Health professional and patient perspectives of factors associated with potentially avoidable hospitalisations in a rural Australian setting: a qualitative study

Kristen Glenister (kristen.glenister@unimelb.edu.au)
University of Melbourne https://orcid.org/0000-0003-0510-5314
Tessa Archbold
Northeast Health Wangaratta
David Kidd
Northeast Health Wangaratta
Sue Wilson
Benalla Health
Rebecca Disler
University of Melbourne

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Abstract

Background

Potentially avoidable hospitalisations are a proxy measure of effective primary care at a population level. Hospitalisations for the chronic health conditions of diabetes, congestive cardiac failure and chronic obstructive pulmonary disease account for half of the potentially avoidable hospitalisations for chronic diseases. These hospitalisations are higher in rural areas and socioeconomically disadvantaged areas. Scarce qualitative research has focussed on the identification of factors associated with potentially avoidable hospitalisation from the perspectives of health professionals or patients. This study sought to identify factors associated with potentially avoidable hospitalisations in a rural context from the perspectives of patients and health professionals.

Methods

Patients with chronic obstructive pulmonary disease, congestive cardiac failure or type 2 diabetes, admitted to a rural hospital in Australia, and health professionals involved in the care of patients with these conditions, were invited to participate in interviews between September and October 2019. Conversations were recorded, transcribed verbatim and analysed using thematic analysis.

Results

Nine patients and 16 health professionals participated in semi-structured interviews. Five themes were identified (representing factors associated with potentially avoidable hospitalisation); namely General Practitioner involvement, individual patient factors, the influence of the rural locality, medication awareness and health service access. Within these themes, inter-related subthemes emerged including sub-optimal disease management plans, barriers to accessing general practice, poor mental health, patients living alone, healthcare costs, sub-optimal communication and poor connectivity between patients and beneficial services.

Conclusion

Factors associated with potentially avoidable hospitalisation in this rural area were complex and inter-related. These factors encompassed health service access and disease management, as well as socioeconomic disadvantage. Results suggest that improved indicators of access to effective health services, including primary care, are necessary to address potentially avoidable hospitalisation.

Background

Potentially avoidable hospitalisations (PAH) are those hospitalisations that are considered to be potentially able to be averted with appropriate, preventative health interventions and chronic disease management in primary care settings (1). An estimated seven percent of all hospitalisations are potentially preventable in Australia (1), although the rate is not evenly distributed, with the rate increasing with distance from major cities (2). In Australia there are 22 conditions for which hospitalisations are defined as potentially preventable (1) and are divided into vaccine preventable, acute and chronic admissions. Congestive cardiac failure, chronic obstructive pulmonary disease (COPD) and diabetes complications account for over half of the chronic PAH admissions (1). PAH is a proxy measure for effective primary care at a population level (1) and is used as a key performance indicator for health services, and is linked to hospital funding in Australia (3). PAH pose a substantial financial burden to the health system and also impact patient quality of life. PAH are therefore a target to reduce costs, improve health systems and alleviate patient suffering (4). It must be acknowledged that a proportion of these hospital admissions are medically necessary in a proportion of cases, and are therefore unavoidable (5).

Prediction of future avoidable admissions through objective measures such as age, sex, previous admissions, ethnicity and diagnosis has been shown only moderate sensitivity and specificity (3). Factors associated with preventable hospitalisation have been grouped, in a review by Muenchberger & Kendall, into person priorities (symptom management and supportive relationships), programme priorities (self-management and service delivery) and place priorities (local infrastructure and socioeconomic factors) (4). A systematic review reported that home visits, care coordination, chronic care-management, and continuity were associated with fewer preventable hospitalizations for children with medical complexity (6). Falster and colleagues concluded that the geographical variation in PAH was driven primarily by socioeconomic disadvantage, which in turn influenced population health and health behaviours (6).

The contribution of patient characteristics, such as disease severity, complexity and current health status to PAH have been examined in detail, as reviewed by Muenchberger & Kendall (7). Less, qualitative research has focussed on the factors contributing to PAH from the community-based health professional (8) or patient perspective (9)(3). An Australian study identified that community or multipurpose health services and smaller,district hospitals, ie the predominant health services in rural areas, exhibited higher PAH than major or principal referral hospitals, due to differences in propensity to admit, even after adjusting for patient and geographical variation (10). A study into the factors influencing hospitalisation of children with complex medical conditions found that parents perceived that their children were more susceptible to being hospitalised and sought hospital care when they felt unable to manage their children's health at home (11). In a qualitative study of patients in regional NSW, factors associated with potentially preventable hospitalisation included a lack of support, lack of medication adherence, poor mental health and poor understanding of their disease (9). The same team investigated the perspectives of community-based service providers and found that complexity of service provision, lack of awareness of services and how to access them, a lack of services, poverty, rurality and transport issues were associated with avoidable hospital admissions (8). Access to health services is multi-faceted and

includes the dimensions of accessibility (location), availability (supply and demand), acceptability, affordability, awareness and adequacy (organisation) (12).

Identification of factors may inform algorithms to identify patients at risk of potentially avoidable hospitalisation and provide identified patients with additional support, or to inform solutions to reduce avoidable hospitalisation. The aim of this study was to explore factors associated with potentially avoidable hospitalisations in a rural context from the perspectives of patients and health professionals.

