

# Reducing emergency department presentations among chronically ill patients in Western Sydney: a key role for coordinated primary care

Kylie-Ann Mallitt<sup>A,E</sup>, Justin McNab<sup>A,G</sup>, Rod Hughes<sup>B</sup>, Joanne Fernyhough<sup>C</sup>,  
Janis Paterson<sup>D</sup> and Di O'Halloran<sup>F</sup>

<sup>A</sup>Menzies Centre for Health Policy, University of Sydney, NSW, Level 6, Charles Perkins Centre, University of Sydney, NSW 2006, Australia.

<sup>B</sup>Primary Care and Community Health Services, Nepean Blue Mountains Local Health District, 288–292 Macquarie Road, Springwood, NSW 2777, Australia.

<sup>C</sup>Western Sydney Medicare Local, WentWest Limited, Level 1, 85 Flushcombe Road, Blacktown, NSW 2148, Australia.

<sup>D</sup>HealthOne, Mount Druitt Community Health Centre, Buran Close, Mount Druitt, NSW 2770, Australia.

<sup>E</sup>Faculty of Medicine, University of New South Wales, Wallace Wurth Building, 18 High Street, Kensington, NSW 2052, Australia.

<sup>F</sup>Department of General Practice, School of Medicine, Western Sydney University, Locked Bag 1797 Penrith, NSW 2751, Australia.

<sup>G</sup>Corresponding author. Email: justin.mcnab@sydney.edu.au

**Abstract.** Coordination of health services is thought to improve health outcomes for patients with chronic and complex illness; however, there is limited quantitative evidence for the effectiveness of coordinated care programs. HealthOne Mount Druitt (HOMD) is a coordinated care program operating in a disadvantaged area of Western Sydney, Australia. It operates as a combination 'virtual' and 'hub and spoke' model, with care coordination provided by liaison nurses. We aimed to determine whether there were changes in the number of emergency department (ED) presentations, length of stay, and community health referrals in the 12 months following enrolment in HOMD, compared to the 12 months prior. A quantitative survey was also conducted to determine the perspectives of service providers on key aspects of HOMD. Enrolment in HOMD was followed by reductions in both the number of ED presentations and the amount of time spent by patients in the ED. Community health referrals were increased, and the pattern of referral to different types of community health services was altered. This study provides quantitative evidence that a coordinated care intervention improves patient health outcomes.

**Additional keywords:** chronic illness, comorbidity, hospital admission, community health, length of stay, coordinated care.

Received 3 February 2016, accepted 12 July 2016, published online 17 August 2016

## Introduction

Lack of integration of services and poor coordination of care has been singled out as the largest issue facing health systems (Blendon *et al.* 2003; Van Raak *et al.* 2005; Curry and Ham 2010). The most commonly proposed solutions involve greater service integration, coordination, flexibility and continuity, along with policy and health system changes to improve the management of chronic disease (Zwar *et al.* 2006; Nolte and McKee 2008). Kaiser Permanente's Californian model for integrated care for the ill and injured is recognised internationally as a successful approach to integrated care for the chronically

ill (Pines *et al.* 2015) and the Kings Fund, based in the UK, is recognised as a leader in providing health system and individual care solutions for people with multiple chronic conditions (Goodwin *et al.* 2013). Many programs for improving integration and coordination of care for the chronically ill throughout the world turn to these leaders for successful approaches.

There have been efforts in Australia to improve service coordination and to enhance integration within and between levels of care (Australian Government Department of Health and Ageing 2007). In the primary healthcare sector, HealthOne is one such initiative, funded by the New South Wales

### What is known about the topic?

- Coordination of health services is thought to improve health outcomes for patients with chronic and complex illness; however, there is limited quantitative evidence for the effectiveness of coordinated care programs.

### What does this paper add?

- The HealthOne model offers promise for improving care coordination for patients with chronic and complex illness with benefits including decreased use of hospital emergency departments and enhanced access to a broader mix of allied health services in the community.

Department of Health. The aim of the HealthOne program is to bring commonwealth-funded general practice and state-funded primary and community healthcare services together in active partnership, in collaboration with other providers, such as pharmacists, private allied health professionals, other government agencies and non-government organisations (NSW Health, see <http://www.health.nsw.gov.au/healthone/Pages/default.aspx>, accessed 6 July 2015). By April 2015, 20 HealthOne sites were operational across seven local health districts in NSW, with a further eight sites in development.

