

Asia Pacific Journal of Health Management

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The Journal of the Australasian College of Health Service Management



In this issue:

- Health system entry points
- Workforce classifications
- Remote health workforces
- Waiting for surgery
- Cost of waiting
- Infrastructure and rural primary healthcare and much more . . .

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COVER: This cover depicts the ACHSM Health Management Internship Program NSW Graduates 2016-2017.

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The cover design in this issue has a focus on an important aspect of a Professional College. The College Management Training Program has an extensive history of producing many established and current leaders in the Australian and international health contexts. This cover depicts the Health Management Internship Program NSW Graduates 2016-2017.

The first article in this issue is a review article provided by Adie, Graham and Wallis that considers the 'Entry points' to the health system and considers emerging community models for management of non-life threatening urgent conditions of relevance to Australia and no doubt others. They conclude that emerging models of community healthcare need to be trialed and studied in the Australian context to evaluate whether they provide patients with non-life threatening urgent conditions with safe effective care.

Redley, Davies and Keenan present a research article that examines the utility of a potential new workforce classification, Health Assistants in Nursing, in the context of a pilot study within a Victorian health service context. The pilot study has identified that this role has capacity to contribute to improved patient quality and safety outcomes without compromising nurse job satisfaction and workload and also demonstrates potential cost benefits.

Onnis in a research article provides another compelling workforce challenge in an examination of approaches to attracting future health workforce to geographically remote regions by examining the perspectives of remote health professionals. This author concludes that there is scope for improvement in current recruitment approaches that could also sustain retention.

The next two articles are provided by Morris, Twizeyemariya and Grimmer. The first article is focused on the waiting aspect of healthcare in the context of potential orthopaedic surgery. This can be seen as a global challenge but there is a lack of definition and understanding of the impacts. The authors use the experience of one Australia hospital in addressing this important area of research. In the second article these authors undertake a scoping review on the cost of waiting on an orthopaedic waiting list. More than 139 studies were reviewed that identified scant evidence of the impact on quality of life and costs. They suggest that further research should aim for improved use of patient-focused quality of life measures.

Nguyen, McDonald and Wilson provide a research article that has as its context the challenges of providing appropriate access and quality of facilities for maternal health services in rural areas of Vietnam. The authors contribute to our understanding of the barriers to the delivery of safe quality primary healthcare.

This Issue concludes with a further high quality Library Bulletin for your information and use.

Do you feel disempowered? It seems you should be

Marmot, [1] in a recent blog for the Health Foundation, addressed the topic of 'Dealing with an Epidemic of Disempowerment'. He suggested that 'world health as measured by life expectancy, is improving'. He also cited the work of Case and Deaton [2] that demonstrates declining mortality rates across a range of developed countries, including Australia. However, those authors also go on to demonstrate that both mortality and morbidity in mid-life, white non-Hispanic Americans are no longer in decline but are increasing in comparison to where they were and with respect to other cultural groups within the United States that continue downward trends. The causes of mortality were said to be poisoning due to drug and alcohol, suicide, liver disease and violent deaths.

In the United Kingdom Marmot demonstrates further disparities in major cities such as Glasgow, Liverpool and Manchester. He cites a disparity in mortality within one Scottish city of 28 years and proposes that the causes of death are the same attributed to those of the white non-Hispanic population in the United States.

While Australia can afford to be self-congratulatory at the national data level and in comparison to other OECD countries, there are areas of concern nationally and stark differences in health outcomes are easily observable in rural communities and at the local government (LGA) data level when compared with each other and against State and national level data. A look at available data from primary health network websites shows that observable differences across urban, regional and remote communities are easily detected and some correlation of poor health outcomes with poor socio-economic determinants, together with a shortage of health workforce and other observable access and equity issues, are evident in those contexts. [3]

Nationally, 'Chronic diseases are the leading cause of ill health and death in Australia' [4, p.13] with more than 50% of Australians having one chronic condition, half of those having more than two such conditions. In addition, more than 5% of Australians have diabetes. 'People in regional and remote areas are more likely to die prematurely than their major city counterparts' [4, p.14]

Marmot emphasises 'this mortality crisis is not a medical care issue' because of the nature of the disease group and that 'these causes are substantially psychosocial in origin... in which social conditions affect health and health inequalities'. [4] Marmot goes further by suggesting that we need 'to put health equity at the centre of our activities'... in... 'a practical pursuit of social justice'. [4] In addition to the great disparity of equity in access for communities with poor socio-economic determinants, the increasing burden of chronic disease is often ascribed to the increased ageing population. Sometimes the aged are seen as the problem in these contexts.

However, seeing ageing populations as the problem is not social justice because they, like all other groups, are entitled to equitable access. Ageing populations are the 'new social reality' to which we are all urged to respond creatively in a society where the 'elderly are enabled to remain meaningful participants in the community'. [5, pp. 337-338] The purpose of public policy, and the role of providers and health professionals and the services they deliver should not be to 'marginalize and disempower' older people by the way we have developed and/or purchased 'the very programs meant to "help" them'. [5, p.339] So, irrespective of being elderly or coming from a background that lacks opportunities for education, employment and social inclusion, social justice suggests that they are 'persons who continue to desire dignified inclusion in the community'. [5, p.341]

Historically in Australia communities established local hospitals, aged care facilities and other community-based services. At the time, this is said to have occurred with little interest from government at any level until there was a growing awareness that the uncontrolled development of these sectors by communities had longer-term implications for government capital and operating expenditure into the future. [5]

So consequently, instead of having standalone community controlled public hospitals we have large systemic bureaucracies running multiple hospitals and health services as part of a system-wide approach to healthcare. These

organisations are substantially creatures of the respective state governments delivering service to a geographic region with the word 'local' in the organisational title. In aged and community care, aggregation and centralisation have also occurred with many, but not all, of the large organisations still of a 'not for profit' and/or faith-based status that are state or nationally organised.

In the Primary Healthcare (PHC) sector the delivery of healthcare is still substantially fragmented with individually owned general practice and an immense array of local and national service providers. Without much debate or the provision of coherent public policy and, in what might be described as undue haste to dismantle the coordinating and supportive roles of Medicare Locals, primary health networks (PHNs) were established.

PHNs were established some two years ago with a major responsibility to introduce commissioning as a concept in funding the primary care sector. Hence part of their role was based on establishing a 'quasi market' in PHC. The community care market at the state government level had already gone down that path with a departure from delivery by state government agencies to that delivered by the 'third sector'. The third sector being that outside of direct government public sector control and outside the 'for profit' private sector and consisting mostly of NGOs, not for profit, charitable and faith-based organisations that are increasingly nationally organised.

So the point of this evolutionary change in service delivery from the state to the private and third sector has been fostered by governments of all persuasions, for apparent purposes of creating greater efficiency and purchasing power and rationalising the degree of provision. Relationships before this evolution to markets were and still are complex mostly because of the contradictions a Federation of States and Territories brings. However, before these changes it has been said that there was a greater degree of 'communication, collaboration and cooperation to ensure people could access the best combination of services possible'. [6, p.43]

The consequences of the quasi market approach and national competition policy are that those in need of care are minutely assessed without any guarantee of access to services. Outside of capital cities and urban centres there may be few or only one provider yet the process of testing the market is applied and the outcome may well mean a move away from the one local provider to a distantly based national provider who has no investment in a local community and

no or little investment at the management and professional level, in the social capital of those communities. In fact, the staff of the once viable local provider run the risk of having to move their employment or move from the town. Contracted and independent practising health professionals may find themselves re-contracting to differing providers on an annual basis to deliver the same services to the same clients, and the clients must adjust to these differences regularly! Many of these occurrences correctly forecast a decade ago are now the context in which we work. [6] They also present a level of concern about risk management where the provider and professional staff are few and far between.

This move to centralised control, management and delivery of the vast array of health and community sector services also adversely impacts on the social capital of local communities. The intellectual contributions of health and community professionals and senior managers are lost to those communities, reducing the leadership and support to those marginalised groups that remain in place. The literature also suggests a strong relationship between social engagement and social networks. [6, p.37] Social capital 'reflects the collective benefits of community engagement'... and it 'depends on people's involvement, all forms of social exclusion damage a community's potential store of social capital'. [6, p. 37]

The reduction or retraction of services, along with the relocation of senior managers and professionally trained disciplines to distant and larger centres further contributes to the decline of rural towns and reduces their capacity to respond to socio-economic determinants that contribute to poorer health outcomes, morbidity and mortality. The very thing that the intended services are meant to address!

It will require a greater consciousness to emerge from our collective politicians, policymakers, health professionals, bureaucrats and communities to address the challenges described in this editorial. The National Rural Health Alliance (NRHA) has a national strategy in place. [7] The Federal government has delivered PHNs and a promise of a Rural Health Commissioner and the concept of 'Health Care Homes'. However, you do not need to read the compelling statistics carefully provided in 'fact sheets' by the NRHA to understand the concepts of poverty in rural Australia, the poorer outcomes for rural dwellers or the inequity of both funding and access to care. [8] Just ask any group of rural citizens, ask the local Mayor or Council General Manager, as this Editor does, living in a regional community, and they will talk to you about the difficulty of financial and physical

access to healthcare. It seems that the further away you live from urban areas the poorer the access to care and improved health outcomes.

I am mindful that we are a highly developed nation but with significant populations of disadvantage. Perhaps we should look to the success of other countries that have emerged and or are emerging from an impoverished status of the third world to see how they have handled disempowerment. Remember we are talking about obesity, diabetes and inactivity, poor diet, low birth weights, alcohol, drug and cigarette addiction, suicide and mental health aberrations. These are increasingly the challenges of those countries that are becoming increasingly urbanised. Remember that Marmot [1] defines the challenge as one not being necessarily addressed by medical intervention but mostly located in the psychosocial sphere that might be more adequately addressed by social engagement and social movements.

There are many examples in developing countries of services being delivered by or accessed through a defined role of 'barefoot doctor', village health volunteer or community village worker to name a few. These are citizens trained at the public health intervention level to detect need, screen, provide an access point at village community level to appropriate and often more westernised services at the higher level and to convince villagers to access health services at the PHC level.

These countries have in common a sense of the extended family and a respect for culture that includes an emotional and social context within which relationships and care are provided. This is also the case in Australia where Aboriginal and Torres Strait Islander populations place great emphasis on culture, country and community underpinned by social and emotional support. There is emerging interest in the extension of the Aboriginal health worker/practitioner role within general practice as a counterbalance to the lack of timely access to referred psychological and counselling services. It could also be valuable in a social movement role to mobilise the wider communities with poor health outcomes. This initiative alone has merit and would help to both maintain communities and a scarce workforce.

Secondly, countries like Thailand are researching how best to improve care at the local community level through district health services. As a starting point, they want to take an across-sector approach that engages communities, education, local government and health working together to improve access and equity for healthcare. This means at

the district level Thailand is trying to encourage all sectors including public, private, local government and community to work together to integrate health and social care for its population in order to lift up their quality of life. This approach also goes to the mandates of the public sector agencies and Ministries collectively. This sounds like an approach that should advantage rural communities.

They understand empowerment. They have also been reformist in achieving Millennium Development Goals (MDGs) and more recently working towards Sustainable Development Goals (SDGs) to demonstrate improved health outcomes. SDG 3, in particular asks us to 'Ensure healthy lives and promote well-being for all ages'. [9] There is little discussion or profile around these United Nation objectives in the Australian context. If they were brought to the centre stage of policymaking they might help create social movement in communities and encourage those sectors to come together in some form of community consortium to do things differently and more effectively, like they are doing in Thailand.

In a recent editorial I emphasised the need for a change of culture from valuing healthcare to one that values health. That editorial also suggested that we must learn to work across sectors. The health sector needs to engage the other traditional sectors to improve health outcomes that are essentially the result of poor access to education, employment and social engagement. [10] Like the historical context, where communities started their own hospitals and aged care facilities, they may have to reinvent that enthusiasm by creating social movement within their communities to more effectively address areas of poor socio-economic determinants in more creative ways.

Can we learn from developing and lower middle-income countries that have been more astute, strategic and engaging than Australia? Are we capable of recognising and moving towards empowering communities in this respect? Can we ensure that in implementing government policy we do not further impoverish the social capital of communities particularly those in rural locations?

DS Briggs

Editor

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Entry Points to the Health System: a review of the emerging community models for management of non-life threatening urgent conditions relevant to Australia

J Adie, W Graham and M Wallis

Abstract

Problem: The number of presentations to Emergency Departments (EDs) is increasing at levels above population growth rates and these increases are becoming unsustainable.

Objective: To review evidence for emerging entry points to the health system for patients with non-life threatening urgent conditions (NLTUC) in order to consider more effective healthcare services in Australia.

Methods: An in-depth review of the Emerald, Medline, CINAHL, Web of Science, Proquest Business and Medical databases from January 2005 to April 2016 matching 'acute care' or 'urgent care' with general practice and other health providers found thirteen entry point models with five currently relevant to Australia.

Results: Studies examining five emerging entry points were found including urgent care community pharmacy, new prehospital practitioner community care, advanced nurse enhancement of primary care, designated urgent care clinics and integrated primary care centers. Evidence for these emerging models of

community healthcare is presented including emerging initiatives, cost implications, subsequent admission to hospital, satisfaction, mortality, care, treatment time, subsequent referrals, testing and health outcomes.

Conclusion: These emerging models of community healthcare need to be trialed and studied in the Australian context to evaluate whether they provide patients with NLTUC with a safe cost-effective option with similar outcomes to EDs. Implementation of these models can be examined further to determine their effectiveness in potentially reducing the increasing rate of presentation to EDs.

Abbreviations: APCN – Advanced Primary Care Nurse; ECP – Emergency Care Practitioners; ED – Emergency Department; GP – General Practitioner; IPCC – Integrated Primary Care Centre; PP – Paramedic Practitioners; NLTUC – Non-Life Threatening Urgent Conditions; UCC – Urgent Care Clinics; UCCP – Urgent Care Community Pharmacy.

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Introduction

Emergency Department (ED) presentations in Australia are increasing. The absolute volume of presentations has increased by as much as 55% in ten years, which is above expectations when compared to the population growth rate. [1] This increase suggests that current models for managing patients with non-life threatening urgent conditions (NLTUC) need to be more effective to meet community needs. Cases presenting to EDs that could be managed in primary care contribute to this problem. Studies over the last ten years have found that these cases can range from 8.4% [2] up to 50% of the ED workload [3] and 58-82% of the paediatric ED workload. [4] Despite the high percentage of cases that could be seen outside hospital, 7.6% of those considered 'non-urgent' are admitted [5] suggesting difficulties and dangers in deciding which patients to refer 'off-site'. Reports from both patient surveys [6] and policy makers [7] indicate that the decision on whether a condition needs urgent advice, care, treatment or diagnosis belongs to patients.

One solution to the problem of ED overcrowding is the provision of integrated care for better management of chronic disease. [8] Integrated care is associated with higher quality of care, lower acute care utilisation and lower costs. [9] For patients with or without chronic conditions, different models of care may be required to reduce ED presentations for non-life threatening urgent conditions. It is these alternatives that will be explored in this paper.

In the Western world, since the 1980s, models of care that are not General Practice or ED-based have been emerging. Some integrate horizontally with services such as Radiology and Pharmacy [10] whereas others integrate vertically upstream with hospitals to provide services traditionally accessed at hospital EDs and refer presentations that they are unable to manage. [11]

Favourable legislation, funding and private-public partnerships have an influence on which models are developed. [10] Australia is an example, having a fragmented funding mechanism for health. Public hospital systems are funded by the state and territory governments whereas primary care is funded by the Federal Government. Both systems also have private components, such as private hospitals and primary healthcare. [12] The same patients with NLTUC who present to public hospital EDs, but could be also managed by a General Practitioner (GP), can attract nearly ten times more funding to the hospital [13,14] (see Table 3). These funding mechanisms limit the extent to which integrated models can be developed in Australia. This article seeks to identify emerging models of community

healthcare around the world in order to provide alternative models of care for Australia's current health system.

Method

A search limited to January 2005 to April 2016 of the Emerald, Medline, CINAHL, Web of Science, Proquest Business and Proquest Medical databases was conducted. It sought models for treatment that could be expanded for patients with NLTUC and that were not based in general practice or hospital ED in urban communities. 'Acute care' or 'urgent care' was matched with each of: Nurs* or 'nurse practitioner'; Pharm; Paramedic or 'paramedic practitioner' or 'Extended Care Paramedic'; 'general pract*' or 'primary care' or 'primary health'; Telehealth or telemedicine; 'integrated primary care centre' or superclinic or polyclinic; 'walk-in clinic' or 'retail clinic' or 'convenient care clinic' or 'after-hours clinic'; 'house-call*'; 'urgent care clinics'; 'public health'; 'general medicine'; and 'emergency medicine'. In addition, discussions with healthcare experts revealed additional sources, which further complemented the results of search, described above. Articles were selected for review if they were derived from meta-analyses, literature reviews, systematic reviews, randomised controlled trials, cohort studies, case control studies, Government reports or analyses of records of meetings relevant to treating NLTUC in urban communities.

Results

Thirteen emerging models of community healthcare for patients with NLTUC were identified in the published literature. These are summarised in Table 1.

While some models work well for chronic disease management, the authors eliminated eight e.g. [10, 12, 13, 15-17] (see Table 1). The remaining five models were chosen because they could be expanded and built on in Australia due to: ability to access appropriate public and private funding, ability to incorporate provision of care for a wide variety of conditions, ease of access to diagnostic services and access to advanced treatment options and resources (e.g. treatment of minor fractures by applying casting and performing electrocardiograms to investigate heart related conditions). [10, 18-20] The authors would like to highlight the importance of the GP as the key healthcare professional in a system that works but is currently under pressure both financially and from increased NLTUC workload. This article presents evidence for these emerging models with relevant studies expanded in Table 2 on a conceptual continuum from simplest to most complex. These models could be enabled on a larger scale by slight changes in legislation/regulation and channelling of funding from the most

Table 1: Emerging Models of Community Health care

CATEGORY	DESCRIPTION OF MODELS
Telemedicine – virtual, most limited access to resources	1. Non-clinical call handler managed 2. Nurse managed 3. GP managed
House calls – face to face interaction with limited access to resources	4. New Prehospital Practitioner Community Care 5. Nurse practitioner led 6. GP led
Location based - face to face with access to more resources	7. Urgent Care Community Pharmacy 8. Advanced Nurse Enhancement of Primary Care 9. Nurse Practitioner in nurse led clinics 10. On-site employer clinic 11. Urgent Care Clinic 12. Freestanding Emergency Department 13. Integrated Primary Care Centre

expensive hospital ED model to potentially more cost effective community models. The following table identified the type of care, service, providers, benefits and implications of each model.

The five models of community healthcare derived from the literature have potential to enhance the ability of primary care institutions to manage patients with NLTUC in Australia. This will give the 8.4 – 50% of patients who present to ED

and the 58 – 82% of patients who present to paediatric ED with NLTUC a safe, cost-effective alternative for treatment. [2-4] Each model is described below:

New Prehospital Practitioner Community Care

By safely treating patients in the community, new Prehospital Practitioners, including Paramedic Practitioners (PPs) and Emergency Care Practitioners (ECPs), are reversing the trend in the Western world where ambulance transfers

Table 2: Models of Non-Life Threatening Urgent Care

TYPE OF CARE	PRACTITIONERS	EXAMPLES OF LOCATIONS IN THE CITED LITERATURE	SERVICES PROVIDED	BENEFITS/IMPLICATIONS	EXAMPLES OF STUDIES
New pre-hospital practitioner community care.	Paramedic Practitioners (PPs) Emergency Care Practitioners (ECPs).	UK, Canada Australia, NZ.	Treatment of falls, lacerations, epistaxis, minor burns, removal of foreign bodies, suturing, ordering of investigations, prescribing and ability to discharge.	PPs c.f. standard care result in 28% less ED attendance, 13% less admissions at 28 days, 15% less total episodes time, 16% more satisfaction and similar 28 day mortality/ suboptimal care. CPs c.f. usual providers results in less investigations, more treatments, more discharges home, 74% less transfers to hospital and 66% cost reduction compared to the cost of seeing patients in ED.	(25, 28, 54)
Urgent Care Community Pharmacies (UCCP).	Pharmacists.	US, UK, Australia, NZ.	Point of care testing, diagnosing, dispensing, treating and 'pharmacy interventions'.	Pharmacy interventions (43.5% avert medical attention), reduced GP visits and ED visits (especially bank holidays/ weekends for scripts), fewer exacerbations of existing conditions/ adverse drug effects.	(30-32, 55)

Table 2: Models of Non-Life Threatening Urgent Care *continued*

TYPE OF CARE	PRACTITIONERS	EXAMPLES OF LOCATIONS IN THE CITED LITERATURE	SERVICES PROVIDED	BENEFITS/IMPLICATIONS	EXAMPLES OF STUDIES
Advanced Primary Care Nurse (APCN) enhancement of primary care.	Practice nurses or Nurse Practitioners (NPs) working autonomously with GPs.	US, UK, Australia, Canada.	Walk-in extended hours access to treatment of ambulator=y patient's health needs.	Safe and effective care, high patient satisfaction for 'minor and everyday' health concerns, few difference between APCNs and physicians. 60% of patients preferred a NP or Practice Assistant today over a physician tomorrow for a worsening cough.	(18, 37, 38, 40, 56)
Designated Urgent Care Clinics (UCCs).	Urgent Care Physicians, GP's, doctors under supervision of urgent.	NZ, US, Canada Hungary, Bahrain and Israel.	Walk-in extended hours access to adults and children for acute illness and injury care.	Walk-in, no appointment, X-Ray on site, extended hours, suturing and casting, cost 18-27% of ED (some conditions), similar than ED.	(10, 11, 46-49)
Integrated Primary Care Clinic (IPCC).	General Practitioners, Urgent Care Physicians, Registered Nurses.	UK, Australia	Walk-in extended hours access to adults and children for acute illness and injury are in a large GP Facility.	Extended hours, reducing avoidable hospital admissions by treating minor illnesses and injuries, pharmacy, blood tests, X-Rays, links to local GPs.	(50, 53)

to hospital are increasing by up to 20% per year. [21] PPs are paramedics with extended skillsets who manage patients in their own environment. ECPs are nurses or paramedics with extended skillsets who work in various settings such as ambulance services, ED, Minor Injuries Units, primary care and Walk-In Clinics. [22] In examining eleven studies, a Canadian Systematic Review highlighted initiatives, including promising programmes in the United Kingdom, Australia and Canada. The review also included one randomised controlled trial showing paramedics can safely practise with an expanded scope, improving system performance and patient outcomes. [23] New models of community care are being trialled in different Australian states. [24] These programmes build on and expand existing scope of practice to treating conditions such as falls, lacerations, epistaxis, minor burns, removing foreign bodies [25] simple wound suturing, ordering investigations such as x-rays, prescribing medicines and discharging patients at the scene. [19]

Comparisons of both emerging models over traditional models are favourable in terms of effectiveness, patient satisfaction and cost. Three cluster randomised controlled trials from the United Kingdom show that PPs' care of patients with mild illness or injury reduces admission to ED and admissions with favourable outcomes (see table 2). Studies showed ECPs had a higher rate of managing patients in their own home over transfer to hospital compared to

usual care (59% c.f. 26% by usual paramedics in a rural town in New Zealand) [26] and 64% c.f. 24% by 999 ambulances in metropolitan England for elderly patients with falls and breathing difficulties. [27] In contrast, an English study found ECPs were not as effective as usual health providers in discharging children after assessment of urgent healthcare problems in a metropolitan city thus transferring more children to hospital. [28] Satisfaction with ECPs was high in a rural New Zealand study where patients wished to be treated at home if possible. [29] The mean cost of ECP patient contacts in one study was 44% of the cost of patients being seen in ED. [22] ECPs like PPs keep more patients in their own homes with better outcomes than traditional service methods. Also helping to keep patients with NLTUC in the community is the UCCP model.