Methods

Aim:

The aim of the study was to identify factors associated with potentially avoidable hospitalisation for congestive heart failure, COPD or type 2 diabetes from the perspectives of patients and health professionals within the Benalla Local Government area.

Design

This was a qualitative study using semi-structured interviews following the Consolidated criteria for reporting qualitative research (COREQ) guidelines (13). Thematic analysis was chosen as it allowed for synthesis focused on a phenomenon of interest (14), this being the factors associated with potentially avoidable hospitalisations for congestive cardiac failure, COPD or type 2 diabetes in a rural Australian setting. Thematic analysis is also is a transparent method that actively seeks to remain close to the primary data and avoids over analysis (15).

Setting

Benalla is a medium sized rural town (Modified Monash Model 4 (16)), located approximately 200 km from the state capital city. The Benalla local government area (LGA) is more socio-economically disadvantaged than the state average (Index of Relative Socioeconomic disadvantage (IRSD) of 957 compared with Victorian average IRSD of 1010) (16), and has a high percentage of people aged 65+ (23% compared with 15% in Victoria) (16). The number of General Practitioners (GPs) per 1000 population (1.2) is equivalent to the state average (17), although access to bulk-billed services (no out of pocket cost is incurred by patient) is lower than state average (18).

Benalla LGA experienced higher than state average potentially avoidable hospitalisations during the financial years 2015/2016, 2016/2017 and 2017/2018 for COPD (3/3 of these financial years), congestive cardiac failure (2/3 of these financial years) and type 2 diabetes mellitus (1/3 of these financial years) (19). Benalla Health employs 330 staff across acute, community and residential aged care services including a public hospital with 24 acute beds servicing a catchment of 13 800 people (19). The hospital medical service is delivered by local GPs. The Urgent Care Centre is staffed by nurses, and patients typically incur a fee if a doctor is required to attend. There is one pharmacist on staff and no

dedicated discharge coordinator. At times, patients from Benalla receive healthcare from the hospital (Northeast Health) in the neighbouring larger town of Wangaratta located approximately 50 km away.

Participants:

A convenience sample of patients admitted to Benalla Health with a primary diagnosis of COPD, congestive cardiac failure or type 2 diabetes in the preceding twelve months (International Classification of Disease (ICD) codes beginning E11 (Type 2 diabetes mellitus with or without complications), I50 (Congestive cardiac failure, congestive heart failure) or J44 (Other chronic obstructive pulmonary disease) were utilised). A letter was sent to all eligible patients inviting them to participate in an interview. An email was sent to all organisations within the Benalla LGA employing health professionals involved in the care of patients with COPD, diabetes or congestive cardiac failure for distribution to their staff inviting them to participate in an interview.

Data collection

Semi-structured questions were developed in consultation with experts in the field of chronic illness and community health care. The questions sought to explore factors associated with potentially avoidable hospitalisations in the rural context, from the perspectives of patients and health professionals and are listed as Appendix 1. Interviews were undertaken at a location chosen by the participant and included private homes, workplaces and community health facilities. The female interviewers (KG, PhD, Research Fellow and TA BPhyty, MPH, Project Officer) had training in interviewing techniques, experience in chronic disease management and health care delivery research. The interviewers had no prior or ongoing relationship with the participants. Interviews were audio-recorded and transcribed verbatim. No non-participants or non-researchers were present during the interviews. No repeat interviews were conducted. One participant did not consent to audio-recording and notes were taken by the interviewer. Names of people, towns, clinics and unusual health conditions have been changed in the reporting of this study to ensure anonymity of participants.

Analysis

Thematic synthesis was completed in two stages by two authors. Free codes were organised into descriptive themes (Stage 1), with confirmation of themes through discussion (two researchers). Central emergent analytical themes were developed through group discussion (Stage 2) to provide a broader understanding and meaning to the data regarding factors associated with potentially avoidable hospitalisation in the rural Australian context (two researchers). Transparency of method, the use of independent investigators, and group discussion were used to promote the validity of findings, rigor and trustworthiness of the synthesis process. The final themes, are listed in Table 1.

Table 1
Characteristics of patients admitted to rural hospital with primary diagnosis of congestive cardiac failure, COPD or diabetes in the financial year 2018–2019.

	COPD admissions	Congestive cardiac failure admissions	Diabetes admissions
Number of admissions	48	45	16
Number of unique patients	32	35	13
Sex (unique patients)	38% male	51% male	62% male
Age (unique patients)	75 ± 10	85 ± 8	71 ± 13
Length of stay (days, mean ± standard deviation (range))	4.15 ± 2.32 (1–12)	3.73 ± 2.03 (1–13)	4.00 ± 1.71 (1–7)
Patients eligible for interview	29	28	12

Ethics approval

Ethics approval was granted by the Northeast Health Wangaratta Human Research Ethics Committee (project 175, August 2016). Signed, informed consent was obtained from each interviewee.

