Continuity of care in general practice and hospital admissions

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The Health Foundation

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Thank you for inviting us! Who are we?

- The Health Foundation is an endowed charity
- We spend about £35m a year - most of which is grant giving, through our improvement and research teams, however we have a some in-house research capability
- In-house data analytics team, focussing on quality
  - Areas of work:
    - Work on quality (continuity, patient activation, readmissions and applied data analytics for QI)
    - Improvement Analytics Unit – new care model evaluations using matched controls
    - Policy work (national quality strategy & levers)
    - NHS analytical capability building

Context: what is happening in general practice?

- Internationally, systems want to move care out of the hospital and into the community (5YFV, ACOs)
- Government focus towards access
  - historically the 48 hr wait target (abolished in 2010)
  - More recently – Prime Minister's Challenge Fund, extended GP access (opening hours), 7 day services, remote care
- At the same time, a trend towards larger practices and more flexible workforce
  - Federations + more part-time and locum working

What is happening in general practice?

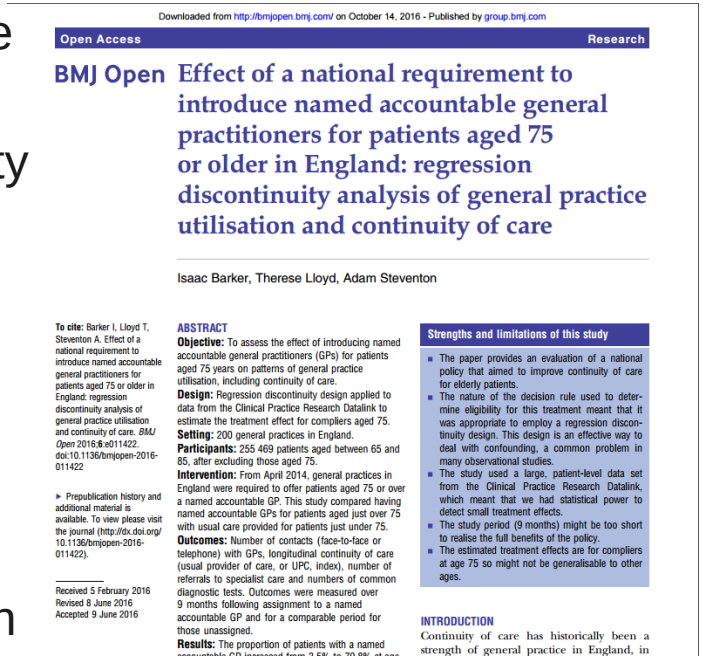
- Wider workforce issues – lack of GPs & retention worries – primary care under pressure
- So, is continuity of care declining? National surveys (GPPS) suggest so

What are the challenges as a result?

- How do we try to ensure continuity of care whilst at the same time seeing a trend towards larger practices and more GPs working part-time in clinical practice?
- How does this fit in with access?

How did we get into continuity of care?

- Continuity of care seems to be a topical issue
- Previous work: Evaluated the named GP initiative
  - Gov policy for continuity of care
  - Amenable to a regression discontinuity design (novel method)
  - Did not have an obvious theory of change
- When reviewing lit for the named GP study we found no evidence at the patient level linking continuity of care to hospital admissions in the NHS – even though this was the policy motivation



Open Access Research

BMJ Open

Effect of a national requirement to introduce named accountable general practitioners for patients aged 75 or older in England: regression discontinuity analysis of general practice utilisation and continuity of care

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ABSTRACT

Objective: To assess the effect of introducing named accountable general practitioners (GPs) for patients aged 75 years on patterns of general practice utilisation, including continuity of care.

Design: Regression discontinuity design applied to data from the Clinical Practice Research Datalink to estimate the treatment effect for compliers aged 75.

Setting: 200 general practices in England.

Participants: 255 469 patients aged between 65 and 85, after excluding those aged 75.

Intervention: From April 2014, general practices in England were required to offer patients aged 75 or over a named accountable GP. This study compared having named accountable GPs for patients aged just over 75 with usual care provided for patients just under 75.

Outcomes: Number of contacts (face-to-face or telephone) with GPs, longitudinal continuity of care (usual provider of care, or UPC, index), number of referrals to specialist care and numbers of common diagnostic tests. Outcomes were measured over 9 months following assignment to a named accountable GP and for a comparable period for those unassigned.