Urgent Care Community Pharmacies

Urgent Care Community Pharmacies (UCCPs) manage some NLTUC in the community through their sharing of pharmaceutical knowledge and accessibility. [30] They have the potential to impact the management of patients with NLTUC in four ways. They respond to over the counter requests to identify and resolve actual or potential drug symptoms and avert the need for emergency medical attention and potential for harm (see Table 2). [30]

Secondly, they dispense emergency supplies of repeat medications without the need for a prescription. A United Kingdom study found dispensing emergency supplies

of medications removed the need to access urgent care (see Table 2). [31] Thirdly, they can diagnose and dispense medications for conditions traditionally managed by a doctor. This has been expedited by legislation switching medications from prescription to non-prescription or pharmacy-only. [32] Lastly, pilot cases of point of care testing in the United States have found cost savings when testing and treating Group A Streptococcus. [33] Also in the United States, examination, testing and treating, giving results and working collaboratively with a physician for treatment of sexually transmitted infections has been successfully trialled. [34] In Australia, pharmacists have found screening for chlamydia in asymptomatic women presenting for emergency contraception was regarded by consumers as highly convenient and highly appropriate. [35] In addition to the aforementioned interventions, the Pharmacy Guild in Australia is currently seeking to follow other countries in making pharmacy the first port of call for minor ailments such as coughs and colds, urinary tract infections and sexually transmitted infections, vaccinations, prescriptions for stable chronic conditions like diabetes, hypertension and hypercholesterolemia as well as referral of mental health patients who are deteriorating. [36] For those requiring more than basic treatment, the next healthcare model to be considered is the Advanced Primary Care Nurses (APCN).

Advanced nurse enhancement of primary care

ACPNS working alongside doctors assist with or undertake the care of 'minor' and 'everyday' health concerns. Various registered nurses work to enhance primary care, including practice nurses and nurse practitioners (NPs). [37] Patient satisfaction with APCNs is high. [18,37] Three studies showed APCN quality comparable with physicians. [37-39] Another study showed similar impact for APCNs and GPs for up to 90% of health needs of ambulatory patients. [37] A subtype of APCN is the NP whose role is relatively new to Australia. From 2010, Medicare provider rights and Pharmaceutical Benefits Scheme rights have been provided for NPs to work in private practice to independently diagnose and treat some health conditions but in collaboration with a GP. [40] Consumers from Australia and the United States are open to accepting a greater role for NPs if it means sooner treatment (see Table 2). [41] Australian consumers are also open to a greater role from NPs for minor and everyday health concerns if they have appropriate training. [40] A systematic review showed that NPs could provide levels of care that are at least equivalent to that provided by physicians. [38] A federally funded randomised controlled trial by nurse and physician researchers of primary care patients found comparable outcomes when NPs and physicians function

equally as primary care providers in the same medical centre with identical elements of care. [39] Thus APCNs under a doctor's supervision have become an acceptable alternative to doctors for more minor conditions. The next model operates like an ED treating more urgent conditions than the GP but in the community and run by GPs or Urgent Care Physicians.

Designated Urgent Care Clinics

Designated Urgent Care Clinics (UCCs) provide 'walk-in, extended hour access to adults and children for acute illness and injury care'. [42] They are common in New Zealand, United States, Hungary, Bahrain, Israel and Canada. [10, 43] A New Zealand study of 12 clinics found they predominantly provide episodic treatment for relatively young patients primarily related to a new or shortterm problem. New Zealand UCCs provide X-Ray on site, extended hours (a minimum of twelve hours per days and at least from 0800 – 2000, seven days per week) and are community rather than hospital-based. [11,44] They are required to be staffed by at least one Urgent Care Physician (or Urgent Care Physician undergoing vocational training in Urgent Care) who is the Medical Director [44] as well as GPs [11] and doctors with general registration both supervised by an Urgent Care Physician. [45]

A United States study of 436 clinics found UCCs are open beyond typical office hours with a broader scope of services than many primary care offices. They have characteristics similar to EDs but employ significant numbers of family physicians at lower cost. [46]

Studies assessing quality of care and costs of UCC compared to ED were favourable towards UCCs. Two studies assessed quality of care at UCCs. Both rated UCC higher in quality than ED. [47,48] Two studies found cost of attending UCC significantly less than ED. The first found costs of 18%, [46] the second found the cost of attending an UCC for treatment of otitis media, pharyngitis and urinary tract infection was 27%. [49] Comparing the costs of managing five conditions treatable at UCCs and by GPs in Australia and New Zealand also show savings compared to the remuneration low acuity cases receive in Australian ED. One unpublished calculation of the cost of nonurgent patients treated in ED based on the number of after-hours and nonadmitted ED attendances at \$AU360 (range \$240 - \$480). Table 3 depicts the cost differences between New Zealand and Australia.

UCCs have taken a subset of NLTUC and made their provision in the community a specialty, which is rapidly growing in western health systems. Investment by insurance companies and other private sources is an important part

Table 3: Costing of 5 lower acuity presentations in Australian and NZ UCC and GP

PRESENTATIONS	NZ UCC	NZ GP	AUSTRALIAN GP
Normal hours consult up to 20 minutes	\$70.53 (accidents)*	\$NZ35.48 (accidents)*	\$AU36.30
Single site burn > 4 cm 2	\$NZ 142.00	\$NZ 107.38	\$AU39.55
IV rehydration of gastroenteritis (over 1 hour)	\$NZ 170	\$NZ 170	\$AU70.30
Intravenous cephazolin (nonseptic cellulitis)	\$NZ 125.5	\$NZ 125.5	\$AU36.60
Non-displaced distal radius fracture (initial consult)	\$NZ 172.03**	\$NZ 164.47**	\$AU36.60**

Source: (14, 57)

*In NZ non-accident related presentations are funded under a complicated capitation model requiring patients to attend their normal General Practice or an Urgent Care Clinic associated with their practice in order to assess government subsidized care.

**If whole fracture episode not managed.

of their success. The last new model potentially combines aspects of traditional GP and UCCs.

Integrated Primary Care Centres

An alternative model, which is able to treat patients with NLTUC, is the Integrated Primary Care Centre (IPCC). Still developing, it combines horizontal integration with Radiology and Pharmacy and vertical integration with hospitals to treat minor injuries and illnesses that would otherwise require ED treatment. [50] Studies are emerging showing an association between higher continuity of care in GP and fewer hospital admissions for ambulatory care sensitive conditions even with larger practices. [51] However, the benefits of treatment of NLTUC in an IPCC or situating an UCC in an IPCC are not known.

The five newer models of community healthcare described above are potentially more effective and efficient than EDs for management of patients with NLTUC. The applicability of these models to the Australian context requires further studies.

Discussion

This narrative review shows the strengths of five models capable of treating patients with NLTUC in Australia. Some of these reviews are from countries outside Australia including rural contexts but present examples of successful initiatives showing promise for management of NLTUC in Australia. A proposed next step in establishing these models is to create pilots in Australia to enable Health Economic Analysis, assess the gaps and improve on the weaknesses.

Community pharmacists offer a wide range of services. These services include providing advice, dispensing emergency supplies of medications, diagnosing and treating conditions with medications that have been changed from

prescription to non-prescription, dispensing targeted repeat prescriptions and performing limited point of care testing and treatment of conditions. These services have been well received by patients. Weaknesses highlighted by patients and easily remedied include lack of privacy and lack of access to medical records by the pharmacist. [52] Still unknown are the morbidity and mortality outcomes as a result of this initiative.

NPPs including PP and ECP treat more people in their own homes with high rates of satisfaction, less cost and no significant difference in mortality. However, further investigation is required in order to quantify numbers of unplanned presentations to GPs, repeat standard ambulance callouts and presentation to other hospitals.

Advanced nurse enhancement of primary care helps doctors treat every day and minor health concerns, especially when an appointment with the GP is not available. The weaknesses of this model are that APCN consultations are longer with more investigations, higher recall rates and referrals. Studies on costs were inconclusive with a United Kingdom literature review showing increased costs [37] and a United States systematic review finding APCN care less expensive compared with physician provided care. [18] The United Kingdom literature review found evidence of shorter waiting times and effective substitution for doctors in some areas by APCNs but a slower throughput and higher referral rate. [37] Working with an APCN meant family doctors were more likely to see patients with more serious or complex conditions. [37] Regardless of whether or not workloads and costs reduce, APCNs treating patients with NLTUC are a solution to workforce shortages. [38] Yet to be ascertained for the Australian healthcare system is how nurses can best work with GPs to efficiently and cost effectively complement

the doctor's role in treating NLUC when the clinic is open or closed. It is not known to what extent nurse prescribing rights, level of experience or maturity of the service affect the length and quality of consultations. [37] There is also little known about long term outcomes such as nurse failure to diagnose certain conditions. [37]

Comparisons of costs to treat similar conditions in UCC and EDs show that significant savings can be made should this model be initiated. Table 3 shows that New Zealand UCCs are paid significantly more than Australian GPs but still significantly less than in EDs. The lack of availability of funding limits the potential impact the Urgent Care Model could have in Australia to UCCs that are publicly funded.

IPCCs could combine the continuity of care from nurses, doctors and having patients' notes with UCC services. Like many western countries, Australia has invested in IPCCs [53] but as yet there is no drive to empower this model to take its place as a model of primary care for management of patients with NLTUC. This highlights the need for further study to gain more knowledge about the effectiveness of the new models of community healthcare and factors that will ensure the viability of such models in the Australian context.

Conclusion

A review of the literature found that ED presentations are increasing at an unsustainable rate. The investigation found thirteen non-traditional entry points to the health system for patients with NLTUC currently in use in the western world. Of these, five were identified as having potential to contribute to the management of NLTUC in Australia.

To progress with the introduction of these models, it is suggested that the common NLTUC presenting to primary care can be identified, studied and assessed in order to scope intervention studies which involve teaching protocol-driven management of a limited range of conditions to suitably qualified health professionals other than doctors. The models could be piloted with special effort given to assessing proportions of patients representing and complications. Then, economic cost benefit analysis can be undertaken for the models to better equip health sector managers to make important strategic decisions about appropriateness of each of the models in various contexts. Consumer participation in developing these models is vital and future research should include a study of consumer preferences and model acceptability.

Finally, GPs could be interviewed to ascertain how these emerging entry points could co-exist within the existing framework to manage patients with NLTUC.

Competing interests

The authors declare that they have no competing interests.

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Health Assistant in Nursing: a Victorian health service pilot

S Davies, C M Keenan and B Redley

Abstract

Objective: Develop and evaluate pilot of a new role to support nursing care delivery in hospital settings.

Design: A naturalistic, three-stage pre-post, multi-method pilot design used data collected from hospital administrative datasets, and surveys and focus groups with staff participants.

Setting: Three wards at three hospital sites of a large tertiary health service in Victoria, Australia.

Subjects: Staff performing the new role and registered nurses working on participating wards.

Intervention: Pilot of a new Health Assistant in Nursing (HAN) role.

Main outcome measures: Staff outcomes were work satisfaction and workload of registered nurses; quality outcomes included reported patient falls and medication errors; organisational outcomes included service costs and sick leave.

Results: Work satisfaction and workload of registered nurses remained stable after introducing the new role. The frequency of reported patient falls reduced in two of the three wards. Costing outcomes suggested potential for cost benefits attributed to reduced falls in acute wards.

Conclusions: This pilot identified the new HAN role has capacity to contribute to improved patient quality and safety outcomes without compromising nurse job satisfaction and workload. Potential cost benefits of the new role warrant further consideration in the acute care sector.

Abbreviations: CPO – Constant Patient Observer; CSN – Clinical Support Nurse; HAN – Health Assistant in Nursing. NWSQ – Nursing Workplace Satisfaction.

Key words: Questionnaire; nursing; patient safety; model of care; health assistant; service evaluation.

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Introduction and background

Nursing in Australia's health system is facing significant challenges to accommodate future demand and workforce shortages. Forecasts suggest Australia will experience a shortage of approximately 85,000 nurses by 2025. [1] Rapid population ageing [2] and growing levels of chronic disease, illness acuity and complexity are increasing demands on healthcare. [3,4] Nurses at the forefront of healthcare delivery consistently report concerns that increasing workload demands and limited resource availability impact the quality of care and patient safety. [5] Poor quality, delayed, interrupted, incomplete or missed nursing care [6,7] most often impact patients' personal care needs such as ambulation, hygiene and nutrition [6-9] and is attributed to poor teamwork, resource limitations and nurse workload. [10-12] Suboptimal clinical outcomes and patient dissatisfaction often result. [6]

In response to Health Workforce Australia's recommendation for changes to the mix of ward staff, [1,3] one Victorian metropolitan and one regional acute health service tested the Health Assistant in Nursing (HAN) during 2009 and the Department of Health and Human Services funded additional health services to undertake similar pilot projects in 2013. The purpose of the HAN role was to support patient centred care under the direct supervision of a registered nurse thereby freeing registered nurses to focus on complex clinical tasks.

This paper reports the process for co-development of the role and evaluation of the pilot to introduce the new HAN role into three different ward types at three different sites of a single large metropolitan health service in Victoria. The role replaced and extended an existing 'Constant Patient Observer' (CPO) role used to supervise patients with high falls risk as the quality and scope of activities performed by CPOs was limited, standards of practice were variable and costs were high. The HAN role was to supplement, not replace, the registered nurse workforce.

Aims and objective

The aims of the pilot study were to (1) co-develop a new role (HAN) with ward nurses that was expected to provide a scope of activity that would support nursing care delivery in acute and sub-acute wards; and (2) evaluate the impact of the HAN role in terms of staff satisfaction, quality of care and service costs.

The outcomes were expected to inform decisions about the feasibility and ongoing viability of the role and inform a business case for expansion and sustainability.

Methods

The pilot study utilised a multi-methods pre- and post-descriptive design with data collected from organisational databases, and using surveys and focus groups with staff on participating wards. The setting was a large metropolitan health service in Melbourne, Victoria, Australia. The pilot for the HAN role was introduced at three hospital sites that represented wide variation in service provision:

- Site 1 – An acute 16 bed rapid assessment unit in a tertiary hospital providing treatment of short term acute illnesses for patients with complex underlying disease.
- Site 2 – A 36 bed medical ward in a metropolitan hospital providing treatment of acute and ongoing complex illnesses in elderly patients where high falls risk and delirium and dementia are common.

- Site 3 – A 24 bed sub-acute rehabilitation ward that assists elderly patients with a high falls risk to regain independence.

Data collection was guided by a quality evaluation model [14] across three stages. The model included five components: (1) staff costs; (2) quality indicators (falls, medication errors, consumer feedback); (3) staff surveys; (4) focus groups; and (5) ward staff training.

In Stage 1, baseline data were collected from organisational databases and hospital staff. Data were used to describe the existing service, and co-develop a role description and work activity list for the HAN role that was acceptable to nursing staff on the participating wards.

In Stage 2, the role was implemented over six months as follows:

- A Clinical Support Nurse (CSN) was appointed to facilitate the project.
- Seven staff with appropriate qualifications (Certificate III in Health Service Assistance) were recruited using values-based interviewing and employed to perform the HAN role.
- A partnership with an external education provider was established to deliver one week of on-site training to the HANs (Certificate III equivalence).
- Nurses on the participating wards were provided with education about the HAN role to manage expectations and enhance understanding of nurse delegation and supervision responsibilities.
- An escalation process to empower staff and capture and respond to staff concerns was established.

In Stage 3, repeat qualitative and quantitative data were collected from staff and organisational databases.

Ethics approval

Ethics approval was obtained from the participating organisation's Human Research Ethics Committee (ref 14383X).

Data collection and analysis

Surveys

A survey was used to collect data from pilot ward nurses at baseline (Stage 1), and five months after implementation (Stage 3) of the HAN role. In Stage 1, a paper survey was delivered to nurses and subsequently collected by the project CSN. In Stage 3, an email containing an online survey link was sent to nurses and HANs. All survey responses were anonymous.

The survey included demographic questions, items from the NWSQ [15] and additional fixed response and open-ended questions. Responses were analysed using the two previously reported themes and six subthemes of the NWSQ: (1) staff work satisfaction (extrinsic factors, intrinsic factors, co-worker factors); and (2) work practices (timeliness and quality of patient care, workload, working with others). [15] Open-ended questions were used to collect data about nurses' perceptions of the HAN role.

Focus groups

Six focus groups (one pre and one post on each ward) were facilitated by human resources staff; these were conducted in Stages 1 and 3 at each of the three sites. A total of 62 ward nurses participated in Stage 1 focus groups, and 50 in Stage 2. Ward nurses were invited by the CSN to participate and provided written consent. In addition, a workshop attended by 110 nurse managers held in Stage 1 was also used to inform the role development of the HAN. All participants were anonymous. A structured question guide and field notes were used to collect data.

In the Stage 1 focus groups, participants were asked about their:

- Job perception
- Recommendations for HAN tasks
- Support required for success of the pilot
- Their confidence about delegation and supervision.

In Stage 3, the questions relating to job perception were repeated and additional questions were asked concerning implementation processes, resources provided and perceptions of the HAN role impact. Focus group field notes were analysed using thematic data analysis methods common in qualitative descriptive methods.

Organisational quality and costing data

Quality and costing data were extracted from the organisation's administrative databases including risk reporting, human resources and financial systems. Microsoft Excel was used for statistical analysis of this data.

Results

Data analyses examined key outcomes of introducing the new co-developed HAN role on the three wards, related to (1) staff and project costs; (2) quality indicators; (3) nursing staff and HAN work satisfaction; and (4) nurse and HAN work practices.

Findings from quantitative analyses

Staff and project cost analysis

Staff costs and cost offsets were calculated for the six-month project period and for the same period in the previous year in each of the participating wards, and then forecast to estimate annual costs. Minimal changes in staff costs occurred in the acute wards and a cost deficit was observed in the sub-acute ward. Sick leave increased during the pilot period across all three wards; however, this was consistent across the organisation and not attributed to the pilot.

Project costs for the HAN pilot were used to estimate costs for subsequent years in order to examine the feasibility of expanding the HAN role. Implementation costs in the first year were forecast to increase in subsequent years when government support was not available.

Quality indicators

Frequency of medication errors, falls, complaints and compliments were examined for the pilot period and compared with the same period in the previous year.

Incident reports used to examine the frequency of medication administration errors revealed a 31% (45 to 31) reduction across the three wards during the HAN pilot. Site specific data revealed medication errors reduced only in the two acute wards: 52% reduction in Ward 1 and 8% in Ward 2 (see Figure 1).

Data for complaints and compliments received from patients (and their visitors) were small hence pooled across the three wards for analysis. The frequency of complaints reduced by 65% (n=11) and the number of compliments increased by 560% (n=17) during the HAN pilot as few compliments were received during the same period in the previous year. Details of compliments related to care quality.

The largest change in quality indicators was observed in the falls data. Overall, the frequency of patient falls decreased by 38% (144 to 89) across the three wards (Figure 2). In the two acute wards, falls reduced by 54% on Ward 1 and by 49% on Ward 2. At the same time there was a 13% reduction in falls across the whole hospital site of Ward 1 and an 11% increase in falls across the whole hospital site of Ward 2. The frequency of falls in Ward 3 (sub-acute) did not change despite a 20% reduction in falls at this ward's hospital site for the same time period. Further analysis revealed 81% of falls on Ward 3 occurred with the HAN was not working.

