Does treatment observation each day keep the patient away? Analysing the determinants of TB adherence in South Africa.

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Directly observed treatment short course (DOTS) has been the WHO’s recommended strategy for TB control since 1995. Developed as an alternative to inpatient treatment, the strategy involves the often facility-based observation of patients’ medication intake to promote adherence. However, the additional burden of daily visits including travelling costs and waiting times has potential impacts on access to care. Using a mixed methods approach, we consider (1) whether self-reported non-adherence differs systematically with different frequencies of clinic-based TB treatment delivery and (2) whether frequency of delivery interacts with affordability and acceptability factors in explaining variations in adherence. Data were collected in exit interviews with 1200 TB patients in two rural and two urban health sub-districts in four different South African provinces. Additionally, 17 in-depth interviews were completed with patients on TB treatment. After controlling for socioeconomic and demographic factors, patient type (new or retreatment) and treatment duration, the regression analyses showed that daily attending patients were 2.5 times as likely to report having missed a clinic visit (p<0.001) and over twice as likely to report having missed a dose of treatment (p=0.002) compared to patients required to attend clinics for treatment collection less frequently. Missed visits increased with treatment duration (p=0.01), indicating that sustaining daily visits over time may be problematic. The qualitative analysis identified treatment cost and duration, patients’ physical condition and the role of varying social contexts (family, community and work) as important influences on adherence. These findings suggest that the common strategy of daily clinic visits may require reconsideration if resources for the care of TB patients are to be used efficiently. The importance of adopting an approach that puts patient interests at the centre of TB treatment delivery would appear to be of high priority, particularly in countries where TB prevalence is high and resources for TB care are highly constrained.
Local targets for national objectives - Lessons from bottom-up design of P4P

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**Background** Regulators wishing to implement a pay for performance (P4P) scheme can either set performance targets centrally, or follow a bottom-up strategy in which targets are agreed upon locally. The Commissioning for Quality and Innovation (CQUIN) framework is a national P4P scheme introduced in England in 2009 with overall objectives set by the Department of Health and performance goals and indicators negotiated locally between commissioners and providers.

**Aim** To analyse the variation in locally negotiated contracts, test whether the content of local contracts predicted changes in quality, and derive lessons for the future design of P4P schemes with decentralised target setting.

**Data** A database of the negotiated CQUIN schemes for 223 English hospital providers for 2010/11 linked to patient level Hospital Episode Statistics for 2008/9-2010/11.

**Methods** We describe the regulator’s objectives for the CQUIN framework and detail the boundaries set out by the regulator within which commissioners and providers can negotiate local schemes. We focus our analysis of the negotiated contracts on 4 themes: 1) Compliance 2) Creativity 3) Complexity and 4) Incentive alignment.

We then test whether the content of the local schemes predicts quality improvement by comparing the performance of Trusts with different topics in their schemes, particularly the frequently-included topics of a) discharge planning, b) stroke and c) falls prevention. Performance is measured using a range of outcome and process indicators derived from Hospital Episode Statistics 2008/9-2010/11. These include in-hospital mortality, readmission rates, lengths of stay and discharge destination and are risk-adjusted at patient level. At Trust level, we use a double-robust difference-in-differences estimator to allow for the endogenous selection of topics.

**Results** The negotiated schemes were strong on creativity and complexity, but there were frequent instances of non-compliance with the regulator’s goals and overall weak incentive alignment. There is limited evidence that the selection of topics into local CQUIN schemes was endogenous and no evidence that Trusts with particular topics included in their CQUIN scheme showed different rates of quality improvement.

**Implications** The bottom-up strategy adopted for CQUIN did not appear to produce well designed local targets that aligned with the regulator’s objective. This may reflect weak commissioning agencies, imbalances in market power, or the prominence of idiosyncratic local decision-making. We end by suggesting lessons for the future design of P4P contracts with locally negotiated targets.
Impact of Hospital Pay-for-Performance Structures on Quality Improvement: Difference-in-Differences estimates from the CQUIN programme in England

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Introduction
There is mixed evidence as to whether Pay-for-Performance (P4P) schemes introduced into the healthcare sector have had their desired effect of improving quality of care. There is particular uncertainty over two issues about how these payments should be structured: as bonuses or fines; and as tournaments or benchmarks. This study investigates this with respect to the Advancing Quality (AQ) programme; a P4P scheme introduced in all acute hospital Trusts in the North-West of England in 2008. From March 2010, AQ became part of a regional Commissioning for Quality and Innovation (CQUIN) scheme. The CQUIN payment structure is a fines structure with locally negotiated thresholds. For some Trusts, due the lack of up to date performance data at the time of negotiation, thresholds were set below the level of performance that these Trusts achieved in the quarter preceding the schemes implementation. This characteristic of the CQUIN scheme creates a natural control group of trusts not exposed to P4P incentives against which to study the impact of target threshold levels on quality improvement.

Methods
We use quarterly data on 28 performance indicators reported by all 24 Trusts in the North West of England. The effect on future performance of being historically below the negotiated threshold is estimated using a difference-in-differences (DiD) method. We test the validity of the common pre-intervention trends assumption underlying the standard DiD approach. Where this assumption fails, we use an innovative method to construct a synthetic control group, a data-driven procedure which reduces discretion in the choice of comparison control groups. We further inquire whether Trusts that were below the negotiated threshold increased their efforts on easy tasks relative to hard tasks.

Results
For the heart failure condition, commonality in pre-intervention trends was not rejected. Subsequent DiD analysis shows that the difference in performance improvement between Trusts below and above the threshold was not statistically significant ($\beta=1.84$; $t=0.51$). Triple difference analysis on the same condition also indicates that the degree to which improvements in performance were focused on easy tasks was not significantly greater for those Trusts below the threshold ($\beta=1.07$; $t=0.23$).

Conclusion
Despite P4P incentives to improve quality and to reallocate efforts across tasks to improve quality at the lowest cost, we find little evidence that Trusts respond to P4P incentives as hypothesised.