

# Association Between Use Of A Multidisciplinary Nurse- And Allied Health-Led Management Service For COPD And Subsequent Hospitalization Due To Ambulatory Care Sensitive Conditions

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## Background

- **Ambulatory care sensitive condition (ACSC):**
  - The conditions for which hospitalization could be prevented by timely and effective ambulatory care by either preventing the onset of an illness or condition, controlling an acute episodic illness or condition, or managing a chronic disease or condition [1].
- **ACSC admission/hospitalization**
  - Avoidable hospital admissions;
  - Used as an indicator for accessibility and quality of ambulatory care.

The list of ACSC developed in Hong Kong SAR

Condition
Pneumonia
Congestive heart failure (CHF)
Chronic obstructive pulmonary disease (COPD)
Cellulitis
Asthma
Dehydration and gastroenteritis
Angina
Perforated or bleeding ulcer
Convulsions and epilepsy
Iron deficiency anaemia
Hypokalemia
Influenza
Gangrene
Pyelonephritis/ UTI
Diabetes & complications
Hypertension
Other respiratory infection
Hypoglycemia
Constipation
Dizziness and giddiness
Fluid overload disorder
Atrial fibrillation
Chronic kidney disease, unspecified
Chest pain, unspecified

- **Chronic obstructive pulmonary disease (COPD)**
  - Associated with complications in multiple organs and systemic comorbidities [2-4]
  - Effective ambulatory management could reduce the risk of hospitalization [5-7]
- **Nurse and allied health clinics (NAHC) for respiratory care: ambulatory COPD management**
  - Risk stratifications based on clinical and spirometry assessments [8]
  - Level 1: health education on smoking cessation/ physical activity;
  - Level 2: Level 1 + consultation for COPD self-management and support
  - Level 3: Level 2 + pulmonary rehabilitation and crisis management education and support