Figure 1 Number of Medication Administration Errors in each pilot wards and all pilot wards June – November 2013 vs June – November 2014

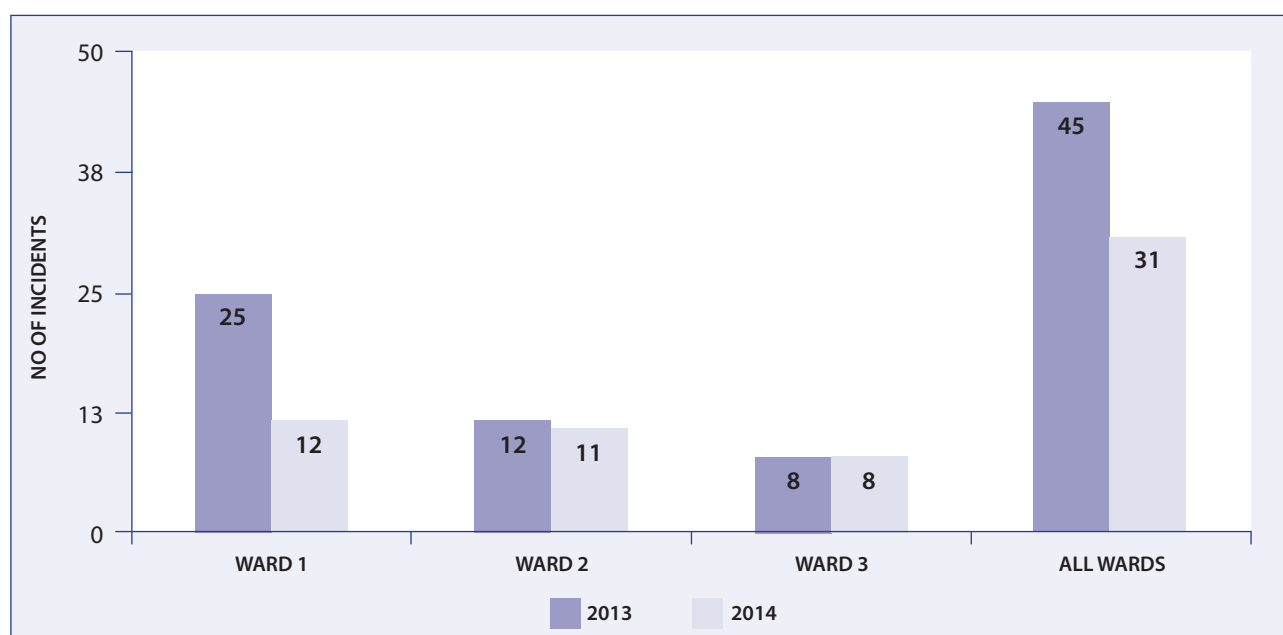
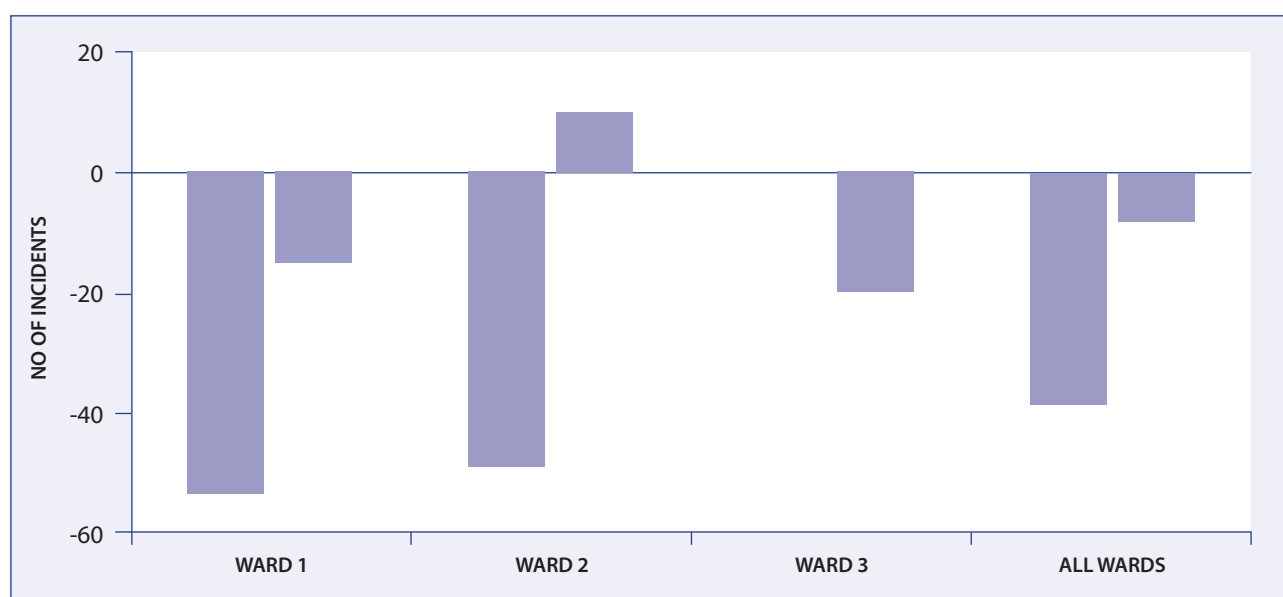


Figure 2: Change in falls frequency in pilot wards and at hospital sites (June – November 2013 vs June – November 2014)



Estimated organisational costs per fall (\$9629) in Australian hospitals [17] were used to project annualised cost savings of falls reduction. Estimated net annual benefits in year one of the project (\$943,318 (AUS)) and in subsequent years (\$898,760 (AUS)) were observed in acute wards only.

Staff work satisfaction

The nurse survey response rate was 64% (n=67) in Stage 1 and 30% (n=32) in Stage 3. Analyses were limited by the small numbers and inability to match pre and post surveys.

Survey data from Stages 1 and 3 were used to examine the distribution of nurse responses to the three subscales of the NWSQ. [15,18] Differences in subscale scores between Stages 1 and 3 were non-significant for the three subscales, likely due to the sample size lacking power to detect differences; therefore, the response distributions for items in each subscale were examined.

The distribution of responses to the items examining the extrinsic factors affecting work satisfaction [15] revealed

participant agreement increased in Stage 3 compared with Stage 1 for all items, except items 9 and 12 (see Table 1 for items).

Similarly, agreement with items examining intrinsic factors affecting work satisfaction [15] also increased between Stages 1 and 3 for six of the eight items (Table 1).

Finally, agreement with items related to co-workers [15] also increased between Stages 1 and 3 for three of the four items examined.

Work practices

In Stages 1 and 3, nurses reported their agreement with items asking about the timeliness and quality of nursing care, workload and working with others (Table 1) using a 5-point Likert scale. For 13 of the 14 items (Table 1) agreement increased in Stage 3 compared with Stage 1. The largest increases in agreement were for items asking about tidying clutter from the work area (item 31) and assisting with patient meals (item 27).

Of the seven items examining nurses' perceptions of their workload (Table 1), the largest increases in agreement were for item 33 (Table 1) indicating benefit of the HAN role, and item 36 (Table 1) suggesting a potential problem in nursing workflow. Agreement increased by 15% or more between Stage 1 and Stage 3 for four items examining nurses' perceptions of working with others (Table 1).

Perceptions of the HAN role

In Stage 3, responses from five of the seven HANs to an online survey asking for their perceptions of their role indicated a high level of overall satisfaction with training for the role, transition to the workplace, and stimulating and enjoyable work (all 80% agreement).

Findings from qualitative analyses

Sixty-two (59%) ward nurses participated in focus groups across the three wards in Stage 1 and 50 nurses (48%) in Stage 3.

Table 1: Stage 1 and Stage 3 responses – Changes to items relating to timeliness and quality of care, workload and working with others

ITEMS	% RESPONDING "ALWAYS" AND "ALMOST ALWAYS"		
	STAGE1	STAGE 3	% CHANGE
TIMELINESS AND QUALITY OF CARE			
19. I believe patient needs are met in a timely manner	62.7	65.7	5%
20. I have adequate time to ensure a safe environment for patient and staff	72.7	78.1	7%
21. I feel that I manage day to day pressures and stress of nursing	80.6	84.4	5%
<i>Please indicate how often you believe these components of care are completed in a timely and satisfactory manner?</i>			
22. Administering medications	73.1	90.6	24%
23. Changing wound dressings	59.1	62.6	6%
24. Performing vital signs	77.6	96.9	25%
25. Patient ADLs: Hygiene– shower/wash	54.5	65.6	20%
26. Grooming (including shaving, hair, teeth/dentures, make up)	65.6	43.8	-33%
27. Patient meals: Sitting down and feeding a patient (where required)	49.2	62.5	27%
28. Patients are assisted to eat their meals whilst the food is still hot	45.4	59.4	31%
29. Talking to patients	44.8	50	12%
30. Answering call bells	80.6	90.7	13%
31. Tidying/cleaning clutter from the work area	46.3	65.7	42%
32. Toileting or attending to toileting needs	76.1	84.4	11%

Table 1: Stage 1 and Stage 3 responses – Changes to items relating to timeliness and quality of care, workload and working with others *continued*

ITEMS	% RESPONDING "FULLY AGREE" AND "AGREE"		
	STAGE1	STAGE 3	% CHANGE
WORKLOAD			
33. The resources on my ward provide me with the opportunity to apply my skills and undertake the most important elements of my role	61.2	84.4	38%
34. Workload affects my ability to deliver patients the highest quality of care	76.2	68.7	-10%
35. Generally for the majority of my shifts I feel I have accomplished all my daily tasks by the end of shift	74.6	77.1	3%
36. I am regularly interrupted when performing a duty i.e. medication round, performing a dressing change	53.1	84.4	59%
37. On most days I feel that my workload is manageable	62.6	71.9	15%
38. In comparison to 3 years ago, I feel that the volume and complexity of work that I must complete has increased	76.1	88.6	16%
39. In comparison to 3 years ago, I feel that the standard of care that I deliver has improved	59.7	57.2	-4%
WORKING WITH OTHERS			
40. I am confident delegating work to other roles and staff on my ward	80.6	96.9	20%
41. I am confident providing direct and indirect supervision to other roles and staff on my ward (when required)	79.1	100	26%
42. I am confident that I know my responsibilities and accountabilities when delegating and supervising others within my ward	86.6	100	15%
43. I feel the staff on my ward work as a team	80.6	96.9	20

Stage 1– Nurse work issues

Nurses reported the best aspects of their role related to:

- Patient care: *'Provide good care to patients';*
- Good teamwork: *'Working with a great group of people who care about each other';* The opportunity to gain knowledge and skills: *'Learning on the ward, rewarding work.'*

Worst aspects of their work related to:

- Heavy workloads: *'Heavy work, physically difficult';*
- Time constraints: *'Sometimes not having enough time to attend to basic patient care needs due to increased workload/busy ward';*
- Pressure from management to increase patient flow: *'Pressure to meet KPIs.'*

Work issues related to rostering and equipment were also raised. Nurses' knowledge and confidence about delegation and supervision was variable. Nurses' desire for the HAN role to focus on personal care, feeding, ambulation, toileting and patient supervision also emerged.

Stage 3- Contribution of the HAN role

In Stage 3, nurses reported *good colleagues, teamwork and caring for patients* were the best aspects of their work. The worst aspects were *lack of management support, pressure for patient flow and high workloads.*

Nurses' feedback reflected perceptions that HANs reduced their workloads and freed their time for complex clinical tasks: *'HAN assisted me in giving the best care for my patients by performing duties within their scope, leaves me free to perform duties within my scope.'*

Nurses also reported that HANs contributed to:

- Improved patient safety: *'Prevent falls especially for confused patients';* and *'reduced clinical risk'* and
- Improved teamwork: *'Work alongside other health professionals especially nurses, for best care management for patients.'*

Nurses' concerns about the HAN role related to *'Nursing positions being replaced by HANs.'*

Discussion

Safety and quality improvement

The findings of this pilot suggest the HAN may contribute to patient safety outcomes by supporting nurses' work. [21] No studies were located in peer reviewed literature to suggest the novel approach to developing and implementing the HAN role reported in this paper may contribute to patient safety; it appears this paper may make a unique contribution to this topic. Previous studies that report assistants in nursing may increase some adverse patient outcomes [17] do not consider the tailored nature of the new HAN roles and the supervision model developed for this pilot that specifically addressed the role, scope-of-practice, and working relationship with registered nurses. [17] The findings suggest that under the right circumstances, the HAN role may contribute to patient safety benefits through reduced falls and medication errors, but this was only evident in the two acute wards where two and four HANs respectively were employed. The employment of only one HAN with limited hours covered may explain the absence of similar improvement in quality indicators on the sub-acute ward, particularly as over 80% of falls on this ward occurred when the HAN was not on duty. A longer pilot duration and increased hours of cover may improve understanding of HANs' impact on patient safety in sub-acute settings.

Potential for cost benefits

Since the HAN replaced CPOs on the acute wards there was little additional cost associated with their employment. As CPOs were not usually employed in the subacute ward, the staff costs on this ward were high.

The cost benefits associated with reduced patient falls [18] on acute wards were possibly the most important contribution of the HAN role; an estimated annual benefit of approximately \$898,760 per annum was projected for the pilot using previously reported costings. [18] This finding suggests the HAN role may offer significant financial benefits in the acute care sector and warrants further investigation.

Nurse work satisfaction

While changes in nurses' responses to the three sub-scales of the NWSQ between Stages 1 and 3 was non-significant, likely attributable to an inadequate sample size, trends in the data distributions suggest the HAN role may contribute to increased nurse work satisfaction in all subscales. An interesting finding was the mean scores for each of the three NWSQ subscales were higher (by 7.3 to 17.8) in this study population than those reported in previous studies [15, 19, 20] suggesting the nurse participants had high work satisfaction which may have limited scope for

further improvement. Increased nurse work satisfaction was supported by qualitative data that revealed nurses' perceived the HAN role had a positive impact on quality of care and patient outcomes.

HAN role effectiveness

The introduction of HANs appeared to support nurses to improve their teamwork and workload distribution to maximise the scope-of-practice in each role. This Victorian and Australian context, as no similar literature was located. Feedback from nurses suggested HANs were 'more effective' than the previous CPOs as they could undertake a wider range of patient care activities.

Model of care

High workloads and poor teamwork well known to affect work effectiveness [21] were expected to be barriers to implementation of the HAN role. Establishing role clarity prior to implementation was fundamental to support effective teamwork. [22] In addition, developing nurses' delegation and supervision skills was seen as key to the HAN's effectiveness. HANs were explicitly made members of the nursing team, attending nurse handovers and reporting directly to a registered nurse on each shift. Delegation and supervision of their work by a registered nurse provided necessary structure and support. This model enabled all team members to focus on their respective role scope and assist each other when needed.

Key factors for successful implementation of the HAN role

Underpinning the success of the pilot was engagement, co-development and leadership support at all organisational levels. [23,24] Governance using a committee structure facilitated open and transparent two-way communication between management and staff for information-sharing and issue resolution. The dedicated CSN was important to facilitate engagement and support change in local team models of care to create a clearly defined role for the HAN that met expectations and needs. A robust recruitment process and comprehensive education ensured HANs were the 'right fit' and well prepared. Most importantly, ward staff were highly engaged in all stages of the project.

Implications and recommendations

The findings from the study address the rising nurse workloads and the projected shortage of nurses in Australia by 2025 [1] suggesting a new HAN role, with training and scope-of-practice tailored to the service context, may provide a new health workforce to help mitigate potential for poor quality of care and reduce patient safety risks attributed to high nurse workloads. This pilot study,

conducted across three sites of one health service, could be replicated elsewhere with different workforce types, as a strategy to progressively address health workforce shortages and improve patient safety.

Limitations

Due to the high importance of assuring anonymity of participants, demographic data collected was limited, and not matched between the first and second survey; hence it was not known how many nurses participated in both Stages 1 and 3. Similarly, the change from paper (survey 1) to online (survey 2) data collection (as a preference of the project team) may have impacted response rates and introduced possibility of response bias. The small sample size limited power to detect differences between pre and post survey data despite evident trends. Limited complaints and compliments data and reliance on self-reporting, which may have been influenced by external factors not considered in this study suggests these findings should be viewed with caution.

Conclusion

This pilot indicates the HAN role has potential to contribute to improved patient safety and reduced costs in hospital care delivery without compromising nurse satisfaction or workload. The method used for its introduction was key to the success of the pilot. Potential for ongoing cost benefits emerged in the acute care sector where patient falls were reduced. The positive results of this pilot study support proposals to expand the HAN role in the acute sector as a cost effective way to improve patient outcomes and staff satisfaction.

Competing interests

The authors declare that they have no competing interests.

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Attracting Future Health Workforces in Geographically Remote Regions: perspectives from current remote health professionals

L Onnis

Abstract

Objective: The aim of this study was to identify what has previously attracted health professionals to work in geographically remote regions, to identify the incentives that managers are currently using to attract health professionals to remote regions, and to determine whether they are comparable.

Design: This article examines the data from two separate, yet complementary, research studies. The first study used qualitative methods to investigate why health professionals choose to work in geographically remote regions through current remote health workforces. The second study investigated whether information communicated through recruitment advertising contained information congruent with the themes that attracted the current remote health professionals through a content analysis of recruitment advertisements. The findings from these two studies are then compared and contrasted and Psychological Contract Theory is used to examine the implications for health service managers.

Setting: This study was conducted in northern Australia, a remote tropical setting with geographically challenging working conditions.

Results: The findings revealed that recruitment advertisements contained information comparable with the themes that had attracted health professionals to work in remote regions. Most importantly, they highlight opportunities to better align recruitment practices, and provide insight into how unrealistic expectations lead to psychological contract breaches.

Conclusions: This study found that while recruitment advertisements are using appropriate content to attract health professionals to remote regions, there is considerable scope for improvement so that attraction translates into improved retention.

Key words: recruitment; attraction; psychological contracts; retention.

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Many businesses and public sector organisations throughout Australia find it difficult to attract, let alone retain, staff. This 'problem' is exacerbated in remote and desert Australia, which is far removed from the attractions of the cities. [1, p. 354]

Australians living in geographically remote regions experience poorer health outcomes than the general Australian population. [2,3] In part, this is attributed to

limited access to health services arising from difficulties in attracting and retaining health professionals in remote regions. [3,4] Globally, the distribution of health professionals typically sees a higher density in urban areas and a scarcity in many geographically remote regions. [3,5] Furthermore, high turnover is frequently reported in many geographically remote regions. [5,6] Consequently, in regions that experience high turnover, attracting and retaining health professionals is challenging; however, some healthcare services within these regions experience reasonable levels of workforce stability. [5,7]

The literature reveals a variety of approaches to attract and retain remote health workforces. Some studies focused on the sustainability of health workforces [8-10] and others investigated place-based characteristics and the

attractiveness of locations. [11] Some report the benefits of incentives and bonus schemes, [12] while others report that financial rewards do not lead to long-term retention. [13] Researchers have also investigated the benefits of remote placements as pathways to remote employment [14,15] As a result, it appears that health professionals are attracted to remote regions for a variety of reasons, and that their expectations influence job satisfaction and ultimately retention as 'one health professional's reason for leaving may be another one's reason for staying'. [10, p.49] For many health professionals, geographically remote regions are a work context with which they are unfamiliar. In fact, it is often difficult to imagine the remote work environment for those that have always lived and worked in cities. As such, recruitment processes shape their perception of employment conditions. [16] Psychological contracts develop through the employee's beliefs and perception about the employment agreement, particularly unwritten expectations and exchange obligations. [16] The perceived obligations of the employer that form a psychological contract may be transactional (e.g. financial bonuses) or relational (e.g. job security). In essence, psychological contracts describe an employee's perceived expectations and commence pre-employment.

Transactional psychological contracts are characterised by specific, short-term obligations while relational psychological contracts emphasise long-term, socio-emotional obligations. [17,12] Regardless of the type of psychological contract, reciprocity is unspecified and implicit and therefore, difficult to quantify and may be breached by managers unaware of these perceived obligations. [17,18] Perceived obligations for both transactional and relational psychological contracts are formed through the information contained in recruitment advertising and develop through interactions with managers during recruitment and the early stages of employment. Where an employee perceives a psychological contract breach and/or violation, the employee's obligations to the employer are reduced or eliminated which often results in turnover. [16] Employees may accept psychological contract breaches, depending on the nature of the breach. However, once employees feel that their psychological contract has been violated, which is a more severe and emotionally charged response to an unfulfilled obligation than a breach, resignation is the most likely outcome. [16] Hence, management practices can improve retention by focusing on minimising the formation of psychological contracts that arise from unrealistic expectations.

This study was conducted in northern Australia, a remote tropical setting with challenging climatic conditions, such as cyclones and flooding, together with physical challenges, such as distance from capital cities, impassable roads and impermanent airstrips. This study included remote and very remote regions, collectively described as 'remote' for this study, in North West Queensland, Far North Queensland, Northern Territory's Top End and Western Australia's Kimberley region. Remote regions were defined using the Australian Bureau of Statistics categories for remote (RA4) and very remote (RA5), with remoteness determined as 'how far one travels to access goods and services'. [19, p.2] As Darwin is categorised as outer regional (RA3), it was excluded, unless a Darwin-based position delivered health services in an RA4 or RA5 area, such as fly-in fly-out roles. [19] While geography creates the physical environmental context, they are not isolated from the challenges that face all health professionals. [4,5] Hence, geographical remoteness contributes to health workforce challenges as it provides a complex, isolated physical environment in which to manage workforce challenges, including widespread poorer health outcomes. [5]

Based on the assumption that the incentives that attracted current remote health workforces can attract future remote health workforces; the aim of this study was to identify what has previously attracted health professionals to work in geographically remote regions, to identify the incentives that managers are currently using to attract health professionals to remote regions, and to determine whether they are comparable. This article examines the data from two separate, yet complementary, research studies that contribute to the empirical research in this field. The first study investigated why health professionals choose to work in geographically remote regions in tropical northern Australia. The second study investigated whether information communicated through recruitment advertising contained information congruent with the themes that attracted current remote health professionals. The findings from these two studies were then compared and contrasted and Psychological Contract Theory used to examine the implications for health service managers.