HealthOne Mount Druitt (HOMD) was the first site to be established in an urban setting and has developed a comprehensive model of care. Oversight is provided by a steering committee with representation from community health services and key GP organisations, such as local medical associations and the Western Sydney Primary Health Network (formerly Western Sydney Medicare Local). HOMD employs a 'virtual' and 'hub and spoke' model. The hub is located at the Mount Druitt Community Health Centre in a purpose-built facility with outreach services to more isolated locations that might otherwise have limited access to GPs and other health care providers. HOMD has three target groups: chronic aged and complex care; vulnerable children and their families; and disadvantaged communities. The model provides two GP liaison nurses (GPLNs) who facilitate communication, case conferencing and care coordination between various health professionals and other providers involved in the patients' care. This may be done in person, electronically or by telephone (virtually) without service providers having always to be physically present at the hub. Although GPLNs did not receive formal training for the role, their seniority, expertise, experience and accumulated tacit knowledge working in the primary health care sector was critical to them carrying out the role successfully (McNab *et al.* 2016). They were supported in their role through oversight provided by the steering committee.

Qualitative analysis has indicated that the GPLN role within HOMD improves coordination and integration of services for patients (McNab *et al.* 2016). However, there is a need for quantitative evidence that the coordination of health services through the HOMD program has resulted in better outcomes for health care consumers (Nolte and McKee 2008). This paper reports on the quantitative findings from a mixed-methods evaluation of HOMD's Chronic Aged and Complex Care arm

undertaken by the Menzies Centre for Health Policy at the University of Sydney.

The present study examines outcomes, including hospital encounters and patterns of community health service utilisation. It also explores the perspectives of service providers more broadly on key aspects of the HOMD partnership and its day-to-day functioning. Among chronic aged and complex patients, we sought to determine whether there was a change in the number of emergency department (ED) presentations, ED length of stay and the number of community health service referrals in the 12 months following enrolment in HOMD, compared to the 12 months before enrolment. A quantitative survey was also conducted to determine the perspectives of service providers concerning the clarity of objectives and participant roles, the degree of key system and process functioning (such as referral and case conferencing) and the perceived benefits and drawbacks of being involved in the HOMD partnership.

## Methods

### Study design

This study comprised a before–after comparison of healthcare utilisation among people with chronic and complex conditions who had enrolled in HOMD as well as a cross-sectional postal survey of local GPs and other service providers.

### Health care utilisation

Older people with chronic and complex illness who were at risk of further exacerbations or hospitalisation comprised a key target group for HOMD. This group was targeted because of knowledge well described in the literature. For example, key demographic factors, such as increasing age, clinical risk factors and comorbidities, contribute substantially to increasing incidence of chronic illness (Australian Institute of Health and Welfare 2012). Further, people with chronic illness present to the ED more often, are more likely to have longer stays in the ED, and are more likely to be admitted (Chan *et al.* 2002). Therefore, eligibility criteria for enrolment into HOMD included any one of the following: a diagnosis of chronic and complex illness or acute exacerbation; severe end-stage disease; age  $\geq 75$  years with associated risk factors such as risk of falls, cognitive impairment or reduced nutritional status;  $\geq 4$  ED or hospital presentations in the past 12 months and readmission to hospital within 28 days. The GPLNs and other health professionals on the multidisciplinary team used their clinical judgement to weight these factors of complexity and chronicity against other risk factors such as lack of social support or a major life event when considering enrolment into the HOMD program.

Health care utilisation data were extracted from the health services' electronic records of all clients that had been enrolled in HOMD for at least a year before the completion of the evaluation in 2012. Twenty-seven patients discontinued their participation in HOMD because they had entered a nursing home, had left the area or had died ( $n=8$ ). They were therefore excluded from this analysis. This allowed service usage to be compared across two 12-month periods immediately pre- and post-enrolment for 125 people. The main variables of interest were the number of ED presentations, the average time patients

spent in the ED, the number of ward admissions for each patient, and, for community health referrals, the type of service request and the source of referral.

### Partnership survey

Survey recipients were local service providers comprising GPs, community nursing and allied health staff and staff from human services organisations, both government and non-government, whose clients had been enrolled in HOMD. The survey was posted with a covering letter briefly explaining its purpose. An unmarked return envelope addressed to HOMD was also enclosed to ensure anonymity of respondents.

