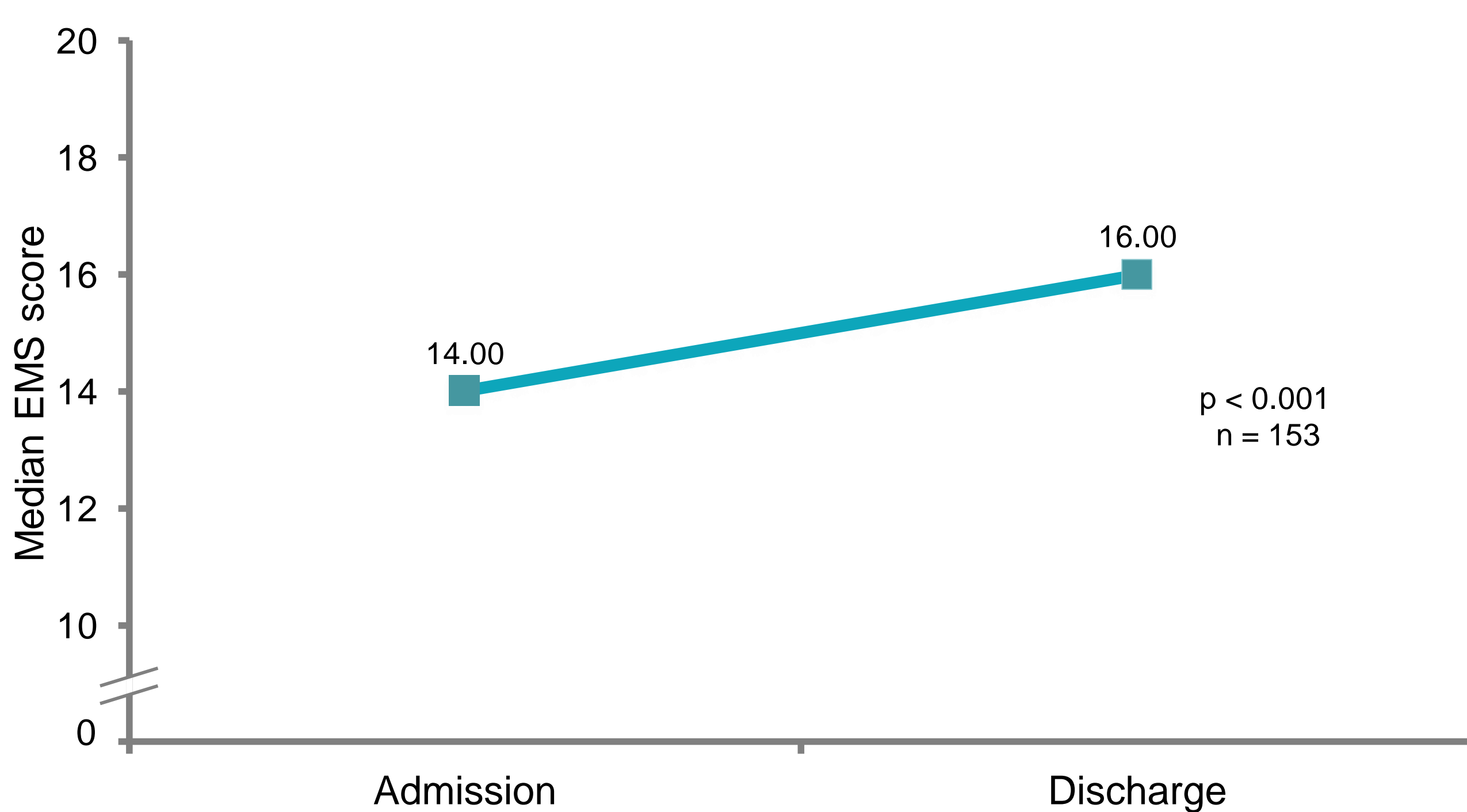
## Background

The occurrence of functional decline in elderly adults hospitalised for acute illness is well established with decline occurring as early as day 2 of admission. Acute heart failure (AHF) is the most common cause of admissions for patients aged 65 and over in the UK. Patients admitted to the Heart Failure Unit (HFU) at St George's Hospital are high risk for functional decline throughout their stay having an above average length of stay of 19 days, mean age of over 71 years, and 80% of patients having at least one other chronic disease. Traditionally these patients would not be seen by a physiotherapist until after their intravenous diuretic treatment was completed. The aim was to assess the impact of early and specialist physiotherapy assessment and intervention on functional decline during hospitalisation of patients with AHF.

## Results

The median length of stay was 10.0 (range 1-72) days. Patients waited for physiotherapy on average less than 24 hours (range 0-7 days). Patient EMS scores increased significantly ( $p < 0.001$ ) from admission (Mdn 14.00: IQR 11.00-18.00) to discharge (Mdn 16.00: IQR 13.00-18.00). Seven patients (5%) had a decrease, seventy-four patients (48%) showed no change and seventy-two patients (47%) had an increase in their EMS score on discharge compared with admission.