Approval to conduct the research was granted by the James Cook University Human Research Ethics Committee (HREC) (H5227), the Townsville Hospital and Health Service HREC (HREC113/QTHS/225) and the WA Country Health Service HREC (2013:31).

Study one

Methods

Study one investigated the current remote health workforces' perspective through health professionals working in remote tropical northern Australia. Study one sought empirical evidence about what attracts health professionals to work in remote regions. To ensure that participants were currently working in remote northern Australia, eight organisations (two government Hospital and Health Services, two non-profit organisations, two Aboriginal Community Controlled Health Organisations, and two recruitment agencies) providing health services in remote tropical northern Australia disseminated an online questionnaire to their employees. This method ensured non-identifiable data and provided the most cost-effective method of data collection from health professionals in geographically remote locations. Qualtrics was used for the questionnaire providing a user-friendly interface for participants and a centralised data collection point, which maintained confidentiality.

The questionnaire was disseminated between January 2014 and July 2015 to 1317 remote health professionals. In total, 272 questionnaires were returned, providing a response rate of 21%. Incomplete questionnaires were removed, leaving 216 questionnaires for analysis. The response rate was low; however, it was consistent with this type of research tool [20] and reasonable for this population. The Australian Medical Association reported a response rate of 13% and Rural Doctors Association of Australia reported a 13.5% response rate for online questionnaires to health professionals in rural and remote Australia [21,22] reinforcing the difficulty in achieving high response rates for this population. Study one examined responses to the free-text question from the questionnaire: Why did you choose to work in a remote region? A thematic analysis was conducted using NVIVO10 to identify the emergent themes.

Table 1: Participant Characteristics (n=213)

VARIABLE	TOTAL %	VARIABLE	TOTAL %
Region		Gender	
Queensland	62.6	Male	16.5
Western Australia	37.4	Female	83.5
No. years in current role		No. years in remote areas	
<1 year	22	<1 year	40
1-5 years	51	1-5 years	39
6-10 years	21	6-10 years	10
11-20 years	3	11-20 years	9
>20 years	3	>20 years	2
Age (years)		Occupation*	
30<39	9.2	Allied Health	24.2
40<49	25.7	Dentist	1.4
50<59	24.8	GP	5.3
60<69	32	Specialist	1.9
70+	8.3	IHW	6.8
		Nurse	54.6
Work Location		Living Location	
Very Remote	24.8	Live and work very remote	42.4
Remote Town	15.5	FIFO live regional	27.8
Regional Centre	59.7	FIFO live city	13.2
Remote incentives		Rural/Remote Placement	
Yes	59.5	Yes	27.5
No	40.5	No	72.5

*Variables do not add up to 100% as the values for 'other' are not presented.

Results

Participants

The participants' characteristics for those that completed the demographics section are presented in Table 1. The sample was predominately female, there was a high representation of nurses, and 40% of participants had worked in a remote area for less than one year.

Themes

The thematic analysis identified themes that described why health professionals were attracted to work in remote

regions. Next, a review of these themes revealed that some health professionals had not specifically chosen to work in a remote region. Rather, it was a consequence of circumstance, e.g. they already lived in the remote region; they were returning to the area where they were raised; or they moved to the remote area for their partner's work. These themes were removed, leaving eight themes that encapsulate why participants chose to work in remote regions that could be used to attract future workforces.

Table 2: Themes that encapsulated why health professionals work in remote regions and whether the experience met their expectations

THEMES	TYPICAL QUOTES ABOUT EXPECTATION REALISATION
Adventure/Travel describes travelling long distances and to unique areas.	'I would never have imagined being able to travel to some of the places I have!' (QP151) 'distance to travel to/from jobs or to assistance for evacs, I never really understood the enormity of the job' (QP90)
Autonomy describes a level of independence, free from external control.	'Autonomy can be great' (QP150) 'there is less autonomy and more requirement to follow procedures set from the city without any consultation' (QP24)
Geography describes the physical environment.	'challenging most days and I love the country' (QP20) 'I also didn't realise until moving to a remote region how limited resources can be for work' (QP190)
Indigenous health means both the wellbeing of individuals and the social, emotional and cultural wellbeing of the Indigenous community.	'it was as I expected, with a few curve balls as I was experiencing the different cultures' (QP2) 'Indigenous health is also challenging' (QP110)
Lifestyle describes the way in which a person desires to live.	'did not expect that the lifestyle I have developed would be so fulfilling and meaningful to me as a person' (QP45) 'difficult to achieve work/life balance' (QP142)
Make a Difference describes an intrinsic desire to improve the lives of clients.	'I am disappointed at times that I am not able to do more to help people as some people don't want to be helped' (QP135) 'I am often left wondering if we/I will ever make a difference' (QP184).
Remuneration describes the financial benefits that an employee receives from their employer.	'we can afford for my husband to stay home with the kids and only parent has to work' (QP57) 'better pay and conditions' (QP58)
Scope-of-practice describes working within professional boundaries compatible within their qualifications and skills.	'Enjoy working in a wide scope-of-practice'(QP5) 'The work in remote regions is markedly different to that in metro areas and was not what I expected. I have found the two clinical areas vastly different and initially had to adapt' (QP45).

These eight themes were: adventure/travel, autonomy, lifestyle, geography, Indigenous health, making a difference, remuneration and scope-of-practice. Table 2 contains a description of these themes and some typical quotes about whether or not the experience met their expectations for each theme. The analysis revealed that the three most frequent themes that encapsulate why health professionals choose to work in remote regions were: lifestyle, scope-of-practice and Indigenous health (Table 3).

Table 3: Themes describing why health professionals choose to work in remote regions (n=216)

THEMES	%*
Lifestyle	18
Scope-of-practice	17
Indigenous Health	11
Adventure/Travel	8
Make a Difference	6
Remuneration	4
Autonomy	4
Geography	1

*This table does not add up to 100% as themes that did not imply 'choice' were removed (see study one methods section).

Study two

Methods

Study two identified the incentives that managers use to attract health professionals to remote regions through an examination of recruitment advertisements. Recruitment advertisements were collected from five recruitment websites between August 2013 and July 2015. These websites were:

- Western Australia Government (<http://www.jobs.wa.gov.au>)
- Northern Territory Government (<https://jobs.nt.gov.au/Search.aspx>)
- Queensland Government (<https://smartjobs.qld.gov.au/jobtools>)
- Seek (<http://www.seek.com.au>)
- CareerOne (<http://careerone.com.au>)

During this period, 3311 advertisements met the following inclusion criteria:

1. The position was in remote northern Australia (described previously)

2. The position involved contact with patients for treatment or to enable/assist patients to receive treatment; or the management of people who have contact with patients for treatment or to enable/assist patients to receive treatment
3. The position required a health-related qualification and/or experience in a role that provided healthcare services.

The content analysis was conducted to systematically analyse the advertisements, enabling the written data to be coded and then counted. An a priori coding method used a checklist based on the themes identified in study one. The descriptive quantitative data analyses were conducted using the statistical software package SPSS22.

Results

The recruitment advertising contained content comparable with the themes identified by the current remote health professionals (Table 4). There was considerable variance in the frequency in which these themes were contained in the recruitment advertising. The three most frequently identified themes were remuneration, geography, then lifestyle and adventure/travel (both ranked third).

Remuneration was the theme most frequently used to attract health professionals to remote regions. Remuneration incentives were usually offered to nursing and medical professionals for the completion of a defined period of time in a remote location. For example, the Remote Area Nursing Incentive Package included isolation bonuses for one, two and three years of service; and the General Practice Rural Incentives Program offered bonuses for working in very remote areas for six months, and then annually with the amount increasing each year. The recruitment advertising sent a strong message to potential applicants about the remuneration on offer, and about areas of frequent turnover.

The analysis highlighted an observable difference in the style of the advertisements by recruitment agencies and health service organisations. It was only recruitment agencies that offered incentives like an opportunity to win a free iPad for a successful referral, frequent flying points and impertinent calls to action, such as, 'Midwives are as HOT AS BURNT TOAST in Australia and we simply CANNOT get enough of them' and 'Calling Rural Superheroes ... To be successful you must be an all-round experienced generalist; fearless, flexible and ready to wear your red undies on the outside superhero style.'

Overall, there was a mix of realistic and enhanced descriptions of the geographical area, with few that described the challenges of working, living and maintaining professional

Table 4: Themes that encapsulated why health professionals work in remote regions contained in the recruitment advertisements

THEME	EXAMPLES OF THE CONTENT IN RECRUITMENT ADVERTISEMENTS
Adventure/Travel	<p>'Do you want to experience a bit of the Australian outback where the most traffic you will have will be cattle and Kangaroos? Are you keen for a well-paid adventure?'</p> <p>'We will offer you the experience and adventure of a lifetime'</p>
Autonomy	<p>'You will be expected to work autonomously at times'</p> <p>'This is a relaxed and flexible role ... You see two patients per day and if you finish with the patients early, you simply go home for the day. Some of the staff choose to finish early and go fishing or goanna hunting with the locals!'</p>
Geography	<p>'It's rural Australia, so this is not for everyone. You will be isolated, you will be hot! But the rewards outweigh the location'</p> <p>'This area has a sub-tropical climate and much of the areas you will be travelling into are on unsealed roads. We are now approaching the hot and humid season in the area'</p>
Indigenous Health	<p>'Passionate about providing quality healthcare to Indigenous Australians'</p> <p>'You'll go home every day with a sense of accomplishment knowing that your work is contributing to the wellbeing of Yolnu people'</p>
Lifestyle	<p>'If you enjoy camping, adventure and an outdoor lifestyle, this is the place for you'</p> <p>'bring your fishing rod, sunscreen and a good book for your days off. There will be plenty of time to enjoy the island view!'</p>
Make a difference	<p>'This is a once in a lifetime opportunity to make a difference'</p> <p>'Rural nursing is more than just your hours at work, it's being part of a community and making a real difference in the relatively short time you have'</p>
Remuneration	<p>'The package - base salary + \$200 per week remote allowance + salary sacrifice up to \$16,000. You basically only have to pay for your food'</p> <p>'New Zealand Midwives wanted for cashed up Australian contracts in 2015 "SHOW ME THE MIDWIVES" in 2015!! We have clients ... begging us for more midwives in 2015 - and do we have a deal for you!!'</p>
Scope-of-practice	<p>'Educated and endorsed [...] in an advanced and expanded clinical role, as set out in their Practice Scope'</p> <p>'Nurses with additional authorisations must apply to [the] Nursing Scope-of-practice Committee to receive authority to practice prior to being able to perform the duties associated with such an authorisation'</p>

practice in unfavourable geographical conditions (e.g. climate, infrastructure and resources) (Table 4). Interestingly, autonomy is often reported as being one of the benefits of working in remote regions; however, few advertisements promoted 'autonomy' or 'working autonomously'. Some described aspects of the lifestyle, where health professionals could determine their daily activities perpetuating the image of the laid-back remote lifestyle. In addition, many emphasised aspects of travel/adventure that a rural lifestyle afforded, particularly outdoor activities such as rodeos, fishing and camping. There was a sense in many of the advertisements that the health professional had plenty of time to enjoy their remote geographic location with messages such as 'Your lifestyle is Your choice'.

The recruitment advertisements contained information for all of the themes identified in study one (Table 5). However, they were not identified in the same order of frequency; for example, lifestyle was the only one of the three most frequently reported themes by current health professionals that was also one of the three most frequently appearing themes in the recruitment advertisements. Also, scope-of-practice was the fourth most frequent theme reported by health professionals and the least frequently reported theme in the recruitment advertisements. Similarly, remuneration was most frequently contained in recruitment advertising and the least reported theme for health professionals.

Table 5: Comparison of the themes from study one and study two

THEME	RECRUITMENT ADVERTISEMENTS (N=3311)	HEALTH PROFESSIONALS (N=216)
Adventure/Travel	8%	8%
Autonomy	2%	4%
Geography	14%	1%
Indigenous Health	6%	11%
Lifestyle	8%	18%
Make a Difference	6%	6%
Remuneration	56%	4%
Scope-of-practice	2%	17%

In summary, these two studies contribute to our understanding about why health professionals choose to work in remote regions and the incentives for working in remote regions communicated through recruitment advertising. The findings revealed that recruitment

advertisements contained information congruent with the themes that health professionals reported had attracted them to remote regions.

Discussion

The findings highlight how unrealistic expectations can form through recruitment advertisements. Recruitment advertisements not only seek to attract suitable applicants, they are where the employee's expectations and perceived obligations of the employer begin to form the psychological contract. In addition, they highlight disparities in the amount of attention given in advertising content to themes that the current health workforce did not report as influencing their decision. Most importantly, they revealed opportunities to better align recruitment practices, and provide insight into how unrealistic expectations can lead to breaches in the employee's psychological contract. Furthermore, as psychological contracts develop, unmet expectations, often derived from the recruitment process are noteworthy as these unwritten agreements influence psychological contract formation and ultimately retention. [11,16] Hence, there are both theoretical and practical implications for managers, academics, and health services.

Scope-of-Practice

Many health professionals reported that working in remote regions provided an opportunity to broaden their scope-of-practice. This is consistent with the findings from other studies where remote health professionals enjoy the diversity and scope of remote health. [10,14] However, empirical evidence is needed to determine whether using scope-of-practice for workforce attraction translates into improvements in workforce retention. In particular, where ageing workforces are becoming more common in rural and remote regions, there are opportunities to explore the degree to which scope-of-practice impacts retention. For example, whether remote regions are more attractive to health professionals with extensive and broad clinical expertise because the scope-of-practice is rewarding or perhaps the skills and experience required necessitates many years of professional practice to have the scope-of-practice competence required in remote regions. Geographical isolation contributes further to this scenario as reduced access to medical assistance and vast distances further necessitate the need for experienced health professionals who can work within the full scope of their professional practice parameters. [24,25] Positive advances have been made in preparing health professionals for rural, remote and isolated practice with established pathways to expose and prepare university graduates for geographically remote work. [14,15]

Management practices

The findings from this study suggest opportunities for managers to positively influence retention through psychological contract formation during the recruitment process. Firstly, managers contribute to the formation of perceptions about the position which develop during the attraction stage of the recruitment process (e.g. description of desired lifestyle, free accommodation). Next, during the recruitment and appointment process the manager creates expectations about incentives or rewards that remain unwritten, contributing to transactional psychological contract formation. For example, an applicant who is attracted to the lifestyle, (e.g. told they go fishing after work) may feel that the manager has breached their psychological contract if they find on arrival that they do not have access to a vehicle and that they are on-call most days, resulting in the desired lifestyle that attracted them unlikely to eventuate. After commencing, health professionals often described experiences where the job and organisational characteristics do not meet their expectations. [20,23] In geographically remote regions, voluntary turnover is costly and health professionals are not easily replaced which results in reduced access to health services for remote communities. [1] For organisations competing in a sector with global workforce shortages, it is difficult to attract health professionals to geographically remote regions whilst maintaining a sense of realism about the working conditions and environment. This is the dilemma of the contemporary health service manager.

Given that many health professionals described scope-of-practice, lifestyle and Indigenous health most frequently as reasons for going to work in remote regions it follows that health services could focus their advertising on emphasising clinical skill development opportunities (scope-of-practice and Indigenous health) as well as realistic descriptions of geographically remote regions to contribute to the development of more reasonable psychological contracts. There are many geographically remote regions that offer a great outdoor lifestyle, with opportunities to develop professionally. Thus, the reality is rewarding. Empirical theory-based evidence provides insight into opportunities to build theory and inform practice. As such, this study proposes that transparent recruitment practices using incentives to attract health professionals that have previously attracted health professionals, improves the likelihood that they will stay long enough to appreciate these rewards.

This study was conducted in geographically remote regions of Australia; regions where remote communities are experiencing increasingly complex health challenges, and

accessing the healthcare services provided by remote health professionals is critical. Given that managers are responsible for the recruitment of health professionals in these regions, it is imperative that managers consider the perspectives of current remote health workforces, when recruiting future workforces, particularly, in a sector with predicted global workforce shortages.

Limitations

The low response rate for the questionnaire means that caution should be used in applying these findings to other remote regions. In addition, it is possible that there was a self-selection bias for the questionnaire.

Conclusion

In conclusion, the findings suggest that the themes that describe why health professionals are attracted to remote regions and those that managers use to attract remote health professionals are comparable. Therefore, recruitment practices can significantly impact retention. Where managers use transparent recruitment processes, employees are less likely to form psychological contracts with unrealistic expectations. As a consequence, psychological contracts are less likely to negatively impact retention.

This study found that while recruitment advertisements are using appropriate content to attract health professionals working in remote regions, there is considerable scope for improvement so that attraction translates into improved retention. Hence, managers should focus on tailoring recruitment practices to attract future workforces based on what attracted their current workforce to improve workforce stability. In geographically remote regions, workforce stability reduces the financial and social costs of turnover and improves access to healthcare services for remote populations.

Competing interests

The author declares that he has no competing interests.

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What Happens When Patients with an Orthopaedic Complaint 'Wait'? Setting the Scene in one Australian Tertiary Hospital

J Morris, A Twizeyemariya, H Pillen and K Grimmer

Abstract

This paper presents reflections about 'waiting' for healthcare, in particular outpatient 'waiting' for specialist orthopaedic surgical appointments. Waiting for healthcare is a substantial and growing problem across the globe. There is significant interest from Western governments to make waiting time for services publicly available and measured against defined targets. As yet there is little consistency in how waiting is defined and monitored, and therefore little is understood about the impact of waiting on patients, in defined targets. As yet there is little consistency in how waiting is defined and monitored, and therefore little is

understood about the impact of waiting on patients, in terms of health, social and financial aspects. This paper explores current understandings of waiting list impacts for patients with an orthopaedic complaint, drawing on initiatives to manage orthopaedic waiting lists from one Australian public hospital.

Abbreviations: CDC – Consumer Directed Care; GP – General Practitioner; THC – The Canberra Hospital.

Key words: Orthopaedics; waiting; impact of waiting; models of care.

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Introduction

In May 2015, the Australian Institute of Health and Welfare reported that 28% of Australians (approximately 6.1 million people), suffered from arthritis and other degenerative musculoskeletal disorders. [1] Hip and knee osteoarthritis alone are reported to be the 11th highest contributor to global disability. [2] Gross explored predicted healthcare expenditure in Australia from 2003 to 2033 by disease, and documented an anticipated 223% increase in expenditure on musculoskeletal disorders. [3] He cited an ageing population and increasing incidence of disease as drivers for escalating costs. As a corollary, there is likely to be increasing pressure on hospital outpatient departments to provide timely medical and allied healthcare for increasing numbers of patients with orthopaedic/musculoskeletal complaints. [4-7] This increasing demand generally leads to patients being placed on waiting lists before they are able to access care. [8-10]

There is increasing government and health department interest in monitoring, minimising and reporting waiting times, as a quality of care measure. [11,12] The waiting period can be counted in different ways, such as from symptom onset to first consultation, from first consultation to

symptom resolution, or the waiting period in its entirety. The interest in waiting appears to reflect a broad understanding that waiting for treatment is detrimental. However little has been done to explore what actually happens in the waiting period. Little is known about the drivers for patients to seek treatment at particular times; definitions of the different phases of waiting once symptoms have commenced; the impact on the patient at these time points; or whether there is an optimal waiting time.

The aim of this paper is to map the 'waiting journey' of patients with an orthopaedic/musculoskeletal complaint, using one Australian tertiary hospital as an example, and to explore what is known about the impact of waiting from patient, economic and provider perspectives.

Waiting

Definitions of 'waiting' are contextual, and depend on what is being waited for, by whom, and where. [13] Many definitions of waiting are purely focused on a time period from one point of contact with the health system to another point of contact in the health system. [14] There are no consistent definitions of waiting in a broad sense in the peer-reviewed literature or Australian grey literature or government documents, other than those that have direct reference to elective surgery waiting lists. Sanmartin et al [15] defined waiting time for specialist consultation as the time from referral by the patient's General Practitioner (GP) to consultation with a specialist or the time between the consultation with the GP and a subsequent appointment with a specialist. [15] There is more consistency in definition in relation to waiting for elective surgery (Australian Institute of Health and Welfare): [16]

Elective surgery waiting time:

When a surgery is elective (planned) and will be conducted in a public hospital (or for public patients treated in private hospitals), patients are placed on a waiting list and assigned an urgency category that indicates the clinically recommended maximum time they should wait for the surgery. The time a patient waits for elective surgery is calculated from the date a patient is placed on the hospital's waiting list to the date of admission for the surgery. The waiting time is an indication of how easy the service is to access. [16]

How best to manage long waiting times for healthcare is an important health policy issue around the world, and thus many countries have introduced some form of national waiting time guarantees. International comparisons of waiting times are critical for countries to improve policy, and

the quality and safety of their care, and for patients to be able to make informed choices. In Europe this has particular ramifications, as patients have the right to seek care in other countries if there is undue delay. [11] Viberg et al described how countries measure waiting times, and these authors assessed whether waiting times can be compared internationally. [17] Twenty-three countries belonging to the Organisation for Economic Co-operation and Development (OECD) were included in this review. Information was collected through scientific articles, official and unofficial documents and web pages. Fifteen of the 23 countries monitored and published national waiting time statistics and had some form of waiting time guarantees. There were significant differences in how waiting times were measured: whether they measured the 'ongoing' or 'completed' waiting period, what kind of care patients were waiting for; the parameters used for measurement; and where in the patient journey the waiting time measurement begins.