Results

There were 32 unique patients admitted to Benalla Health in the financial year 2018–2019 with a primary diagnosis of COPD, 35 with congestive cardiac failure and 13 with diabetes, as summarised in Table 1. Approximately half of the admissions for these conditions were repeat admissions during the 12 month period (51 of 109 admissions). After exclusion of patients who had since passed away, 69 were eligible to participate. Nine patients consented to participate (13% response rate), along with 16 health professionals, as summarised in Tables 2 and 3. No participants dropped out of the study. Interviews were undertaken between September and October 2019, with a duration of 13 to 33 minutes for health professional interviews and 8–48 minutes for patient interviews.

Table 2
Characteristics of health professional participants:

Health Professional Participant number:	Discipline:	Sex:
1	Pharmacist	Female
2	Pharmacist	Female
3	GP Practice nurse	Female
4	Nurse	Male
5	Physiotherapist	Female
6	Nurse	Female
7	Nurse	Male
8	Nurse	Female
9	Nurse	Female
10	Nurse	Female
11	Nurse	Male
12	Nurse	Female
13	General Practitioner	Male
14	GP Practice nurse	Female
15	GP Practice nurse	Female
16	Nurse	Female

Table 3
Characteristics of patient participants:

Patient Participant number:	Health condition (self described):	Sex:	Living alone?
1	Diabetes and heart condition	Male	Yes
2	COPD	Male	Yes
3	COPD	Female	Yes
4	COPD	Male	No
5	COPD	Female	Yes
6	Heart condition	Female	No
7	Diabetes, respiratory condition	Female	No
8	Heart condition	Female	Yes
9	Diabetes	Male	Yes

QUALIATIVE RESULTS

Five themes were extracted from the data analysis, including: Involvement of the General Practitioner, individual patient factors, locality factors, medications and several dimensions of health service access (Table 4)

Table 4
Thematic analysis: Factors associated with potentially avoidable hospitalisations:

Detrimental factors:		Protective factors:
Organisation of care: Non-tailored management plans Lack of communicating diagnosis, reason for tests, purpose of medications *Continuity*: GPs retiring Not being able to see preferred/usual GP *Individual GP traits*: Lack of identification of at risk patients Lack of listening to/believing patients	**General Practitioner involvement**	*Organisation of care*: Individualised and useful management or action plans *Continuity*: GPs on staff at hospital (access to records, knowledge of patients) Continuity of GP care GP listening to/believing patient *Clinic factors*: Adequate consultation time Inclusion of practice nurses Flexible GP services (triage, walk-in clinics, after hours)
Support: Living alone, isolation Carer burden *Psychological factors*: Poor mental health, loneliness, Previous trauma Not prioritising own health *Disadvantage*: Poverty Lack of transport Cost (appointments, transport, home modifications, ambulance, lack of value from private health insurance) No regular GP or no GP *Complexity of health*: Multi-morbidity	**Individual Patient factors**	*Support*: Social support, community support Support at home *Psychological factors*: Positive mindset, Confidence, Assertiveness *Self-management*: Health literacy Recognition of seriousness of condition Individualised education Coping strategies

Detrimental factors:		Protective factors:
Disadvantage: Socioeconomic disadvantage High prevalence chronic disease and risk factors	**Locality**	*Rural factors*: Long term health professional workforce Proactive provision of services Connection to local area
Education: Lack of awareness of medication review benefit Lack of patient education re medication and benefit, technique, adherence *Inter-agency communication*: Need for accurate medication lists Lack of pharmacist reimbursement for provision of patient information	**Medication**	*Education*: Pharmacist resource for patient education and assistance in medication management
Accessibility Travel distances GP clinics closed to new patients *Availability* Low threshold for admission Reduced staffing Reduced capacity to deliver high level services or specialised services Allied health services restricted due to insufficient staff *Acceptability* Lack of heart failure specific programmes or extended rehabilitation programmes Inflexible services, inflexible eligibility. *Affordability* Cost (urgent care, non-bulk billed GP services, ambulance, transport, appointments) *Awareness*	**Health service Access**	*Accessibility* Telehealth (specialised chronic disease support, mental health services) *Availability* Examples of flexible GP clinic models (walk-in clinic, triage) *Acceptability* Active choice for local, rural hospital Highly valued, local nursing staff *Awareness* Recognised benefit of hospital avoidance risk programme (HARP)/health independence programme (HIP)/cardiac and pulmonary rehabilitation Regular, multidisciplinary 'scrums' Shared care folders

Detrimental factors:	Protective factors:
Lack of awareness of local services and how to access Issues in discharge planning (lack of written information and follow-up phone calls, late discharge planning, no discharge planner) Lack of information on referrals Inter-professional and inter-agency communication *Adequacy* Lack of clinical pathways or consistent guidelines, or awareness Patients not receiving referrals to programmes and services of benefit *Timeliness*: Waiting times Issues of mental health access (prior to crisis, wait time, bed availability)	

Involvement of the General Practitioner:

Organisation of care:

Organisation of care was a key factor associated with patients being able to manage their disease and ultimately the risk of potentially avoidable hospitalisation. Participants spoke of action plans and GP management plans that could either be beneficial or of little value. Beneficial management plans were individualised, disease specific, meaningful and patient centred.