**Change in functional outcome from admission to discharge**



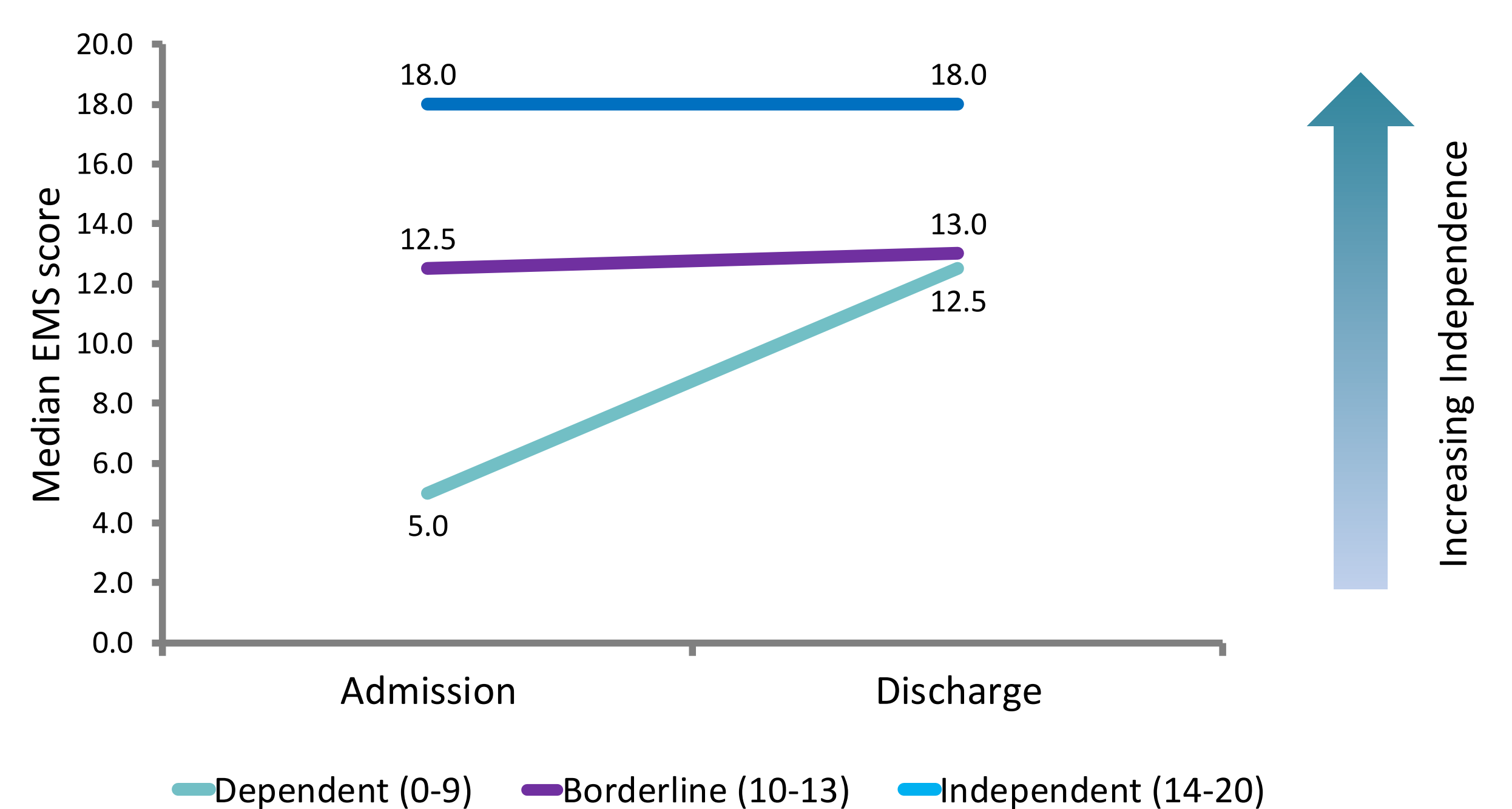
## Conclusion

Early physiotherapy intervention for patients hospitalised with AHF appears to significantly improve their function from admission to discharge. The EMS has been shown to be responsive to change and the minimally clinical significant difference estimated at 2 points which has been the change in this sample group. During their hospitalisation only a small percentage of patients scored lower on discharge than admission, indicating a decline in function. The majority of patients either maintained their function or improved during their stay. In particular those patients more dependent on admission had the most benefit from early physiotherapy intervention. With the patient group in question being frail, elderly, and having an expected long hospital stay, they are at high risk of functional decline. It appears that the employment of a specialist physiotherapist dedicated to this patient group allows early assessment and treatment which is beneficial to increase mobility, and decrease dependence on discharge. A matched comparative sample would be useful.

## Methods

The Elderly Mobility Scale (EMS) was used to assess function on both admission and discharge from the HFU for 153 patients between March 2016 and October 2017. Patients were provided with individualised physiotherapy intervention whilst an inpatient aimed at preventing functional decline, planning for discharge, and promoting rehabilitation and self-management. Data sets were analysed for normality with the Shapiro-Wilk test and compared using the Wilcoxon signed ranks test. Data on admission date to both discharge and first assessment by physiotherapy were collected.

**Dependency category on admission and change in dependency on discharge**



The EMS categorises patients into dependency levels based on score achieved. For dependent patients (EMS 0-9, n=30) on admission the median EMS score changed from 5.0 to 12.5. For borderline category patients (EMS 10-13, n=42) median EMS changed from 12.5 to 13.0. Patients in the independent category on admission (EMS 14-20, n=81) had no change in their median admission EMS score of 18.0. On admission 20% of patients were in the dependent category. This reduced to 6.5% on discharge. Patients categorised as independent increased from 53% on admission to 71% on discharge.

## Implications



**Key-Words:** Early intervention, Acute heart failure, Inpatient rehabilitation