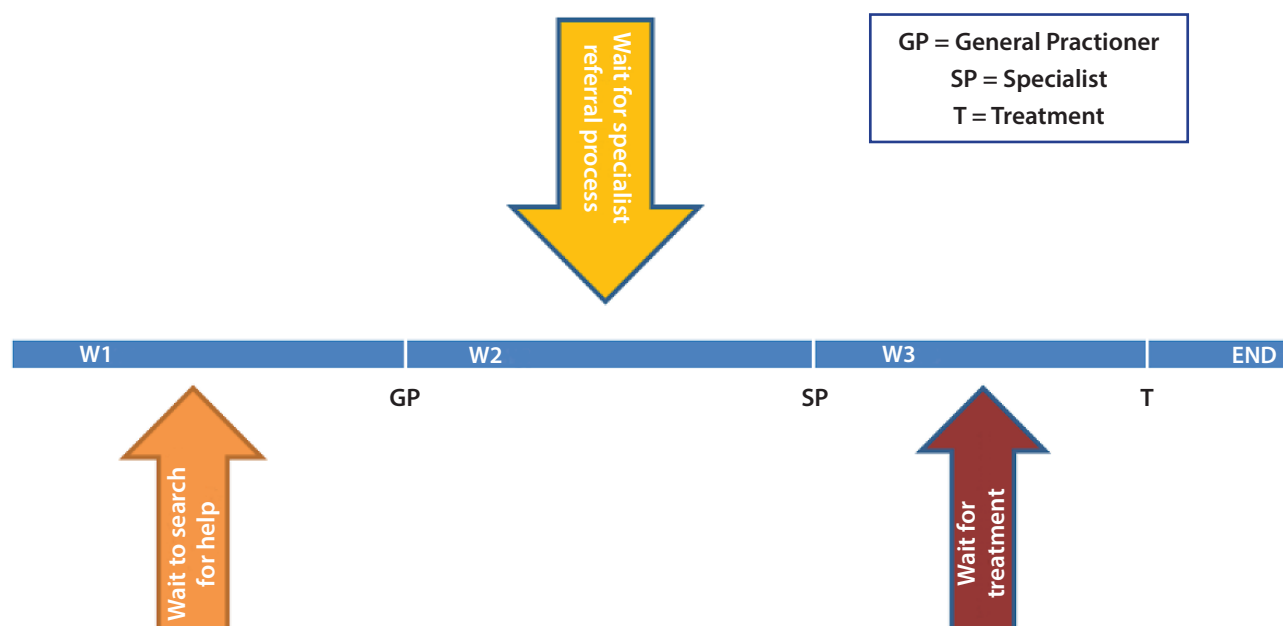
This study found that current national waiting time statistics were of limited use for comparing healthcare availability among the various countries, due to the differences in measurements and data collection. [17] Therefore some form of standardisation is required to take account of the different methodological issues when making cross country comparisons. Within the given context of national sovereignty of health systems, it would be desirable if countries could collaborate in order to facilitate international comparisons. Such comparisons would be of benefit to all involved in the process of continuous improvement of health services. They would also benefit patients who seek cross-border alternatives for their care.

Patient engagement in the 'waiting' issue

Central to consumer directed care (CDC) is the importance of considering consumer preferences (or voice) for health services. [18,19] CDC emphasises the importance of understanding how consumers' drivers and motivators are expressed in the search of good health, and good healthcare, in order to understand demand for, and satisfaction in, services received. [18] Grossman posed the notion that consumers do not demand healthcare services per se, they demand 'good health'. In other words, the production of health services and when patients are likely to seek access to them are derived from the consumer's demand for good health. [20] This paper considers the balance between the drive for good health, and the journey to arrive at it, through a public hospital system.

There are a number of factors lacking in how waiting is defined, most importantly it does not track the whole

Figure 1: The waiting journey.



journey of the patient's condition, from symptom onset to either symptom resolution or a state of self-management. Whilst waiting times are closely monitored in the majority of tertiary health services [11,12] little is known about the impact of waiting, the drivers behind treatment/management decisions and how patients transition from one waiting period to another and the impact of this transition. We have developed an outline (figure 1) that diagrammatically explains the periods of waiting from symptom onset to point of either resolution or self-management (i.e. the patient no longer seeks care from the healthcare system).

We have defined W1 as the period from onset of symptoms to first presentation to a GP. W2 is defined as the waiting period between first seeing the GP to attending a specialist appointment. W3 is defined as the waiting period between seeing the specialist and receiving necessary treatment. The majority of data and published information is recorded at W3. Hospitals are required to make these waiting times publicly available when the chosen treatment is elective surgery, to promote accountability in public health service providers. [12] Little is known about W1 and W2, as it is during the W3 period that the most data is available regarding the impact on the patient. [21-30]

Economic perspective of waiting

Many facets of the impact of waiting are poorly understood; amongst these being patient costs incurred during the waiting period. Direct costs such as medications purchase, changed transport needs, home modifications costs and/or reduced work capacity could be guessed, however indirect

costs and opportunity costs have not been quantified. There is some evidence from experimental trials, case-control studies and qualitative studies that suggests that waiting for treatment such as joint replacement results in increased informal care costs to patients, loss of productivity, reduced work function due to sick leave/absenteeism and/or early retirement and increased medical costs, including medications. [21-23,26-28,33]

Patient's perspective on waiting

Patient perspectives have been presented in a small number of qualitative studies [24-31] largely highlighting important elements of 'waiting' that are not usually taken into account by policy-makers or clinicians. These studies suggest that deterioration of health and increased (psychological and social) costs are associated with waiting. However, having a positive outlook and high level of social support may act to limit these costs. [29]

It has been reported that patients experienced increased pain [10,32] and isolation [26,27,32] that may impact on their wellbeing. Moreover qualitative studies [24,25] report situations where conventional therapies are used (during engagement with primary care providers) in the initial phase of waiting (W1) in an attempt to reduce the need for elective surgery. However in some cases, as pain increases and mobility becomes increasingly limited, coping resources (both physical and psychological) are being consumed until a breaking point is reached, where social participation and social roles become compromised. [24-30,32]

W2 and W3 in Figure 1 are characterised by uncertainty and 'putting life on hold'. There is qualitative evidence that coping mechanisms and social participation have already been eroded by the time a person is placed on a waiting list for medical attention. [26,27,32]

This is where patients have reported experiencing a faceless system, which increases frustration, anxiety, uncertainty, depression, and fear of entrenchment within the disabled role. [24,25,29] Some of these issues are compounded by perceived stigma and the fear of placing unreasonable demands on carers. [24,25,29,30] As people move into phase W3, there is increasing anxiety around the procedure for some, a desire for others to get the procedure over, and move on with life, and a period of preparation to improve postoperative outcomes for others. A positive outlook and the assistance from family and friends have been proposed to play a role in preserving continuity of life in some persons. [26,31]

One area where more research appears to have been undertaken is waiting in a clinic or department for a consultation. In this setting, waiting is measured from point of registering attendance with the administrative staff to point of consultation. In this context of waiting it is generally accepted that the patient perceives the quality of care/satisfaction of the care received in relation of the how long they wait to receive it and the duration of the consultation. [34-37] This perception is the same when considering waiting on a waiting list for an appointment and/or treatment, dissatisfaction levels are higher the longer patients wait and patients express concern over the impact on health status whilst waiting. [27,38,39] This frustration

with waiting has been known to drive patients to incurring personal costs to reduce the wait, in some cases in the form of accessing private health options. [28]

Impacts on the health system

The individual's health ramifications of waiting may also impose additional costs on the healthcare system. For instance it may require more resources, or more costly resources, to address the reason that put patients on the waiting list initially, if the condition has deteriorated whilst 'waiting'. 'Late' presentation to a healthcare provider may reflect more established health deterioration, when more urgent and risky treatments/procedures may be required. Measuring the costs and outcomes including the quality of life and social support variables would add currently unavailable evidence regarding the impact of waiting.

Who makes the decision about waiting? In the context of healthcare delivered in Western society, the last decade has seen an increased recognition that waiting for treatment may be detrimental, and there has been an increased emphasis by governments for hospital departments to publicise waiting times, most particularly in the context of Emergency Departments and surgical waiting lists. Within Australia, this has led to national targets such as National Emergency Access Targets in ED and National Elective Surgery Targets, [12] with the primary focus on reducing time spent waiting. The National Elective Surgery Targets are outlined in days in Table 1.

However the maximum acceptable period of 'waiting' (or how long it is appropriate for someone to wait) has not been clarified for healthcare more broadly. For instance, in the case of elective surgery, 365 days appears to be the

Table 1: Urgency categories for Elective Surgery¹²

CATEGORY	DESCRIPTION
Category 1 – Urgent	Admission for surgery within 30 days of being placed on the waiting list is desirable. This is for a condition that has the potential to deteriorate quickly, to the point that it may become an emergency.
Category 2 – Semi-urgent	Admission for surgery within 90 days of being placed on the waiting list is desirable. This is for a condition causing some pain, dysfunction or disability, but which is not likely to deteriorate quickly or become an emergency.
Category 3 – Non-urgent	Admission for surgery within 365 days of being placed on the waiting list is desirable. This is for conditions causing minimal or no pain, dysfunction or disability, which is unlikely to deteriorate quickly and which does not have the potential to become an emergency.

Table 2: Number of longest wait overdue patients at 31 December 2011 remaining on elective surgery waiting lists at end of each quarter, Australian Capital Territory, 2012¹²

	31 DEC 2011	31 MAR 2012	30 JUN 2012	30 SEP 2012	31 DEC 2012
Category 1 (within 30 days)	2	0	0	0	0
Category 2 (within 90 days)	109	41	22	5	0
Category 3 (within 365 days)	20	9	0	0	0

Table 3: Number of longest wait overdue patients at 31 December 2011 remaining on elective surgery waiting lists at end of each quarter, Tasmania, 2012¹²

	31 DEC 2011	31 MAR 2012	30 JUN 2012	30 SEP 2012	31 DEC 2012
Category 1 (within 30 days)	17	6	2	1	0
Category 2 (within 90 days)	252	179	124	97	57
Category 3 (within 365 days)	105	101	100	99	98

maximum time a patient should be expected to wait. There is publicly available data on how many occasions the triage targets for surgery are not met, [12] and the following tables (2 and 3) are example states from the Australian Capital Territory (Table 2) and Tasmania (Table 3). However these waiting times only refer to W3 and do not capture the time periods of W1 and W2.

It has been reported that many patients only seek surgical treatment when symptoms have reached 'breaking point', where non-surgical treatments and self-care behaviours fail to adequately manage escalating pain and deteriorating physical function. [25] For public patients waiting for elective surgery, there are broad urgency categories [40] (see Table 1). The determination of 'urgency' is made by the treating specialist, and rarely is the patient involved in this determination. The research into patient perspectives suggests that pain, dysfunction and disability should be criteria in determining urgency status, as opposed to the current definition, which states that the likelihood of the condition becoming a medical emergency is a more important factor in urgency. This highlights an important tension between patient and health provider perspectives on urgency.

In 2012, the Australian Institute of Health and Welfare devised a panel of experts to review the waiting list urgency categories, as there was document disparity across different clinicians and healthcare facilities. [40] This panel expressed concerns regarding the potential for inconsistency in assigning accurate categories, in view of clinician variation,

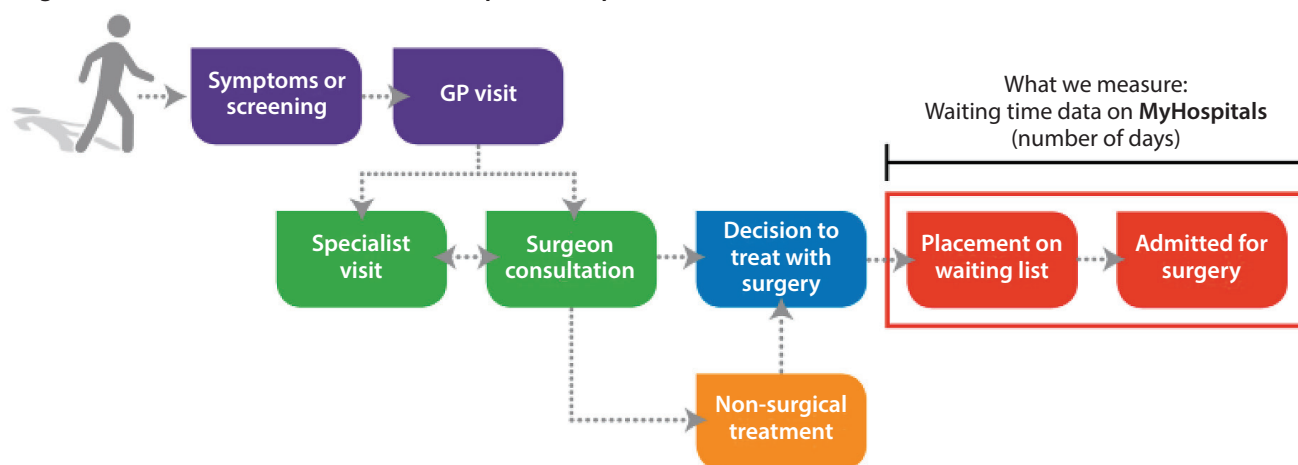
the relationship between clinician and patient, and the markers presented by patients as being their priority health concerns. This inconsistency is supported in the peer-reviewed literature. A number of tools have been developed in an attempt to assist with prioritisation, including the Multi-attribute Arthritis Prioritisation Tool (MAPT), the Clinical Priority Assessment Criteria and Kellgren-Lawrence radiographic grade of arthritis. These tools have only been demonstrated to be accurate in small subsets of people and as yet there are no clearly defined criteria of suitable candidates for joint replacement. [41-43]

Orthopaedic care

Traditionally, patients presented to their GP with an orthopaedic complaint. Following an assessment and/or a period of treatment and/or investigation, the GP made a judgement that the patient required a referral to an orthopaedic specialist for consideration of surgical treatment options. This referral was usually sent to the tertiary hospital closest to the patient's residence and was processed accordingly. In due course, which historically was a lengthy period of time [5,7,8,44] the patient received an appointment with an orthopaedic specialist (See Figure 2).

Over the last two decades, the volume of patients referred through this pathway has increased exponentially, [46,47] placing increasing strain on the public health outpatient system. Health departments and hospitals particularly in the United Kingdom and in Australia have been exploring alternative workforce and service delivery models of care to meet the increasing need for health services for patients

Figure 2: Traditional model of care in orthopaedic outpatients [45]



with chronic orthopaedic/musculoskeletal complaints. [6,44,46,48,49] This includes new pathways of care and changes in the traditional models of care within the health workforce in an attempt to reduce time on waiting lists and streamline specialist care. [5,46]

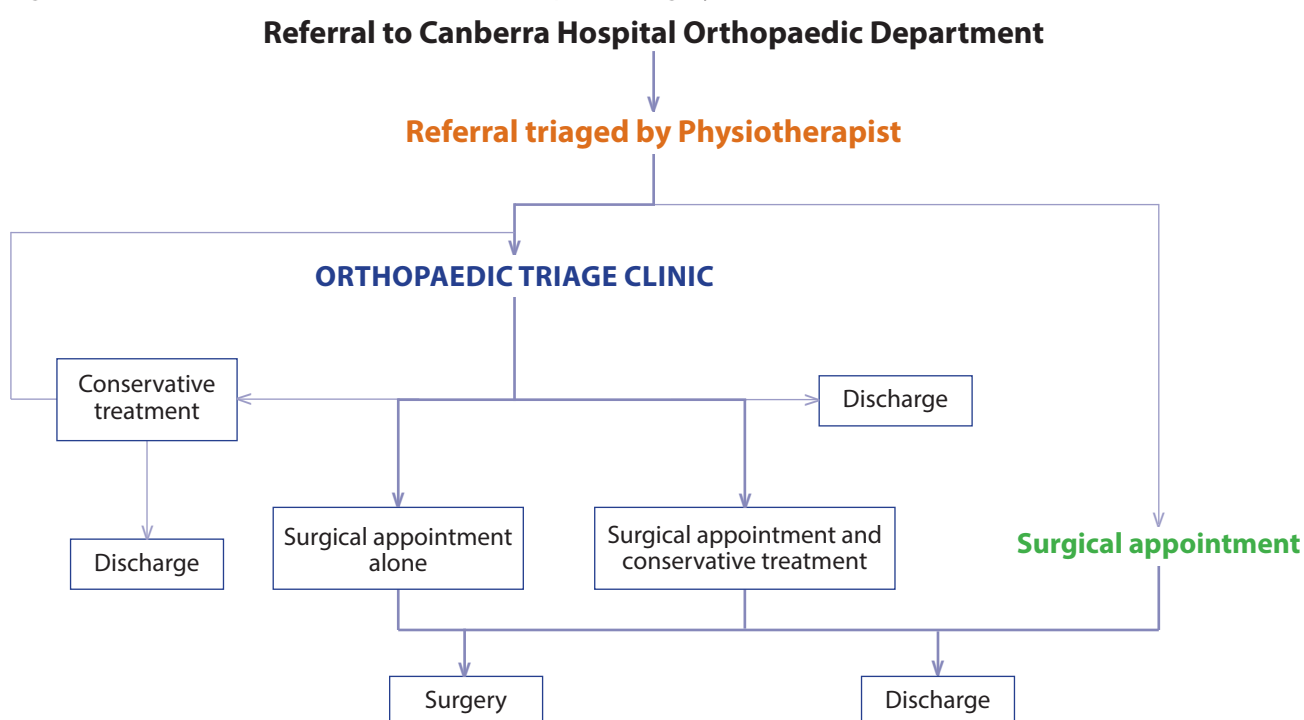
The Canberra Hospital: The Canberra Hospital (TCH) is one of a number of tertiary hospitals across Australia, the United Kingdom, America and parts of Europe that has adopted new models of care for patients referred for an orthopaedic specialist opinion (see Figure 3). TCH is the regional trauma centre for the Australian Capital Territory and provides trauma services to New South Wales residents in the greater

southern region of NSW Health. The catchment population for TCH is 500,000 people and is the only public referral point for orthopaedic outpatients in the region.

The definition of waiting at TCH refers specifically to elective surgery:

Waiting time is the amount of time (reported in days, weeks or months) that a patient has waited for admission to hospital. It is measured from the day the hospital received the 'Request for Admission' form for the patient until the patient is admitted for surgery. (ACT Health) [50, para 8]

Figure 3: TCH new model of care for elective orthopaedic surgery



Evaluation of the TCH initiative [6] demonstrates that the triage process significantly reduces time waiting for an appointment and that patients are highly satisfied with the service. Since the introduction of the orthopaedic triage clinics at TCH in 2010, there has been a significant increase in the referral rate to the orthopaedic department (estimated to have tripled since the introduction of the triage clinics). There is little known about the drivers for referral to the orthopaedic department and there is anecdotal evidence that the majority of patients have experienced a lengthy wait, with varying input during that wait (W1), from no input to extensive medication, investigations and conservative treatment. In some instances this is dependent on the patient's ability to access private care.

Conclusion

The number of people waiting for treatment, and the potentially detrimental effects that 'waiting' produces pose significant and potentially increasing problems for the health system, patients and family, and society. No matter which way 'waiting' is defined and categorised, the drivers behind seeking care, and at what point patients will seek care, remain unclear and this therefore makes solving the problem of waiting inherently more complex. Which patients, with what conditions, will seek what treatment and from whom and at what cost are all factors that remain uncertain.

While some features of 'waiting' are potentially modifiable by technology internet/education/social/community services, the continuum of care in patient-centred care needs to address delays. System responses to the delays would have a good and consistent definition of delay and a systematic collection of associated data.

Future research should be conceptualised to collect specific data on waiting, for instance change in health outcomes, costs incurred and delays, from the onset of the symptoms triggering the needs, to the encounter with, and treatment by, a healthcare provider.

Moreover, data should be collected from clinicians who determine the waiting list classification as to how and why they have determined this level of waiting, and from patients regarding their perspectives of their problem, and how they view being placed on the waiting list. This may produce a more comprehensive understanding of the consequence of delaying care on the patient, the healthcare system and society, and it will assist in the design of interventions that are appropriate to address delays, decrease ramifications of waiting, and increase the health of the population.

Competing interests

The authors declare that they have no competing interests

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The Cost of Waiting on an Orthopaedic Waiting List: a scoping review

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Abstract

Background: Approximately 30% Australians suffer from arthritis and other musculoskeletal disorders. From 2003-2033 there is a predicted 223% increase in expenditure on health management of musculoskeletal disorders. There is evidence of increasing prevalence of orthopaedic complaints, in longer waiting lists for specialist consultations in public hospital outpatient clinics. Little is known about the costs and ramifications of waiting for orthopaedic consultations.

Aim: Establish what is known about the direct and indirect costs of being placed on a waiting list for an orthopaedic consultation.

Method: Patient and Outcome search strategy of Medline, Embase, Pubmed, NHS Economic evaluation database (NHS-EED) from each database inception date. Handsearching of reference lists of included papers also occurred. A realist synthesis framework underpinned the review, using a ubiquitous patient journey to map available literature on the impact of waiting. Hierarchy of evidence was reported using NHMRC criteria and articles critically appraised using either the PEDRo or CASP criteria (relevant to the design). A purpose-built data extraction instrument was developed.

Results: We identified 786 studies, of which 139 were relevant, including a systematic review (Hoozeboom et al) with 15 included articles which were added to the list of eligible papers (and the review itself deleted), leaving 153 included articles; 17 were relevant to the review. Fourteen papers reported on quality of life and four reported on costs, two of these papers reported on both and all were of low to moderate quality. The research was not based on a comprehensive understanding of the stages of waiting, and there were inconclusive outcomes for quality of life and cost.