I was in and out of that Emergency place a fair bit, early on. (Now) less frequent, because I've got everything under control, and I've got that action plan. **(P2).** *"Yeah, the knowledge, the three steps, the action plan which they give you, which I've got up on the fridge and what to look for and everything like that. If you get to number three, perhaps you should ring the ambulance or something*" **(P2)**

Because it's not really that hard to really- to follow that care plan that they've given me, It's not very complicated at all. After this period of time, having pneumonia and having chest infections, I sort of- I'm a bit more onto it now. **(P3).**

The basic stuff, which is people having plans; (for) *managed exacerbations and complications. There's been a big push for that for asthma and COPD…It's pushing that side of things but having similar things*

for heart failure and diabetes management. I suppose diabetes management, there's often- there isn't a developed plan for how you would managed that. **(HP13)**

Conversely, management plans that were perceived to be of little value in supporting patients' self-management when they were not tailored to the individual patient needs or their health conditions.

Clients have no idea where their plan is, so it's somewhere in the cupboard and when you see it, it's a generic template that's basically had the client's name put on it and it's meaningless to them, not helping them manage their chronic disease at all because it's not been personalised. It's basically, 'oh the podiatrist said I can get five free visits in the year, doc, can you do that paperwork?' **(HP3).**

Continuity:

Participants often spoke of GPs who had worked in the region for many years. They also spoke of the value in GPs working in both the community and the hospital. GPs often had long term relationships with patients and other local health professionals and this was associated with high levels of trust, respect and deep understanding. When GPs retired this was keenly felt by patients.

I think the fact that patients are seen by their GPs out in the community and then if they do have a crisis with whatever their- an exacerbation of whatever illnesses, when they come to hospital they're still looked after by their *GP. So, I think there's that real continuum of care; the GPs know their patients so well.* **(HP8).**

I usually get continuity no end. I get to see the same one (GP), same time, same bat channel, same. If I can't, and somebody else does, by gee it's in consultation with him (my GP). **(P9).**

Individual GP traits:

Personal traits of individual GPs were also discussed. Patients and other health professionals recognised when GPs prioritised explanation of diagnoses, signs, symptoms, the reasons for tests and medications to their patients. Patients spoke of the value of being listened to and believed by their usual, trusted GP and the consequences when these things did not occur, including hospitalisation.

I rang my doctor because I thought, I've got this chest infection and my doctor was unavailable. I've got this other doctor and he just, I said 'mate, look, this is one thing, this COPD, it's really made me learn about my body. I know when things aren't right'. I went and saw this other doctor. He said 'oh look, you're all right'. I said " no, I'm not all right, I don't feel well'. The he just gives me one of those things for a bowel cancer test. I said 'no I'm not here for that, mate'. Two days later I was in an ambulance and they were resus-ing me. **(P2).**

Now, I have a pretty serious lung problem and it's taken years of saying to doctors, ordinary GPs, there's something wrong but I can't work what it is and not being believed. Then all of a sudden, total crisis. Everything stops working and you're rushed to intensive care and you're rushed here and ambulances are called. **(P5).**

The diabetes educator at (x) *clinic, she's bloody, she's worth her weight in gold. (She) just gives me an understanding of where my levels are at, whether I need to up it a bit or knock it off a bit, or what I'm struggling with. It keeps-especially in this last 12 months, keeps a check on my weight and how- the benefits that she sees of me taking quite a bit more responsibility and acknowledgement about that* (P9).

The younger ones (GPs) are very more in tune with the new ways of doing processes. It's- if you've got to follow a certain process with the hospital system they're happy to go along with that. Some of the more experienced (GPs) with their set ways, it's a lot more of a challenge to get them to follow what we need them to do **(HP10).**

Individual Patient factors:

Support:

Health professionals and patients alike spoke of the critical importance of support, whether it came from a patient's spouse, other family, friends or community members. Support people enabled independence, reassurance, safety, transport to appointments, care when the patient was unwell and feelings of connectedness. On occasion, individuals without support were mentioned and the detrimental impact on their health was well recognised. On other occasions it was recognised that carers may be unwell themselves or become fatigued after caring for a loved one for many years.

There's so much (support) available that it's- it's like a minefield really, isn't it? I don't think we could ask for support when it's more deserving for other people I would think. No, we get by very well. **(P4).**

"We have a very high incidence of people living alone in Benalla, and I think that contributes to just not being confident in managing your chronic illness… and when you start to go down, there is no one there to tell you to go to the doctor or whatever, and so maybe you missed that opportunity where it can be fixed quickly or then, it's panic stations and I have to go to the hospital because there's no one around to certainly look after me" **(HP 5).**

"..living alone, I find it frightening" **(P 5).**

I would have like people to follow up (after a hospital admission). You know, are you okay? A phone call. Do you need a hand? I wasn't even given an appointment. I went home to a freezing home and no food. No money. Couldn't walk. Couldn't get anywhere and no friends. No next of kin here and no friends to ask for help. (P5).

Would you believe the first time we went down (to Melbourne for a medical appointment in the Council Community car) *with* (John) *he pulled up in the car park and that was- the doorway was straight there next to it and that was a disabled carpark so we have our disabled sticker and there was no worries. The same last time we went. I thought that's terrific because you just walk in, get in the lift, and go upstairs. So that's goods.* **(P6).**

Psychological factors:

A patient's mental health was discussed by many participants. Participants spoke of the value of a positive outlook and being assertive in managing a chronic health condition but also spoke of loneliness and isolation. The long-term impacts of trauma and homelessness on health and access to health care were discussed. When mental health care was needed, barriers to access were discussed, including long wait times, inadequate numbers of beds and difficulty accessing services prior to a crisis or suicide attempt.