Ninety-five surveys were sent to GPs, forty of whom were recorded in service records as having had active contact with HOMD, whether by making referrals or participating in case discussions or more formal case conferences. The majority of GPs in this category worked in individual or smaller practices. Twenty-four completed surveys were returned with twenty respondents indicating they had been involved with HOMD. This yielded a response rate of 25% from GPs overall and 50% from those who had actually been involved with HOMD. Sixty-eight surveys were sent to other providers, mostly community nursing and allied health practitioners; thirty-two of these surveys were returned for a response rate of 47%. The combined response rate for all survey recipients was 34%.

The survey comprised items that were either adapted from an existing tool designed to assist organisations reflect on aspects of their partnerships (VicHealth 2011), or developed specifically for this project. Questions were closed-ended and presented in a combination of Likert and checklist formats. Wording was balanced to reduce the likelihood of response acquiescence which might otherwise have favoured the expression of more positive rather than negative opinions of HOMD. Areas covered included the perceived need for the partnership, goal clarity, participant commitment to partnership goals, the day-to-day operation of the partnership in terms of communication and administrative efficiency, barriers and enablers to effective partnership development, the function of case conferences and the contribution of key personnel. Participants were also asked to identify, from a list provided, the benefits and drawbacks of working in partnership and to nominate whether benefits outweighed drawbacks or vice versa.

### Data analysis

Descriptive data are presented as means and standard deviations, or frequencies and percentages. Continuous variables were log-transformed to achieve a normal distribution. The main aims

of the study relating to ED encounters were assessed using a paired-samples *t*-test. Significance testing to compare proportions derived from the survey data employed the Chi-Square statistic except in those instances where low expected cell frequencies (<5) occurred. In these instances, Fisher's exact test was used. Changes in the rate of service requests for different service types were compared following a variance stabilising transformation with a *t*-test. Rates were assumed to follow a Poisson distribution. The main analyses were conducted in SAS, ver. 9.2 (SAS Institute Inc., Cary, NC, USA).

## Results

### Health care utilisation

Among the 125 HOMD participants, the mean age was 68.4 years (range 17–93 years), and the majority were female (58.4%). Of those for whom country of birth was recorded, 46.1% were born overseas. There were 654 ED presentations and 112 hospital admissions over the 24-month period of study. There were more ED presentations in the 12 months before enrolment in HOMD than after (365 v. 289). There were also more hospital admissions in the pre-enrolment period (66 v. 46).

Table 1 shows descriptive statistics and the results of significance tests to compare health care utilisation in the 12 months before enrolment in HOMD with the 12 months following enrolment. There were statistically significant decreases in the number of ED presentations over the period and in the amount of time patients spent in the ED. Although the number of ward admissions also declined in the post-enrolment period, this improvement was not statistically significant. Fourteen participants (11.2%) had no presentations in the period before enrolment. In contrast, 37 (29.6%) had no presentations in the period after enrolment. This improvement was statistically significant.

Table 2 summarises community health services referral data over the study period. There were 580 referrals overall with little change in the number of referrals to community health services between the 12-month periods pre- and post-enrolment in HOMD (297 v. 283). However, there were substantial shifts in the nature of service requests and in the source of referrals. Prior to enrolment, the majority (63.3%,  $n = 188$ ) of all service requests were for community home nursing services. However, in the period after enrolment, this type of service request declined substantially in terms of both the number of referrals ( $n = 30$ ) and as a proportion of the overall total (10.6%). By contrast, requests for other types of services, for example allied health services such as physiotherapy, podiatry, occupational

**Table 1. Average number of emergency department (ED) presentations, hospital admissions, time in the ED, time in the ward and proportion of patients with no presentations for 125 patients in the HealthOne Mount Druitt (HOMD) program for 12 months before and after HOMD registration**  
All values of means and 95% confidence interval (CI) are back-transformed from the log-scale

Hospital service utilisation	12 months before HOMD	12 months after HOMD	Difference (after – before)	<i>P</i> -value
	Mean (95% CI)	Mean (95% CI)	Mean (95% CI)	
Average number of ED presentations per patient	3.1 (2.7–3.4)	2.3 (2.0–2.7)	–0.76	0.006
Average time patient spent in the ED (h)	12.5 (9.9–15.6)	6.6 (5.0–8.8)	–5.80	0.009
Average number of ward admissions per patient	1.4 (1.3–1.5)	1.2 (1.2–1.3)	–0.12	0.082
Proportion of patients with no hospital presentations	11.2%	29.6%	18.4%	0.003

