REDIRECT:

Reducing older patients' avoidable presentations for emergency care treatment

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List of abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
DYNOPTA	Dynamic Analyses to Optimise Ageing
ED	Emergency Department
GP	General Practitioner
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification
IEMML	Inner East Melbourne Medicare Local
IRSD	Index of Relative Socio-economic Disadvantage
LGA	Local Government Area
LOS	length of stay
MAGNET	Melbourne East MonAsh GeNeral PracticE DaTabase
MBS	Medicare Benefit Schedule
MMDS	Melbourne Medical Deputising Service
NHMRC	National Health and Medical Research Council
NP	Nurse Practitioner
PN	Practice Nurse
RACF	Residential Aged Care Facility
RVEEH	Royal Victorian Eye and Ear Hospital
SEIFA	Socio-Economic Index for Areas
SES	Socio-Economic Status
VEMD	Victorian Emergency Minimum Dataset

Introduction

BACKGROUND

In recent years the number of Emergency Department (ED) attendances across Australia has risen by 17% from 5.7 million in 2008-09 to 6.7 million in 2012-13 (1). Older patients aged ≥70 years represent a growing proportion of these presentations (2); research by CI Lowthian showed an annual increase of 6.1% in older people's attendances at EDs (3), alongside an acceleration in volume and per capita rate usage of emergency ambulance services (4). Given the ageing of the Australian population, such an increase in the volume and rate of ED presentation by older people will dramatically affect emergency and acute hospital care and patient flow, thus placing an even greater strain on services currently struggling to cope with demand.

One way to reduce the burden on EDs is to develop alternative models for non-emergency care outside the acute sector. It is estimated that nearly 40% of all ED presentations are deemed inappropriate or non-urgent, potentially general practice-type (GP-type) visits that could have been managed in the community (5). A decline in GP availability (particularly for home visits and after-hours consultations), the perceived immediacy of specialist attention provided in hospitals and access to in-patient services, patients' perceptions of the complexity or seriousness of their health problems, previous contacts and experience with services, and affordability of care are factors that may be contributing to use of EDs for treatment of non-emergency conditions (6-9).

Through the National Health Reforms, the Australian Government has implemented a number of strategies to address emergency demand. Within the hospital setting, a National Partnership Agreement on Improving Public Hospital Services was created, which was aimed, in part, at improving the efficiency and capacity of ED services in public hospitals. Outside of the hospital system, the Commonwealth Government has been committed to bolstering primary health care to keep people well and out of hospitals (10). Major investments have been made in the establishment of GP Super Clinics and improving after-hours access to primary care providers via telephone help lines such as "healthdirect Australia"(11) and "Nurse-On-Call." Medicare Locals (MLs) were also established in 2010 (12) to facilitate integration of primary care services and ensure that local primary care services were able to meet the needs of their respective communities. Medicare Locals, reformed as Primary Health Networks from 1 July 2015, also hold responsibility for the planning and support of after-hours face-to-face GP services.

However, the challenge remains that across the country there is significant variation in the availability and access to after-hours services (10). Diverse arrangements exist across state-jurisdictions, between rural and urban settings within state boundaries, and even between urban catchment areas within the same city. Moreover, these after-hours service options are often not well promoted and consumers have limited understanding of the range of after-hours services available to them apart from the ED. Commonwealth and states/territories invest considerable resources to meet after-hours demand; notable examples of these services include a nurse triage helpline with all states and territories, after-hours MBS items for after-hours GP clinics and other primary care providers, locum services (after-hours home visiting doctor) (10). These services alongside ED attendance are subsidized by the Commonwealth and state and territory governments respectively, thus minimizing the direct out-of-pocket expenses for consumers. Many older people have access to further concessions via their Healthcare Cards and Pensioner discounts, and are often bulk-billed by health practitioners thus reducing their direct healthcare costs to a marginal amount. However, the uptake of these services remains limited and their impact on reducing avoidable ED presentations remains unclear. The growing trend of older people presenting to EDs with GP-type conditions suggests that new models of community-based primary health care are necessary to address the multifaceted issues affecting the health-seeking

behavior of older adults. In this study we sought to determine the current practices and attitudes of older people in seeking health care for non-emergency acute conditions. By identifying where problems are occurring and identifying appropriate primary health care strategies, our focus was to reduce avoidable ED presentations and better integrate primary, sub-acute and acute care services.

AIM AND OBJECTIVES

The aim of this study was to identify strategies to reduce avoidable presentations to EDs by older people by appropriately redirecting them to primary and community health services.

The objectives of this project were,

1. To understand the journey of older patients who present to ED unnecessarily by analysing four datasets, which includes data from regional to national levels.
2. To identify the appropriate strategies for preventing patient re-entry from primary health care to sub-acute or acute care.
3. To establish the applicability of the proposed interventions at a regional level and the generalisability and feasibility of this intervention to other settings.

TERMINOLOGY

For the REDIRECT study, the criteria used for **defining GP-type ED presentations** were those utilised by the Australian Institute of Health and Welfare (AIHW) (13). Potentially avoidable GP-type presentations to public hospital EDs are presentations where the patient:

(i) was allocated a triage category of 4 or 5, and

(ii) did not arrive by ambulance or by police or correctional vehicle, and

(iii) at the end of the episode was not admitted to the hospital, was not referred to another hospital, and did not die.

This is a contested definition because the triage category is based on an urgency, not a complexity scale and many EDs have avoidable admission-strategies in place, which does not necessarily indicate low complexity or GP-type presentations (14). One study compared the AIHW's definition of avoidable GP-type presentations in three Perth EDs against three other classification methods[1] and found that the AIHW method tended to overestimate avoidable GP-type presentations by approximately 11% (the other methods found 10%–12% of patients attending tertiary EDs in Perth may have been suitable for general practice; the AIHW method found is at 25%) (15). Nevertheless, the AIHW's definition is the most widely used and what is stipulated in the National Healthcare Agreement: PI 19-Selected potentially avoidable GP-type presentations to emergency departments, 2015 (16).

Similarly, to ensure clarity and consistency in our terminology we follow the National Healthcare Agreement and use the term avoidable, unnecessary or GP-type presentations to refer to those ED presentations that could have been dealt with in general practice. We recognise that there are a number of different terms that may have been used including ambulatory case sensitive conditions, potentially avoidable hospitalisations, and potentially preventable hospitalisations (16).

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[1] Sprivulis method, the Australasian College for Emergency Medicine method and the discharge diagnosis method.

Older people in this study are defined as those ≥ 70 years and over. This is a somewhat more arbitrary definition agreed upon by the CI team in light of the fact that there have been increases in the pension age (from 60yo to 65yo), life expectancy and age at which health complications, multi-morbidities and changes in social participation occur.

STUDY SETTING

Our study was centred on older adults in the inner east of Melbourne Medicare Local (IEMML) region. IEMML comprises the Local Government Areas (LGAs) of Manningham, Boroondara, Whitehorse and Monash (Fig. 1). The IEMML region is located approximately 10-15 km east of the Melbourne Central Business District. It is a relatively prosperous area, with an ageing population and a full-complement of health and aged care services.

According to the national Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-economic Disadvantage, in 2011, all four IEMML municipalities rated above the national average. The least disadvantaged LGA was Boroondara and the most disadvantaged was Monash. Interestingly, of the 80 LGAs in Victoria, Boroondara was ranked as the second least disadvantaged municipality in the state. In 2012, 12.3% of 624,721 residents were ≥70 years of age (17). This represents an increase of 9.4% of older residents in five years (≥70yo in 2006 Census = 66,963; ≥70yo in 2011 Census = 73,270). There are two major public hospitals with 24 hour EDs in the region, 76 Residential Aged Care Facilities with a total of 5701 bed places for low and high-level care and in 2012, an estimated 916 GPs worked in 186 practices across the region. The GP: patient ratio was 1:687, which is higher than the state and national average of 1:508 and 1:495 respectively (18).

Fig. 1: Study setting

REPORT OVERVIEW

This report is divided into four sections,

> Parts 1 comprises findings from the quantitative analyses of three datasets to understand current practice and health service use.

> Part 2 summarises our rapid review of the literature on primary health care interventions to reduce avoidable ED presentations.

> Part 3 reports on feedback on non-ED options for management of GP-type conditions from interviews with key service providers and focus group discussions with older people and carers of older people.

> Part 4 is a summary of the stakeholder forum, where findings from Parts 1-3 were disseminated to key stakeholders and input sought on possible future primary care based interventions to reduce avoidable ED presentations.

Part 1: Understanding current practice and service use

1.1 METHODS

Following approval from the Monash University Human Research Ethics Committee, we analysed three datasets, which includes data from regional to national levels in order to understand the journey of older patients who present to ED unnecessarily.

1. ***VEMD (Victorian Emergency Minimum Dataset):*** This dataset contains demographic and clinical data describing patient presentations to the 39 Victorian public hospitals with 24 hour EDs (19). Data are collected by the Department of Health, State Government of Victoria using standard definitions and protocols to ensure comparability between hospitals and are available to researchers for epidemiological, clinical, policy and other types of analyses. For the REDIRECT study we analysed 110,634 presentations to EDs within the IEMML region by ≥70 year olds during the study period (2008-2012). We characterised the factors associated with GP-type and non-GP-type ED presentations by IEMML residents.

2. ***MMDS (Melbourne Medical Deputising Services):*** This dataset contains the clinical case work of Melbourne Medical Deputising Services, one of Victoria's major after-hours medical deputising locum services. The data consists of ~1.6 million records of bookings for an after-hours GP to carry out a home visit. In 2011, approximately 120,000 GP home visits were conducted, with around 50% made to patients in Residential Aged Care Facilities. MMDS call-centers were open to receive calls from 4pm on weekdays, from 10am on Saturdays and all day on Sundays and Public Holidays. MMDS home doctor visits were available on weekdays from 6pm to 8am, from noon on Saturday to 8am Monday, and 24 hours on Public Holidays. For the REDIRECT study we examined utilisation of this after-hours locum GP service during the period 2008-2012 by ≥70 year olds living in the IEMML region.

3. ***DYNOPTA (Dynamic Analyses to Optimise Ageing):*** Funded by the NHMRC, this dataset consists of pooled data from nine Australian longitudinal studies of ageing, with a combined total of >50,000 participants. A subset of the DYNOPTA dataset comprising information collected from 9381 older people aged ≥70 years during 2000-2002 was analysed. We examined the demographic, lifestyle and self-rated health factors associated with GP utilisation among these older Australians.

Analyses were conducted using Stata (version 13.1, StataCorp LP, College Station, TX). Data were analysed using descriptive statistics. Cross-tabulation analyses were performed to characterise variables in contingency tables. Summary measures of frequencies and proportions were calculated for categorical data and chi-squared tests were employed to test for associations. Means and standard deviations were reported for continuous data, and differences between groups of normally distributed data were compared using a t-test. Inferential statistics were applied to analyse DYNOPTA data. Multiple logistic regression analysis was conducted to model the effects of socio-demographic and clinical characteristics on a GP visit in the last one year. Effect estimates were reported as odds ratios with associated 95% confidence intervals.