Nothing really prevents me (from self-managing COPD), as long as I make my appointments when I know I need to. Stand up for myself, to make sure that I get in to see somebody, and, if I feel that I've got an infection, then I have to make them believe me, that I have. Because they can listen to my chest, and they go: 'oh, no, it's not that bad'. Then I'll go home and be coughing all night. **(P3).**

"If they've got poor mental health they're not going to go for a walk. They're not going to take their medications. They cannot afford it because they don't actually work… so mental health would be a huge thing. If we could get more help with their mental health…" **(HP 14)**

I should have pushed it (seeking care for an exacerbation) more, pushed it more and pushed it more. But I didn't and the next thing I'm at Benalla hospital for five or six days with this, and pneumonia, and I was pretty bloody sick, I'm a bit angry about that. I told my doctor, my normal doctor, about what happened **(P2).**

Disadvantage:

The socio-economic disadvantage of the town was recognised, as were the barriers to healthcare when a person was living with low income, or indeed in poverty. People spoke of the costs of attending appointments, GP services, medication, transport, attending the Urgent Care Centre, ambulance support and home modifications. Patients spoke of having to choose between medicine and food. Some patients were unable to access a GP, or a regular GP. GP clinics that were 'closed" to new patients were mentioned. Patients with low income who didn't drive spoke of the compounding issues of needing to travel out of Benalla to access free Emergency department treatment and being acutely unwell but unable to afford ambulance services, and then not being able to return home when they were discharged from hospital, at times an hour or more away with no public transport, often at night. These issues were acutely felt by local health professionals who were doing their best to alleviate these impacts on people.

*I couldn't believe my own doctor who has known me for 30 years or something could say I could just go home, I have been saying to him for 10 years, I'm broke. I can't get a job, I'm living off New Start (unemployment benefits). It's not enough. I have not enough food, I'm getting food vouchers to survive. I have to count potatoes. They don't get it. They don't get it. They don't live like that. They don't see it. They have no f**ing idea that it's real and I'm not the only one. Right?* **(P5).**

"… I was just sent home with no support. No food. No money. No one asked if there was anyone at home. Nobody cared… Nobody rang me up…" **(P 5)**

You know if you've got a 90 year old gentleman who lives at home on his own, who comes into ED when it's still daylight at five o'clock in the evening, he then has all of his investigations, and then at nine o'clock at night you tell him he can go home when it's dark, and it's such a risk and I feel like it's not a good service and it's dangerous. Because he could trip going up the garden path getting back into house, (HP8).

I think a town like Benalla that's got so many struggling people, like there's a large amount of low socioeconomic status people in Benalla, it's a shame that we can't provide a decent free healthcare service. Like if they were living in the city, there'd be bulk-billing clinics everywhere. (HP8).

Complexity of health:

It was well recognised that patients were often living with multiple chronic health conditions and psycho-social challenges. The complexity of these challenges influenced capacity for self-management and development of coping strategies.

I had this guy who did have diabetes, he was homeless, he had diabetes, osteomyelitis, probable intellectual disability and chronic mental health problems. He came to hospital with a sore toe which he said had occurred a week earlier, in fact he had chronic osteomyelitis. So, he got admitted to hospital, started on all this medication, seen by the physician and promised to attend follow-up and stuff like that and didn't. He just got discharged and was never seen again. I asked Mental Health services to see him and they did a telephone consult from Wang (Wangaratta) *and said 'he's not suicidal, we don't need to see him, and that was it.* **(HP13).**

I'm getting food vouchers to survive… **(P 5).**

If they can't stay physically active with their PTSD (post-traumatic stress disorder) *then their actual diabetes increases. Their everything goes haywire* **(HP14)**

"I was 13 pounds born to woman with gestational diabetes… and my dad developed type II diabetes, so I was doomed from the word go. I've battled type II diabetes for probably some 35 years now and of course with poor control, infection got into the bone in my foot and I had a standard 250 (millimetre) left leg amputation" **(P 9).**

Locality:

Issues related to socioeconomic disadvantage, high prevalence of chronic disease and risk factors and their contribution to potentially avoidable hospitalisation were discussed by health professionals. However, there were many instances when the local region was spoke of in very favourable terms. Patients spoke of loving the town and its people, and connectedness to the land and nature. Patients spoke of deliberately seeking care from a small, rural health service in preference to a larger, more urbanised health service. Participants spoke of the value of the long-term local health workforce and the proactive provision of support services by the health service or the local council.

