

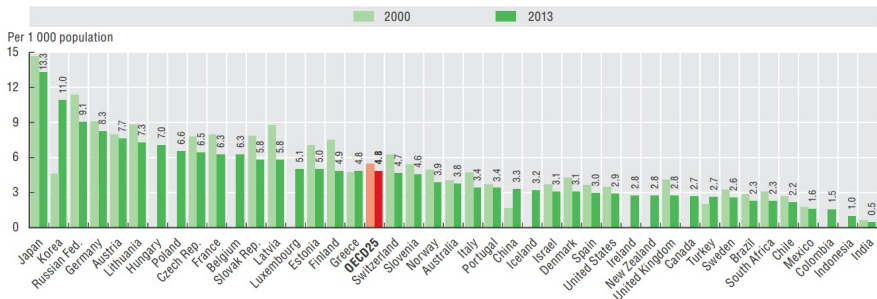
# Trauma and Orthopaedics: Are NHS Hospitals Overcrowded?

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September 14, 2017

# Global trend: falling hospital beds per capita



Source: OECD (2015)

- OECD average: 5.5 to 4.8 beds per 1,000 population (13% reduction)
- UK: 4.1 to 2.8 beds per 1,000 population (32% reduction)

## Widespread concerns over hospital crowding

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- Existing evidence is mixed: Eriksson et al (2017) find hospital 'capacity strain' is associated with worse outcomes in c.60% of 52 studies in highly developed countries

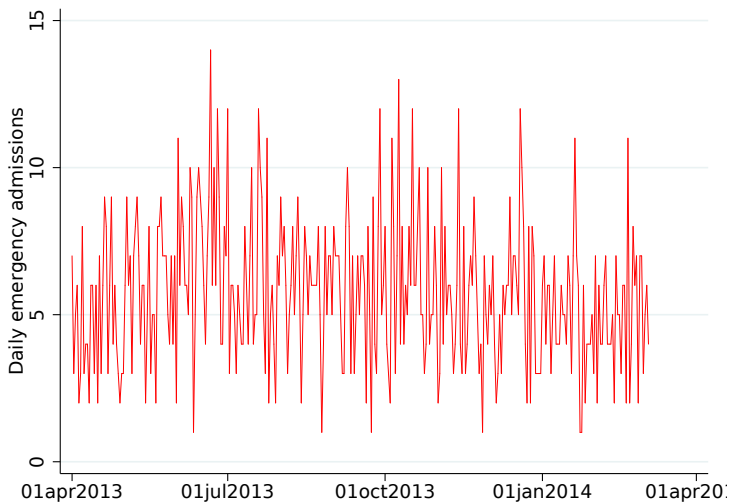
# Research questions

1. Does hospital crowding cause worse health outcomes for patients?
2. How should policymakers respond to hospital crowding?
  - Setting and data
    - Trauma and orthopaedic departments in England, 1997 to 2013
    - Hospital Episodes Statistics (HES), inpatient and A&E

# Research questions

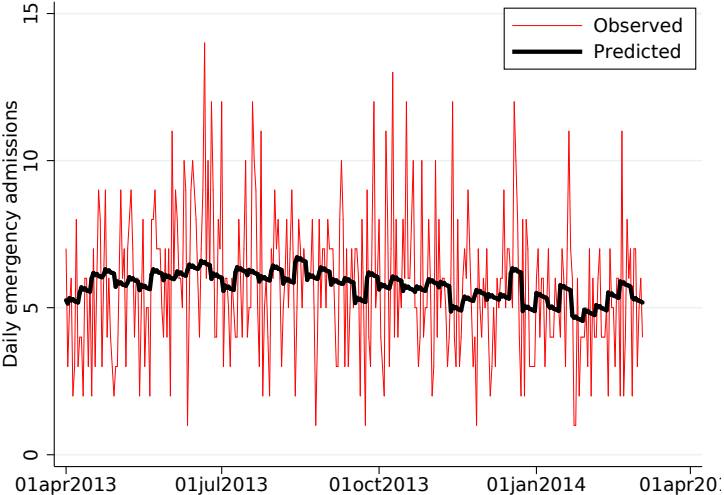
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  - Idea: Look at 'random' changes in emergency trauma admissions
2. How should policymakers respond to hospital crowding?