To perform rate calculations (VEMD and MMDS datasets), population data provided by the ABS (17) were used to estimate the number of people aged ≥70 years living in the IEMML region per year (Appendix A, Table A1). Rates are presented per 1000 persons aged ≥70 years per annum. Data on the number of RACFs, and on the total number of low care and high care RACF places in the IEMML catchment area were provided by Inner East Melbourne Medicare Local. Socio-economic status (SES) groups were determined using the ABS SEIFA 2011 Index of Relative Socio-Economic Disadvantage (IRSD) deciles (ranked within Victoria)(20) and the postcode for the usual place of residence of the patient. For individuals living in a Residential Aged Care Facility (RACF), the postcode for the RACF was

used to determine the SES group. SES deciles were categorized into quintiles, with the first quintile corresponding to the 20% of the population with the most disadvantage and the fifth quintile to the 20% with the least disadvantage.

The after-hours (AH) period was defined as: before 8:00am and after 6:00pm on weekdays, before 8:00am and after 12:00pm on Saturdays, and all day on Sundays.

1.2 RESULTS

Analysis of the DYNOPTA dataset's clinical and health service use information collected during 2000-2003 from 9381 individuals aged ≥70 years showed that 98.4% of these older people visited a GP in the previous year (Appendix B, Table B1). Strong predictors of a GP visit in the preceding year were if the patient had ever had a circulatory condition (OR: 16.76; 95% CI: 7.71-36.41, p-value<0.001), a musculoskeletal or connective tissue condition (OR: 6.84; 95% CI: 3.61-12.97, p-value<0.001), or cancer (OR: 4.92; 95% CI: 2.31-11.34, p-value<0.001) (Appendix B, Table B2). The DYNOPTA findings also indicated that the majority of older adults visit a GP on at least an annual basis.

During the study period there were 485,185 presentations by IEMML residents to Victorian public hospital 24 hour EDs (19). When ED attendances by IEMML persons of all ages were categorised into GP-type and non-GP-type presentations, individuals aged ≥70 years accounted for 9.0% of the GP-type and 31.4% of the non-GP-type presentations to Victorian public hospital EDs (Appendix C, Figure C1).

Within the IEMML region, those aged ≥70 years represented ~12% of the IEMML population but accounted for 22.8% (110,634) of ED presentations. ***15.1% of these ED attendances were avoidable GP-type presentations.*** Disorders of the eye and ear were most common reason for clinical presentation (Fig. 2). Of the 5,215 GP-type presentations to the ED at the Royal Victorian Eye and Ear Hospital (RVEEH), 90.1% were due to a self-referral or a referral from family or friends. A health professional, for example a GP, medical staff from another hospital campus, or a private specialist, accounted for only 7.1% of the referrals. These GP-type ED presentations to the RVEEH occurred during business hours in the majority of cases (74.8%).
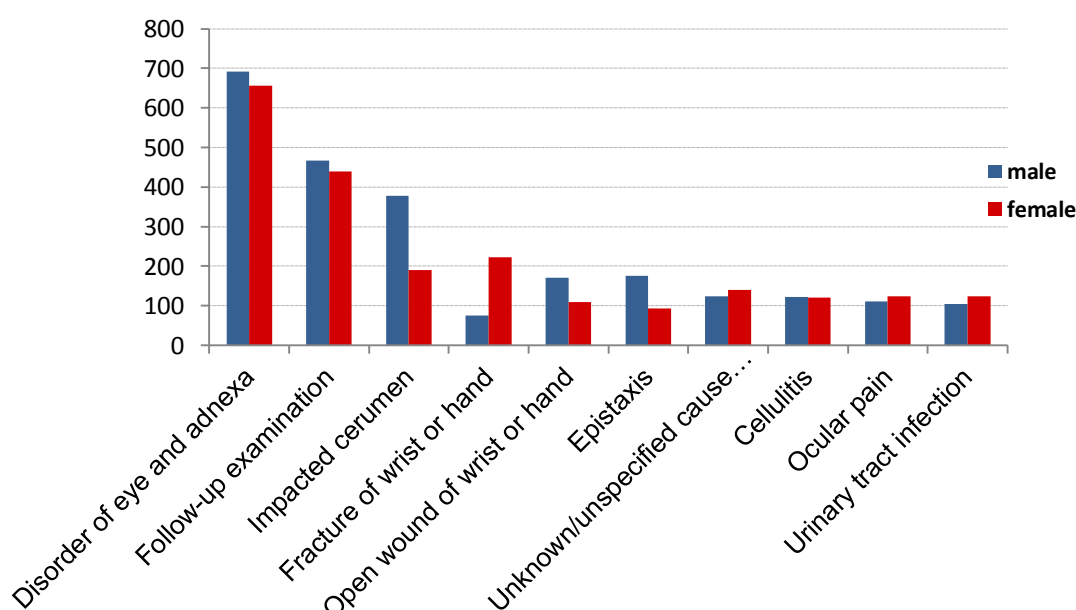

Fig. 2 Clinical conditions of GP-type presentations to ED

The two EDs most frequently attended were the local hospitals of Box Hill Hospital (47.6% of presentations) and Monash Medical Centre (18.4% of presentations). When ED attendances were categorised into GP-type presentations (15.1% of ED visits) and non-GP-type presentations (84.9% of ED visits), a difference was observed in the hospital campuses more often frequented by older patients. For GP-type presentations, the top three EDs attended were at the Royal Victorian Eye and Ear Hospital (31.3% of GP-type presentations), Box Hill Hospital (29.6%), and Monash Medical Centre (12.3%). The majority of non-GP-type presentations were managed at EDs at Box Hill Hospital (50.7% of non-GP-type presentations) and Monash Medical Centre (19.5%).

Notably, for 9% of GP-type ED presentations by older IEMML individuals to all hospitals, the patient departed the ED without obtaining clinical advice (6.3% of cases), after clinical advice but with no treatment (1.8%), or after treatment was commenced but not completed (0.9%). In contrast, only 1% of non-GP-type presentations resulted in live patients leaving the ED under these same circumstances.

Overall, there was a decrease in the number and rate per 1000 population of older adults who attended ED multiple times with GP-type conditions within the previous 12 months (Table 1). The proportion of individual patients attending ED at least thrice per year with avoidable ED presentations decreased from 19.6% in 2008 to 17% in 2012. Nevertheless, *~30% of avoidable ED presentations by older patients were attributable to individuals who visited an ED multiple times within a 12 month period with GP-type conditions.* Conversely, older people with non-GP-type presentations exhibited an increase in the number and rate of individual persons attending ED on multiple occasions within a 12 month period. For non-GP-type presentations, 32.5% of individual patients attended an ED at least twice in 2008, accounting for 57% of total non-GP-type attendances. This is in comparison to 33.2% of patients presenting multiple times in 2012 with non-GP-type conditions, contributing to 58% of visits that year. Our analyses were based on categorising presentations into GP-type and non-GP-type attendances, however, we recognise that some older people who repeatedly attend EDs may present with both GP-type and non-GP-type conditions within a 12 month period.

After-hours home-visiting medical deputising services are an option available to the community seeking acute medical care. In 2009, 65% of 110,000 locum GP home visits provided through Melbourne Medical Deputising Services on behalf of GP clinics in Melbourne were to patients aged ≥65 years (21). In our study, data related to bookings made for an after-hours GP home visit were analysed to determine the extent to which this deputising service is utilised by older people aged ≥70 years living in the IEMML area. The demographic and usage characteristics associated with this patient population were explored.

During 2008 to the end of 2012, a total of 64,453 bookings were made for an after-hours GP home visit to an older person living in the IEMML region. Of these bookings, 53,345 (82.8%) were for a patient living in a Residential Aged Care Facility (RACF). The remaining 11,108 (17.2%) of the bookings were for a locum GP to attend to a non-RACF patient, the majority of whom would be living in a private dwelling in the community.(22) The 2011 Census showed that 94% of Australians aged ≥65 years live in a private residence, approximately 4% live in a RACF, and the remainder live in dwellings such as a unit for the aged where meals are provided, hospital, or hostel for the homeless.(22)

Table 1 *Frequency of presentation and re-presentations by GP-type presentation status, IEMML region population aged ≥70 years presenting to Victorian public hospital 24 hour Emergency Departments, 2008 and 2012*

	2008		2012	
IEMML area population aged ≥70 years	n = 70,123		n = 76,917	
GP-type presentations	**No. patients**	**No. ED visits (% total)**	**No. patients**	**No. ED visits (% total)**
Number of individual patients	2,602	3,366	2,571	3,202
Number attending ED x1	2,091	2,091 (62%)	2,135	2,135 (67%)
Rate/1000 population	(29.8)		27.7	
Number attending ED x2	358	716 (21%)	327	654 (20%)
Rate/1000 population	(5.1)		4.2	
Number attending ED ≥x3	153	559 (17%)	109	413 (13%)
Rate/1000 population	2.2		1.4	
Non-GP-type presentations	**No. patients**	**No. ED visits (% total)**	**No. patients**	**No. ED visits (% total)**
Number of individual patients	12,388	19,385	14,078	22,466
Number attending ED x1	8,366	8,366 (43%)	9,405	9,405 (42%)
Rate/1000 population	119.3		122.2	
Number attending ED x2	2,476	4,952 (26%)	2,766	5,532 (25%)
Rate/1000 population	35.3		36.0	
Number attending ED ≥x3	1,546	6,067 (31%)	1,907	7,529 (33%)
Rate/1000 population	22.0		24.8	

Emergency Department presentations showed that *in the after-hours period, 90% of GP-type presentations were by older adults living in private dwellings, with only 1.1% by RACF individuals* (Table 2). In comparison, *community-dwelling older adults comprised only 17% of bookings to a medical deputising service for an after-hours GP, with the majority of bookings (83%) for RACF individuals*. Taken together, the medical deputising service and ED findings indicate that in the after-hours period, community-dwelling older people with GP-type conditions are more likely to visit an ED rather than seek care from a home-visiting locum GP.

Table 2   *Usual accommodation of persons aged ≥70 years attending ED with a GP-type presentation (n=16,665), by after-hours status[a], IEMML region, 2008-2012*

Patient's usual type of accommodation	ED arrival period for GP-type presentation			
	Business hours		After-hours	
	n	(%)	n	(%)
Private residence	8,546	(83.7)	5,814	(90.0)
Residential Aged Care Facility	106	(1.0)	73	(1.1)
Other[b]	23	(0.2)	33	(0.5)
Unknown	1,532	(15.0)	538	(8.3)

[a] Business hours: Monday to Friday, 8am to 6pm; Saturday, 8am to 12pm. After-hours: Monday to Friday, before 8am and after 6pm; Saturday, before 8am and after 12pm; Sunday, all day.

[b] Boarding/rooming house, residential supported living facility, psychiatric hospital, other hospital, homeless shelter, other shelter or refuge, homeless, prison or remand centre.

Of note, during the years 2008 to 2012, there was increased use of the MMDS after-hours deputising service by both RACF and community-dwelling older people (Fig. 3). The booking rate in 2012 for RACF individuals was 180.6 per 1000 people aged ≥70 years, which was an increase of 55% from 116.2 per 1000 older people in 2008. For non-RACF persons, from 2008 to 2012 there was a 39% rise in medical deputising service use from 27.5 to 38.2 bookings per 1000 older people.
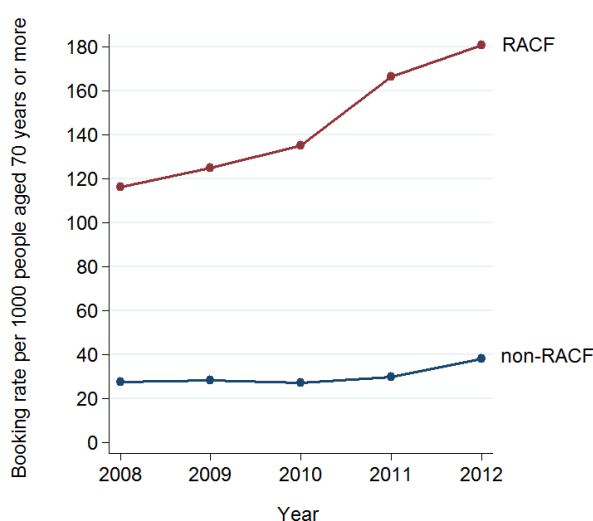

Fig. 3 Deputising service booking rates for older persons by RACF status

Characteristics associated with bookings for RACF and non-RACF persons were explored. Irrespective of the patient's type of accommodation, the highest demand for an after-hours GP home visit was on a Saturday (Appendix A, Figure A1) between 11am to12pm (Appendix A, Figure A2). For 3.4% of RACF patients and 6.2% of non-RACF patients, the attending locum GP organised an urgent transfer to hospital.