I came up from Melbourne, but I've been here 35 (years). It's just such a lovely, sweet little place to live. You really feel safe, here. **(P3).**

"Yeah I know if I need a doctor, they will always see at the (z) *Clinic, I'm never refused… they always see me the same morning… I've been going there for 50 years… I think here in Benalla we're very fortunate"* **(P 7).**

He (my GP) rang me up and he just said 'go to the nearest hospital now'. I was in bloody (town a), *there's nothing there. I said it will take me four hours to get back, could I drive back to Wang* (Wangaratta)*? He said alright, I'll let them know you're coming.* **(P1).**

"Benalla hospital's been great, it's just a bush nursing, a non-emergency hospital, but I cannot say enough about the treatment that I've had personally in my journey with my health…" **(P 9).**

We'd been away travelling somewhere up in New South Wales and she (my wife) wanted me to go to hospital in Canberra and a couple of other towns we went through. I thought I wasn't too bad. Anyway, I said oh no, look, I'll wait and go when we get back to Benalla' which we did. We drove straight into Urgent Care or whatever it is. They put me straight in hospital. It was evidently- the doctor or the nurse said it was very serious too. **(P4).**

Medication:

Optimal use of medication was hampered by several barriers. Health professional participants spoke of patients being admitted to hospital and not having accurate, up to date medication lists, due to GP lists being out of date or GPs not being aware that a patient had been hospitalised elsewhere. Health professionals spoke of needing to go out of their way to obtain this information, which they needed to do in addition to their core roles. Additionally, community pharmacists were not reimbursed for this type of work. Pharmacists spoke of advocating for increased numbers of medication reviews, but that they had encountered resistance from GPs and bureaucratic barriers. There were also issues that arose after discharge if patients did not understand medication changes. There was recognition of the invaluable education role that community pharmacists played in patient's understanding of their disease, signs, symptoms, medications and correct medication techniques.

We see repeatedly- say for example the dose administration packs that we make, and the person goes into hospital and the drug chart that they've written up is medication from three or four months ago with no changes being made. … You say well, they're not on this, they stopped that in January, you go through and they've made all these clinical decisions based on the wrong information from the start, so it's really poor, it's a waste of your time. **(HP1).**

"… the other day… I spent an hour, or two hours of my time, talking to numerous nurses and doctors at Wangaratta and then the next day the GP clinic in Benalla who was trying to sort the problem out as well, but yeah I didn't get paid any extra for doing that… in the community we don't get paid anything for chasing that up" **(HP 1).**

We've got pharmacists who've been here for like 20 years, so pretty much all the oldies here are very much looked after **(HP2).**

Health Service Access:

Accessibility was a barrier to specialists and Emergency department care. This issue was further compounded by a lack of public transport and if patients could not drive, could not afford ambulance cover or lived alone. There were examples of telehealth services or other specialised support provided by metropolitan health services.

They (staff in Benalla pharmacy) *got an ambulance and suddenly I was surrounded by these people trying to ask me what year it was and I had no idea about anything. I ended up in Wangaratta Hospital Emergency…I improved by the hour with food and being looked after by one nurse. They said, we need- this woman came rushing in. I never knew who she was. 'We need the bed, you can go home. We have to have the bed. You're stable now, you can go home'. Oh great. So I took all these tubes off and went outside but I was in Wangaratta with no friends, no money, none of my possessions. My car was stuck outside the chemist's. I was told to go to the waiting room and it was 10 o'clock at night… I had to ring my daughter in (town b, over two hours away). No food, Nothing. No hot drinks. Shivering outside, trying to stay away from those sick people… It happened to me in Albury too. Told to leave, there's no bed for you. It was only for the grace of God of a taxi driver that had sympathy for me that charged me no money and drove me all around Albury, finding me a room that I could afford that was only $30 a night…but the next morning I had to ring people in Benalla to come all the way up (over 75 minutes away) to collect me because there was no train. This isn't medicine* **(P5).**

It's the tyranny of distance. Often, as I say, the people that really need it can't afford to travel. So then… Yeah I mean there is a train (to Wangaratta) *but the appointments, and then the doctor is running late and they miss the train to come home, what do they do? Pay $80 for a taxi to get home, and that has happened*. **(HP3)**.

Availability was raised in relation to health workforce issues that had persisted for many years, impacting pharmacy, discharge planning, nursing and allied health. For example, insufficient numbers of physiotherapists in the hospital may have contributed to a perception that care was being prioritised to getting patients with respiratory conditions up and walking rather than providing chest physiotherapy. In addition, it was recognised that small, rural hospital could not provide highly specialised services. There were comments related to a low threshold for admission, particularly when GPs knew patients with complex, chronic conditions very well.

There's not that push to get out (discharge patients) like I've been used to in Wangaratta. There's not that bed urgency that we used to have. **(HP6).**

The hospital admissions are obviously GP driven as well because they have to admit them (GPs are the admitting doctors) (**HP11).**

I don't go to the doctors unless I need to, and he (GP) know that. If I go to him about something, he thinks I need to go to hospital, he puts me in. **(P8).**

"You can only do what you've got with the resources that you have. So when they are in hospital they are usually seen by a physio but they're not always given exercises or advice on discharge" **(HP 3).**

They (local GPs) see it (Benalla hospital) *just being as a nursing home pretty soon. Benalla hospital has shrunk. So instead of having two wards it's now really one ward. The capacity has shrunk so no doubt the resources will have shrunk too* **(HP3).**

I'll see a COPD diagnosis and there's no referral to a physio and I go so 'could they do with physio, bit of chest exercises or something?' Ooh, they can- the response from the nurses, 'but can they walk, they're okay'. The priority from allied health is to get people up and moving and that's more their focus than chest. There's a reduction in physio services at the moment, so they're prioritising. **(HP6).**

Acceptability. Participants mentioned the need for disease specific rehabilitation programmes and for extended rehabilitation or exercise programmes to support patients longer term. Participants also spoke of inflexible programmes or inflexible eligibility that meant that patients may not have been able to access individualised, patient centred care. Some GP clinics were providing alternate models of care (walk-in clinics with triage, after hours service) to overcome waiting times and to ensure the patients with greatest acute needs were seen.

