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## POSTER ABSTRACT

### Avoidable emergency admissions for ambulatory care sensitive conditions in the Republic of Ireland: analysis of regional determinants

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Brenda Marie Lynch<sup>1</sup>, Tony Fitzgerald<sup>1</sup>, Paul Corcoran<sup>1</sup>, Claire Buckley<sup>1,2</sup>, Orla Healy<sup>2</sup>, John Browne<sup>1</sup>

1: University College Cork, Ireland;

2: Health Service Executive, Ireland

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**Background:** Over the past 10 years in Ireland, emergency admissions have increased by almost 1,000 per annum from 32,000 in 2005 to 41,500 in 2016. Emergency admissions among ambulatory care sensitive conditions ACSCs are deemed to be potentially avoidable in a well performing health system. Many of the underlying conditions that result in an emergency admission are treatable in a primary or urgent care setting. As a result, high emergency admissions among such conditions are seen as an indicator of an underperforming health system.

**Aim:** To measure the impact of population and health system factors on county-level variation in potentially avoidable emergency admissions among ACSCs over the period 2014 to 2016.

**Methods:** Hospital In-Patient Enquiry admissions data was used to calculate age adjusted admission rates for ACSCs. These admission rates were constructed by county of residence for the period 2014-2016.

A number of a priori factors were identified as potential drivers of these avoidable emergency admissions. Negative binomial regressions were used to identify which of these factors was significantly associated with admission rates. Population factors were first introduced into the model, including deprivation and rurality. The subsequent model included these population factors, together with health system factors such as primary care access, hospital policy and health care funding. We measured the reduction in variability in avoidable admissions at each stage.

**Results:** Nationally, there were over 250,000 admissions for ACSCs for the period 2014-2016. The age-adjusted admission rates for the combined 14 conditions varied across counties. The national rate was 1,900 per 100,000 with a minimum of 1,462 per 100,000 in Kerry and a maximum of 2,959 per 100,000 in Carlow.

Of the population factors, unemployment was associated with a 20% higher rate of avoidable admissions incidence rate ratio IRR: 1.22; 95% CI 1.05, 1.41. The system factors that influenced avoidable admissions included the conversion rate of emergency department

presentations to admissions IRR: 0.96; 95% CI 0.92, 1; emergency admissions with length of stay equal to one IRR: 1.24; 95% CI 1.14, 1.34; and, the percentage of population with private health insurance IRR: 0.93; 95% CI 0.89, 0.97.

The degree of unexplained variation in admissions in each county decreased as the model was expanded to include all factors. The degree of over-dispersion fell by 20%  $\alpha = 0.05$  to  $\alpha = 0.04$  after adjusting for the population level factors of unemployment and rurality. This fell by a further 30%, to  $\alpha = 0.025$  having allowed for system level factors. Therefore, the final full model was found to reduce the degree of unexplained variation in admissions in each county by 50%.

**Conclusions:** Geographical variation in emergency admission for ACSCs is associated with unemployment, levels of short stay emergency admissions, conversion rates at emergency departments and levels of private insurance. These findings suggest that the management of ambulatory conditions is primarily driven by a combination of socioeconomic conditions and hospital admission policy.

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**Keywords:** avoidable admissions; ambulatory care; deprivation; health system factors

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