Finally, in a small proportion of cases *emergency service care was requested for community-dwelling older people when an after-hours GP would have been appropriate.* Almost 5% of bookings for an after-hours GP home visit to an older non-RACF individual were due to referrals from Ambulance Victoria where ambulance triage staff had determined that an after-hours GP was the most appropriate care provider for the patient's health condition (Appendix C, Table C1).

1.3   KEY FINDINGS

> For the older IEMML population, 15.1% of Emergency Department attendances were avoidable GP-type presentations. In 9% of these cases the patient departed the ED without clinical advice, with clinical advice but without treatment, or before treatment was completed.
> Approximately 30% of avoidable Emergency Department presentations by older patients were attributable to individuals who visited an ED multiple times within a 12 month period with GP-type conditions
> In the after-hours period, 90% of GP-type ED presentations were by community-dwelling older people, and 1% by RACF residents. In comparison, community-dwelling older adults comprised only 17% of bookings to a medical deputising service for an after-hours GP, with the majority of bookings (83%) for RACF individuals.
> Emergency service care was requested for community-dwelling older people when an after-hours GP would have been appropriate

Part 2: Identifying primary care interventions to reduce avoidable ED presentations

2.1 RATIONALE

In 2013, UK researchers Ismail, Gibbons and Gnani (34) published a systematic review of primary care service interventions that reduced inappropriate accident and emergency department attendance. Inappropriate attendance was defined as those involving patients with low-acuity presentations who could be directed to other, more appropriate care services or self-care, rather than ED. Their review identified interventions such as telephone triage, walk-in clinics, minor injuries units, urgent care centres, community health centres, GP co-operatives and out-of-hours services and emergency nurse practitioners. Although these primary care interventions showed some promise, they lacked conclusive evidence that they actually reduced ED attendance rates and data on patient outcomes and cost-effectiveness were limited. The authors concluded that robust evaluations of primary care services aimed at reducing avoidable ED presentations were urgently needed in order to establish the evidence-base for future intervention and policy action. In response to Ismail et al's work and building on their earlier systematic review, the aim of this review is to (a) update the evidence in relation to primary care interventions that reduce avoidable ED presentation, and, in doing so, (b) support the implementation of evidence-based, cost effective interventions that address this area of health service need.

2.2 METHODS

Studies published between 1 Jan 2011 and 12 March 2015 were identified using a systematic search of English language literature on PubMed, the NHS Economic Evaluation Database, the Health Technology Assessment Database and Cochrane Collaboration databases. For the purpose of this review, we used the same search criteria of the systematic review from Ismail et al (34). Terms were combined in initial searches and combination searches were used to include all interchangeable terms (34). Studies were excluded if: they were not published in English; full text was unavailable; they were editorials or commentaries; search terms were not present in the body of the paper; they did not consider a primary care service intervention; they targeted specific diseases; they targeted children; and/or they did not address at least one of the outcome measures of interest, namely reducing ED visits, patient satisfaction, intervention cost and primary care utilization. We included articles with the following study design: randomised and non-randomised control trials; cohort studies (including retrospective cohort studies); case control studies; systematic reviews; cross-sectional studies; pilot case study; before and after studies; and interrupted time series.

The methodological quality of the studies were assessed using the Scottish Intercollegiate Guidelines Network (SIGN) checklists (35). Each study's methods were classified using the SIGN algorithm (36) and then three researchers (RB, JA and BB) jointly reviewed the eligible articles. The inter-rater agreement was 86%. Discrepancies were resolved by consensus.

We analysed the eligible studies according to four outcomes: 1) reduction of ED visits; 2) improvement in patient satisfaction; 3) increased cost effectiveness; and 4) increased primary care utilisation.

2.3 RESULTS

Seventeen studies satisfied the inclusion criteria (See Appendix F). Fourteen studies were from the US, one from the UK, one from New Zealand and the systematic review referenced the majority of its studies from the US and Europe. The vast majority of studies were complex interventions, having two or more outcomes.

Of the seventeen studies, ten studies targeted specific cohorts (i.e. highly disadvantaged and vulnerable groups) such as uninsured patients, homeless patients, individuals recently released from prison, older people, and patients with multiple medications for chronic diseases. Where specified, most studies had more women than men (ranging from 41% to 74% more), and the mean age ranged from 31.5 years to 85 years of age.

This rapid review has identified *recent primary care service interventions that reduce emergency department use include patient-centred medical homes (PCMHs) or medical homes[2]; clinics such as free clinics, GP-led or nurse-led clinics and walk-in clinics; and community-based programs.* The most effective were complex interventions that also looked at patient satisfaction, cost effectiveness and/or primary care utilization.

PCMHs significantly reduced ED use and/or primary care utilization and are cost effective. Since their introduction, they have shown to be effective in reducing ED visits and overall health-related costs. The studies in our review all showed significant reduction of ED visits and where assessed, showed decrease overall cost compared to controlled group, and increase in primary care utilisation. Therefore, PCMH seemed to be most effective intervention when assessing reduction in avoidable ED use and overall healthcare costs.

Community-based programs such as community partnership program, patient-centred pharmacy program, geriatric care, and telemedicine program were also shown to reduce ED visits and increase cost effectiveness, however only one program demonstrated significant reduction of both ED visits and cost. Patient satisfaction was evaluated in two of the interventions and although high, was not statistically significant. Besides the different outcomes measured for the community-based programs, their targeted cohorts were mostly uninsured patients and older patients at high-risk for adverse drug events; given the specificity of these cohorts, these intervention may not be generalizable across all adult populations.

Besides one free clinic study showing significant reduction in cost for the uninsured, other interventions involving a clinic-type intervention showed no significant reduction of ED visits, cost, or primary care utilisation.

It is important to note that most of these studies evaluated outcome measure(s), with specific cohorts, thus limiting their comparability and generalisability. Another limitation is that much of this literature is US-centric with only two studies undertaken elsewhere. The US healthcare system is complex, variegated and premised on a user-pays model, which is very different compared to countries such as Australia and the UK, where healthcare systems are underpinned by a publicly-funded model and hospital and GP-based services are nationally administered through bodies such as Medicare and the National Health Service. Therefore US-based intervention studies may not be directly replicable in these settings.

This review has identified interventions that reduce ED visits and also reduce cost of healthcare and increase primary care utilisations. Studies mostly used non-experimental methods and focused on specific cohorts, in a variety of healthcare systems, calling for the development and evaluation of robust primary care interventions specific to the Australian healthcare system to reduce avoidable ED presentations, reduce costs and increase access

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[2] The medical home is best described as a model or philosophy of primary care that is patient-centered, comprehensive, team-based, coordinated, accessible, and focused on quality and safety.

to primary care services. In order to do this, the next step was to explore the factors influencing the health-seeking behavior of the elderly in the Australian health care system.

2.4 KEY FINDINGS

> The most effective primary care service interventions were complex interventions that also looked at patient satisfaction, cost effectiveness and/or primary care utilization
> Recent primary care interventions such as patient-centred medical homes, primary care based clinics, and community based programs have showed to reduce ED use.
> Only PCMHs have showed to significantly reduce ED use, other interventions have showed to have reduced ED use but were not significant.
> Most of these studies evaluated outcomes measure(s) with specific cohort such as low income earners, the homeless, high risk groups, and uninsured, therefore generalization of these studies is limited.
> These studies were mostly undertaken in the US, suggesting the need for development and evaluation of robust primary care intervention specific to the Australian healthcare system to reduce avoidable ED presentations, reduce costs and increase access to primary care services.
> Overall, only a limited number of studies have evaluated primary care interventions to reduce ED use in the past five years. No studies in the recent years have evaluated established primary care interventions such as telephone triage, minor injuries units, urgent care centres, GP co-operative and out-of-hours services, and emergency nurse practitioners as reviewed by Ismail et al's paper, therefore suggesting there is a need to assess the efficacy and feasibilities of these primary care interventions.

Part 3: Consumer and health service provider perspectives on avoidable ED presentations

3.1 RATIONALE

The findings from Sections 1 (quantitative study) and 2 (rapid review) informed the qualitative component of the interviews and focus groups. For the purpose of this study, we used case vignettes as the basis for discussion in interviews with health service providers and in focus groups with consumers (people aged ≥ 70 years and their carers) to investigate the reasons behind avoidable ED attendances, and to determine the feasibility of alternative models of care in the Australian context.

The aims of the qualitative study were:

> To understand the journey of older patients who present to ED unnecessarily to identify the clinical, social, and health system-related risk factors for ED attendance and re-attendance.
> To establish the acceptability and feasibility of primary care interventions for consumers and health care providers.

3.2 METHODS

Key Service Providers (KSPs)

KSPs were defined as providers from primary care, sub-acute care, and ED. They included managers and coordinators, doctors and nurse practitioners. A list of 25 KSPs from the IEMML region was generated by the team based on their current knowledge and networks. An invitation letter along with the project explanatory statement (ES) was sent to KSPs to participate in this project. Eight KSPs contacted the research assistant (details provided in the invitation letter and ES) to organise a suitable time and place for the interview. Another four KSPs were interested but were unavailable to participant, but made referrals to their colleagues who consented to be interviewed. No responses from the other 13 KSPs on the list. All participants completed the consent form before participating in the interview. The interview consisted of two case vignettes (see Appendix G), where participants were given the first case vignette to read, followed by a semi-structured discussion of the case. This was then repeated with the second vignette. All interviews were audio-taped and transcribed verbatim. All analysis was conducted using NVivo10.

Twelve KSP interviews were conducted between 22 April to 29 May 2015, involving mangers (clinical care) from residential age care facilities, manager (HARP complex aged care), emergency coordinator, nurse practitioner and geriatrician from hospitals, doctors (GPs and after hours locum doctor), managers from primary health network and locum service, and a senior coordinator from a local council. Participants included four males and eight females, with an average age of 49.58 (ranging from 34 to 64 years of age), and an average of 9.54 years working in the current role (not including some having up to 34 years of previous related work experience in the health industry).

Consumers – People 70 years and over, carers of people 70 years and over:

Consumers were recruited *via* their carers and senior social groups such as golf clubs, seniors' citizen clubs and neighbourhood houses in the IEMML region. Focus groups were organised with interested carers or seniors group at a time suitable for the participants. All participants completed the consent form before the commencement of the focus group. Focus groups consisted of two case vignettes (see Appendix G), where participants were given the first case vignette to read, follow by a semi-structured discussion of the case. This

was then repeated with the second vignette. All focus groups were audio-taped and transcribed verbatim. All analysis was conducted using NVivo10.