(a patient with chronic, complex physical, mental health and social concerns) is repeatedly admitted to hospital with (a chronic health condition), *and then when she's discharged, she doesn't attend any follow-up. I tried to, and then I thought a bit more broadly about that, and she's got a chronic mental health issue as well, and she may also have, as many of these people, an underlying development issue. It clearly doesn't work to send her home with an appointment to see the drug and alcohol worker the next week. Can we arrange someone to go to her home and check that she's going okay and that sort of thing, and then the alcohol and drug worker to go home? No, that couldn't be done because nobody provides that service. So, if the district nurses go to her home and check that she's working okay? No, we can go and do her dressing; we don't do welfare checks. Can MIND* (Community mental health service) *be involved? No, MIND can't, because she hasn't got an NDIS* (National Disability Insurance Scheme). *A total lack of flexibility.* **(HP13).**

Everyone's an individual with individual needs **(HP10)**. *Well, everyone learns differently, regardless of their age* **(HP11)**. *That's what care is about, it's called person centred care* **(HP12)**.

…when I lost my leg. To go home I needed a wheelchair. If I applied for a rebate through the scheme, they would give me $1000 but because I needed a wheelchair before I could be released from hospital, I'd have to hire it. The application may take up to 12 months. Now, at $25 a week for that wheelchair, I'd blow my bloody $1000 on chair hire. So, I might as well have bought the thing myself. **(P9).**

Affordability. Costs were a barrier mentioned in relation to Urgent Care, ambulance, specialist appointments, transport and GP services. These costs were compounded for patients with low income (at times because their health meant that they could no longer work) and particularly for patients living in poverty (at times linked to trauma, poor mental health, abuse or homelessness).

So our main three GP clinics in town, they're not bulk billing. So I think maybe dealing with chronic illnesses, there'd certainly be a cost involved with that especially for a lot of older people that need regular appointments as well. The other GPs can bulk bill at their own discretion. But otherwise they might be looking at $80 for a 15 minutes appointment and they only get 35 of it back. So if you're expected to go and see that GP every week or every fortnight, well you can see how people slip through the cracks that way. **(HP8).**

We can't even give patients a ball-park figure on the (out of pocket) *costs associated* (with Urgent Care). **(HP8).**

So, considering we have quite a, we do have a very high low socioeconomic group in Benalla. Financially to pay for GP services I'd be concerned that they would be limiting their access to medical care. Also having paid Urgent Care (Centre) *here as well* **(HP16).**

Adequacy. Discharge planning and referrals were key issues raised by health professionals. There were many examples of initiatives to improve organisation of care, communication and sharing of information including shared care folders and multi-disciplinary 'scrums', but these were not systematically applied. Other solutions including consistent guidelines for chronic disease management and clinical pathways were suggested by health professionals.

But the theme, sadly, probably for the last six to twelve months for us in community (Community Health services), *and I have had to follow up with patients in the clinic* (GP clinic), *is poor discharge planning, or no discharge planning from hospital. That impacts on client outcomes when they get home. It can be anything from not understanding what their medications are for, or just not taking them because they don't know. Or they don't know how important they are. Certainly with the respiratory conditions with all the new inhalers and things that they are about; they're* (patients) *quite confused about what they should be taking and should they stop this one and start that one.* **(HP3).**

We do have daily meetings on the ward with the different disciplines, that's including acute staff as well as the supportive services like allied health, physios, OTs (Occupational Therapists). *We do have the dieticians, diabetic educators, district nursing, post-acute care services. Sometimes the people from the shire come up and we discuss the patient's discharge needs* **(HP7).**

The model's there (Key Worker model in which a nurse or allied health professional acts as the contact to the health service and sets goal with the patient). *The model's there, but it's not staffed, so it's broken, I suppose, because of that, so we've lost leadership within that team. We've lost skills within that team. We've lost a lot of expertise within that team.* **(HP5).**

Some people aren't referred onto Pulmonary Rehab that I think should be. For instance, if people present to Urgent Care- we don't get any referrals from them so, if a person comes in with a- you know, a respiratory problem and they get discharged back home again through, we don't get a referral, and I think that would help. **(HP4).**

We didn't even have the forms in Urgent Care Centre on how to refer people onto any allied health services, so we had no idea of what the process was, so I actually found the forms and we've got them now in urgent care so staff know how to make that referral **(HP8).**

"it's not uncommon to have patients lob up to be seen by us having been in Northeast Health as an inpatient or in emergency, with no information… We don't know what they're here for. We don't know what they've had done. We don't know what the expectations of what they want done. We're relying on the patients to tell us" **(HP13).**

…it does happen that we do have people admitted for discharge planning **(HP9).**

Awareness. There was widespread recognition of the benefit of cardiac and pulmonary rehabilitation, HIP, HARP and support services at home or in the community, but there was lack of awareness of whether these programmes were available locally, how to refer to them and eligibility criteria. Patient awareness was dependent on patients being ready and able to understand their condition, how to manage their health, ability to ask questions and seek information. There were examples of mis-conceptions regarding access to GP services, for example if patients rang early in the morning or explained that they had been discharged from hospital, appointments would be made available to them. Similarly, bulk-billed GP services would be provided for eligible patients with complex, chronic conditions if they had GP management plans in place.