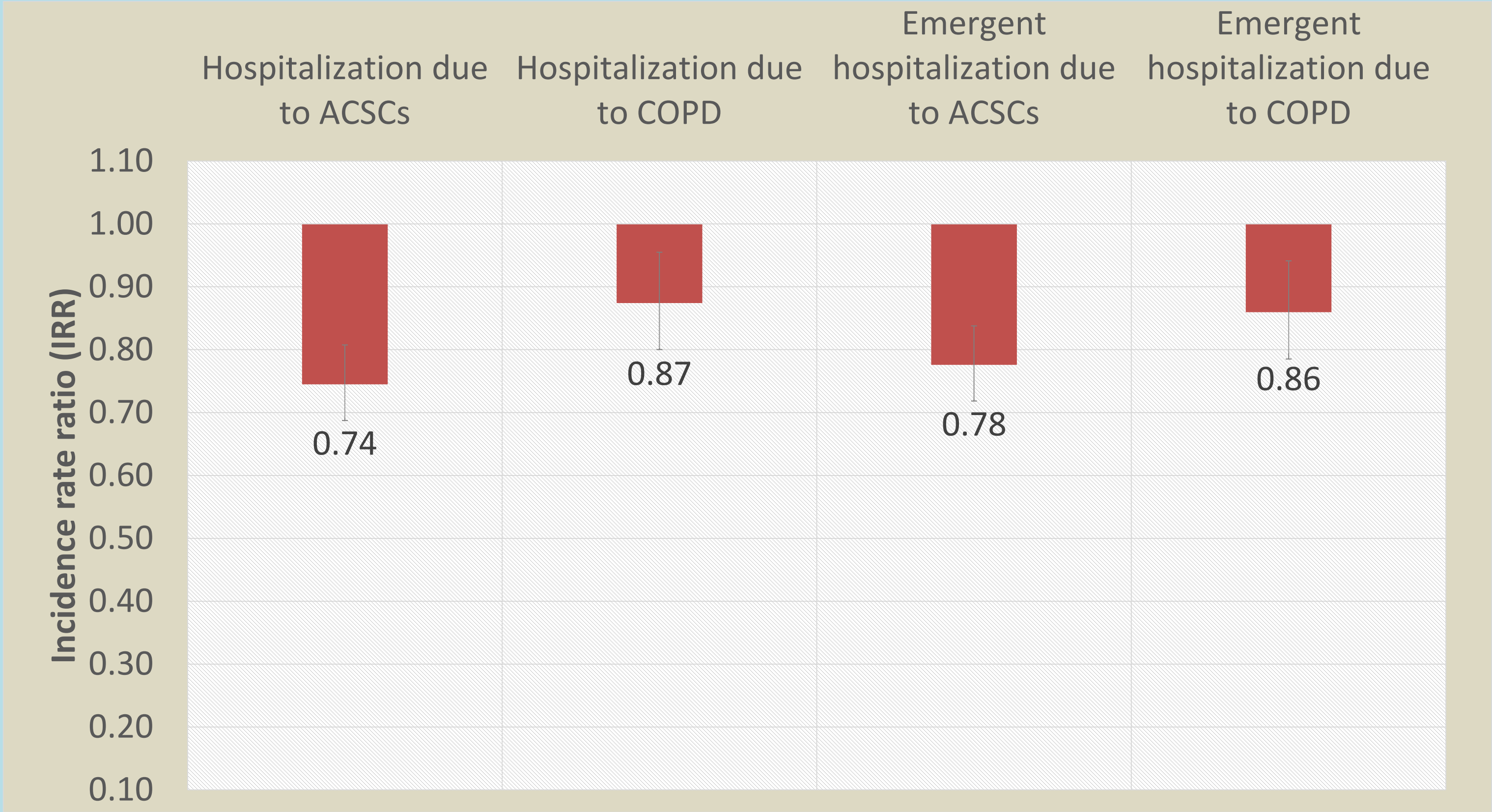
## Methodology

- ◆ **Retrospective cohort design**
- ◆ **Data source**
  - ◆ Hospital Authority Data Collaboration Laboratory (HADCL)
  - ◆ Public healthcare utilization records for all the residents for over 20 years
- ◆ **Study sample**
  - ◆ Patients diagnosed with COPD
  - ◆ Used public outpatient services during 2010-2014
- ◆ **Exposure**
  - ◆ Exposure group: those who used the NAHC for respiratory care during 2010-2014
  - ◆ Reference group: those who did not use the NAHC-Respiratory suring entire follow-up period (2010-2019)
- ◆ **Outcomes: ACSC admission due to different principal diagnosis**
  - ◆ Number of admission and length of stay
- ◆ **Propensity score matching**
  - ◆ Variables included comorbidities, clinical procedures used, medications prescribed, healthcare service utilization, smoking status, BMI, social-demographics
- ◆ **Analysis**
  - ◆ Generalized linear regressions
  - ◆ Incidence rate ratio (IRR) used for comparison