Five consumer focus groups were conducted between 22 May to 9 June 2015, involving 18 carers of people 70 years and over, and 22 participants 70 years and over. There were six males and 34 females. Of the 70 year and over cohort, the average age was 79.94 years (ranging from 70 to 87 years of age). Most of the 70 years and over cohort were married (17, 42.5%), or widowed (16, 40.0%), and on an age pension (33, 82.5%). Over half lived with their carer or family (21, 52.5%), and 13 lived on their own (32.5%).

3.3 RESULTS

The results from the interviews and focus groups are divided into two sections: (A) Factors influencing older persons' health-seeking pathway, where participants commented on reasons an older person would choose ED rather than primary care alternatives; and (B) Acceptability and feasibility of primary care alternatives for GP-type ED presentations.

A: Factors influencing older persons health seeking pathway

Five key themes were identified from the interviews and focus groups:

> Access
> Living arrangement
> Perceived health status
> Perception of care
> Lack of awareness of alternatives to ED utilisation

1.   Access (access, transportation, time)

Access, as defined by KSPs and consumers, related to the availability GP appointments on the day; what other options were available if a GP appointment could not be made; lack of public transport or other transportation; convenience of having an ED closer than a GP clinic; and the perception that patients generally could not get an appointment on a Monday morning.

Both KSPs and consumers recognised the importance of GP access for an older person, but the lack of available same day appointments was a big issue for both GPs and older people (37). Both groups also recognised that some older people might be too embarrassed or not 'forceful' enough to ask for a same day appointment, increasing the possibility of avoidable presentations to ED.

Transportation was a barrier for older people especially if they depended on public transport, family or friends to get around. Taxi costs were also viewed as very expensive and older people were less likely to use this option. Transportation difficulties limited opportunity to present to non-ED alternatives such as after-hours GP clinics as difficulties would be experienced not only in getting to the GP but also in getting to additional services such as the pharmacy and pathology/imaging tests. Transportation difficulties could be the difference between calling an ambulance and going to ED versus having one's own transportation and going to see a GP.

Time of the day and/or week also determined where older people sought help as lack of available GPs during certain times (e.g. early morning, late at night, weekend, public holidays) and lack of knowledge about other options available could cause older people to present to the ED.

Consumers commented that they were more likely to go to ED at night because they were uncertain about other alternatives; hesitant to wake family or friends in the middle of the night; more likely to panic at night especially if they lived alone; felt that they were experiencing severe symptoms; and had previous positive ED experience. More patients presented to ED during in winter due to pneumonias and other chest infections.

2. Living arrangement (living arrangement/family support, culture/gender, social factors)

Whether an older person lived alone at home, with a spouse or with other people made a significant difference in determining their health seeking pathway. KSPs and consumers agreed that cohabitation and/or social support minimised the risk of older people going to EDs unnecessarily as they had someone else to 'bounce ideas off' and negotiate on their behalf for a same day appointment at the local GP clinic. In contrast, older people living alone and lacking support were seen as more insecure, more likely to panic and therefore more likely to present to ED.

Along with living alone, other social reasons influencing GP-type ED presentations included previous health seeking experience (good or bad), not being a burden to family/friends, having plenty of time on hand to wait in ED, needing reassurance from someone that they are doing the right thing, and not knowing what is considered 'urgent.'

KSPs also mentioned that gender and culture could play a part in where older people would go for healthcare. Older patients might prefer a female or a male doctor for their particular problems and therefore would rather go to ED as there would be many doctors to 'choose' from. Language barriers could also be an issue for older people; hospitals were seen as a 'multicultural' environment where they could find someone who would 'speak' their language. Moreover, in some cultural groups, uncertainty about having other 'cultural' doctors in their home was seen to limit their use of after-hours locum doctors. Others also expressed fear about an authority-figure coming into their homes because they were concerned they might be 'assessed' as not coping well at home and might need to go to an old age home.

3. Perceived health status (knowledge or perception of severity of illness, disease/co-morbidity, habit/convenience)

KSPs thought consumers' perception of severity of their illness and not knowing what is urgent were important factors in determining which health seeking pathway they would take. However consumers seemed to think they were quite knowledgeable regarding their illnesses and offered plenty of advice for 'Elaine's' UTI including drinking plenty of fluid, using a hot water bottle, taking Ural, and even using leftover antibiotics from previous UTIs. But consumers also recognised that if they perceived the illness to be severe, they would just call an ambulance.

KSPs and consumers also commented that the complex health needs of older people would increase the incidence of ED presentation whether it was classified as urgent or not. Patients with comorbidities might already be linked with hospital specialists and therefore going to that hospital's ED could be seen as 'logical'.

Habit and convenience might also determine where an older person would seek healthcare. If older patients find ED closer and/or easier to get to than their GP, then participants thought they might fall into a 'habit' of always coming to the ED:

4. Perception of care (trust and familiarity of GP and patient relationship, quality of care, continuity of care, cost)

Perceptions of care for an older person depend on their levels of trust and familiarity with their GP versus the perceived 'better care' and 'one stop shop' of ED. Continuity of care and cost were also seen as important in where an older person sought care.

Trust and familiarity of GP-patient relationship related to continuity of care, social factors, and severity of disease. KSPs and consumers thought continuity of care was very important but lack of access to a regular GP could hinder continuity of care. Most agreed that if older people could not see their regular GP, they should at least try to see another GP in the same practice. But KSPs also commented that older patients who formed a bond with their regular GP would rather wait, than see another GP and would consequently end up in emergency if their symptoms got worse.

Consumers thought that 'Elaine' did not have a close relationship with her GP as she could not be 'squeezed' into an appointment on the same day. However, consumers also commented if the illness was bad enough, they would seek help elsewhere. EDs were seen as spaces delivering high quality of care, a 'one stop shop' with plenty of doctors and specialists, pathology testing and imaging facilities available. Consumers also perceived that ED had more caring staff as opposed to GPs, who only had a certain amount of time to consult. Consumers desire not to take up GP's precious time also contributed to them going to the ED.

Both KSPs and consumers agreed that cost was a big issue for older patients as living on a pension could be challenging. While GP practices might bulk-bill[3] pensioners, medication and other tests might not always be bulk billed. Because consumers were aware that public hospitals are 'free,' waiting 3 hours in ED to undertake tests and receive medications was still seen as better than privately incurring these costs.

5. Awareness about other options

While KSPs were familiar with other options available for the older person if GP appointments were not available, consumers were not as well informed. Only some consumers were aware of Nurse-On-Call or after-hours locum services. A few older consumers had used them, others had only heard seen the promotional fridge magnets and other materials. Overall, there was a lack of awareness of what other options were besides ED if a GP appointment was not available.

B: Health seeking pathways

Five key health seeking pathways were identified from the interviews and focus groups:

1. Nurse on-call
2. After hours locum service
3. Nurse practitioners
4. After hours GP clinics
5. Pharmacies

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[3] Bulk billing is when the health professional accepts the Medicare benefit as full payment for a service. Some medical services are subsidized by the Australian Government. Medicare benefits help cover the costs of visits to a health professional.

1. Nurse-On-Call

KSPs saw nurse on-call as a triage service and were comfortable recommending this service to their patients as a first point of call. However, they were not sure whether older patients were aware of this service wondered about its efficacy if the end result was a referral to 'go see a doctor' anyway. Also mentioned was the lack of follow-up from nurse on-call to the patient's regular GP. Some consumers had used this service; others had never heard of it. Those who had used it had mixed reactions as to the quality and the outcome of the service.

2. After-hours locum service

After-hours locum services were seen to support GPs and GP clinics that are aligned, thereby enabling follow up and providing continuity of care to patients. However, barriers such as consumers not being aware of the service; having to wait until after 4pm to access the service; and using this service to see the whole family at the same time were identified by KSPs such as GPs and the Deputising Service's Manager.

Most consumers had heard of the service and had mixed reactions regarding the service. They mentioned that they would still have to fill their own scripts and wait to be seen (although they recognised that they could wait in the comfort of their own home). However, many participants were not aware that locum services were bulkbilled and that they were aligned to particular practices.

3. Nurse Practitioners

All KSPs thought nurse practitioners (NPs) was a good idea and would use them and recommend them. However, there are currently few registered NPs and NPs are mainly associated with hospitals or rural areas. GPs commented that they would be happy to employ a NP (if there was enough money) which would provide a team care approach in a practice, reduce GP workload and avoid unnecessary ED presentations.

Consumers generally were not aware of NPs, confusing them with Royal District Nurses. After explaining what NPs were and what they did, consumers were then very open to the idea of having one visit their home as they would trust a nurse.

4. After-hours GP clinics

KSPs thought that after-hours walk-in GP clinics were a good option, especially for non-urgent care. However, patients would still need to find transportation, and being after hours, public transport and safety issues needed to be considered. Consumers recognised that 'Elaine' who relied on public transport might have problems going to an after-hours GP clinic on her own. Also not being able to make an appointment, and long waiting times were seen as deterrents. A lot of consumers were unaware of where these clinics are or their operating hours. Those consumers who had used this service reported positive experiences.

5. Pharmacy

Consumers commented that Elaine could have gone to the pharmacist if she had been uncomfortable all day, but acknowledged that transport and access might have been a barrier. Many consumers used pharmacists for advice and saw pharmacists as very knowledgeable.

3.4 KEY FINDINGS

> There is dissonance between what patients and what health providers consider to be an 'emergency.'

> Presentation at ED for avoidable GP-type presentations is influenced by complex and intersecting factors to do with access, transportation, locality, living arrangements, perceived health status, perception of care and awareness of other options.

> Patients would prefer to see their regular GPs as much as possible rather than present to an ED

> There is a very big gap in patients knowledge and awareness of alternatives to ED

> When made aware of alternatives to ED presentation, patients expressed strong support for a nurse practitioner visiting them at home (more so than a locum doctor).

> Patients prefer a 'one stop shop' for after-hours health services in order to minimize their transportation issues during this time.

Part 4: Stakeholder feedback on results

4.1 RATIONALE

The findings from Sections 1 (quantitative study), 2 (rapid review) and 3 (qualitative study) were collated and presented at a key stakeholder forum held on 6 August 2015 in the IEMML region. The intent behind the forum was threefold,

> To provide the opportunity for key stakeholders to present their views on local issues and how the strategies presented can be generalised for their purposes within their own specific regions.
> To outline a methodology that other groups (e.g. other Primary Health Networks (PHNs), hospitals) can use to interrogate their own data to inform their respective priority areas.
> To provide an opportunity for stakeholders to input into the design of a future study that will trial a complex intervention to appropriately redirect older patients' avoidable presentations for emergency care treatment to the primary care sector.

4.2 METHODS

Invited stakeholders included representatives from acute care, primary care, residential care, ambulance, locum services, PHNs, local, state and Commonwealth government, APHCRI, carers, and consumers. Clinicians present included ED consultants, geriatricians, GPs, locum doctors, nurses (ED nurses, practice nurses, aged-care nurses), and paramedics. Ninety-five people were invited, 60 responded to confirm their attendance, and 55 people attended the forum. Notably, those who attended came from across metropolitan Melbourne including from other hospitals such as The Austin, Frankston Hospital, and St Vincent's as well as from interstate.

At the forum a detailed breakdown of the results were presented to participants. Participants were then asked to break into small groups of seven to eight people per group to undertake the following,

> Reflect on current patterns of health care utilization by older people
> Then prioritize interventions or components of interventions to reduce avoidable GP-type ED presentations
> Identify the barriers and enablers to the successful implementation of these interventions.

