Under pressure? NHS maternity services in England

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Pressure on maternity units in England

• The 2016 National Maternity Review “Better Births” set out a vision of a safer, more personalised, kinder, professional and more family friendly maternity service.

• At the same time, maternity units (MUs) face challenges from a high birth rate, an increase in the number of complex births and unfilled staff rosters.

• We present research on some of the sources of long-run and short-run pressures on MUs in England.

• The aim is to identify sources of pressure, and to assess what types of actions could be taken to relieve those pressures.

• However, it should be noted that such actions are likely to be costly, and must be balanced against the potential benefit to mothers and babies.
Maternities increased 2000-08, stabilised thereafter

Source: ONS: Birth Summary Tables, England and Wales, 2016. Total Maternities
The age composition of mothers is changing

- Growth in mothers over 30; fall in mothers under 25.

Source: ONS: Birth Summary Tables, England and Wales, 2016, Births by age of mother
Why does changing case mix matter for maternity units?

- Certain groups of mothers are more likely to require costly and time intensive care than others.
  - 16.6% of women aged 20–24 stayed four days or more, compared with 25.6% of mothers aged 40–44.
  - The rate of C-sections in 2014 was 18.4% for those aged 20–24 compared with 42.7% for those aged 40–44.
  - Mothers recorded as obese in hospital admissions records were 38% more likely to spend four or more days in hospital and 34% more likely to have a C-section than other mothers.
How has changing case mix affected maternity unit activity?

• Measures of maternity unit activity, such as C-sections, instrumental deliveries, length of stay will depend upon:

  1. The characteristics of mothers (case mix)
  2. Clinical practice (e.g. NHS target to reduce stillbirths by 50% by 2030)

• We separate the role of changing case mix by:
  – Predicting the probability of an outcome based on pre-labour characteristics of the mother in 2006:
    – Age, ethnicity, parity, multiple pregnancy, preterm, non-cephalic presentation, hypertension, pre-eclampsia, placenta praevia, diabetes, heart conditions, obesity, timing of first antenatal booking appointment.
    – Using these estimates to predict outcomes for mothers giving birth in subsequent years.
Actual and predicted C-sections

- An extra 23,000 C-sections in 2014 relative to 2006; explained entirely by the case mix of mothers.

Note: Includes all elective and emergency C-sections. Authors’ calculations using HES, 2006-2014.
Actual and predicted maternity stays of 4 days+

Source: Authors’ calculations using HES, 2006-2014

- Long stays were predicted to rise, but have actually fallen.
Long term pressures: Summary

- The characteristics of mothers giving birth is changing in ways that make providing care more time and resource intensive.
- Evidence from the last decade suggests that there are limits to MUs ability to adjust care to compensate for increased demand on their resources.
- The recently established Maternity Services Data Set (MSDS) will provide far more information on a mother’s characteristics, care provided during labour, and the outcomes of mothers and babies.
Short-run pressure: admissions per day in one large MU

Source: HES, a 180 day period between 2011-2014 for one large MU.

- Admissions fluctuate, but beds numbers are fixed and staff are rostered in advance
How can MUs respond to short term pressure?

• Daily fluctuations in maternity admission are an inevitable feature of maternity services.

• These fluctuations are potentially harder to manage given increased long term pressures.

• When MUs reach capacity they may:
  – Delay planned admissions (elective C-sections, inductions).
  – Speed up labour of women admitted.
  – Reduce length of stay.
  – Call in more staff.

• As a last resort a MU can temporarily close to new admissions.
What are closures and why do they matter?

• MUs make the decision to close to safe-guard the care of mothers and babies. Median length of closure is **8 hours** (NHS England FOI data).

• Why do closures matter?
  ‒ Impact on women – stress, choice.
  ‒ As an indicator of pressure on MUs.

• We collected dates MUs closed between **2011** and **2015**, using FOI requests to Acute Trusts:
  ‒ **128/160** Obstetrics Units (OUs) and **69/98** Alongside Midwife Led Units (AMUs) responded.
  ‒ OUs reported **1594** closures, AMUs **674** (average 2 days/MU/year).
  ‒ Closures are concentrated: **15** OUs, **5** AMUs closed **31** times +.

• What predicts closures at the MU and Acute Trust level?
Closures are more likely when spontaneous (unplanned) admissions are high

- 2.6 times more closures during the 61 busiest days of the year than during the least busy 61 days.

Source: Authors’ calculations using HES, 2011-2014, and FOI requests from Acute Trusts.
Closures are more common Thursday-Saturday

- Closures per 100k admits **30%** higher on **Thu-Sat** than **Mon-Wed**.
- Closures per 100k spontaneous admits elevated Thu-Sat even though spontaneous admits are spread evenly across the week.

Source: FOI requests from Acute Trusts.
Closures more common during September and during holiday periods

- Peak in **September**, coinciding with peak in births.
- Closures higher in holiday periods:
  - **50%** higher during **June** than **January**.
### Pressures at the Acute Trust (hospital) Level

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Notes: Observations at a year/trust level. Closures obtained from FOI requests. A&E waiting times from the Hospital Episode Statistics. Monthly figures averages share of patients treated within 4 hours over calendar months. LSOA populations allocated to the head quarters of the nearest Trust with a MU and A&E department.

- Trusts where maternity units close are also more likely to miss A&E targets.
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- But... Trusts that close more have slightly better clinical quality as measured by SHMI (note, whole Trust not MU).
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- **Acute Trusts that close the most serve the largest local populations.**
Summary: Short term pressures

- MUs face short run pressure from daily fluctuations in admissions relative to capacity. As a last resort units may temporarily close.
- We find that MUs are more likely to close during spikes in unplanned admissions.
- Occasional closures are perhaps inevitable, unless we are prepared to fund a service that operates with spare capacity much of the time.
- Rates of closure also vary by day of the week and season. This suggests that some closures could be foreseen and prevented.
- However, such actions may be costly and must be weighed against the potential benefits to women.
Discussion

• Maternity services in England face the challenge of improving quality, while contending with a trend towards more complex births.

• Many of the challenges faced by MUs are similar to those faced by other NHS services, such as A&E.

• Achieving the vision laid out in “Better Births” will therefore require:
  − Maximising what can be achieved through reform of maternity services within existing budgets.
  − Justifying the cost of actions to relieve pressure on MUs, based on the benefits to women and their babies, and the competing funding needs of other NHS services.