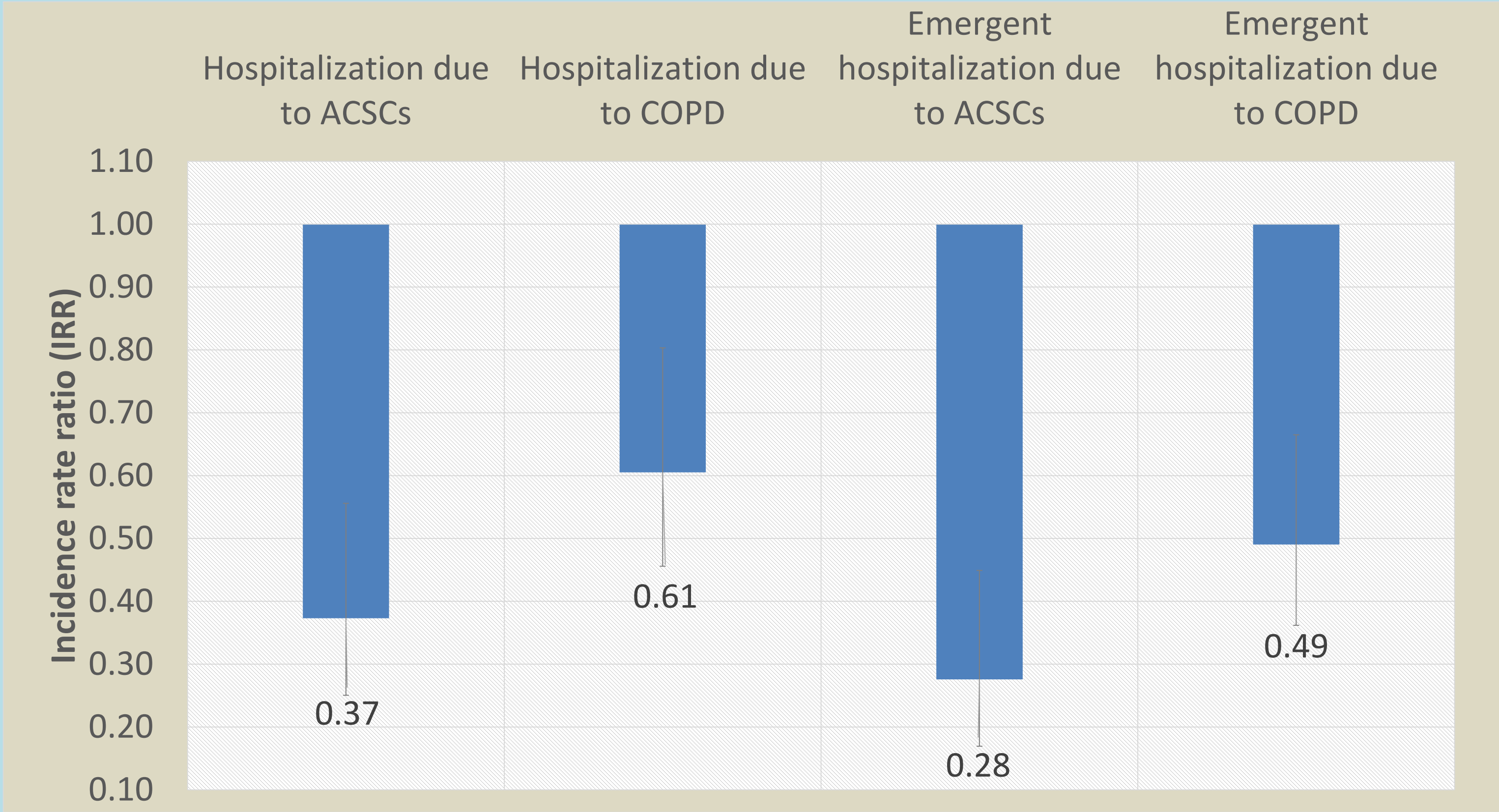
## Results

The incidence rate ratios (IRRs) of the hospitalization outcomes of the two comparison groups are presented in the charts

IRRs for **number of hospitalizations**



IRRs for **total length of stay of hospitalizations**



- Use of NAHC-Respiratory was associated with lower utilization of hospitalizations due to ACSCs, particularly overall length of stay
- The association was similar between emergent hospitalizations and non-emergent hospitalizations
- The association was slightly stronger for hospitalizations due to all ACSCs combined than those due to COPD alone

## Discussion

- ✓ This primary care-based, multidisciplinary COPD management service and support program was associated with lower ACSC hospital admissions.
- ✓ It might have the ability to improve ambulatory disease management and support self-care, in order to reduce avoidable hospitalizations.
- ✓ It has the potential to reduce hospital resource consumptions due to ACSCs, not only COPD itself but also other comorbidities and/or complications related to COPD

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