Conclusion: There is scant evidence of the impact on quality of life and costs of waiting for orthopaedic outpatient appointments. Future research should aim for improved methodological quality and use patient-focused quality of life measures, and validated measures of cost.

Abbreviations: NHMRC – National Health and Medical Research Council; PROMS – Patient Related Outcome Measures; QoL – Quality of Life; WOMAC – Western Ontario and McMaster Universities Osteoarthritis Index; YLD – Years Lived With Disability.

Key words: Orthopaedics; waiting list; costs; scoping review.

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Introduction

In May 2015, the Australian Institute of Health and Welfare (AIHW) reported that 28% of Australians (approximately 6.1 million people), suffered from arthritis and other similar degenerative musculoskeletal disorders. [1] Moreover, musculoskeletal disorders were identified in 2010 as contributing 21.3% to worldwide years lived with disability (YLDs), this being second only to mental and emotional disorders. [2] Hip and knee osteoarthritis alone are reported to be the 11th highest contributor to global disability. [3] Gross explored predicted healthcare expenditure in Australia from 2003 to 2033, by disease. He documented a 223% anticipated increase in healthcare expenditure for musculoskeletal disorders, citing an ageing population and an increase in the incidence of disease as key drivers for escalating costs. [4] The increasing prevalence of orthopaedic conditions has been noted since as escalating use of hospital outpatient orthopaedic services, [5] particularly noticeable for individuals who require public health system management. [6,7,8,9] One way of managing the increasing volume of individuals requiring orthopaedic consultations in the public sector is to place them on waiting lists. In Australia there are two avenues for accessing healthcare, including orthopaedic care, via the public health system or through private health facilities. The public health system in relation to specialist orthopaedic care is fully funded through the Medicare system, therefore the patient is not required to pay anything for this care, including appointments and subsequent treatment (including surgery) and investigations. The public health facilities are managed at state level and therefore there state-by-state variations in process, procedures and definitions are inevitable.

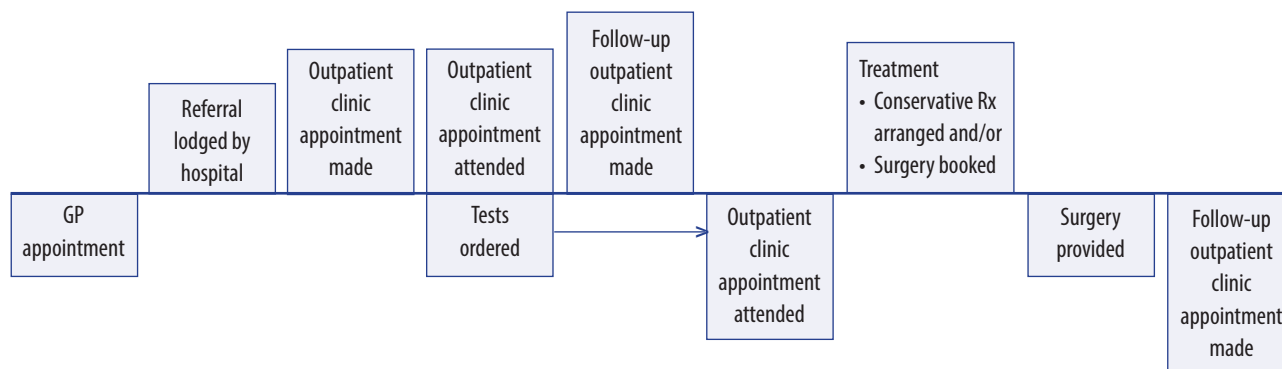
The private health system can be accessed in two ways: the patient can fully fund all aspects of care or if they have private health insurance they can seek reimbursement through their private fund. Invariably in private healthcare the patient is subject to out of pocket expenses regardless of their level of cover.

There is consistent evidence of increasing numbers of people on public hospital waiting lists for orthopaedic consultations, and lengthening waiting periods for orthopaedic/musculoskeletal surgery. [10,11,12] Outpatients can wait for months from first being placed on the hospital waiting list, to having their first orthopaedic consultation, and there is usually additional waiting time following that, for treatment to be provided. For some patients, the time delay between initial consultation and treatment could be

12 or more months. [13] There is also increasing evidence that whilst waiting, patients incur significant out-of-pocket costs for formal or informal care, in order to manage their condition. [5] These costs are direct and indirect. Direct costs could include medication, GP appointments, accessing further tests, travel to appointments, loss of wages, allied health visits, formal care and home adaptations, whilst indirect costs may be in the form of lost time at work or informal care arrangements. [14,5] There are also potential societal impacts, in the form of use of government funded care (residential or home-based care), loss of tax revenue, social support and hospitalisation. [5] In addition to the economic burden of waiting there is the potential for health deterioration, altered capacity to perform usual activities of daily living, and reduced capacity to be productive at home and/or in society. [15,16] Deterioration in health state associated with musculoskeletal disease is considered to impact on many facets of well-being, general health, physical, social and mental health, and as such, produces barriers to participation in daily activities. [5]

Health departments and public hospitals particularly in the United Kingdom and in Australia have been exploring alternative workforce models of care to meet the increasing need for health services for patients with chronic orthopaedic/musculoskeletal complaints. [17,18,8,19,11,20] This includes new pathways of care and changes in the traditional models of care within the health workforce. [7,21] A common alternative model of care is senior allied health professionals performing roles traditionally undertaken by specialist medical practitioners, for example a specialist physiotherapist assessing, diagnosing and managing patients referred to an orthopaedic consultant. The purpose of these initiatives is to streamline and optimise use of expensive medical consultant time, minimise time 'wasted' on waiting lists, and provide alternative earlier care options for patients instead of simply 'waiting'. [7,8]

Patients attending outpatient orthopaedic clinics are usually referred by general medical practitioners, or from other outpatient clinics. Within Australia, public hospital orthopaedic specialist consultation is often the preferred pathway to care, particularly when patients do not have private health insurance. Most public hospital orthopaedic waiting lists reflect a range of orthopaedic conditions affecting lower and upper limb joints, and the spine. [20] Increasing numbers of patients on orthopaedic outpatient waiting lists mean longer wait time for most people, [11] and potentially greater costs.

Figure 1. Realist synthesis framework of ubiquitous patient journey

This paper reports on a systematic scoping review of the literature undertaken with the aim of identifying what has been written about the costs of waiting (both direct and indirect) and the ramifications of waiting on quality of life (QoL).

Methods

Study design: A systematic scoping review of the international peer-reviewed literature was undertaken to identify the amount and type of research published in this area, and provide the first known evidence scan of what has been published to date on the cost and quality of life impact of waiting for an orthopaedic consultation.

Review registration: This review was registered with PROSPERO (CRD42016047332). PROSPERO is an international database used to register systematic reviews prior to the review being commenced. The purpose of PROSPERO is to provide a comprehensive list of systematic reviews in which the key characteristics of the review are permanently recorded to avoid repetition and reporting bias.

Reporting standard: This review was reported in line with the Joanna Briggs Institute methodology for scoping reviews. [22] This provides a rigorous framework in the planning, development, study selection, collation of results and reporting to ensure that the most information is gleaned from the search and reported in a systematic, reproducible way.

Review purpose: The purpose of this review was to systematically identify and classify all freely available, relevant peer-reviewed literature which reported on the impact of waiting for consultation/treatment for patients with an orthopaedic/musculoskeletal complaint.

Framework of the review: We undertook this review within the context of a usual patient journey through the outpatient orthopaedic consultation process. This framework was based on a Realist Synthesis approach [23] which assists

systematic review findings to be mapped for complex situations. Defining a waiting list is one such complex situation. To establish the realist synthesis framework, we undertook an informal overview of the literature about the orthopaedic outpatient journey, and found that there is a growing body of literature over the last decade on waiting list management. We constructed a map of the literature which reports on aspects of patient journeys (entering, being on, and leaving, an orthopedic outpatient waiting list). We proposed a ubiquitous patient journey (Figure 1) which outlines our understanding of the stages of waiting. This journey was used as an aid to describing the relevance of the literature identified in this review, to aspects of the journey.

Search strategy: The search was conducted in March 2016 and updated in September 2016. A PO search strategy (Participants, Outcomes) was applied to identify relevant articles. Library databases of Medline, Embase, Pubmed, and NHS Economic evaluation database (NHS-EED) were

Table 1: Search terms

P	Orthopedics/musculoskeletal/orthop?edic*
I	Outpatient*/Ambulatory Care/clinic visit* Surgery/ treatment AND Waiting Lists/or wait*
C	Not relevant
O	cost*/Cost Control/Cost Sharing/ Cost-Benefit Analysis/Cost Savings/ Cost of Illness/ Cost Analysis Quality of life/function* status/ productivity/ work/sick leave
S	No restriction on the study design
Exclusions	Inpatients, not Orthopaedic/musculoskeletal patients, paediatric Conference papers and abstract only

searched, from each database inception date. Broad search terms and inclusion criteria were applied in an attempt to identify all relevant papers related patients with an orthopaedic/musculoskeletal complaint waiting for specialist consultation/treatment. MESH headings or Boolean operators were used with the search terms, relevant to the database being searched. The search terms are outlined in Table 1.

Additional searching: The reference lists of the papers identified through the database searches were hand-searched to identify additional papers which were relevant, but which had not been identified from the literature search.

Population: Adult patients (18 years and over) with an orthopaedic and/or musculoskeletal complaint for which they had been referred to an outpatient clinic for specialist consultation/ treatment. No limitations were applied in terms of diagnostic categories.

Outcomes: Impact of waiting was explored in terms of cost, such as a costbenefit analysis, to the patient (in terms of productivity, loss time from work, direct health costs incurred), healthcare providers (visits to GPs, hospitalisations, community care) and society (loss of tax revenue) and the impact on the patient's quality of life, function and social integration.

Study identification: The titles and abstracts of each potentially relevant paper were screened by two researchers (JM, AT) for relevance to the study purpose. In the case of dispute, a third author (KG) arbitrated.

Eligible studies: Studies of any hierarchy of evidence were considered for inclusion as long as they met the P and O criteria, and were in English language. Thus studies were included if they explored any impact of waiting for orthopaedic/musculoskeletal consultation and/or treatment for adults.

Exclusion criteria: Articles were excluded if they did not report on the impact of waiting for management of an orthopaedic/musculoskeletal complaint by a specialist, if they described children (younger than 18 years), if they did not report on quality of life and/or cost impacts, were not available in full text, and were not in English.

Hierarchy of evidence: Hierarchy of evidence was reported using National Health and Medical Research Council (NHMRC) criteria relevant to the study question. [24] This provides a comprehensive and structure way of grading evidence according to the research design. We anticipated that most studies would be classified using the aetiology

hierarchy, as they would be largely observational (what happened as a result of waiting). The NHMRC evidence hierarchy is subdivided into five areas that mean the grading system is adaptable to different research questions, aetiology hierarchy refers to studies that explore causation of diseases or conditions.

Critical appraisal: This was undertaken by two independent reviewers using the relevant appraisal tool. Any level II studies were critically appraised with Physiotherapy Evidence Database [25] criteria, and the Level III-3 and IV studies were critically appraised with the Critical Appraisal Skills Program (CASP). [26] Critical appraisal scores were compared, and disagreements discussed and resolved.

Data extraction: Data was extracted by two reviewers working together (JM, AT). Data was extracted into a custom-built MS Excel sheet to allow for easy comparison between the outcomes from the extracted studies. Extracted data included country of research, patient demographics, health condition, study design, waiting list description, where in the patient journey the research was conducted (see Figure 1), measures of quality of life or cost. Cost data was further reported as types of cost.

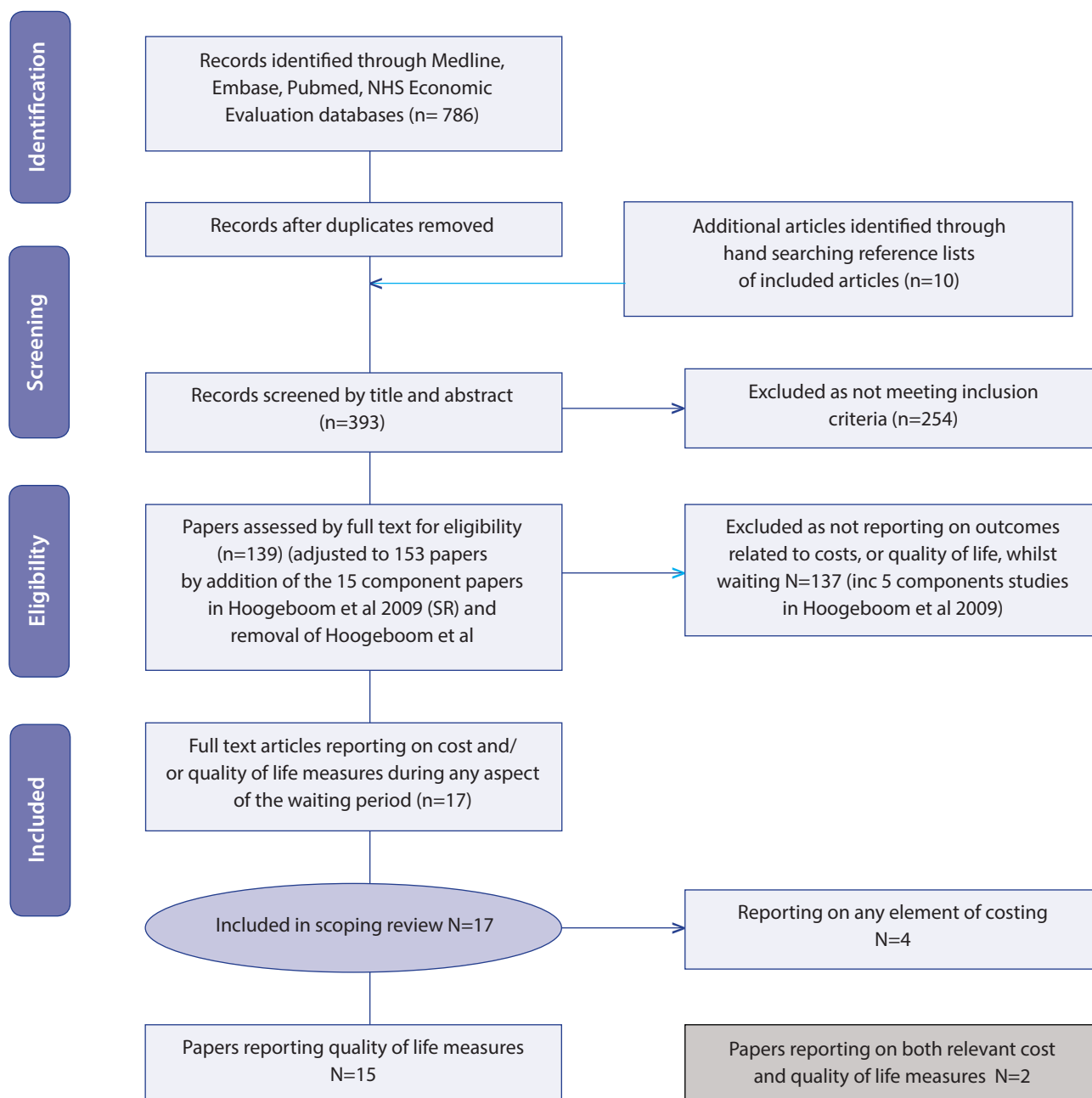
Results

The search identified 786 potentially eligible studies (see Figure 2). There were 393 duplicates, and another 254 articles were removed, after considering title and abstract, as not meeting the inclusion criteria. This left 139 potentially relevant articles.

Handsearching: Included in these potentially relevant articles was a systematic review [27] which summarised 15 primary articles. After debate, it was decided that, as aims of our review differed from the Hoozeboom et al aims, we should consider the 15 individual papers in the Hoozeboom review, rather than the review itself. [27] No other relevant references were identified from handsearching the remaining included papers' reference lists.

Search results: The search output was adjusted from 139 potentially relevant papers (including Hoozeboom et al) to 138 papers (excluding the Hoozeboom review) plus the 15 component papers from the Hoozeboom et al review, giving 153 potentially relevant papers. Using the Pawson realist synthesis framework (Figure 1) to map the reported outcomes from the potentially relevant papers identified 17 papers which met the review's inclusion criteria (excluding 135).

Figure 2:



- There were two included papers which reported on both costs and quality of life; March et al; Fielden et al. [28,29]
- The 13 included papers that reported only on quality of life measures included Ackerman et al; Ahmas and Konduru; Chakravarty et al; Desmeules et al; Desmeules et al; Hirvonen et al; Kapstad et al; Kelly et al; McHugh et al; Nilsson and Lohmander; Nunez et al; Ostendorf et al; Pace et al. [31-41,16]
- The two included papers that reported only on costs comprised Rolfson et al and Tuominen et al. [14,42]

Hierarchy and quality of evidence: The included studies when graded according to the NHMRC hierarchy of evidence, demonstrated that the research in this area is generally low-level aetiology studies, and III-3 uncontrolled prospective studies (see Table 2) and therefore of relatively low quality. Table 2 also reports critical appraisal scores.

Data descriptions

Countries where research was conducted: The studies were from a wide range of developed world countries (Canada, Finland, Australia, Holland, Spain, New Zealand, Sweden, Norway and the United Kingdom). None came

Table 2: Aetiology hierarchy

QUALITY OF LIFE PAPERS	NHMRC	CRITICAL APPRAISAL – CASP COHORT TOOL	PEDRO
Desmeules et al 2010a	III-3	12/14	N/A
Desmeules et al 2010b	III-3	12/14	N/A
Hirvonen et al 2009	II	N/A	8/11
Ackerman et al 2011	III-3	12/14	N/A
Ostendorf et al 2004	III-3	11/14	N/A
Fielden et al 2005	III-3	9/14	N/A
Nunez et al 2006	III	N/A	7/11
March et al 2002	III-3	9/14	N/A
Ahmas & Konduru 2007	III-3	6/14	N/A
Chakravarty et al 2005	IV	9/14	N/A
Kapstad et al 2007	III-3	11/14	N/A
Kelly et al 2001	III-3	13/14	N/A
McHugh et al 2007	III-3	13/14	N/A
Nilsdotter & Lohmander 2002	III-3	11/14	N/A
Pace et al 2006	III-3	12/14	N/A
COST PAPERS		CRITICAL APPRAISAL – CASP ECONOMIC TOOL	PEDRO
Tuominen et al 2009	II	N/A	8/11
March et al 2002	III-3	9/14	N/A
Fielden et al 2005	III-3	9/14	N/A
Rolfson et al 2012	III	9/14	N/A

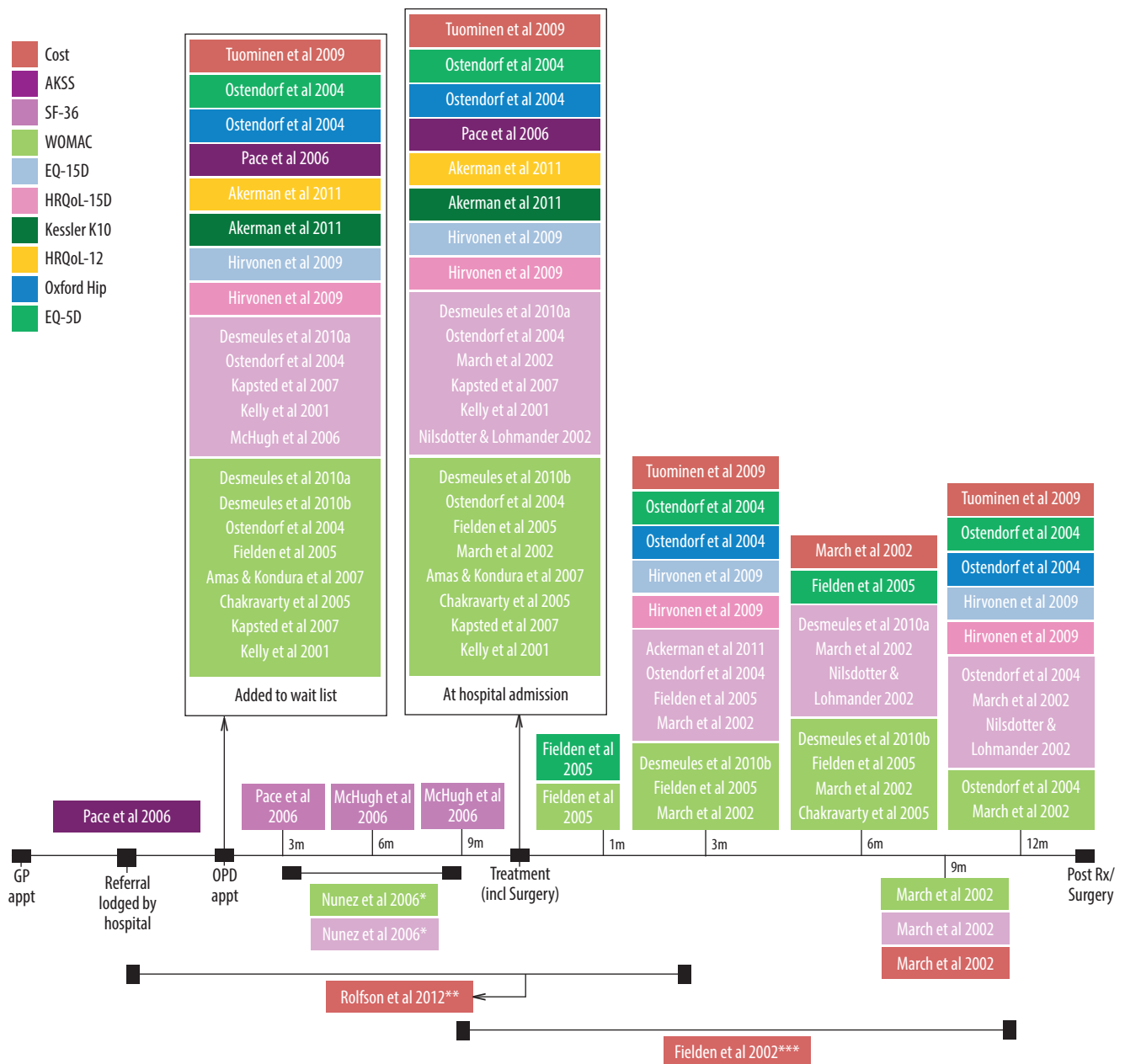
from developing countries. Whilst all countries in the studies have established healthcare systems, there were significant differences between them in terms of how healthcare was delivered. This constrained comparison of findings.