**Table 2. Number and rate of referrals to community health services, with service type and referral source, among 125 HealthOne Mount Druitt (HOMD) subjects in the 12 months before and after enrolment in HOMD**

Rates refer to the number of referrals per client. Changes in the rates of request for community nursing and allied health (dietetics, occupational therapy, physiotherapy, podiatry and psychosocial services) were statistically significant, as were changes in the rate of referrals from self or family ( $P < 0.0001$ )

Community health services and referral sources	Before HOMD				After HOMD		
	<i>n</i> (total = 580)	<i>n</i> (total = 297)	Rate (total = 2.38)	Percentage (total = 100%)	<i>n</i> (total = 283)	Rate (total = 2.26)	Percentage (total = 100%)
<b>Service requested</b>							
Community home nursing	218	188	1.5	63.3	30	0.24	10.6
Allied health	266	59	0.47	19.9	207	1.66	73.1
Cancer or palliative care	39	22	0.18	7.4	17	0.14	6
Aged day care	36	14	0.11	4.7	22	0.18	7.8
Continence service	14	10	0.08	3.4	4	0.03	1.4
Other	7	4	0.03	1.3	3	0.02	1.1
<b>Referral source</b>							
Acute care (hospital inpatient)	198	164	1.31	55.2	34	0.27	12
Health service provider	182	73	0.58	24.6	109	0.87	38.5
Client, family or friend	129	39	0.31	13.1	90	0.72	31.8
Community options or care package	44	1	0.01	0.3	43	0.34	15.2
Other	27	20	0.16	6.7	7	0.06	2.5

therapy, dietetics and psychosocial services, in particular increased, often substantially.

There was a decline in the importance of the acute hospital inpatient setting as a source of referrals. Whereas 55.2% ( $n = 164$ ) of all referrals for this patient group had been made from hospital in the pre-enrolment period, only 12% ( $n = 34$ ) came from this source subsequently. By comparison the number of referrals made by health service providers increased from 73 (24.6%) to 109 (38.5%). Similarly, the number of self-referrals and those from family or friends more than doubled. Changes in the rate of service requests for community nursing as well as combined allied health services and in the rate of referrals from self or family were all statistically significant ( $P < 0.0001$ ).

*Partnership survey*

Respondents reported high levels of involvement in HealthOne. Three-quarters had received information from HOMD (77%) and two-thirds had made referrals (64%). Other disciplines made a higher number of referrals than GPs (75 v. 50%) and were significantly more likely to have participated in case discussions (65 v. 38%,  $P = 0.04$ ). There were high rates of participation in case conferences by both groups. Seventeen GPs out of the 24 (71%) who responded indicated that they had attended a case conference; so too had 28 out of the 32 other health professionals (87%). Lower participation rates for case discussions may reflect that this was a more informal mechanism with the majority of HOMD cases receiving formal case conferencing when further case management was required. Among those who had participated in conferences, there was a strong consensus concerning their value. For example, most disagreed that they were time consuming or had few constructive outcomes. Among GPs, 71% either disagreed or strongly disagreed compared to 96% of other health service providers ( $P = 0.035$ ). Participants agreed that GPLNs facilitated effective communication and information exchange and the enhancement of care coordination. Most respondents (95%) also thought

that the role was important or very important to the functioning of the project (Fig. 1).

Respondents were asked to evaluate other aspects of the partnership. Their responses are also summarised in Fig. 1. There was near unanimity around goal clarity and commitment and the need for a partnership approach, although less than half (40%) were sure that the project had the resources it needed to fulfil its purpose and some (30%) thought the roles, responsibilities and expectations of partners were poorly defined. Although most agreed that HOMD would benefit from broader involvement of health practitioners more generally, some doubts were expressed about the capacity of the partners for collaboration and the clarity of roles. For example, substantial minorities either disagreed or were unsure that the partners had sufficient skills (39%) or sufficient time (47.3%). Although most agreed that partners were involved in planning and setting priorities to improve client care, this view was more strongly held among GPs than other providers (87 v. 63%,  $P < 0.05$ ). Similarly, GPs were more likely to agree that GPs and other service providers have complementary ways of working (92 v. 51%,  $P < 0.001$ ). Several questions explored HOMD systems and processes. Most people responding to the survey said they understood the referral process. However, there was less certainty about the administrative efficiency of the program and whether or not HOMD duplicated services and processes already available in the Mount Druitt area.