Participants were given 30 minutes for these activities. Care was taken when organizing this group work to ensure as much diversity in health professions at each table. Every table also had either a carer or a consumer. A member of the research team was also at each table to facilitate the discussion. Groups were asked to nominate a representative to feedback to the broader forum. They were also asked to record their ideas on paper, which were gathered at the end of the activity. These ideas have been collated by the research team and are presented in Table 3. They will assist the team in devising strategies to reduce avoidable GP-type presentations to ED among older people. The next steps will be to utilise a program logic model to develop a complex intervention to reduce the growing demand for ED services, which is in alignment with the national priorities of the Australian Government.

4.3 RESULTS

Collation of results of the groups' discussion revealed four key areas for intervention:

1) Increase access for patients to primary care services during and after working hours;
2) integrated team approach to care; 3) increase GP utilization of MBS item numbers specific to older people; and 4) increase awareness of alternative services to the ED. The main barriers and enablers of each of these interventions are displayed in the following table,

Table 3   *Summary of feedback from the stakeholder forum*

Priority interventions	Barriers to the successful implementation of these interventions	Enablers to the successful implementation of these interventions
Increase access for patients to primary care services during and after working hours	> Lack of patient knowledge of other primary care services apart from the GP > Resourcing of alternatives to the ED > Patient's cultural background influences health-seeking preferences > Hard-to-reach locations > State and federal bureaucracies with differing criteria for defining boundaries for health services and referral criteria > Socially isolated patients > Lack of patient transport	> Deputising services to work during business hours (not just after hours) > Facilitating access not only to GPs but also practice nurses and nurse practitioners > Triaging and assessing health conditions at medical homes or via telehealth prior to ED presentation > Improving patient access to transport and/or travel support > Increasing the number of after-hours GP clinics > Increasing day time access to GPs
Integrated team approach to care	> Patient's cultural background influences preferences to see particular health-providers > Lack of patient knowledge of other providers roles > Provider shortage of time to spend with patients > Patient and provider difficulties in understanding and navigating across multiple health services > Fragmentation of services and across catchment areas > Inability to deviate from standard advice due to professional boundaries	> Mobilising technology such as e-health and telehealth services > Nominating a central non-automated call service as the first port of call > Increasing community awareness of different health providers in multiple languages > Increasing provider awareness of different health providers > Increasing funding and/or lobbying for funding > Improving communication between providers > Improving early detection and recognition of diseases > Improving continuity of care

Increase GP utilisation of MBS item numbers specific to older people	> GPs do not make house-calls, > GPs can usually only be seen during working hours > GPs increasingly charging gap fees > GP skill-set different to in-reach doctor's skill-set > GPs have an acute care focus rather than a preventive care focus > GPs only able to access acute health ambulatory services for their patient through hospitalisation	> Increasing MBS items rebates during working hours and after hours > Funding GPs as part of in-reach services > Setting standards for accreditation for a best practice GP clinic > Increasing uptake of telehealth > Expanding ambulance re-triaging pathways > Upskilling RACF staff to know when to call for GP or specialist input > Operationalising nurse practitioners as a mobile service (AV and HACC uses as assessors) > Provide referrals to medication management reviews (MMR) for older people > Incentivising GPs to make home visits via a MBS item visiting no. for home and aged care facilities > Deputising locum services to act on GP's behalf during working hours and on referral from the GP > Mandating that GPs must offer health assessments to older people > Empowering patient to ask for health assessments > Incentivising GPs to conduct health assessments > Operationalising same day blood test with results > Operationalising point of care testing including equipment availability i.e. blood tests/ECG
Increase awareness of alternative services (patients, and health providers)	> Patients living at home > RACF staff sending patients to ED instead of using a locum service	> Improving marketing to patients and RACF staff > Strengthening links between GPs, RACF and EDs > Improving access to personally controlled electronic health records for health providers > Creating online resources for patients and providers > Improving patients health literacy via health promotion campaigns > Expanding ambulance re-

		triaging pathways
		> Increasing awareness of locum services
		> Empowering patients to know when to use the appropriate service
		> Increasing the presence and scope of nurses roles in general practice
		> Increasing access for health providers to provide home visits for older people instead of going to ED if GP appointments are not available

4.4 KEY FINDINGS

> Stakeholders' understandings of what constituted an 'emergency' differed, therefore it is difficult to prioritise interventions.
> Stakeholders' from different disciplines found it difficult to prioritise interventions, as different patients have different needs.
> Some proposed interventions have similar barriers and enablers, thereby these enablers can be implemented across multiple interventions, i.e. deputising in-hours, increase access to GP, PN and/or NP etc.
> Multiple 'layers' including individual, organization, and Government/policy levels all need to be targeted in order for any intervention to be effective.
> At the patient level, increasing access, knowledge of alternative services to ED, and an integrated team approach to care, were seen to be keys to minimise presentation to ED by older patients.
> At the organization level, interventions such as an integrated team approach to care, increasing GP utilization of MBS items specific to older patients, providing enhanced services such as e-health and telehealth, 24 hour locum services, ambulance re-triaging system, and emergency care planning were seen as important.
> At the Government level, funding will be essential to develop interventions and change policies to avoid inappropriate ED presentation for older patients.

Discussion and implications for current policy and practice

Drawing together the findings from this mixed-methods study, three key insights emerge: (1) there are opportunities in general practice to reduce avoidable presentations to emergency. (2) There is need to increase awareness among community-dwelling older people about the current alternatives to ED and; (3) There is need to cautiously interpret the efficacy and applicability of evidence-based overseas interventions in the Australian context. We enumerate below.

1. OPPORTUNITIES IN GENERAL PRACTICE TO REDUCE AVOIDABLE PRESENTATIONS TO EMERGENCY

The imperative for action is indisputable. The Australian population is rapidly ageing and presentations by older people represent an increasing proportion and volume of presentations to ED. According to our VEMD analysis, in the IEMML region there has been a steady increase in the number and rate of ED attendances by older people over the 5 year study period. Of these 15% were classified as avoidable visits that could have been managed by a GP. While the good news is that the volume and rate of avoidable GP-type visits declined during the study, the bad news is that nearly 30% of these presentations were by repeat attenders who visited the ED thrice or more in a 12 month period. In many of these cases, patients left the ED either without clinical advice, with clinical advice but without treatment, or before treatment was completed.

Questions must also be asked about the nature and timing of presentations. The predominance of eye and ear problems as the most common causes for presentation is a curious finding warranting further investigation. While we are unable to explain why the majority of presentations are for these conditions, we can suggest that extra attention to these clinical conditions in general practice may help to reduce such presentations at ED. Similarly, GP clinics are well-placed to help alleviate peak demand (Monday morning 9am) by allocating a proportion of the GP's time for same-day appointments. The patterns of ED use by $\geq$70yo suggest that the problem is not just one of 'after hours' use but also a problem of GP availability, perceived severity of symptoms and perceived quality of care received in an ED versus a general practice.

While EDs can be seen as 'a one-stop shop' providing comprehensive care for patients, the lack of continuity of care, treatment of only the presenting health condition rather than holistic care and the absence of preventive health and screening services compromise the long-term quality of care that patients may receive. These are areas that general practice can fulfil; DYNOPTA findings suggest that the frequency of GP visits by the majority of older patients would provide opportunities for regular MBS-subsidised preventative health care assessments and chronic disease management to be conducted by GPs. However, as findings from MAGNET and our qualitative data show, the low rates of preventive care offered by GPs to older patients, older patient's difficulties accessing GP services and perceptions of care, suggest that this is a missed opportunity.

2.   URGENTLY INCREASE AWARENESS AMONG COMMUNITY-DWELLING OLDER PEOPLE ABOUT THE CURRENT ALTERNATIVES TO ED

Alongside bolstering interventions in general practice, there is urgent need to increase older people's knowledge about alternatives to the ED, particularly among those that live in the community (as opposed to a RACF). MMDS data clearly show that use of after-hours locum services is very low among community-dwelling older people, with the majority of locum services used by RACFs on Saturdays. When VEMD and MMDS data is juxtaposed, we see that community-dwelling older adults are more likely to visit an ED than seek care from a home visiting GP. Our qualitative data enumerates that the main reason why this trend is observed is a major lack of awareness among older persons about the home-doctors service. Secondary barriers may include culture, language and gender; however these may be overcome through patient education and a health promotion campaigns targeting older people. Recent efforts in the IEMML region suggest that such an approach is bearing fruit as the during the study period the booking rate for locum services increased by 39% among community-dwelling older people and 55% by RACFs. Diversion practices made by Ambulance Victoria, an increasing proportion of GP clinics using a deputising service for after-hours care (38), efforts by the Inner East Medicare Local in planning and support of after-hours services, and state and federal initiatives are contributing factors behind this growth trend. However, the overall rate of use still remains low among community-dwelling, thus suggesting there is much more to be done in this area.

Embedded with a patient health promotion campaign ought to be information about other after-hours services. Our qualitative data highlighted that there was a lack of awareness in the community about available alternatives such as Nurse-on-call and after-hours GP clinics. Older people and their carers also must be educated about what classifies as an 'emergency' as there was a discrepancy between their views and those of key service providers.

There are also several structural issues that must be addressed to reduce avoidable ED presentations by older people. These are to do with accessibility, after-hours transportation, costs of pathology and other tests outside the ED setting and lack of integration of services under one roof (e.g. GPs, pathology, imaging, pharmacy etc.). Some of these barriers are within the remit of health policy-makers and planners, others are not. Nevertheless, the persistence of these factors and their role in facilitating avoidable ED presentations, highlights once again, that the consequences of poor planning upstream are ultimately felt downstream in the health system.

3.   CAUTIOUSLY INTERPRET THE EFFICACY AND APPLICABILITY OF EVIDENCE-BASED OVERSEAS INTERVENTIONS IN THE AUSTRALIAN CONTEXT

Our rapid review of the literature was able to identify that the most effective primary care service interventions were complex interventions that looked at reducing avoidable ED presentations, maintaining or increasing patient satisfaction, improving cost effectiveness and increasing use of primary care services. In the US, patient-centred medical homes, the Australian equivalent is a quality general practice, have been showed to significantly reduce ED use; other interventions have showed reduced ED use but did not yield statistically and clinically significant results. However, these results must be interpreted with caution

because most interventions are US-based and target disadvantaged and vulnerable populations such as homeless people, low income earners and uninsured groups. Thus the generalization of these studies is limited. The older population of the IEMML region is different to these cohorts and the architecture and ideology of the Australian health system is very different to what is present in the US. Therefore, the evidence for interventions that reduce avoidable GP-type presentations to ED is still limited and much more research needs to be undertaken with adult populations in the UK, Europe, Canada and Australia in order to build the evidence base about interventions that reduce avoidable GP-type presentations to ED.

Conclusion

What we can say with confidence is that increasing resources for primary care can help to reduce demand on hospitals and EDs. This involves more than producing more doctors. It is also about increasing the availability and remit of nurse practitioners (through scholarships and government reimbursement to practices), implementing and monitoring rigorous triage systems in RACFs to avoid sending patients unnecessarily to ED, educating health-professionals such as Nurse-on-call or RACF nurses about medico-legal issues so that patients are directed to ED for clinical reasons not risk-management for liability, training medical receptionists to triage patients, funding walk-in clinics and expanding district nursing programs. Better integration between ambulance and primary care services will also go a long way in reducing avoidable GP-type ED presentations.

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Appendix A: MMDS analyses and results

IDENTIFICATION OF BOOKINGS FOR PEOPLE LIVING IN THE IEMML REGION

Bookings for people living in the IEMML region were identified in the MMDS dataset by the postcode of the patient's current residential address.