Results: The proportion of patients with a named

Strengths and limitations of this study

- The paper provides an evaluation of a national policy that aimed to improve continuity of care for elderly patients.
- The nature of the decision rule used to determine eligibility for this treatment meant that it was appropriate to employ a regression discontinuity design. This design is an effective way to deal with confounding, a common problem in many observational studies.
- The study used a large, patient-level data set from the Clinical Practice Research Datalink, which meant that we had statistical power to detect small treatment effects.
- The study period (9 months) might be too short to realise the full benefits of the policy.
- The estimated treatment effects are for compliers at age 75 so might not be generalisable to other ages.

INTRODUCTION

Continuity of care has historically been a strength of general practice in England, in

Our study

Association between continuity of care in general practice and hospital admissions for ambulatory care sensitive conditions: cross sectional study of routinely collected, person level data

BMJ 2017; 356 doi: https://doi.org/10.1136/bmj.j84

What did we do to fill the literature gap? In brief

- From the named GP study, we had a dataset sat there ready to go
- Cross-sectional study
- CPRD dataset linked to HES
- Patient level linked primary and secondary care records – 230000 patients aged between 62 and 82
- Hierarchical count models predicting the number of ambulatory care sensitive admissions to hospital (taken from HES)
- Models adjusted for continuity, as well as confounders (clinical characteristics, demographic/socioeconomic and utilisation)
- CPRD staff ID's allow you to look at the dispersion of contacts with practitioners – metric of continuity.

Outcome variable - ACS admissions

- Overall, health systems are looking to shift care out of the hospital

But for a large proportion of care, treatment in hospital is appropriate

So how do we separate out usage that is amenable to good quality primary care?

Ambulatory care sensitive admissions are (at least in theory) manageable in primary care.

Exposure of interest: measuring continuity of care through EHRs

$$\text{Usual Provider of Care index} = \frac{number\ of\ contacts\ with\ most\ regularly\ seen\ GP}{total\ contacts\ with\ all\ GPs}$$

Usual Provider of Care index - proportion of contacts with most regular GP

- Pros: intuitive, easy to interpret a change
- Cons: doesn't take into account sequence or density. Can it be used as a continuous metric?

(We use it both as a continuous and categorical variable)

Bice-Boxerman sensitivity analysis – metric takes into account the dispersion and distribution of contacts a patient has over different general practitioners (no difference)

Statistical model

- Negative binomial models – ACS admissions over-dispersed count
- Mixed model (random intercepts), nesting patients within General Practices

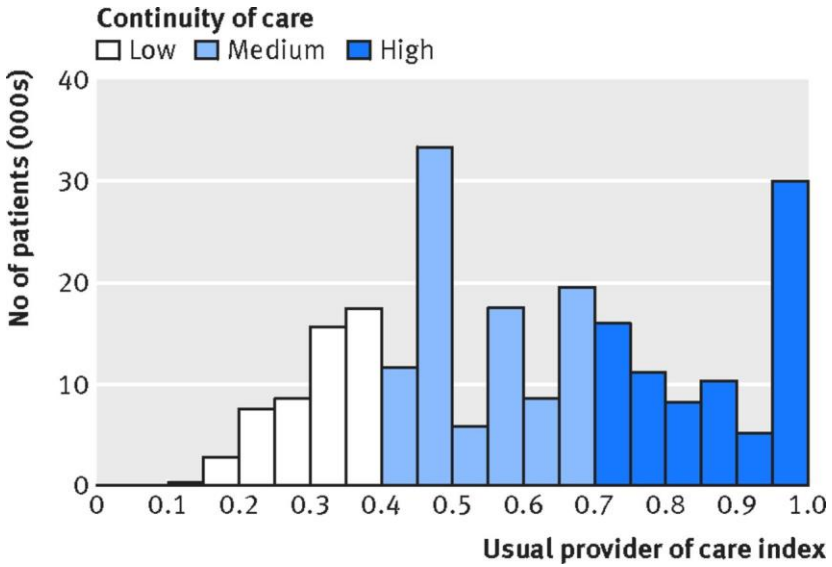
Why?