Survey respondents selected from a list of potential benefits and drawbacks to working in a partnership those which they considered applied to HOMD. Overall, sentiment towards HOMD was very positive, with the majority (90%) indicating benefits were either greater or far greater than the drawbacks. The leading benefits to have emerged, as endorsed by both GPs and other health professionals, were more comprehensive planning for clients (82%), closer working links with other organisations (76%), enhanced relationships with health workers (73%) and better service coordination for patients with multiple needs (75%). Other health workers added 'other areas

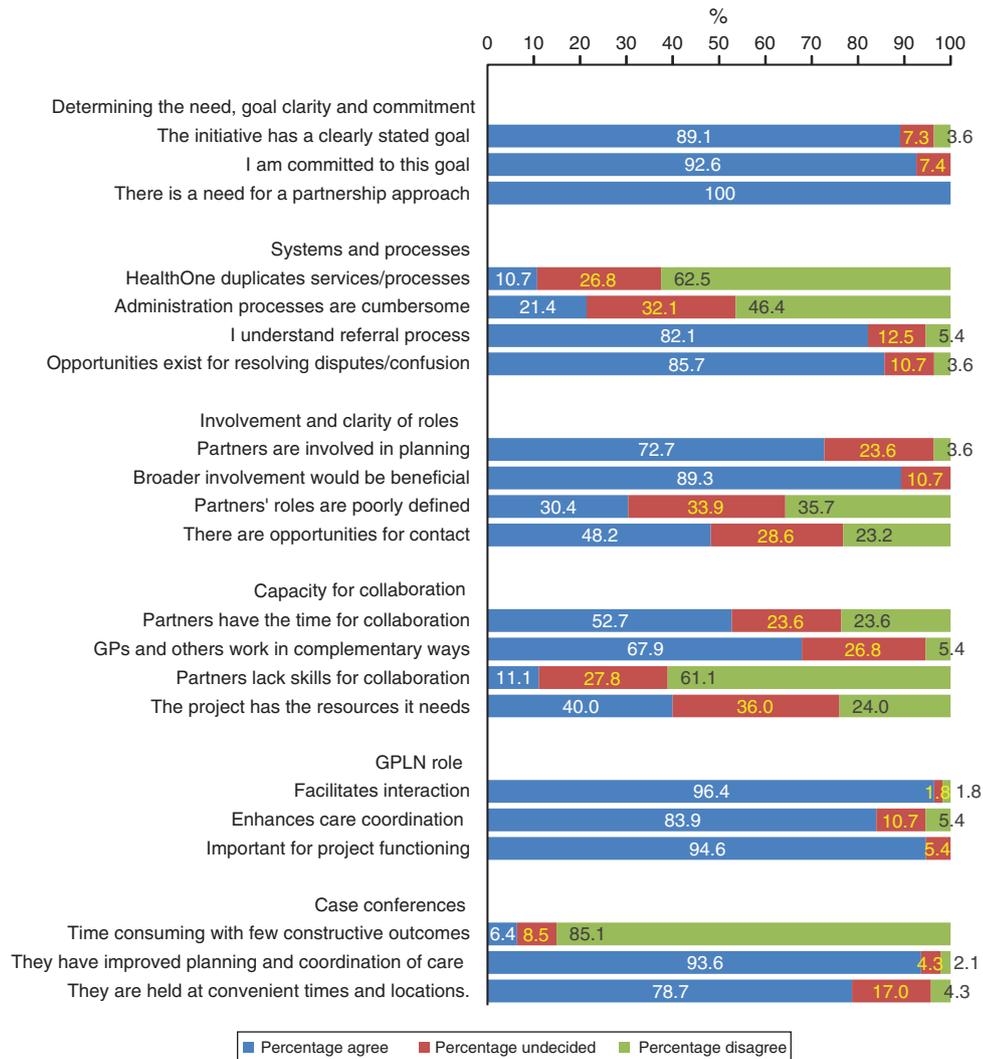


Fig. 1. Survey results from 56 health service providers on the key aspects of the HealthOne Mount Druitt partnership. GPLN, general practitioner liaison nurse.

of collaboration opened up’ to their top five benefits, whereas GPs were more likely than other disciplines to endorse ‘improved range of health services in Mount Druitt’ (87 v. 56%). The leading drawbacks of HOMD were variable participation by individual practitioners (62%); workload (40%); slow progress towards objectives (35%); frustrations with different personalities or conflicting points of view (20%) and power being usurped by the bigger players (18%).