IEMML region postcodes are: 3101, 3102, 3103, 3104, 3105, 3106, 3107, 3108, 3109, 3111, 3113, 3114, 3115, 3122, 3123, 3124, 3126, 3125, 3127, 3128, 3129, 3130, 3131, 3132, 3133, 3146, 3147, 3148, 3149, 3150, 3151, 3166, 3167, 3168, 3170, 3800.

POPULATION ESTIMATES

Estimates of the population aged ≥70 years living in the LGAs of Boroondara, Manningham, Monash and Whitehorse during each of the years 2008 to 2012 are shown in Table A1.

Table A1: *Estimated number of people aged ≥70 years living in the IEMML region as defined by the LGAs of Booroondara, Manningham, Monash and Whitehorse**

Year	Estimated number aged ≥70 years	Estimated number total IEMML population
2008	70123	603755
2009	71533	612013
2010	73144	615771
2011	75242	618695
2012	76917	624721
Total	**366959**	**3074955**

*Australian Bureau of Statistics ABS.Stat[BETA] site for Estimated Resident Population (ERP) by Region, Age and Sex, 2001 to 2013 (http://stat.abs.gov.au/Index.aspx?DataSetCode=ABS_ERP_ASGS)

TEMPORAL TRENDS

(a) RACF

(b) non-RACF

Figure A1 *Number of MMDS bookings for after-hours GP visits for persons aged ≥70 years, by time of day and day of the week, IEMML region, 2008-2012*
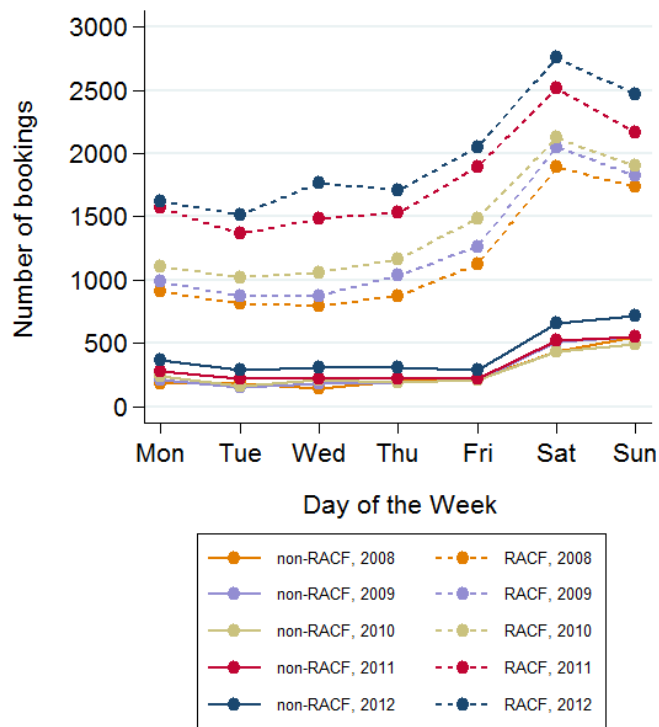
Figure A2 *MMDS bookings for after-hours home-visiting GP care for persons aged ≥70 years by day of the week, RACF status and year, IEMML region, 2008-2012*
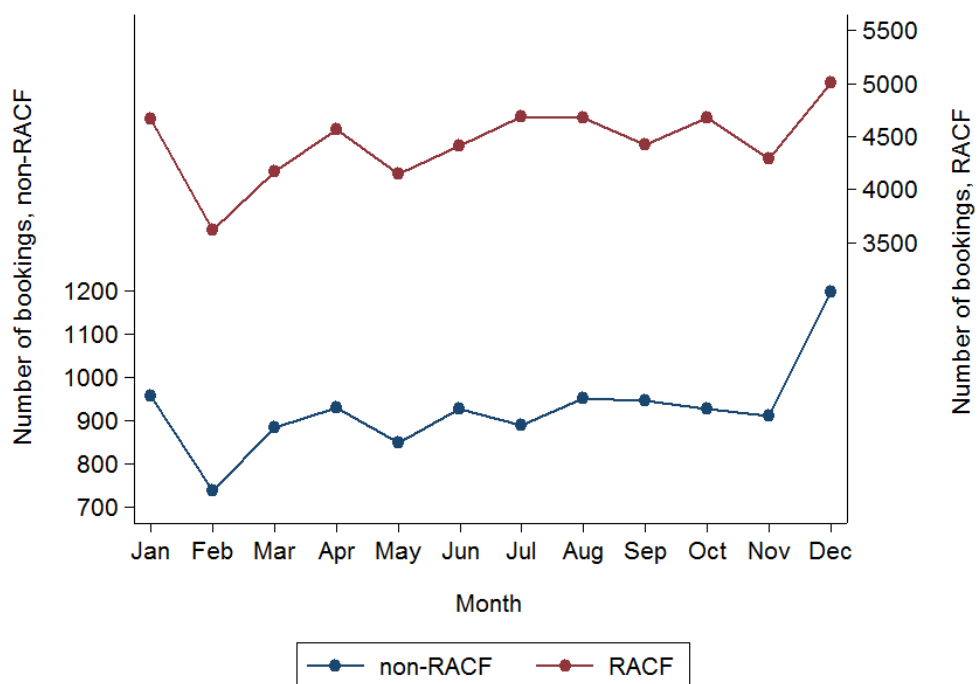
Figure A3 *Bookings to MMDS for after-hours home-visiting GP care for persons aged ≥70 years by month and RACF status, IEMML region, 2008-2012*

Appendix B: DYNOPTA analyses and results

SAMPLE CHARACTERISTICS

Table B1: *Background characteristics of individuals aged ≥70 years by GP use in last one year in Australia, 2000-2003*

Characteristics	Consulted GP (n=9,233)	Did not consult GP (n=148)	*p*-value
Age (mean, SD)	78.33 (2.63)	79.40 (4.05)	<0.001
Female (%)	96.20 (8,882)	87.84 (130)	<0.001
Aboriginal or Torres Strait Islander (%)	0.26 (22)	0 (0)	0.57
Marital status: having partner (%)	55.18 (5,072)	54.11 (79)	0.80
Education: secondary plus (%)	18.56 (1,636)	23.61 (34)	0.122
Australian born (%)	78.48 (6,865)	67.14 (94)	0.001
State (%)			<0.001
NSW	31.12 (2,825)	23.61 (34)	
Queensland	16.68 (1,514)	7.64 (11)	
Victoria	22.92 (2,081)	29.86 (43)	
South Australia	15.95 (1,448)	15.97 (23)	
ACT & Queanbeyan	2.83 (257)	15.28 (22)	
Western Australia	7.02 (637)	5.56 (8)	
Tasmania	3.36 (305)	2.08 (3)	
Northern Territory	0.12 (11)	0 (0)	
Accommodation: community-dwelling (%)	98.04 (8,965)	97.95 (143)	0.93
Income sources: pension (%)	78.65 (6,149)	75.76 (75)	0.49
Alcohol consumption (%)			0.93
Non-drinker	38.26 (3,355)	36.80 (46)	
Low risk	44.28 (3,883)	44.80 (56)	
Risk or high risk	17.47 (1,532)	18.40 (23)	
Walking session in a week (%)			0.07
No walking/ less than once a week	51.00 (4,498)	40.65 (50)	
Once a week or more	34.09 (3,007)	40.65 (50)	
Every day or more	14.91 (1,315)	18.70 (23)	
Has fallen in last 1 year (%)	19.37 (1,661)	13.82 (17)	0.12
Ever had an endocrine, nutritional or metabolic condition (%)	10.62 (875)	0.93 (1)	0.001
Ever had any circulatory condition (%)	60.86 (5,228)	15.38 (20)	<0.001
Ever had any respiratory condition (%)	14.24 (1,173)	1.85 (2)	<0.001
Ever had any musculoskeletal or connective tissue condition (%)	52.46 (4,322)	11.11 (12)	<0.001
Ever had any type of cancer (%)	25.31 (2,127)	6.42 (7)	<0.001
Limited capacity in walking 1 km (%)	66.17 (5,151)	43.00 (43)	<0.001
Self-rated Health Status			<0.001
Excellent/Very Good	31.57 (2,893)	59.59 (87)	
Good	41.49 (3,802)	36.30 (53)	
Fair/poor	26.94 (2,469)	4.11 (6)	

MULTIPLE LOGISTIC REGRESSION

Table B2: *Multiple logistic regression of factors associated with GP use in last one year among individuals aged ≥70 years in Australia, 2000-2003*

Risk factors	Odds Ratio	95%CI	*p*-value
Australian born	0.66	0.43-1.03	0.07
Ever had an endocrine, nutritional or metabolic condition	6.67	0.92-48.45	0.06
Ever had any circulatory condition	16.76	7.71-36.41	<0.001
Ever had any respiratory condition	5.67	1.38-23.28	0.02
Ever had any musculoskeletal or connective tissue condition	6.84	3.61-12.97	<0.001
Ever had any cancer	4.92	2.13-11.34	<0.001
Self-rated health status *Excellent/Very Good* *Good* *Fair/poor*	0.28 0.30 1	0.10-0.77 0.10-0.85 Ref.	0.01 0.02

Appendix C: VEMD analyses and results

IDENTIFICATION OF ED PRESENTATIONS INVOLVING PEOPLE LIVING IN THE IEMML REGION

Statistical Local Area (SLA) codes for the IEMML catchment area were used to identify from the VEMD dataset those ED presentations involving patients whose primary residence was in the IEMML region.

5-digit SLA codes for the IEMML region are: 21111, 21112, 21113, 21114, 24211, 24214, 24971, 24974, 24975, 26981, 26984, 26985.

NUMBER OF ED PRESENTATIONS INVOLVING PEOPLE LIVING IN THE IEMML REGION

In the period 2008-2012, a total of 485,185 ED presentations to Victorian hospitals with a 24 hour ED service were by an individual whose primary residence was in the IEMML area. Of these, 31.4% of the non-GP-type and 9.0% of the GP-type presentations involved an older patient aged ≥70 years (Figure D1).
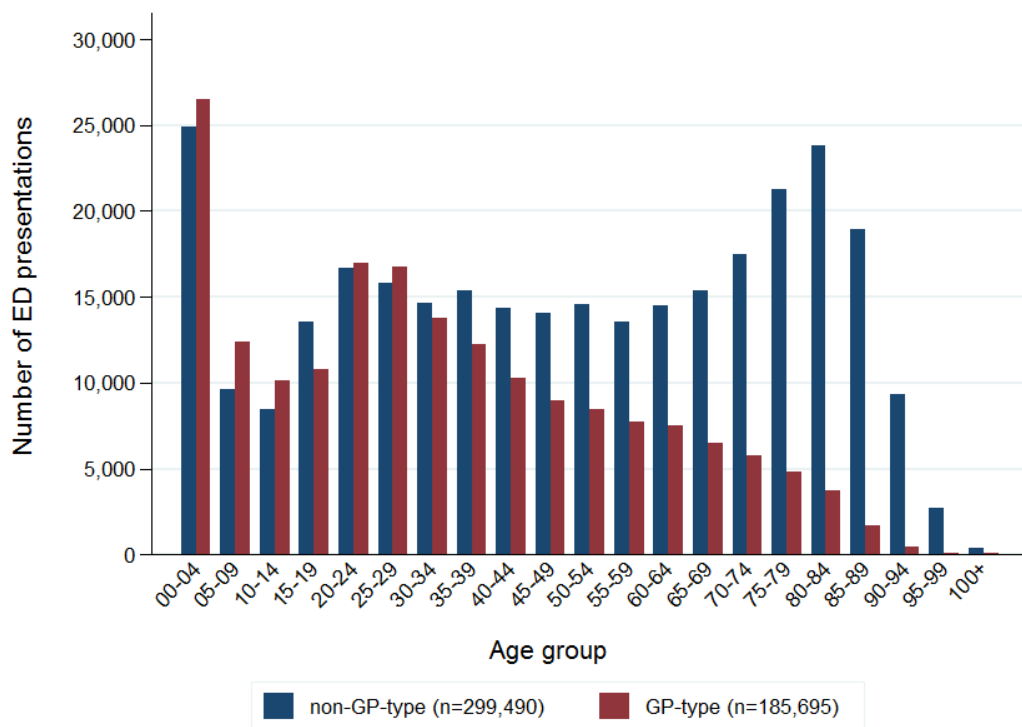

Figure C1   *ED presentations (n=485,185) by persons whose primary residence is in the IEMML region by age group and GP-type presentation status, 2008-2012*

CHARACTERISTICS ASSOCIATED WITH ED PRESENTATIONS

VEMD data was analysed to determine the characteristics associated with GP-type and non-GP-type presentations (Table D1). Of patients with a GP-type ED presentation, 91% return to their usual residence after discharge from ED, with 69% referred on to an outpatient clinic or to a local medical officer (GP). In comparison, only 21% of individuals presenting with non-GP-type conditions return to their usual residence, with the majority being transferred from ED to a hospital ward setting.

