

## **ABSTRACT**

### **Objective**

To calculate the current and projected financial burden of Emergency General Surgery (EGS) hospital admissions in a single-payer healthcare system.

### **Summary Background Data**

EGS is an important acute care service, which demands significant healthcare resources. EGS admissions and associated costs have increased over time, associated with an ageing demographic. The National Health Service (NHS) is the sole provider of emergency care in Scotland.

### **Methods**

Principal, high and low Scottish population projections were obtained for 2016 until 2041. EGS admission data were projected using an ordinary least squares linear regression model. An exponential function, fitted to historical length of hospital stay (LOS) data, was used to project future LOS. Historical hospital unit cost per bed day was projected using a linear regression model. EGS cost was calculated to 2041 by multiplying annual projections of population, admission rates, LOS, and cost per bed day.

### **Results**

The adult (age>15) Scottish population is projected to increase from 4.5 million to 4.8 million between 2016 and 2041. During this time, EGS admissions are expected to increase from 83,132 to 101,090 per year, cost per bed day from £786 to £1534, and overall EGS cost from £187.3 million to £202.5 million.

## **Conclusions**

The future financial burden of EGS in Scotland is projected to increase moderately between 2016 and 2041. This is in sharp contrast to previous studies from settings such as the United States. However, if no further reductions in length of hospital stay or cost per bed day are made, especially for elderly patients, the cost of EGS will rise dramatically.

## **MINI-ABSTRACT**

The future costs of Emergency General Surgery (EGS) in a single-payer healthcare system are not known. We used data from Scotland to develop cost projections to 2041. EGS costs will likely increase moderately, but estimates are highly dependent on continued reductions in length of stay.