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GP "Movers" and QOF Scores
MSc by Research in Health Sciences - TAP #1

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University of York

6 February 2020

Thesis Overview

- Historical Review of Quality in General Practice
- Review of Theories Surrounding Healthcare Quality Improvement
- Review of Methodologies for Healthcare Quality Improvement Policy Evaluation
- Study of the association between GP entrants and practices' Quality and Outcomes Framework scores

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Thesis Overview

- Historical Review of Quality in General Practice
- Review of Theories Surrounding Healthcare Quality Improvement
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Motivation

- Improving quality in general practice – interventions to improve patient outcomes, system performance, and professional development – has been a major priority for the National Health Service (NHS) for the past several decades (Batalden and Davidoff, 2007).

- Experts agree that meaningfully improving quality in healthcare is still an elusive task (Braithwaite, 2018).

- There is some empirical evidence that quality improvement interventions are more successful when they incorporate a component of social influence (e.g., Ivers et al., 2012).

- To my knowledge, no studies have considered physician movement as a potential mechanism for quality improvement.

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Research Aims

The aim of this project is:

- To describe how General Practitioners (GPs) move within England's NHS
- To provide the first (albeit limited and preliminary) evidence on whether GP moves may be associated with changes in healthcare quality

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Research Questions

- Within General Practices in England's NHS, is the entry of a new GP associated with a change in the practice's Quality and Outcomes Framework (QOF) scores?

- Is this association moderated by whether the GP entered from a practice with higher or lower QOF scores?

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Available Data

- Practice $\times$ year QOF scores, by domain (total, patient experience, clinical, organisational, and additional services) and by individual QOF indicator, for each period between Apr 2006/Mar 2007 to Apr 2011/Mar 2012
- Practice $\times$ year data on practice characteristics, including the practice listsize, for each period between Apr 2006/Mar 2007 to Apr 2011/Mar 2012
- GP $\times$ practice registry of all full (i.e., not trainee) GPs between 1 Jan 1974 and 16 Oct 2010

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Methods: Description of Movers

- Visualisation of moves by calendar year
- Crosstabs of number of GPs practicing, number of GPs beginning their careers, number of GPs ending their careers, and number of GPs moving from one practice to another by calendar year
- Mean and median distance of moves by annual period
- Median number of days between a GP's entry into the workforce, days at their origin practice, and days at their destination practice by annual period

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Methods: Association btwn. Movers and Quality

- **Outcome**: Destination practice's domain-specific QOF scores
- **Exposure**: Having a GP enter the destination practice from either an origin practice with higher or lower domain-specific QOF scores
- **Potential Confounders**: Time-invariant confounders, practice-invariant confounders, GP-to-listsize ratio
- **Strategy**: Difference-in-difference with practice-level and period-level fixed intercept effects among those practices that had a single entrant over the study period

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Methods: Difference-in-Difference

$$\text{quality}_{it} = \beta_1 \text{move}_i + \beta_2 \text{post}_{it} + \beta_3 \text{move}_i \text{post}_{it} + X_{it}\beta + \alpha_i + \lambda_t + \epsilon_{it} \quad (1)$$

- i indexes the destination practice, and t indexes the period.
- move_i corresponds to whether the entrant came from a practice with higher or lower domain-specific QOF scores.
- post_{it} corresponds to whether the observation occurred before or after the new physician entered.
- α_i and λ_t correspond to fixed intercept effects at the practice and period level.
- X_{it} corresponds to a matrix of confounders that vary with both time and practice. Here, the only such confounder is the ratio of GPs in a practice to the practice's listsize, a proxy for practice capacity.

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Work Completed Thus Far

- Sourced several research ideas (including research questions, data sources, methodologies) and agreed upon the "movers" project
- Conducted a historical review of quality in general practice in England's NHS since its founding
- Conducted a review of the major theories surrounding healthcare quality improvement, including how these theories tie into broader themes such as agency theory

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Work Completed Thus Far

- Conducted a review of the methods commonly used to test the impact of a healthcare quality intervention, including a review of the potential outcomes framework, matching, regressions, difference-in-difference designs, interrupted time series analysis, regression discontinuity, and instrumental variable designs

- Merged relevant data sources to construct a novel panel dataset of practices that had entrant GPs including their QOF scores.

- Completed entrants-QOF analysis, implementing statistical methods to provide a descriptive and associational picture of GP moves and QOF scores

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Work Completed Thus Far

- Other: Completed movers-style analysis over brand new GPs to detect quality impact of hiring a recent trainee, completed movers-style analysis using antibiotic prescriptions as an outcome, completed movers-style analysis using QOF payments as an outcome, began a systematic overview of reviews related to peer-based healthcare quality improvement interventions

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Plan for Remainder of the MSc

- Set date for Final TAP meeting in May 2020
- Flesh out description of the results for the movers project
- Merge pieces of the "prelims" and "proposal" documents to complete the introduction and discussion sections of the movers chapter
- Submit thesis (including historical review, theoretical review, methodological review, and movers analysis) for review in April 2020
- Final TAP meeting in May 2020
- Theo leaves York in May/June 2020

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Training at U. of York

I have sat in on lectures from the following modules:

- ECO00002M: Advanced Microeconomics
- ECO00068M: Microeconomics for Research
- ECO00070M: Applied Econometrics for Research
- ECO00047M: Econometrics 1 and 2

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References

References

Batalden, P. B, and F. Davidoff. 2007. "What is "quality improvement" and how can it transform healthcare?" *Quality and Safety in Health Care*, 16(1): 2–3.

Braithwaite, Jeffrey. 2018. "Changing how we think about healthcare improvement." *BMJ*, k2014.

Ivers, Noah, Gro Jamtvedt, Signe Flottorp, Jane M Young, Jan Odgaard-Jensen, Simon D French, Mary Ann O'Brien, Marit Johansen, Jeremy Grimshaw, and Andrew D Oxman. 2012. "Audit and feedback: effects on professional practice and healthcare outcomes." *Cochrane Database of Systematic Reviews*.