Unobserved practice level characteristics may affect the likelihood of ACS admission (i.e. unaccounted for practice quality)

- Sensitivity analysis looking whether the association is mediated by age or quintiles of utilisation of primary care

Descriptive results:1

The UPC index had a mean of 0.61 (SD 0.23)



Continuity of care varied considerably across general practices in England

- 48.6% of patients in smaller practices ‘high’ continuity vs 30.7% of patients in larger practices

Low, Medium and High groups similar in terms of age, sex, and socio-economic deprivation

Results

The relationship between admissions for ambulatory care sensitive conditions and continuity of care (n=230,472)		
Change in continuity	**Relative change in admissions for ambulatory care sensitive conditions (%)**	**p-value**
Medium (versus low)	-8.96	<.0001
High (versus low)	-12.49	<.0001
High (versus medium)	-3.87	0.03

When modelled with the UPC as a continuous variable

↑ 0.2 UPC index

↓ ACS admissions 6.22%

(95% confidence interval 4.87% to 7.55%)

Continuity of Care a significant predictor after controlling for patient demographic and clinical factors

We show that higher continuity of care is associated with lower avoidable hospital admissions. A marker of quality in General Practice?

Sensitivity analysis - Bands of age

- Sub-group analysis of three bands of age
- Trend of higher magnitude at higher bands of age

Group or subgroup of analysis	Relative % change in admissions for ambulatory care sensitive conditions (95% CI) for a 0.2 increase in usual provider of care index score	P value
All patients (n=230 472)	−6.22 (−7.55 to −4.87)	<0.001
Age group (years) of patients in 2012 with at least two contacts with general practice:		
62-68 (n=101 761)	−3.40 (−5.57 to −1.19)	0.003
69-75 (n=74 161)	−7.92 (−10.22 to −5.56)	<0.001
76-82 (n=54 550)	−8.37 (−10.7 to −5.99)	<0.001

Sensitivity analysis – high users

Quintiles of GP contacts

- Sub-group analysis of fifths of users of GP services, by number of contacts
- Association between continuity and ACS admission statistically significant at higher quintiles, and not at some lower quintiles– so does continuity matter more for high users?

Limitations

- Cross-sectional analysis – cannot get at mechanism of effect
- Metric of longitudinal continuity – what about other facets of continuity?
- Could not assess quality of interactions or if a patient saw their preferred GP
- ACS admissions are a ~20yr old definition – relevant today?
- GP FTE data in CPRD is rounded and incomplete, and our metric does not take into account micro-team working.

How can we improve continuity of care?

- Our study suggests that continuity is an important consideration when designing approaches to reduce hospital admissions.
- But how to improve it?
  - increasing patient awareness of the importance of continuity
  - changing receptionists' behaviour or practice booking systems to promote continuity
  - organising large practices into small teams, each of which care for a subset of the patients registered at the practice
  - Bristol NIHR 3D trial

To discuss!

What future research do we need?

- We've been thinking about this and it'd be good to hear your opinions
- Evidence shows continuity matters
- But, more evidence shows access matters
- And what about duration of appointment?

- Probably not as simple as having this trade off to offer a standard service to offer to all patients all the time.
- Is segmenting and varying the service offered to different subgroups the solution? As opposed to a standard service with interventions on top

Take home point 1: Continuity of care matters

- Aligns closely with the reasons many people chose to work in general practice
- Is important to patients
- Correlates with outcomes
- Shows variability between general practices.

Thus initiatives that improve the continuity of care have the potential to improve the quality of healthcare while reducing cost, both fundamental aims of healthcare systems.

Take home point 2: the Usual Provider of Care index as a local improvement metric

Overall, shows potential…

- Associated with outcomes (ACS Admissions)
- Readily available in GP data
- Easy to understand
- Has the potential to be fed back to General Practice for QI

More widely – what metrics of primary care quality could be fed back to the frontline to encourage/facilitate local QI initiatives? And how are they best fed back?

A quick push– grant applications open now

- Innovating for Improvement round 6
- Up to £75k to frontline teams for innovative ways to test and develop innovative ideas/approaches to deliver care
- This round has a data analysis focus:
  - Use an innovative method of data analysis with existing health care data.
  - Use a novel data source (eg patient generated data) or data linkage.
  - Present existing data or analysis in an innovative way to improve care.
  - Use an existing data analysis technique to inform the development and testing of an innovative intervention.
- Frontline team to lead bid, but can be partnerships w/ those analysing the data