CONFEREE ABSTRACT

Effectiveness of multidisciplinary team case management: Direct and spill-over effects

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Introduction: In the UK’s NHS, as in many health systems, the primary method of integrating care at the service delivery level appears to rely on case management of ‘high-risk’ individuals in primary care.\textsuperscript{1} We aimed to evaluate a multidisciplinary team (MDT) case management intervention across a number of health system outcomes using a robust quasi-experimental study design, modelling effects at both the individual- (to capture direct effects of intervention) and practice-levels (to capture any potential spill-over effects of integrated care for the wider system).

Short description of practice change implemented, aims, target population and key stakeholders involved

We evaluated a MDT case management intervention at a single clinical commissioning group (CCG) in the NHS. The intervention identified the top 2% highest risk patients in each of 30 practices in the CCG using a risk tool (the Combined Predictive Risk Model), and provided tailored care plans with input from an MDT (composing of a GP, practice nurse, district nurse, social worker and active case manager), together with a summary record of care which could be accessed by multiple providers for the intervention patients. The intervention aimed to reduce unnecessary secondary care admissions for the high-risk patients managed.

With gradually recruited practices, then individuals to the intervention group, we used a difference-in-differences design with multiple start dates, analysing hospital admissions data.

At the individual-level, we matched 2049 intervention patients using propensity scoring one-to-one with control patients, with a maximum post-intervention period of 18 months and pre-trend period of 3 years. At the practice-level, we exploited the natural experiment of gradual roll-out of the intervention to 30 practices in the CCG.

We looked at a number of relevant outcome measures at both levels of analysis. Primary measures, according to intervention aims were: A&E visits; inpatient non-elective admissions,
30-day re-admissions; inpatient elective admissions; outpatient visits; and admissions for ambulatory care sensitive conditions. Secondary measures included: inpatient length of stay; total cost of secondary care services; and patient satisfaction (at the practice-level only).

**Key findings**: After adjusting for confounders, for intervention patients at the individual-level, we found very slight, but statistically significant increases in inpatient non-elective admissions (+ 0.01 admissions per patient per month; 95% CI 0.00 to 0.01. Effect size (ES): 0.02), and 30-day re-admissions (+0.00; 0.00 to 0.01. ES: 0.03). At the individual-level, results may be prone to some bias in favour of control participants due to the on-going recruitment strategy versus a single time-point propensity matching, although we predict this to be small as patients were well matched at the first start date.

At the practice-level, after adjusting for practice and time fixed-effects, we found a small decrease in inpatient non-elective admissions (-0.63 admissions per 1000 patients per month; 95% confidence interval -1.17 to -0.09. ES: -0.24). However, this result was no longer significant following our practice-specific time trend robustness check (-0.52; -1.05 to 0.01). There is potential selection bias in favour of intervention practices due to the voluntary nature of the intervention’s roll-out, although we predict this to be small based on our model of wave of entry based on practice characteristics.

**Highlights**: For direct-effects of the intervention, this study finds mostly clinically trivial (albeit some statistically significant) differences between groups. This fits with findings from our previous systematic review and meta-analysis looking at effects of similar case management interventions aimed at generally ‘at-risk’ patients.2

However, we found indications of potentially small beneficial system effects of multidisciplinary team working for the wider practice, a possible spill-over effect of increased professional integration. The clinical significance and cost-effectiveness of these small absolute effects is debatable, and there may be better ways to obtain these system effects in terms of opportunity cost.

**Conclusion**: Here we show that MDT case management does not fulfil its primary aim, preventing emergency admissions for the high-risk patients it targets. However, we do show some indications of what may be small beneficial spill-over effects of MDT working at the practice-level, but these results do not withstand our robustness check and require further examination. An intervention which does not fulfil its primary aim may nevertheless be a poor substitute to alternatives for achieving professional integration and its potential system benefits. This study, however, indicates that these system benefits may be possible through multidisciplinary working.

Case management alone may never be as effective as it needs to be to deliver major savings through a focus on high risk groups.3 This highlights the need for a variety of models to deal with system pressures, including integrated care at different levels of the health and care system, and with more of a focus on the wider population.4
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Keywords: case management; multidisciplinary team; system effects; health systems; high risk