

POSTER ABSTRACT

Reduction in Specialist Outpatient Clinic Visits with an Integrated Care Programme for Frequent Admitters in Singapore

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Ian Yi Han Ang¹, Chuen Seng Tan^{2,3}, Milawaty Nurjono⁴, Shermin Tan¹, Hubertus Johannes Maria Vrijhoef^{5,6,7}, Joanne Su-Yin Yoong^{2,3,8}, Gerald Choon Huat Koh^{1,2}, Xin Quan Tan¹, Sue-Anne Toh^{1,3}

1: Regional Health System Planning Office, National University Health System, Singapore;

2: Saw Swee Hock School of Public Health, National University of Singapore, Singapore

3: Yong Loo Lin School of Medicine, National University of Singapore, Singapore

4: Center for Health Services and Policy Research, Saw Swee Hock School of Public Health, National University of Singapore, National University Health System, Singapore

5: Vrije Universiteit Brussels, Brussels, Belgium;

6: Panaxea B.V., Amsterdam, The Netherlands;

7: Department of Patient and Care, University Hospital Maastricht, Maastricht, The Netherlands;

8: Center for Economic and Social Research, University of Southern California, California, United States of America

Introduction: Frequent admitters FA, defined as patients with three or more inpatient acute hospital admissions within one year, account for about 27% of episodes and incur high healthcare costs. National University Health System Regional Health System NUHS-RHS Integrated Interventions and Care Extension NICE, launched in 2014, targeted FA with the aim of reducing avoidable hospital utilisation. NICE patients were assigned a case manager who customised their care plan based on holistic needs assessment. NICE provided post-discharge home visits and/or phone calls to monitor patients' progress, appropriate referrals to community health and social services, and consolidated care under one team. We retrospectively evaluated NICE's effect on reducing utilisation over 1-year post-enrolment: all-cause admissions ADM, emergency admissions EM, emergency department visits ED, specialist outpatient clinic visits SOC, and total inpatient length of stay LOS.

Methods: NICE patients enrolled between June 2014 to December 2015 were grouped as cases n=668. Unenrolled patients who were FA during the same period were designated as potential controls n=5,714, taking their third admission date during this period as proxy date of enrolment. Propensity score matching was conducted with the following: gender, race, age, residential housing type, number of comorbidities at enrolment, date of enrolment and pre-enrolment utilisation 1-year prior. This resulted in 604 matched case-control pairs.

As the variance of each measure of utilisation is greater than its mean, negative binomial regression was used to model post-enrolment utilisation, adjusting for log-transformed pre-enrolment levels and matching propensity score, with an offset term to account for potential mortality during follow-up. We report incidence rate ratios IRR of cases to controls, with 95% confidence intervals 95%CI.

Results: Cases unadjusted mean=6.7 had significantly fewer post-enrolment SOC than controls unadjusted mean=8.6, IRR=0.86 95%CI: 0.77-0.97. No statistically significant differences were observed for post-enrolment ADM, EM, ED, and LOS.

Discussion: The results suggest that NICE provided adequate post-discharge follow-up care that patients would otherwise seek from SOC, thus potentially decreasing patients' time and cost burden. For a significant proportion of patients in both groups, post-enrolment ADM, EM, ED, and LOS may have regressed to a low mean following an acute period of high admissions, resulting in floor effects which limit any further reductions in a 1-year period.

Conclusion: NICE had an impact in reducing patients' SOC post-discharge.

Lessons Learned: The higher than expected variability in the utilisation patterns suggest FA are a heterogeneous group, and stratification could allow for more targeted interventions that better cater to care needs.

Limitations: Patients were not randomised into cases and controls, but inherent bias from confounding factors was mitigated with matching. Different patient profiles and needs possibly also led to implementation inconsistencies.

Suggestions for Future Research: Future research could stratify FA into subgroups and explore programme effects in reducing readmissions within patient subsets over a longer follow-up period. Targeted interventions for various subsets could be tested and inform future iterations of such programmes. Cost-benefit analysis should be conducted to determine if the savings from reduced SOC that are attributable to NICE outweighs the cost to run the programme.

Keywords: hospitalization; patient discharge; patient readmission; length of stay