Study periods: There was wide variability in the periods of research, the majority reported a 12-18 month recruitment of patients, whilst some recruited for over three years. Mapping the data against the realist synthesis ubiquitous patient journey (outlined Figure 1), there was a lack of consistency in the period of time over which data was collected making comparison of findings difficult. Figure 3

outlines the included papers against the realist synthesis patient journey.

Musculoskeletal conditions: The included studies reported only on patients with osteoarthritis of the hip or knee, in particular there is a significant emphasis on patients awaiting total hip and knee replacements, and the period following surgery. In terms of the patients included in the reported studies, one striking issue is the lack of standardised measures used to add patients to the surgical waiting list. Only two papers [38,39] described a standardised grading system for severity of joint disease, one using the

Figure 3: Papers across the spectrum of waiting



Kellgren-Lawrence grading system [43,44] and the other the Osteoarthritis Research Society International criteria whilst the remaining papers only reported that the patients had severe enough arthritis to warrant a joint replacement.

Waiting times: This was described variably, particularly what was considered to be long, medium and short term waiting periods and at what time points in the waiting period the measures are taken. Again the realist synthesis framework outlined in Figure 1 assisted in the comparison between studies. Fifteen papers explored the impact of the pre-operative waiting period on the outcome of surgery in some cases up to twelve months post-surgery. Only two

papers [14,41] reported on the waiting period from point of GP referral into the specialist service. For the remaining papers, the start of the waiting period was deemed to be at the point the patient was placed on a surgical waiting list for a total hip or total knee replacement, depending on the study. See Figure 3.

Quality of life: Table 3 reports of the different quality of life measures reported in the included papers. The most commonly reported outcome measures were Short Form (36) Health Survey (SF-36) [45] and the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). [46] There were inconsistent findings about the impact of

Table 3: Quality of life outcome measures reported

	QUALITY OF LIFE STUDIES	COUNTRY	YEAR	BODY PART	SF36	WOMAC	WOMAC OF CONTRALATERAL KNEE	EQ-15 D	MODIFIED HARRIS HIP SCORE	OXFORD HIP SCORE	KESSLER PSYCHOLOGICAL DISTRESS SCALE	HRQOL ITEM INSTRUMENTS	EQ-5 D	AMERICAN KNEE SOCIETY SCALE
1	Desmeules et al 2010a	Canada	2006-7	Knee	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗
2	Desmeules et al 2010b	Canada	2006-7	Knee	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗
3	Hirvonen et al 2009	Finland	2002-3	Hip	✗	✗	✗	✓	✓	✗	✗	✗	✗	✗
4	Ackerman et al 2011	Australia	2002-5	Hip & knee	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗
5	Ostendorf et al 2004	Holland	Apr 1997- Sept 2000	Hip awaiting THR	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗
6	Nunez et al 2006 Spain	Spain	Feb-Oct 2001	Knee awaiting TKR	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗
7	Fielden et al 2005	New Zealand	Apr 1997- Mar 2002	Hip awaiting THR	✗	✓	✗	✗	✗	✗	✗	✗	✓	✗
8	March et al 2002	Australia	1994-95	Hip & knee	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗
9	Ahmad & Konduru	UK	June 2003- Dec 2004	Knee	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗
10	Chakravarty et al 2005	UK	Unknown	Hip	✗	✓	✗	✗	✗	✗	✗	✗	✗	✗
11	Kapstad et al 2007	Norway	June 2003- June 2004	Hip & Knee	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗
12	Kelly et al 2001	Canada	Dec 1995- Jan 1997	Hip & Knee	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗
13	McHugh et al 2006	UK	May-Nov 2003	Hip & Knee	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
14	Nilsdotter & Lohmander 2002	Sweden	Feb 1997- Oct 1998	Hip & Knee	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
15	Pace et al 2005	UK	Jan 2000- May 2003	Knee	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

waiting on QoL. Two studies reported that some patients have improvements in their symptoms whilst waiting for surgery, [30,32] whilst four studies reported no change for some patients [36,32,35,38] whilst five studies reported worsening QoL. [16,33,30,37,41]

What is also unclear is which patients are likely to deteriorate and which are likely to stay the same or improve. Knapstad et al reported deterioration in stiffness and physical function in those patients awaiting a total knee replacement, in their study patients who were married/cohabiting demonstrated greater deterioration than those who were single/widowed,

no other predisposing factors for deterioration could be established. [35] There is some evidence [31,32] that younger patients will deteriorate faster than older patients. There was also evidence to suggest that the length of wait pre-operatively negatively impacts on recovery operatively in terms of pain, function and QoL. [16,33]

Cost information: Table 4 reports the cost information recorded in the included papers reported under the broad categories of healthcare costs, community costs, informal care costs and society costs.

Table 4: Cost parameters reported

	PAPER	COUNTRY	YEAR	BODY PART	HEALTHCARE COSTS				COMMUNITY COSTS			PERSONAL EXPENSES/ INFORMAL CARE		PRODUCTIVITY LOSS	
					PHARMA-CEUTICAL	HEALTH-CARE	TESTS	HOSPITAL CARE	TRANSPORT &	HOME HELP	HOME MODIFICATIONS				
1	Fielden et al 2005	New Zealand	Apr 1999-Mar 2002	Hip waiting THR	✓	✗	✗	✗	✗	✗	✗	Private expense paid for medical care (user charges, privately funded care, travel costs and paid help)			Time away from work or casual activity
2	Rolfson	Sweden	Oct 2005-	Hip	✓	GP visit physiotherapy	✗	Hospital in ward care	Transport for disabled	✓	✓	Value of lost leisure by caregivers	Value of time away from work by caregivers	Disability pension	Sick leave
3	Tuominen et al 2009	Finland	Aug 2002-Nov 2003	Hip	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
4	March et al 2011	Australia	1994-99	Hip & knee	✓ Prescribed and non-prescribed	Health profession at visits	✓	Hospitalisation	Community services	✗	✗	Private services	✗	✗	✗

Discussion

This paper presents the first known synthesis of information on the impact of waiting for orthopaedic care for musculoskeletal complaints, in terms of costs and quality of life. This review found a moderate amount of relevant literature (17 studies), reported mostly in prospective observational or descriptive studies, of low to moderate quality. There was interest from the developed world in assessing the impact of waiting, as evidenced by research produced in nine countries. This scoping review found little information on the impact of waiting that could assist in understanding how waiting on an outpatient orthopaedic waiting list impacted on the health system, the individual or society. The papers included in the review reported heterogeneous information on the patient journey, the costs measured whilst waiting and QoL of patients whilst waiting.

Orthopaedic conditions: The literature focused entirely on osteoarthritic hips and knees, and all studies were about patients waiting for surgery. The focus on hips and knees possibly reflects the high prevalence of these conditions on public hospital waiting lists, the high cost of these joint replacements, the high prevalence of these conditions in the sociodemographics of people who require the public hospital system, and the orientation that this places on current research. [1,4,5] Thus there are many gaps in current knowledge regarding the impacts of waiting for individuals suffering other orthopaedic/musculoskeletal complaints.

Realist synthesis approach: The Realist Synthesis approach [23] was helpful in assisting us to understand just where in the patient journey, the included research focused. Without this approach, it would have been more difficult to scope the research findings. A key finding from investigating QoL in this scoping review was that all but one paper (with the exception of Pace et al [41]) was focused on one time period in the patient journey, that being from the point of being placed on a surgical waiting list to varying points postoperatively (one, three, six and twelve months following surgery) (See Figure 3). This constrained a useful synthesis of information on impact of waiting, and highlighted the need for greater understanding of the stages of waiting before further research is undertaken. If the most costly or impactful stages of waiting can be identified, interventions to avert long waiting times in these priority stages of the patient journey can be developed and tested.

Alternative models of care: This body of literature did not inform current thinking about substitution of care (such as extended scope practice, or alternative treatment options (such as conservative care). Whilst there is some evidence that these alternative models of care reduce waiting times and are satisfactory to patients, [8,47,48] what is unclear is how effective they are in terms of impact on quality of life and cost parameters.

Quality of life: 80% articles included in this review reported on QoL. The findings were inconclusive regarding changes in QoL whilst outpatients waited for an orthopaedic

appointment, or for treatment. QoL can be used as a point in time measure, or an over-time measure. [49] Therefore the ability to track change in QoL over time is an important function of any QoL outcome instrument employed in waiting list research. The two QoL measures reported in this review were WOMAC and SF36.

- The WOMAC is disease specific, and is one of the most commonly-used outcome measures in arthritis research, particularly for osteoarthritis of the hip and knee. [46] WOMAC is a self-reported instrument with five items for scoring pain, two for stiffness and 17 for functional limitation. Functional tasks include stair use, standing up from sitting, getting in and out of the car, shopping, putting on and taking off socks, bending and walking. WOMAC has been widely translated and validated in other languages, although mainly for hip and knee arthritis. [50] Whilst WOMAC has been tested for conditions other than OA hip and knee, this is less common and therefore less is known about its validity for other musculoskeletal conditions. [50] The WOMAC instrument has been shown to be less sensitive to detecting change over time in some intervention-based studies. [51,52,53,54] It is proposed that the rigid nature of the questions may impact on sensitivity to change, particularly when compared with more open-ended measures. [51]
- The SF36 is a broad QoL measure, estimating health status in domains of vitality, physical functioning, bodily pain, general health perceptions, physical role functioning, emotional role functioning, social function and mental health. [45] It has been widely used in research internationally, on many different health conditions to evaluate individual patient's health status and compare this to population norms, research the cost-effectiveness of treatments, and monitor and compare disease burdens. However Kean et al observed that it may not be sufficiently sensitive to change and thus its validity for use in research into the impact of waiting is questionable. [55]

To better understand the subtleties of the impact of waiting on an individual's QoL, it may require engagement with the notion of Patient Related Outcome Measures (PROMs). [56,57] To date, PROMs have been used to assess effectiveness of care. Safety and patient experience (such as shared decision-making, dignity, respect, comprehensive communication) have been less well explored. [57,58] These outcome elements may well reflect the subtleties of impact of waiting on QoL and thus there appears to be

room for sophisticated patient-directed outcome measures to be developed that capture individual patient experiences whilst waiting for orthopaedic care.

Costs: There was a small body of literature (four studies only) which reported on costs. Measures of cost included health, community, personal and societal costs, and productivity. Costs were measured in a variety of ways including cost diary, retrospective reflections of costs incurred whilst waiting, and purpose-built questionnaires. None of the studies used independent validation of these costs, for example there was no formal comparison with pharmacy receipts or with Medicare data sets. Only one paper reported sufficient data to inform an economic analysis of costs and benefits. [14] It was therefore not possible to synthesise the information on costs whilst waiting, and thus this scoping review highlighted this as a significant area for further research.

Conclusion

This scoping review highlighted scant and inconsistent evidence regarding the impact of waiting on cost and QoL measures, for an orthopaedic outpatient appointment. The information that is available comes from a limited patient group (hip and knee osteoarthritis). There was little evidence of the impact of waiting across the continuum of the waiting period, as studies focused on sections of the patient journey. There was no clarity regarding how the waiting time in a patient's journey could be considered, and the bulk of the literature focused on the time from when the patient is placed on the waiting list for hip or knee replacement surgery to the point of surgical intervention and subsequent rehabilitation. This means that little is currently known what went before the decision-making about the need for surgery. This review highlighted that there is little known about other types of patients referred for surgical consultation whose ultimate management is not surgery, or who proceed to surgery for a condition other than osteoarthritis of the hip or knee. Further research is required, using sensitive and defensible measures of QoL, and costs, before an understanding of the impact of waiting occurs, and before health systems can support healthcare providers to make shared and informed choices with their patients about the best management of orthopaedic complaints.

Future

Areas for improvement in future studies which assess the impact of waiting for specialist orthopaedic opinion are:

- Broadening the focus of research to other types of orthopaedic conditions. At this time the evidence

focuses on patient with hip and knee osteoarthritis that are awaiting surgical intervention. Nothing was found in this review about the impact of waiting for specialist consultation and/or care for patients with other musculoskeletal conditions (e.g. shoulder pain, ankle problems, spinal pain and wrist/hand and elbow problems).

- Improving capture of QoL and cost outcomes. Standard agreement is required regarding the most appropriate and sensitive measures across a broad range of musculoskeletal conditions to capture the impact of waiting.

For QoL, PROMs should be considered, as well as new outcome measures to capture subtle individual concerns, particularly in measuring individual concerns about having to wait for attention for a condition that may be worsening.

For costs, valid measures of productivity costs, opportunity costs, societal costs and healthcare costs incurred by both the patient and the healthcare system are required.

- Increasing understanding of the phases of 'waiting'. Waiting is not simply about the time between the orthopaedic decision and proceeding to surgery. It includes the time between consulting a GP, being placed on an outpatient waiting list, and then waiting for an orthopaedic consultation. In the literature that is available there is a lack of consistency in the measures used to report the impact of waiting, in terms of both cost and health outcomes/QoL. In particular the different time points at which the impact of waiting is measured across the different studies, makes comparing outcomes problematic.

Key findings

Little is known about the impact of waiting for an orthopaedic specialist assessment. What evidence is available is of low hierarchy and low to moderate quality. Standardised measures of QoL and cost are required, as is a better appreciation of the waiting period, and the phases within it.

Competing interests

The authors declare that they have no competing interests.

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Health Workers' Perspectives on Infrastructure to Support Maternal Health Services in Rural Areas of Vietnam

THT Nguyen, A Wilson and F McDonald

Abstract

Background: One common governance issue faced by developing countries is the establishment and maintenance of infrastructure to support the delivery of primary health services. This qualitative study explores the perspective of maternal health workers on how infrastructure impacts the provision of maternity services in rural areas in Vietnam.

Methods: Forty-one health workers and health managers at the commune, district and provincial levels of the Vietnamese public health system were interviewed. Questions focused on the impact of various organisational factors, including the impact of infrastructure on the performance of the health workforce, which provides publicly funded primary care. All interviews were recorded, transcribed and coded for thematic analysis.

Findings: Participants noted that infrastructure directly affected their ability to perform certain tasks and could both directly and indirectly negatively impact their motivation. In general, participants noted a lack

of investment in infrastructure for the provision of primary care services in rural areas. They identified that there were deficits in the availability of utilities and the adequacy of facilities.

Conclusion: This research contributes to understanding the barriers to the provision of primary care in developing countries and in particular. The current inadequacy of facility buildings and inadequacy of clean water supply are issues for health workers in meeting the technical requirements of the standards as set out in the National Guidelines on reproductive health, and lead to safety concerns for the quality of maternal health services provided in commune health centres and District Health Centres.

Abbreviations: CHC – Commune Health Centres; DHC – District Health Centre; HW – Health Worker.

Key words: infrastructure; health workforce; maternal health services; primary healthcare; Vietnam.

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Background

Literature shows consensus that developing countries face governance challenges in delivering health services. A common issue is the quality of infrastructure (facilities and utilities) to support the delivery of primary health services. [1] An increasing number of studies identify issues with health infrastructure as barriers to maternal health service utilisation. For example, a recent study conducted in Cambodia found that lack of ward space allowing women to rest after delivery was the main reason that pregnant women did not use maternal health services. [2] As well as buildings, an unreliable supply of utilities, such as electricity and water, can be limiting factors in delivering quality maternal services. [3, 4]

The health system of Vietnam is organised in four layers that parallel the state administration system. The health sector is led by the ministry of health which is on the top level and the other health bodies are underneath. Four levels of publicly funded health services are provided in Vietnam. Primary care is offered through commune health centres (CHCs) in each commune (sub-district) and district health centres (DHCs) in each district. Secondary hospital services are provided at the district level. Each province is divided into approximately 20 districts. Tertiary level hospital facilities are provided at the provincial or national level. See Figure 1.

Recent Vietnamese reports have suggested that investment in physical facilities, resources and equipment for primary healthcare is a priority. [5,6] Investment in primary healthcare in Vietnam remains limited and not all facilities will meet requirements for infrastructure, including clean water and sanitation. [6] Research has demonstrated that poor infrastructure, including physical facilities and utilities demotivates health providers. [7, 8] This paper assesses the impact of concerns about infrastructure on the motivation

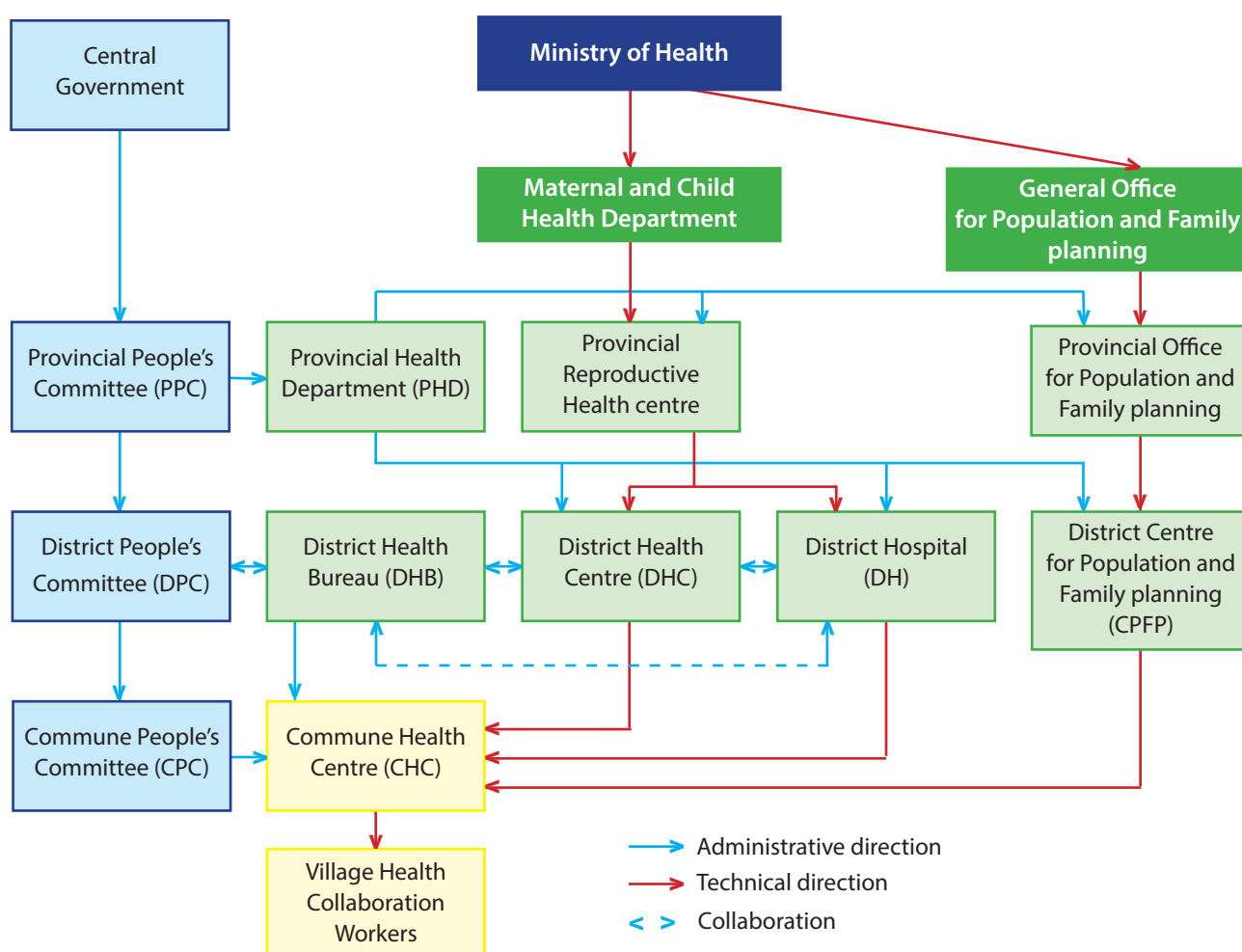
of health workers (HWs) providing primary care services in rural areas in Vietnam. In this paper, maternal health was used as a case study. It is likely that the issues identified in relation to maternal health service delivery will reflect challenges in the broader Vietnamese health system.

Methods

Study design

This study employs qualitative method and data retrieval from local and national health facilities' reports. Participants included 41 HWs and managers from the commune district, and provincial levels. The research focused on five non-urban districts (include two districts in the plain area and others in the mountainous area) from two mountainous provinces in North Vietnam. These provinces are among 15 provinces located in the Northern mountainous area of Vietnam, out of 64 provinces all over the country. The study was part of a larger study examining the governance of maternal health services in rural areas in Vietnam. The data in this was undertaken from January to November 2013.

Figure 1: The organization of health system in Vietnam



Sampling strategy

Purposeful sampling was used to select key informants. [9] Apart from purposeful sampling, the approach also involved the 'snow ball' approach with the number of interviews determined by the point that responses to particular questions are saturated, that is, no new information is being added by Strauss and Corbin. [10] Table 1 describes how respondents of each level and facility were selected. Among 41 selected respondents, 20 people were male.