**Discussion**

This study provides quantitative evidence that a coordinated care intervention (HealthOne) improves patient health outcomes. Findings also lend weight to the conclusions drawn from earlier work (McNab *et al.* 2016) regarding the contribution of GPLNs towards improved service coordination and integration of services, improved uptake of multidisciplinary services and encouraging psychosocial issues to be addressed. The study

also supports work carried out in the international context that points to effectiveness when there is: a focus on patients and carers to become more functional and independent; effective communication and good working relationships in a multidisciplinary team; and local programs that address specific client groups. More broadly, greater service integration, coordination, flexibility and continuity of care leads to improved patient outcomes, in this case the HOMD program and the use of GPLNs, to improve the management of chronic disease (Zwar *et al.* 2006; Nolte and McKee 2008; Goodwin *et al.* 2013). For example, enrolment in HOMD was followed by reductions in both the number of ED presentations and the amount of time spent in the ED. There was also an increase in the proportion of participants who had no hospital presentations at all. Changes in the pattern of referral sources and in the nature of service requests received by community health services point to the success of the program, and the work of the GPLNs in particular given their central role, in ensuring that clients receive services

from a broader range of disciplines – physiotherapy, occupational therapy, podiatry and dietetics for example. Recognition of the psychosocial needs of clients, as reflected in the increased number of referrals for this type of service, is also noteworthy. So too is the increased number and proportions of referrals, post-enrolment, being made by the patients themselves and their families. This suggests that post enrolment in HOMD, less patients were passive recipients of health care; that rather there was an increased capacity or willingness on their part to initiate engagement with healthcare providers and to navigate the healthcare system, both of which are key aspects of health literacy, which is itself an important determinant of both equitable access to health services and health outcomes (Osborne *et al.* 2013).

The findings also suggest that the operation of HOMD has logistical issues that may affect program sustainability. The GPLN positions were central to the effectiveness of the program, but were not permanent at the time the present study was undertaken. These roles remain temporary ‘add-ons’ in a health system not yet well structured to work in an integrative collaborative manner. This indicates that policy and health system changes to improve the management of chronic disease (Zwar *et al.* 2006; Nolte and McKee 2008) had not yet occurred within the health system in which HOMD operated. In addition, partnership participants have doubts about the adequacy of resources more generally, clarity of roles and their capacity for collaboration in terms of both the skill mix required and the time available for working in a multidisciplinary manner. This might in part explain why at this point in its development less than one-third of GPs in HOMD’s catchment are actively involved. Of course it might also be that there are systemic barriers to GP involvement, such as the disparate funding models in the primary healthcare sector (McNab *et al.* 2013; McNab and Gillespie 2015).

There are several methodical limitations of this study. The evaluation of HOMD was not commissioned until well after its commencement. This precluded the collection of some baseline data. The analysis of the effectiveness of HOMD was conducted retrospectively, and therefore a suitable control group was not established concurrently with HOMD participants for the analysis. Therefore, we conducted a pre–post comparison of health outcomes, because the retrospective creation of a control group was not possible. As a result, a confounding temporal effect may be present. However, it remains the case that hospital encounters were reduced over time in a patient group with chronic and complex illnesses whose morbidity, and therefore need for hospitalisation, might be expected to increase over time, or at best remain stable over the period examined.

The results raise questions too about the efficiency of HOMD administrative systems and processes. Service providers, whether working in the general practice or community health settings, thought these systems were cumbersome and there were risks of duplication. Some of this might have stemmed from information technology systems that were characterised by fragmentation and an inability to share information across organisational boundaries. This was inefficient, time-consuming, and frustrating for the health professional, and no doubt the patient. Poor administration systems can also detract from patient satisfaction with care provided (Jeon *et al.* 2010, Yen *et al.* 2011). The

introduction of a properly integrated electronic health record would no doubt lead to improvements in the administration of HOMD. This would increase efficiency, enhance staff’s availability for the direct delivery of healthcare, and benefit patients (McNab *et al.* 2016).

