

Supplemental Online Content

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eMethods. Supplementary Methods

This supplemental material has been provided by the authors to give readers additional information about their work.

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Pseudonymised data from Hospital Episode Statistics (HES) and the Civil Registration Mortality (formerly known as the Office of National Statistics Mortality) datasets were supplied under Data Access Request Service (DARS) agreement DARS-NIC-170211-Z1B4J. No patient identifiable information was used therefore no patient consent or institutional review board approval was sought.

On discharge coders examine the clinical records, using the Classification of Intervention and Procedures, (OPCS-4) and International Classification of Diseases (ICD-10) to convert procedures and diagnoses respectively. In the UK NHS, these clinical codes are grouped into Health Resource Group (HRGs) which translate to payment of the healthcare provider.

All episodes of care extracted from Admitted Patient Care (APC) were aggregated into admissions (or spells).⁴ Those with missing or duplicated spell identifiers, inconsistent or incomplete spells (with missing spell start and/or end flags) were excluded. Only the earliest recorded (index) tracheostomy in the study period was analyzed for each patient, those with evidence of prior tracheostomy in the 5 years prior were also excluded. Cohort identification was conducted between 1st April 2013 and 31st March 2018 using the procedure codes OPCS E42.1: Permanent tracheostomy and E42.3: Temporary tracheostomy. Patients were followed from their tracheostomy discharge date until the study end date (31st March 2020), last recorded decannulation (patients with multiple decannulations have the last one categorized as successful) or death, whichever was earlier. The length of follow up therefore varied with each patient. The minimum follow up was 2 years (unless decannulated or died) and the maximum follow up was 7 years.

All scripts for applying eligibility criteria, data cleaning, processing and statistical analysis were written in the statistical programming language R [R Core Team, 2020]. Patient characteristics were summarized using descriptive statistics.

Hospital Episodes Statistics data to reproduce results are available from the Health and Social Care Information Centre (HSCIC) via formal application process.