Table C1 *Characteristics associated with GP-type and non-GP-type ED presentations (n=110,634) by persons aged ≥70 years residing in the IEMML region, 2008-2012*

Characteristic	GP-type ED presentation[a] (n = 16,665) (15.1%)	Non-GP-type presentation (n = 93,969)	ED P-value[b]
Sex of patient - no. (%)			<0.001
Male	8,395 (50.4)	41,805 (44.5)	
Female	8,270 (49.6)	52,164 (55.5)	
Age group of patient (years) – no. (%)			<0.001
70-74	5,775 (34.6)	17,483 (18.6)	
75-79	4,812 (28.9)	21,257 (22.6)	
80-84	3,743 (22.5)	23,817 (25.4)	
85-89	1,716 (10.3)	18,967 (20.2)	
90-94	491 (2.9)	9,332 (9.9)	
95-99	119 (0.7)	2,726 (2.9)	
100+	9 (0.05)	387 (0.4)	
Length of stay in ED (h) – median (IQR)	2.8 (1.6 – 4.4)	6.2 (4.0 – 9.1)	<0.001[c]

Characteristic	GP-type ED presentation[a] (n = 16,665) (15.1%)		Non-GP-type presentation (n = 93,969)		ED *P*-value[b]
Type of visit - no. (%)					<0.001
Emergency presentation	15,635	(93.8)	93,503	(99.5)	
Return visit – planned	1,028	(6.2)	155	(0.2)	
Pre-arranged admission - clerical, nursing, clinical	0	(0)	9	(0.01)	
Patient in transit	2	(0.01)	13	(0.01)	
Dead on arrival	0	(0)	289	(0.3)	
Patient's usual accommodation - no. (%)					<0.001
Private Residence, living alone	1,375	(8.3)	9,760	(10.4)	
Private Residence, living with other(s)	12,985	(77.9)	66,875	(71.2)	
Residential aged care facility	179	(1.1)	14,813	(15.8)	
Boarding/rooming house/hostel	12	(0.07)	286	(0.3)	
Residential supported living facility	32	(0.2)	255	(0.3)	
Psychiatric Hospital	1	(0.01)	6	(0.01)	
Other Hospital Setting	0	(0)	197	(0.2)	
Homeless Person's Shelter	2	(0.01)	4	(0)	
Public place (homeless)	0	(0)	7	(0.01)	
Unknown/unable to determine	2,070	(12.4)	1,677	(1.8)	
Other accommodation, not elsewhere classified	9	(0.05)	89	(0.09)	
Socio-economic status (quintiles)[d] - no. (%)					<0.001
1 – Most Disadvantaged	0	(0)	0	(0)	
2	0	(0)	0	(0)	
3	1,490	(8.9)	9,926	(10.6)	
4	2,116	(12.7)	11,966	(12.7)	
5 – Least Disadvantaged	13,059	(78.4)	72,077	(76.7)	

Characteristic	GP-type ED presentation[a] (n = 16,665) (15.1%)		Non-GP-type presentation (n = 93,969)		ED	P-value[b]
Source of referral to ED - no. (%)						<0.001
Staff from this campus	362	(2.2)	819	(0.9)		
Self, family, friends	14,394	(86.4)	78,559	(83.6)		
Local medical officer, includes local GP/Doctor	1,550	(9.3)	6,425	(6.8)		
Private specialist	29	(0.2)	111	(0.1)		
Staff from another campus	62	(0.4)	1,079	(1.2)		
Correctional Officer/Police	1	(0.01)	17	(0.02)		
Nurse on Call	5	(0.03)	15	(0.02)		
Other Nurse	20	(0.1)	4,108	(4.4)		
Mental health telephone assessment/advisory line	2	(0.01)	0	(0)		
Telephone advisory line, not otherwise specified	0	(0)	1	(0)		
Other mental health staff	0	(0)	3	(0)		
Other	236	(1.4)	2,613	(2.8)		
Other community services staff	4	(0.02)	219	(0.2)		
Interpreter required - no. (%)						<0.001
Yes	2,101	(12.6)	8,652	(9.2)		
No	14,544	(87.3)	85,163	(90.6)		
Not stated or inadequate information	20	(0.1)	154	(0.2)		

Characteristic	GP-type ED presentation[a] (n = 16,665) (15.1%)		Non-GP-type presentation (n = 93,969)		ED	P-value[b]
Destination or status on departure from ED[a,e] - no. (%)						<0.001
Departure Before Treatment Completed:						
Left at own risk, after treatment started	143	(0.9)	220	(0.2)		
Died within ED	0	(0)	420	(0.5)		
Dead on arrival	0	(0)	289	(0.3)		
Left at own risk, without treatment or clinical advice	1,046	(6.3)	634	(0.7)		
Left after clinical advice regarding treatment options	296	(1.8)	114	(0.1)		
Procedure room at this campus:	0	(0)	440	(0.5)		
Ward Setting at this Hospital Campus:	0	(0)	67,780	(72.7)		
Transfers to another Hospital Campus:	0	(0)	4179	(4.5)		
Returning to usual residence:						
Home	15,094	(90.6)	18,004	(19.3)		
Correctional/Custodial Facility	1	(0.01)	1	(0)		
Mental health residential facility	1	(0.01)	11	(0.01)		
Residential care facility	84	(0.5)	1,260	(1.4)		

Characteristic	GP-type ED presentation[a] (n = 16,665) (15.1%)		Non-GP-type presentation (n = 93,969)		ED *P*-value[b]
Referral for continuing care – no. (%)					<0.001
Review in ED - scheduled	285	(1.7)	177	(0.2)	
Review in ED - as required	235	(1.4)	337	(0.4)	
Outpatients	4,007	(24.0)	2,087	(2.2)	
Local medical officer, includes local GP/Doctor	7,512	(45.1)	14,750	(15.7)	
Medical Specialist	624	(3.7)	838	(0.9)	
Other Specialist Health Practitioner	155	(0.9)	134	(0.1)	
Home Nursing Services	42	(0.3)	44	(0.05)	
Aged Care Assessment Service	4	(0.02)	12	(0.01)	
Drug and Alcohol Treatment Service	0	(0)	1	(0)	
Mental Health Community Service	2	(0.01)	13	(0.01)	
Other community service	25	(0.15)	36	(0.04)	
No referral	2,447	(14.7)	786	(0.8)	
Not known	49	(0.3)	74	(0.08)	
Other	89	(0.5)	101	(0.1)	
Not applicable	1,189	(7.1)	74,579	(79.4)	
[Patient has either: been transferred to ward (including MAPU, EMU, SOU), been transferred to another hospital campus, died, left at own risk, was dead on arrival]					

[a] GP-type ED presentation as defined by the National Healthcare Agreement: PI 19-Selected potentially avoidable GP-type presentations to emergency departments, 2014 (Registration status: Health, Standard 30/04/2014).(13) Potentially avoidable GP-type presentations to public hospital emergency departments in *Principle referral and specialist women's and children's hospitals* (peer group A) and *Large hospitals* (peer group B) are presentations where the patient:
  • was allocated a triage category of 4 or 5, and
  • did not arrive by ambulance or by police or correctional vehicle, and
  • at the end of the episode, was not admitted to the hospital, was not referred to another hospital, and did not die

[b] Pearson's chi-squared test used to calculate *P*-value except where stated otherwise

[c] Wilcoxon rank-sum (Mann-Whitney) test used to calculate *P*-value

[d] Socio-economic status (SES) quintiles were generated using the ABS SEIFA 2011 Index of Relative Socio-Economic Disadvantage deciles (ranked within Australia)(20) and the Statistical Local Area (SLA) code for the usual place of residence of the patient. The *Most Disadvantaged* SES group represents the areas containing the 20% of the population with the most disadvantage, and the *Least Disadvantaged* SES group represents the areas containing the 20% of the population with the least disadvantage.

[e] For destination or status on departure from ED, data were available for all 16,665 of the GP-type presentations and for 93,352 of the 93,969 non-GP-type presentations. Presentations where departure information was unknown (missing data) were not included in the denominator for percentages.

Appendix D: Conference presentations

CONFERENCE 1

44th Annual Scientific Meeting of the Society for Academic Primary Care (SAPC)

8-10 July 2015

University of Oxford, Oxford, United Kingdom

Oral Presentation

Title: REDIRECT: An analysis of the nature and drivers of avoidable emergency department presentations by the elderly in metropolitan Melbourne, Australia

Abstract:

The problem: An increasing number of older people (those aged ≥ 70 years) in Australia are attending Emergency Departments (EDs) with General Practice (GP)-type conditions. This study seeks to understand the nature and drivers of avoidable ED visits by older patients, and to propose appropriate alternative models of care in primary health and community settings to reduce the number of these presentations.

The approach: A mixed methods research approach was used, comprising: (i) quantitative analyses of 4 highly relevant datasets, (ii) a rapid review of the literature to identify strategies to reduce unnecessary ED presentations, and (iii) qualitative in-depth interviews and focus groups discussions with key service providers and older people to determine the feasibility of interventions aimed providing care options to reduce avoidable ED attendances. The study was based on elderly residents (n ≈ 70,000) of the Inner East Melbourne Medicare Local (IEMML) area. Here we present the findings of analysis of public hospital ED presentations and utilisation of an after-hours home-visiting medical deputising service for this patient group for the period 2008-2012.

Findings: 15.1% of ED attendances by those over 70 years were avoidable, that is, the patient attended with a GP-type presentation. Of these, 9.3% were referred to the emergency department by a general practitioner. For 9% of the GP-type presentations, the patient departed the emergency department before receiving any clinical advice or before treatment was completed. Approximately 20% of elderly patients visited an ED multiple times in a year with avoidable GP-type conditions. Disorders of the eye, a wound or fracture of the wrist or hand, and urinary tract infections were some of the most common reasons for avoidable ED attendances. 45% of GP-type presentations resulted in a referral from ED to a general practitioner for continuing care of the patient. The after-hours home-visiting medical deputising service was used predominately by Residential Aged Care Facilities, and much less frequently by community-dwelling elderly. Almost 5% of community-dwelling persons seen by the deputising service had initially phoned an ambulance. The ambulance triage process referred these patients to an after-hours general practitioner as the most appropriate treatment pathway. This suggests there is unmet potential for this type of primary health care service to reduce inappropriate hospital attendances.