## Conclusion

The HealthOne model, as implemented through GPLNs in Mount Druitt, offers considerable promise for improving care coordination in the primary health care sector and this study provides clear evidence of its attendant benefits. Enrolment was associated with decreased use of hospital EDs and enhanced access to a broader mix of allied health services in the community, more often initiated by the patients themselves and their families. However, considerable challenges to implementation remain. These include understanding how best to secure involvement from a higher proportion of local GPs, uncertainty surrounding future funding and therefore the sustainability of the program, as well as the clear need for improvements to administrative processes. And finally, that policy and health system changes to improve the management of chronic disease are necessary for programs like HOMD to reach their full potential and be effective at improving coordination and integration of services for the chronically ill.

## Conflicts of interest

None to declare.

## References

- Australian Government Department of Health and Ageing (2007) The national evaluation of the second round of coordinated care trials final report. Department of Health and Ageing, Barton.
- Australian Institute of Health and Welfare (2012). Risk factors contributing to chronic disease. Catalogue number PHE157. (Australian Institute of Health and Welfare: Canberra)
- Blendon R, Schoen C, DesRoches C, Osborn R, Zapert K (2003) Common concerns amid diverse systems: health care experiences in five countries *Health Affairs* **22**, 106–121. doi:10.1377/hlthaff.22.3.106
- Chan DKY, Chong R, Basilikas J, Mathie M, Hung WT (2002) Survey of major chronic illnesses and hospital admissions via the emergency department in a randomized older population in Randwick, Australia. *Emergency Medicine Australasia* **14**, 387–392. doi:10.1046/j.1442-2026.2002.00343.x
- Curry N, Ham C (2010) ‘Clinical and Service Integration: the Route to Improved Outcomes.’ (The King’s Fund: London)
- Goodwin N, Sonola L, Thiel V (2013) Co-ordinated care for people with complex chronic conditions, key lessons and markers for success. (Kings Fund). Available at <http://www.kingsfund.org.uk/publications/co-ordinated-care-people-complex-chronic-conditions> [Verified October 2013]
- Jeon Y, Jowsey T, Yen L, Glasgow N, Essue B, Kljakovic M, Pearce-Brown C, Mirzaei M, Usherwood T, Jan S, Kraus S, Aspin C (2010) Achieving a balanced life in the face of chronic illness. *Australian Journal of Primary Health* **16**, 66–74. doi:10.1071/PY09039
- McNab J, Gillespie J (2015) Bridging the chronic care gap: HealthOne Mt Druitt, Australia. *International Journal of Integrated Care* **15**, e015. doi:10.5334/ijic.2243
- McNab J, Mallitt K, Gillespie J (2013) Report of the evaluation of HealthOne Mt Druitt. Menzies Centre for Health Policy.

- McNab J, Paterson J, Fernyhough J, Hughes R (2016) Role of the GP liaison nurse in a community health program to improve integration and coordination of services for the chronically ill. *Australian Journal of Primary Health* **22**, 123–127. doi:10.1071/PY14089
- Nolte E, McKee M (Eds) (2008) 'Caring for People with Chronic Conditions: a Health System Perspective.' (McGraw Hill Open University Press: Berkshire, UK)
- Osborne R, Batterham R, Elsworth G, Hawkins M, Buchbinder R (2013) The grounded psychometric development and initial validation of the Health Literacy Questionnaire (HLQ) *BMC Public Health* **13**, 658. doi:10.1186/1471-2458-13-658
- Pines J, Selevan J, McStay F, McClellan M (2015) Kaiser Permanente – California: a model for integrated care for the ill and injured. (The Brookings Institution) Available at <http://www.brookings.edu/~media/Research/Files/Papers/2015/05/04-emergency-medicine/050415EmerMedCaseStudyKaiser.pdf?la=en> [Verified 4 May 2015]
- Van Raak A, Meijer A, Paulus A (2005) Sustainable partnerships for integrated care: the role of decision making and its environment *International Journal of Planning and Management* **20**(2), 159–180.
- VicHealth (2011) The Partnerships Analysis Tool. Victorian Health Promotion Foundation, Melbourne.
- Yen L, Gillespie J, Jeon Y, Kljakovic M, Brien J, Jan S, Lehnbohm E, Pearce-Brown C, Usherwood T (2011) Health professionals, patients and chronic illness policy: a qualitative study. *Health Expectations* **14**(1), 10–20. doi:10.1111/j.1369-7625.2010.00604.x
- Zwar N, Harris M, Griffiths R, Roland M, Dennis S, Powell Davies G, Hasan I (2006) 'A Systematic Review of Chronic Disease Management.' (Australian Primary Health Care Research Institute: Canberra)