Informed consent was obtained from all individual participants included in the study. Interviews were conducted in Vietnamese by the principal researcher at the HW's or health manager's place of work in a private space and were audio-recorded. In order to ensure maximum variation, participants were selected in terms of health worker categories, different health facilities and gender. [11] Memos and daily field notes were taken that become a part of developing theory and helped to conceptualise the ideas from grounded data. [12] All interviews were conducted in Vietnamese, recorded then checked for quality.

Data analysis

All interviews were transcribed, coded and analysed using the grounded theory technique with quotations serving as units of analysis. [9] Sources and methods were

triangulated by interviewing HWs and their managers at commune, district, and provincial levels in order to assure the trustworthiness of data. [13] An initial phase of coding on three transcriptions of representative respondents for commune, district and provincial levels were conducted by research team members, using the preliminary coding schedule and also applying grounded theory techniques. [14]

Results

Both HWs and health managers acknowledged the impact of infrastructure concerns on the performance and motivation of HWs. Key themes that emerged from the analysis were concerns about the availability of utilities and the adequacy of facilities.

Availability of utilities

Respondents working in a mountainous area in the study provinces reported that electricity was available at almost all CHCs but often they lacked reliable clean water supply. In some CHCs, HWs had to travel some distance to fetch clean water by hand making it difficult to handle a delivery, which raised safety concerns especially in regard to sanitation.

We have a new building; our CHC was established in 2008 so it is quite new. However, our CHC does not meet the National Standards and Guidelines because

Table 1. Sample frame for qualitative study

RESPONDENTS/HEALTH FACILITY	QUANTITY	BAC GIANG	LAO CAI
Total number of respondents from provincial level	6		
Representative of the HR Department, Provincial Health Department	2	1	1
Representative of the Provincial Reproductive Health centre	4	2	2
Total number of respondents from District level	26		
Hospital Manager	11	6	5
Manager at district health centre	9	5	4
Maternal health worker (obstetric doctor and midwife)	6	3	3
Total number of respondents from commune level	9		
Head of Commune Health Centre	4	2	2
Commune staff	5	3	2
Total number of respondents at district and commune levels		22	19
Total number of respondents:	41		

we are lacking clean water. We have to share one water source through a small pipe with the Commune People's Committee and the local school. If there is a delivery, we have to go to fetch water by hand. If woman's relatives are not here, we obviously have to go to get water.

Commune level_Staff_1

We do not have running water at our CHC. Sometimes we have to catch the rain water for drinking or we have to go the nearest stream that is 1 km away. To be honest, if a pregnant woman comes to give birth, we do not have water for sanitation.

Commune level_Manager_1

Although clean water is a pressing and urgent issue for CHCs in this district, the solution taken by local authorities to address it appeared largely ineffective.

We reported many times, and every year the District People's Committee provides a plastic or rubbery pipe to bring water to CHC. The pipe is normally an average length of 20-30 meters but there are some places that need a couple of hundred of meters of pipe to go across several hills. The plastic pipe over the hills might be ruined due to buffalos and cows left unbridled during harvesting time.

District level_Manager_1

Clean water is very important to perform a normal maternal health service at the CHCs. Infrequent or unreliable supplies of clean water in CHCs in mountainous areas was perceived by participants to have reduced the utilisation of maternal health services as women were reluctant to birth in facilities without water. In addition, clients feel more trust in HWs at the district hospital than at the commune level. The commune health staff recognised the issues, stating, for example:

...patients seek more a trustworthy address. The quality of service in CHC is one of the patients' concerns. Quite few of them bypass to higher levels. In fact, our facility should be upgraded, and health staff should be specialized and appropriately and professionally trained.

Commune level_Manager_3

Only few patients come to use services. HWs found training less meaningful and effective since there would be no chance for them to practise after training. Though the influence of low service utilisation on staff competence was not explicitly expressed, it was considered to affect HWs, and perceived as a barrier to maintaining the skills of staff in these areas.

It affects us. Because we do not have patients, we cannot practice. We will forget our learnt skills.

Commune level_Staff_3

A lack of utilisation, caused in part by poor infrastructure, was reported to contribute to reducing motivation and morale as HWs were unable to practice their skills.

Adequacy of facilities

Lack of a permanent building

After the 2004 reforms, the DHCs were separated from District Hospitals. Despite the fact that this occurred in 2004, ten years later there are still some DHCs that do not have a permanent building. A respondent explained:

Years ago, the district health centre and the district hospital were one. After the separation, the district health centre was not provided with new a building so my RH department still stays with the hospital. After nearly 10 years, now the hospital needs to have more rooms for development, they take these rooms back so we have to ask the nursery school to stay for some months.

District level_Manager_15

She expressed concerns about the DHCs situation as they had been asked to leave the nursery school and had no alternative accommodation:

... But if our voice is heard hopefully they would invest money for building infrastructure for a District Health Centre. Not only this District Health Centre, there are several District Health Centres facing similar situations.

This statement was echoed by other district managers, who complained about the inappropriate building of DHC since it was separated from district hospital.

With the infrastructure being downgraded, there's no place for medical equipment if you want to investment in. However, the centre also tried to invest some of equipment, such as the hematological system and the biochemical laboratory. That also meets 70% of the community's need.

District level_Manager_19

Our place is small, but still better than other centres that are too narrow. I know that one center is borrowing rooms from the district hospital for working, but now the hospital wants to have rooms back, so they have to go somewhere else to work.

District level_Manager_13

This uncertainty affected performance as HWs could not focus and could not provide safe services in buildings that were temporary and not designed for the provision of health services.

Well, working there [in the nursery school] we never can meet standards in service rooms. Because we just stay there for a short time we cannot build more rooms. There should be an investment in infrastructure for preventive medical care once you intend to develop it so that HWs keep their minds on their work. You know, we are always on the move so we cannot assure infection control.

District level_Manager_15

Size of Facilities

While some participants were fairly positive about the functionality of their buildings, most reported or acknowledged inadequacies and suggested that these affected staff morale and motivation and performance.

...the second thing is working conditions. Working in a cramped building, commune health workers always claim that we can easily bump into each other when we enter and go outside. It is so small that we cannot do anything, since even the individual working place is not sufficient, it partly decreases staff morale.

Commune level_Manager_2

The close quarters experienced by HWs affected morale, but also impacted on performance as the space was insufficient to enable HWs to do their jobs effectively. This concern was echoed by a head of an Obstetrics Department who reported it also affected patients:

In fact our hospital infrastructure is very small. Our obstetric department is allocated 25 beds but we do not have enough space. And the staff room, 14 people share only this small room. Please have a look at this room; you can see many clothes and individual property. We keep requesting individual cabinets but do not know where the decision gets stuck so as yet we have not got them. So you see, a dozen staff in this room, so cramped and difficult, and the patient rooms also are not sufficient.

District level_Manager_6

Another district manager was concerned about his centre's infrastructure and described it as a barrier to service provision and development for the centre.

We have only 210 square meters including toilets. We have to arrange three departments in a room so it is very cramped. The working space is so difficult, so we cannot think of the development of technical services. However we are better than some other district health centres that

do not have their own building. So if you want to equip machines you need to have enough space and room, or what can you do?

District level_Manager_13

Old design of CHC buildings

Except for one district that had just invested in rebuilding ten CHCs that complied with the new infrastructure standards for CHCs, many participants in the other districts in both provinces mentioned that older CHC buildings were poorly designed and did not meet current standards.

Our CHC was established in 1997. It was built after the pattern of population centre in the past. It has total of six rooms but all rooms share one door and now has been downgraded. Although it is very small, we must reserve two rooms for patients, one room for maternal services and other room for dispensing medicine and also for staff to stay in during night shifts. The common room outside is used for consulting and examination.

Commune level_Manager_2

CHC buildings were funded from local budgets. Commune People's Committees were responsible for the whole process, including building design. It was reported by participants that many buildings did not meet the National Guidelines for CHCs issued in 2011 [15] in terms of numbers of rooms and the design of service rooms. According to the National Guidelines for reproductive health, each CHC should have six separate rooms (or in some circumstances at least four rooms) for maternal healthcare (gynaecological examination, family planning services, delivery and a patient room). [16] However, most participants from both provinces complained that their CHCs did not meet these standards.

The development of services is not consistent with the National Guidelines since we lack rooms and have limited medical equipment. Our current infrastructure and medical equipment are very poor. We have a limited number of rooms. Our CHC was designed by Commune People's Committee in the past and they did not follow any pattern for CHCs. So the building of the CHC depended on the budget of each commune and also on the person in charge of construction work. But it did not follow any pattern.

Commune level_Manager_3

The shortage of service rooms at CHCs was reported to lead to room sharing in most CHCs and this raised concerns about cross contamination and hence about the safety of clients who come to use services in CHCs. Many maternal health services had to be provided in one shared room.

The delivery attendance, gynaecology examination and family planning services have shared one room for a long time and it caused cross infection from gynaecological patients to women who came to birth or use family planning services. Now we need to separate these rooms.

Commune level_Manager_2, District level_Manager_14

This issue was reported to exist for a long time and explicitly influenced the quality of provided services, the compliance of HWs to the National Guidelines for reproductive health, and therefore the performance of maternal health service providers as well.

It affects us more or less. For example we use one room both for delivery and for gynaecological examination. It involves a sterilisation process. How can we assure infection control?

Commune level_Staff_2

Discussion

These qualitative results were consistent with a recent survey conducted by the Department of Maternal and Child Health, Ministry of Health. [17] On average, each CHC in Vietnam has around nine rooms, in which three rooms are used for maternity health services. Maternity health services are among the most important of primary healthcare services at the commune and district levels, however among the vast majority of CHCs that have rooms set aside for maternal health, the average number of rooms available was only 2.7 (the standard was 4-6 rooms according to the National Guidelines for reproductive health).

Gynecological examination, delivery, and family planning are the three main maternal health services that need to be separated, however according to this report, the proportion of CHCs that have separate rooms for these services is not high, only 37.8%, 34.8% and 19.0% respectively. Only 12.6% of CHCs have four rooms allocated to maternal health services and so comply with minimum standard set out in the National Guidelines for maternal health. The proportion of CHCs that have six rooms dedicated to maternal health is much lower. [17] Given the current inadequacy of both facility buildings and clean water supply, there are likely to be issues for HWs in meeting the technical requirements of the standards as set out in the National Guidelines. This affects staff motivation, since HWs reported feeling unsupported and lacking confidence to perform required tasks. It also leads to safety concerns for patients and is said to influence the quality of maternal health services provided in CHCs and DHCs.

Health facility infrastructure and utility availability are components of working conditions. [18] Herzberg, Mausner and Snyderman [19] suggested that facility infrastructure is what they term a hygiene factor, a factor which by its absence or presence helps determine levels of worker dissatisfaction. The adequacy of infrastructure and the availability of utilities have been identified in previous research as important motivational factors for HWs [7, 20] and in maternal health workers in particular. [21] The World Health Organisation has stated that 'no matter how motivated and skilled health workers are, they cannot do their jobs properly in facilities that lack clean water, adequate lighting, heating, vehicles, drugs, working equipment and other supplies'. [1, p.xxii] The literature suggests that deficits in any components related to working conditions will affect not only the quality of health services [22] but also lead to decreased HW job satisfaction and motivation. HWs are motivated by visible improvements in quality of services, [23] so poor working conditions resulting in an inability to provide quality in maternal health services would de-motivate the health workforce.

This research was based on interviews with health managers and Health Workers involved in maternal health services in selected districts in two mountainous Vietnamese provinces. The results thus cannot be generalised to other areas of Vietnam. However, this research is consistent with the broader literature, indicating that Vietnam needs to address issues in relation to infrastructure as part of its efforts to continue to improve primary healthcare. Among participants in this research, it was almost universally acknowledged that the facilities they currently worked in were either too small and did not meet the current requirements, and that this negatively affected their working life both in terms of motivation and their ability to perform required tasks. It was also seen to potentially place patients at risk. Those interviewed for this research associated poor quality facilities with low utilisation by patients, which further contributed to the performance and motivation issues. The study found that HWs report limited investment in infrastructure for primary healthcare in rural areas of Vietnam and as a consequence that facilities may not meet expected standards as set out in the National Guidelines. As a result, rural HWs in Vietnam face continuing challenges to ensure the quality of maternal health services and safety of patients while working in inadequate conditions.

Conclusion

The issue of working condition including inappropriate facility building, hygiene and clean water was perceived as

the obstacle to maternal service utilisation and provision, and the main reason that most of the CHCs do not comply with National Guidelines for reproductive health. More importantly, together with other factors such as working environment, distrust from patients, these factors affect HW morale and causes job dissatisfaction, which eventually lower HW motivation and performance. [24] At the national level, there is a need for government action on policies relevant to the health workforce. National policies should give greater attention to enabling factors to attract and retain HWs to remote area health services. This should include a review of not only financial incentives and training opportunities as mentioned in previous reports, but of investment in health facility infrastructure as well. In the long term, investment in remote and disadvantaged areas to improve facility capabilities (e.g. availability of service rooms, clean water, drugs supplies and medical equipment) could enable HWs to perform according to the National Guidelines for reproductive health and also motivate them to work better.

Competing interests

The authors declare that they have no competing interests.

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Manuscript Preparation and Submission

General Requirements

Language and format

Manuscripts must be typed in English, on one side of the paper, in Arial 11 font, double spaced, with reasonably wide margins using Microsoft Word.

All pages should be numbered consecutively at the centre bottom of the page starting with the Title Page, followed by the Abstract, Abbreviations and Key Words Page, the body of the text, and the References Page(s).

Title page and word count

The title page should contain:

1. **Title.** This should be short (maximum of 15 words) but informative and include information that will facilitate electronic retrieval of the article.
2. **Word count.** A word count of both the abstract and the body of the manuscript should be provided. The latter should include the text only (ie, exclude title page, abstract, tables, figures and illustrations, and references). For information about word limits see *Types of Manuscript: some general guidelines* below.

Information about authorship should not appear on the title page. It should appear in the covering letter.

Abstract, key words and abbreviations page

1. **Abstract** – this may vary in length and format (ie structured or unstructured) according to the type of manuscript being submitted. For example, for a research or review article a structured abstract of not more than 300 words is requested, while for a management analysis a shorter (200 word) abstract is requested. (For further details, see below - *Types of Manuscript* – some general guidelines.)
2. **Key words** – three to seven key words should be provided that capture the main topics of the article.
3. **Abbreviations** – these should be kept to a minimum and any essential abbreviations should be defined (eg PHO – Primary Health Organisation).

Main manuscript

The structure of the body of the manuscript will vary according to the type of manuscript (eg a research article or note would typically be expected to contain Introduction, Methods, Results and Discussion – IMRAD, while a commentary on current management practice may use a less structured approach). In all instances consideration should be given to assisting the reader to quickly grasp the flow and content of the article.

For further details about the expected structure of the body of the manuscript, see below - *Types of Manuscript* – some general guidelines.

Major and secondary headings

Major and secondary headings should be left justified in lower case and in bold.

Figures, tables and illustrations

Figures, tables and illustrations should be:

- of high quality;
- meet the 'stand-alone' test;
- inserted in the preferred location;
- numbered consecutively; and
- appropriately titled.

Copyright

For any figures, tables, illustrations that are subject to copyright, a letter of permission from the copyright holder for use of the image needs to be supplied by the author when submitting the manuscript.

Ethical approval

All submitted articles reporting studies involving human/or animal subjects should indicate in the text whether the procedures covered were in accordance with National Health and Medical Research Council ethical standards or other appropriate institutional or national ethics committee. Where approval has been obtained from a relevant research ethics committee, the name of the ethics committee must be stated in the Methods section. Participant anonymity must be preserved and any identifying information should not be published. If, for example, an author wishes to publish a photograph, a signed statement from the participant(s) giving his/her/their approval for publication should be provided.

References

References should be typed on a separate page and be accurate and complete.

The Vancouver style of referencing is the style recommended for publication in the APJHM. References should be numbered within the text sequentially using Arabic numbers in square brackets. [1] These numbers should appear after the punctuation and correspond with the number given to a respective reference in your list of references at the end of your article.

Journal titles should be abbreviated according to the abbreviations used by PubMed. These can be found at: <http://www.ncbi.nih.gov/entrez/query.fcgi>. Once you have accessed this site, click on 'Journals database' and then enter the full journal title to view its abbreviation (eg the abbreviation for the 'Australian Health Review' is 'Aust Health Rev'). Examples of how to list your references are provided below:

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1. Australia Institute of Health and Welfare (AIHW). Australia's health 2004. Canberra: AIHW; 2004.
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Further information about the Vancouver referencing style can be found at <http://www.bma.org.uk/ap.nsf/content/LIBReferenceStyles#Vancouver>

Types of Manuscript - some general guidelines

1. Analysis of management practice (eg, case study)

Content

Management practice papers are practitioner oriented with a view to reporting lessons from current management practice.

Abstract

Structured appropriately and include aim, approach, context, main findings, conclusions.

Word count: 200 words.

Main text

Structured appropriately. A suitable structure would include:

- Introduction (statement of problem/issue);
- Approach to analysing problem/issue;
- Management interventions/approaches to address problem/issue;
- Discussion of outcomes including implications for management practice and strengths and weaknesses of the findings; and
- Conclusions.

Word count: general guide - 2,000 words.

References: maximum 25.

2. Research article (empirical and/or theoretical)

Content

An article reporting original quantitative or qualitative research relevant to the advancement of the management of health and aged care services organisations.

Abstract

Structured (Objective, Design, Setting, Main Outcome Measures, Results, Conclusions).

Word count: maximum of 300 words.

Main text

Structured (Introduction, Methods, Results, Discussion and Conclusions).

The discussion section should address the issues listed below:

- Statement of principal findings;
 - Strengths and weaknesses of the study in relation to other studies, discussing particularly any differences in findings;
 - Meaning of the study (eg implications for health and aged care services managers or policy makers); and
 - Unanswered questions and future research.
- Two experienced reviewers of research papers (viz, Doherty and Smith 1999) proposed the above structure for the discussion section of research articles. [2]

Word count: general guide 3,000 words.

References: maximum of 30.

NB: Authors of research articles submitted to the APJHM are advised to consult 'Writing a research article: advice to beginners' by Perneger and Hudelson (2004) and available at: <<http://intqhc.oxfordjournals.org/cgi/content/full/16/3/191>> This article contains two very useful tables: 1) 'Typical structure of a research paper' and 2) 'Common mistakes seen in manuscripts submitted to this journal'. [3]

3. Research note

Content

Shorter than a research article, a research note may report the outcomes of a pilot study or the first stages of a large complex study or address a theoretical or methodological issue etc. In all instances it is expected to make a substantive contribution to health management knowledge.

Abstract

Structured (Objective, Design, Setting, Main Outcome Measures, Results, Conclusions).

Word count: maximum 200 words.

Main text

Structured (Introduction, Methods, Findings, Discussion and Conclusions).

Word count: general guide 2,000 words.

As with a longer research article the discussion section should address:

- A brief statement of principal findings;
- Strengths and weaknesses of the study in relation to other studies, discussing particularly any differences in findings;
- Meaning of the study (eg implications for health and aged care services managers or policy makers); and
- Unanswered questions and future research.

References: maximum of 25.

NB: Authors of research notes submitted to the APJHM are advised to consult 'Writing a research article: advice to beginners' by Perneger and Hudelson (2004) and available at: <<http://intqhc.oxfordjournals.org/cgi/content/full/16/3/191>> This article contains two very useful tables: 1) 'Typical structure of a research paper' and 2) 'Common mistakes seen in manuscripts submitted to this journal'. [3]

4. Review article (eg policy review, trends, meta-analysis of management research)

Content

A careful analysis of a management or policy issue of current interest to managers of health and aged care service organisations.

Abstract

Structured appropriately.

Word count: maximum of 300 words.

Main text

Structured appropriately and include information about data sources, inclusion criteria, and data synthesis.

Word count: general guide 3,000 words.

References: maximum of 50

5. Viewpoints, interviews, commentaries

Content

A practitioner oriented viewpoint/commentary about a topical and/or controversial health management issue with a view to encouraging discussion and debate among readers.

Abstract

Structured appropriately.

Word count: maximum of 200 words.

Main text

Structured appropriately.

Word count: general guide 2,000 words.

References: maximum of 20.

6. Book review

Book reviews are organised by the Book Review editors. Please send books for review to: Book Review Editors, APJHM, ACHSM, PO Box 341, NORTH RYDE, NSW 1670. Australia.

Covering Letter and Declarations

The following documents should be submitted separately from your main manuscript:

Covering letter

All submitted manuscripts should have a covering letter with the following information:

- Author/s information, Name(s), Title(s), full contact details and institutional affiliation(s) of each author;
- Reasons for choosing to publish your manuscript in the APJHM;
- Confirmation that the content of the manuscript is original. That is, it has not been published elsewhere or submitted concurrently to another/other journal(s).

Declarations

1. Authorship responsibility statement

Authors are asked to sign an 'Authorship responsibility statement'. This document will be forwarded to the corresponding author by ACHSM on acceptance of the manuscript for publication in the APJHM. This document should be completed and signed by all listed authors and then faxed to: The Editor, APJHM, ACHSM (02 9878 2272).

Criteria for authorship include substantial participation in the conception, design and execution of the work, the contribution of methodological expertise and the analysis and interpretation of the data. All listed authors should approve the final version of the paper, including the order in which multiple authors' names will appear. [4]

2. Acknowledgements

Acknowledgements should be brief (ie not more than 70 words) and include funding sources and individuals who have made a valuable contribution to the project but who do not meet the criteria for authorship as outlined above. The principal author is responsible for obtaining permission to acknowledge individuals.

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