



# PIONEER

## Health Data Research Hub

## Air Quality & Health Data: Longitudinal Impact Of A Clean Air Zone On Asthma

Data range for infographic: 01.06.2016-31.05.2022  
Other extended time periods are available on request

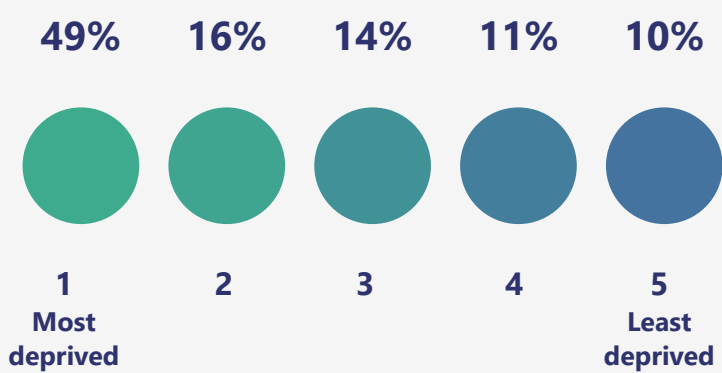
This dataset comprises 181,207 acute asthma admissions and geographically linked DEFRA air pollution data over 6-years including a clean air zone in 2021. Demographics, admissions, serial physiology, diagnostic codes, symptoms, medications and outcomes.

### Demographic

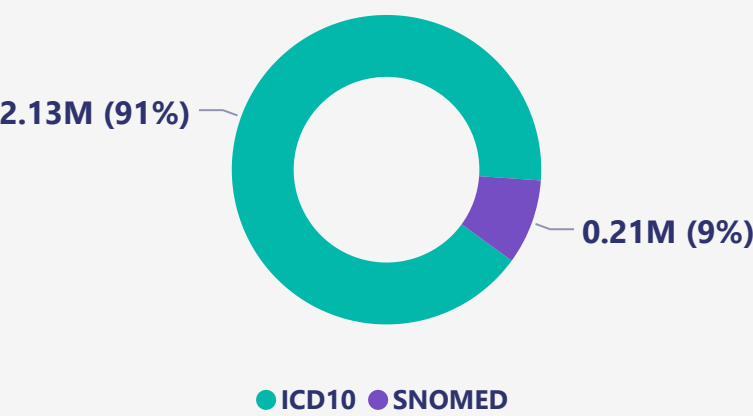
The dataset includes:

- Children **6%** (ages <18)
- Adults **59%** (ages 18-64)
- Older adults **35%** (ages 65+)

**60%** of patients are of White ethnic background. Followed by **15%** Asian, **3%** Black, African or Caribbean, **2%** Mixed and **20%** Other/Not stated.



### Diagnosis Coding System

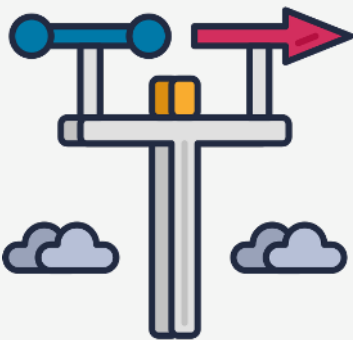


### Comorbidities

Top 5 inpatient ICD10 diagnoses are:

- Asthma, unspecified **166K** spells
- Essential hypertension **60K** spells
- Type 2 Diabetes **31K** spells
- Harmful use of Tobacco **19K** spells
- Psychoactive substance abuse **16K** spells

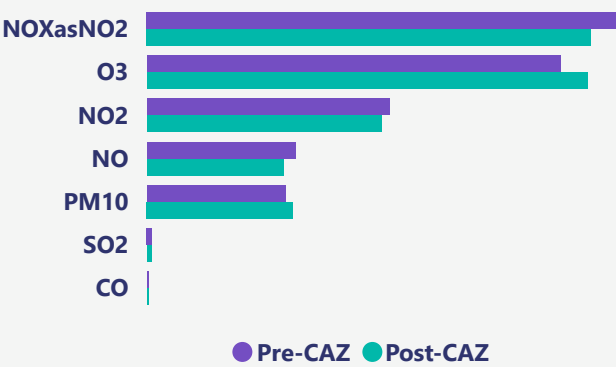
Other comorbidities are available.



### Defra weather stations

- Top 2 weather stations near patients are:
- Birmingham Acocks Green station
  - Birmingham A4540 Roadside station

Other weather stations are available



### Air pollution

- Nitric Oxide decreased by **8%**
- Sulphur dioxide decreased by **6%**
- Nitric dioxide decreased by **3%**

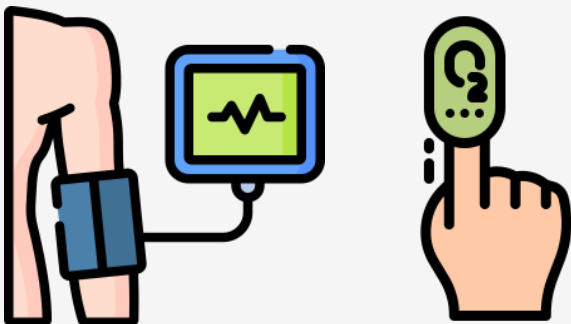
Other pollutants are available

### Inpatient care

- **181,207 Hospitalised spells;** containing **72,445** unique patients admitted with Asthma
- **518K** days worth of hospital data with an average in-hospital length of stay of 2 days
- 30 day mortality rate of 2% with 92% of patients surviving 12 months after discharge
- The average Clinical Frailty Scale is 3 and the average National Early Warning Score is 2

### Observations

Over **11M** Observations recorded including Heart rate, Blood pressure, BMI, Temperature, Early warning scores, Clinical frailty scores, Respiratory rate and more.



### Readmissions

**17%** of patients are readmitted into hospital with Asthma within 30 days of discharge.