Consequences: In Australia, avoidable presentations continue to be a sizeable proportion of ED attendances and primary care initiatives to reduce unnecessary ED visits are on the health care reform agenda. Our study specifically addressed presentations by the elderly and the unique characteristics of this age group which influence ED use for non-emergency conditions. The findings from this study will inform the development of new primary care service options for our older citizens.

CONFERENCE 2:

2015 Primary Health Care Research Conference (PHCRIS)

29-31 July 2015

Adelaide Convention Centre, Adelaide, Australia

Symposium

Title: Avoidable GP-type Emergency Department presentations by older people: findings from the REDIRECT Study

Abstract:

Aim: An increasing number of older people aged ≥ 70 years are attending Emergency Departments (EDs) with General Practice (GP)-type conditions. The REDIRECT Study seeks to understand the nature of inappropriate ED visits through analysis of relevant data and an analysis of the feasibility of general practice and other primary care-based interventions to reduce avoidable ED attendances.

Content of presentations: The REDIRECT Study comprises: (i) quantitative analyses of 4 relevant datasets, (ii) a literature review to identify strategies to reduce unnecessary ED presentations, and (iii) interviews with key service providers, and focus groups with older people and their carers to determine the feasibility of different non-hospital primary health care options. Results will be presented from the analysis of 4 datasets:

- VEMD (Victorian Emergency Minimum Dataset) – ED presentations by older people living in the inner east Melbourne area
- MMDS (Melbourne Medical Deputising Service) dataset – calls for after-hours home-visiting GPs for older people living in the inner east Melbourne area
- MAGNET (Melbourne East MonAsh GeNeral PracticE DaTabase) – GP management of older people attending clinics in the inner east Melbourne area
- DYNOPTA (Dynamic Analyses to Optimise Ageing) dataset – factors related to health care utilisation by older people from several Australian longitudinal studies on ageing

Each dataset adds a unique dimension to understanding avoidable GP-type presentations by older individuals, and collectively the analyses generate a profile of an older person's health-seeking behaviour from different perspectives.

Relevance to policy, research and/or practice needs: Our study addresses health service utilisation by older people and the unique characteristics of this ever-growing age group which influence ED use for non-emergency conditions. The findings will inform the development of improved and accessible primary care service options for older citizens to reduce avoidable ED presentations.
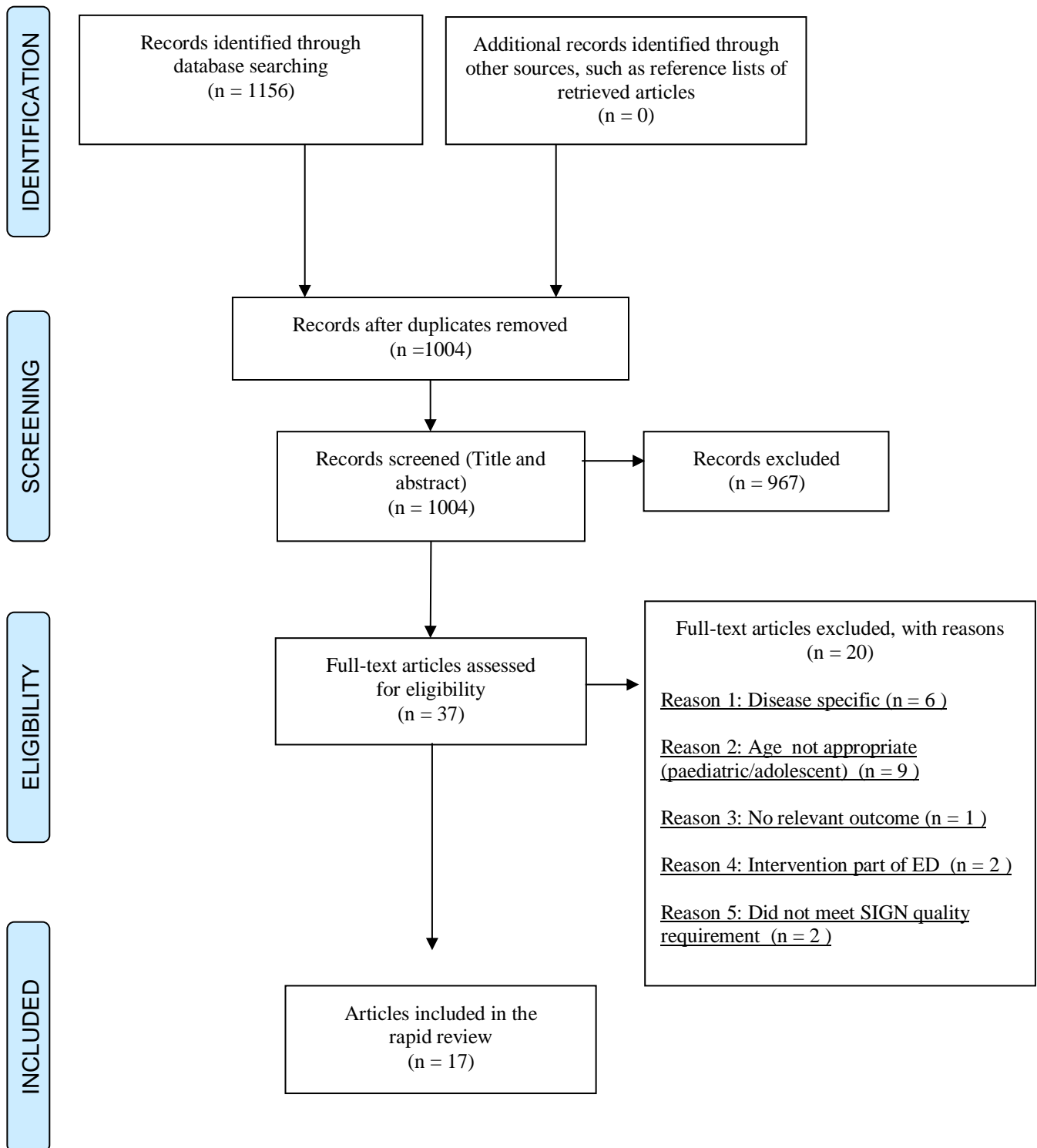
Appendix E: PRISMA Flowchart

IDENTIFICATION

Records identified through database searching
(n = 1156)

Additional records identified through other sources, such as reference lists of retrieved articles
(n = 0)

SCREENING

Records after duplicates removed
(n =1004)

Records screened (Title and abstract)
(n = 1004)

Records excluded
(n = 967)

ELIGIBILITY

Full-text articles assessed for eligibility
(n = 37)

Full-text articles excluded, with reasons
(n = 20)

Reason 1: Disease specific (n = 6)

Reason 2: Age not appropriate (paediatric/adolescent) (n = 9)

Reason 3: No relevant outcome (n = 1)

Reason 4: Intervention part of ED (n = 2)

Reason 5: Did not meet SIGN quality requirement (n = 2)

INCLUDED

Articles included in the rapid review
(n = 17)

Figure F1. Flow chart of search process and selection of articles for review

Appendix F: Table of studies included in the rapid review

Table F1: Studies based on Interventions

Arain, M., J. Nicholl, and M. Campbell, *Patients' experience and satisfaction with GP led walk-in centres in the UK; a cross sectional study.* BMC Health Serv Res, 2013. **13**: p. 142.

Bicki, A., et al., *A nurse-run walk-in clinic: cost-effective alternative to non-urgent emergency department use by the uninsured.* J Community Health, 2013. **38**(6): p. 1042-9.

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Appendix G: Case Vignettes

VIGNETTE 1 FOR KSPS AND CONSUMERS:

Name: Elaine (pseudonym)

Gender: Female

Age: 72 years old, lives alone and relies on public transport

Condition: Urinary tract infection

It is 9pm on Sunday evening, and Elaine has been feeling uncomfortable all day. She has noticed that her urine is quite cloudy and very smelly. By Monday morning there has been no change.   Elaine phones her local GP clinic for an appointment, but a doctor is not available to see her until the next day. Apart from her urinary tract problem, Elaine is feeling fine, but rather than wait to see a GP she goes to the Emergency Department of the nearest hospital. About 4 months ago she was at the Emergency Department when she cut her hand while gardening.

On arrival at the Emergency Department at 10am, Elaine finds many people in the waiting room. The triage nurse informs her that a doctor will be with her as soon as possible. Three hours later, an ED doctor has talked to Elaine. He gives her a prescription for antibiotics, and writes a referral letter for her to take to her GP for follow-up investigations.

VIGNETTE 2 FOR KSPS

Name: Elaine (pseudonym)

Gender: Female

Age: 72 year old, diabetic

Condition: Urinary tract infection

It is 6pm on Sunday evening, and Elaine has been feeling uncomfortable all day. She has noticed that her urine is quite cloudy and very smelly. Elaine is afraid that it may get worse as the night goes on. She decides to use the Nurse-on-Call service and phones to speak to a nurse about her symptoms. After describing her condition, Elaine is told that she most likely has a urinary tract infection and that due to her age it would be best to seek treatment as soon as possible.

Elaine has the contact details for an after-hours home-visiting GP service and remembers from their TV advertisement that they bulk bill.   She phones to request that a GP come to her house. The doctor arrives three hours later. He gives her antibiotics immediately, and writes a script for Elaine to obtain the full course of antibiotics the next day. She is advised to see her usual GP for follow-up investigations if her condition does not improve after 3 days.

Three days later, Elaine is still urinating frequently and has noticed that her urine is still cloudy and smelly. At 9am she phones her local GP clinic for an appointment, but a doctor is not available to see her until very late in the day. When Elaine describes her symptoms and informs the Practice Nurse that she has had a urinary tract infection for several days, the nurse organises for the practice's Nurse Practitioner to visit Elaine that morning and assess her condition. The Nurse Practitioner works closely with all the GPs in the clinic,

updating them on the patients under her care and consulting them, when necessary, on treatment.

By 10 am, the Nurse Practitioner is at Elaine's house and assists her in collecting a mid-stream urine sample for diagnostic tests. She also writes a prescription for a new antibiotic for Elaine to take. Elaine knows that her daughter will be dropping by sometime during the day, and decides to leave filling the script for her daughter to do.

It is almost 7.30pm before Elaine's daughter arrives at the house, and she finds her mother slightly confused and dizzy. Not wanting to leave her in this state all night, Elaine's daughter decides to drive her to the after-hours GP clinic which is located across the road from the Emergency Department of the nearest hospital. Elaine is quickly seen by one of the GPs who immediately commenced her on the new antibiotic prescribed by the Nurse Practitioner.

Several hours later, safely at home and feeling calmer, Elaine settles in for the night. The Nurse Practitioner will be coming to see her in the morning, and Elaine will be seeing her GP in 2 days' time when the diagnostic test results are back.

VIGNETTE 2 FOR CONSUMERS

Name: Elaine (pseudonym)

Gender: Female

Age: 72 years old

Condition: Urinary tract infection

It is 9pm on Sunday evening, and Elaine has been feeling uncomfortable all day. She has noticed that her urine is quite cloudy and very smelly. By Monday morning there has been no change. Elaine phones her local GP clinic for an appointment, but a doctor is not available to see her until the next day. Apart from her urinary tract problem, Elaine is feeling fine.