# High variation in daily emergency admissions

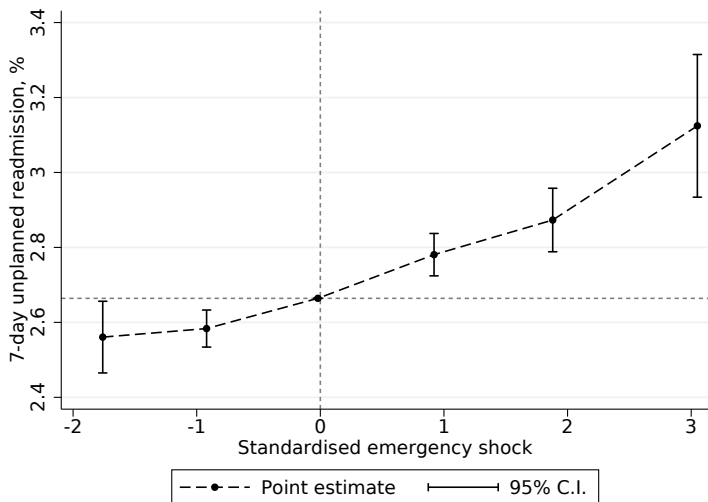




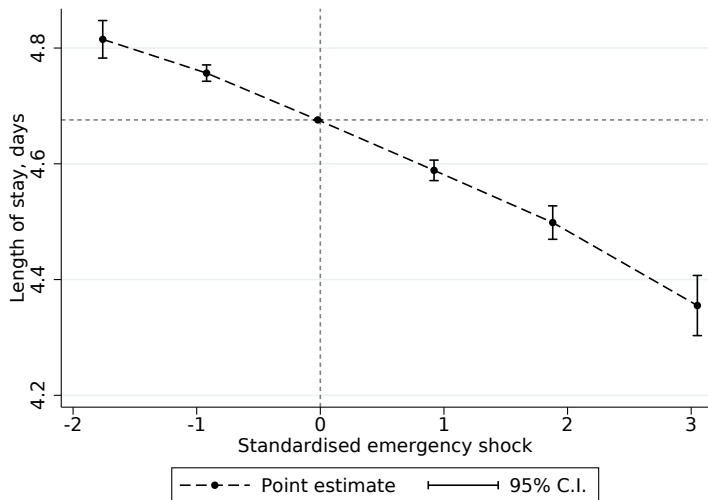
# Unexpected 'shocks' to emergency admissions



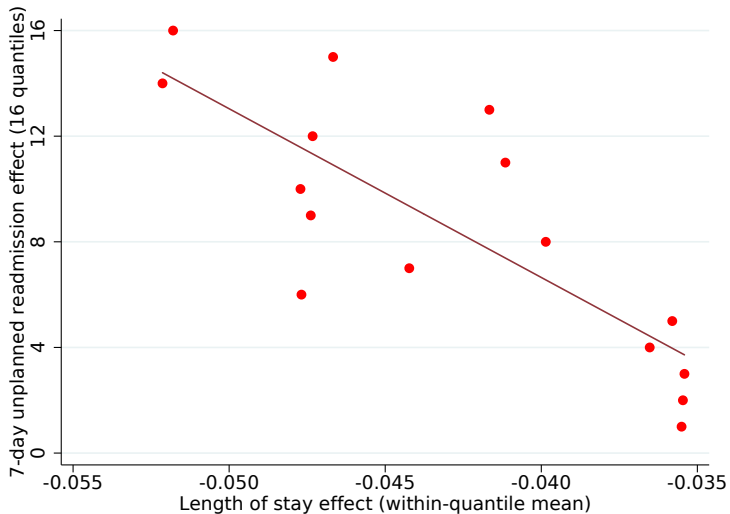
# Effect of shocks on unplanned readmissions



## Effect of shocks on length of stay



# Correlated effects on length of stay and readmission



## Results for other outcomes

- Shocks cause **delays** - in A&E and inpatient departments - but these effects are not associated with worse health outcomes
- Shocks cause **cancellations** of elective surgery - especially when shocks are large
- **No effect** of shocks on ambulance diversion, likelihood of admission from A&E, choice of operation, hospital transfers, discharge location

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  - **Yes** - more unplanned readmissions, potentially caused by patients being discharged early, plus delays and cancellations
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2. How should policymakers respond to hospital crowding?

- One policy option: maintain capacity but admit fewer elective patients to reduce hospital occupancy and crowding

# Crowding vs waiting: a trade-off for policymakers

- Policymakers can moderate the incentives to admit elective patients
  - Policy tools: waiting time targets (RTT), financial targets (PbR)



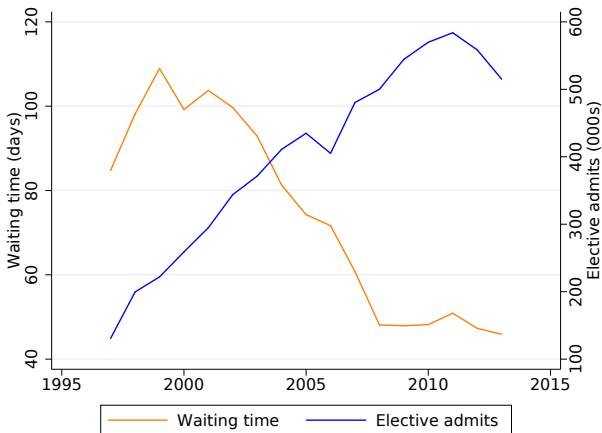
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  - Cost - lower access to care (fewer admits, longer waiting times)
- Making an assessment: need to compare the impact of admits on quality of care (a crowding effect) with the impact on access to care (a waiting time effect)

# The effect of elective admissions on waiting times



- 2006-2013: a decrease in 1,000 elective admissions is estimated to increase average waiting times by 1.5 days

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- Contrasting effects: fewer elective admissions will **decrease emergency readmissions** but **increase waiting times**
- Is this a net benefit for patients? Requires assumptions about preferences for waiting and readmission
  - In the research paper I show that the **benefits are net positive** under relatively weak assumptions

# Conclusion

1. Does hospital crowding cause worse health outcomes for patients?
  - **Yes** - more unplanned readmissions, potentially caused by patients being discharged early, plus delays and cancellations
2. How should policymakers respond to hospital crowding?
  - **Reducing elective admissions** is one option - benefits of reduced crowding may outweigh the costs of increased waiting times