With nursing staff in the hospitals or the acute settings, I don't think they understand what services are around the whole area and I think it's a really important part of being in a small community where we can send, where we can suggest to educate and encourage patients to participate. **(HP14).**

A lot of clients will- say for example, with heart failure, which is, they don't even know they've got heart failure. They've been in hospital, they've been managed on fluid restriction and may not necessarily know that they're supposed to be on it when they get home and what it's for. **(HP16).**

Well, this is what annoys me, for the last 10 years I've been borderline (diabetes) *and have I got it or haven't I? Or you're on the edge, and do I try to cut down* (on food that may increase risk of diabetes). *But I try to watch my diet.* **(P1).**

We used to have a really good relationship with the Community Health, and we had someone from their chronic disease program come in here (GP clinic) *and we'd have case conferences regularly, once a month… What worked well was the integration of information. There were complex patients that we shared, so it was about talking about the issues were and how we could manage them in an integrated fashion. What services they require and the urgency of that, and that sort of thing. Yeah.* **(HP13).**

I think it's just frustration for me wishing they (patients) bloody understood (their condition) *so they didn't end up in these predicaments* **(HP15).**

Being inside the hospital is a bit tricky to figure out what would be the needs (of the patient) *on the outside* **(HP9).**

Timeliness

Participants noted that at times extended waiting times were experienced for a range of services, often due to insufficient workforce. At times these delays resulted in patients becoming more unwell before they could access health services or beneficial programmes.

Overall, the wait times for some allied health and other services are quite long, so particularly dieticians and dietetics. Access to pulmonary rehab and cardiac rehab can take a long time, so not uncommonly by the time people get into those programs it's a month/couple of months down the track from when they've, whatever their key episode was. So, they're either better or they're not going to get any better at that point. **(HP13).**

Well, one of the issues at the moment is, is probably, for our patients, is access to medical care. We're relatively short of practitioners, GP's, even though we're better off than many other rural and regional places, it's still quite hard to get a routine appointment. So, a routine appointment to see me at the moment is January sometime (interview conducted in October) **(HP13).**

We've started to use Royal Flying Doctors Telehealth to try and get people in because of the six months waiting lists (for mental health services). *What's the point of seeing someone six months after they've tried to commit suicide? We often send people to* (in patient mental health service in another town), *they're back the next day. We send them back to (service) or to the triage, to be triaged and they're back and it's just this ping-pong.* (HP14).

Discussion

This study aimed to identify factors associated with potentially avoidable hospitalisation to a rural hospital in Victoria, Australia from the perspectives of both patients and health professionals. There was value in exploring both the health professional and patient perspective in this study, and whilst the importance of giving patients a voice has been recognised (8), few studies have included the patient perspective (9).

The themes identified (individual GP factors, personal patient factors, locality, medication and health service access) are highly inter-related. For example, socioeconomic disadvantage combined with out-of-pocket healthcare costs influence the degree to which cost is a healthcare access barrier. Similarly, distance to health services was a barrier, but this became more so if a patient was socioeconomically disadvantaged, socially isolated or unable to drive. Factors that appeared protective against unnecessary hospitalisation were provided by participants, while other participants described situations where these

factors were absent and could associated with increased risk of hospitalisation. For example, family, friends or community groups provided care for patients and supported connectedness and independence. When a patient did not have these support networks they were more vulnerable when they became unwell.

Two similar studies in rural New South Wales, Australia identified factors associated with PAH from the perspectives of patients (lack of support, medication issues, poor mental health, poor understanding of disease) (9), and service providers (lack of services, lack of awareness of local services, poverty and transport issues) (8). Continuity of care has been found to be associated with PAH previously (23), as have managed care plans (24). Increased access to primary care physicians in the United States has been reported to be associated with reduced avoidable hospitalisation (20). The frequency of medical contacts has been reported to correlate with PAH (4). One of the key factors identified in our study related to the value of connecting patients to beneficial services, particularly upon discharge. This is in agreeance with a Canadian report that estimated that 27–76% of readmissions would be preventable if best practice discharge preparation and enactment were followed (21). Following, Provencher's recent Australian study involving at risk older adults showed than an intervention to optimise discharge preparation and post discharge support in the community across five sites significantly reduced unplanned admissions (22).

Patient participants typically did not consider their hospitalisations to have been avoidable, commenting that their condition had deteriorated to the point that hospitalisation was necessary, or that their doctor had told them to present to hospital. On two occasions patient participants identified that not being able to see their usual GP who listened to them and took their concerns seriously may have contributed to their hospitalisation. Conversely, some health professional participants mentioned that a low threshold for admission existed, potentially related to doctors being very aware of complex social issues of some patients, a lack of bed urgency or a lack of alternate accommodation. Previous research has reported an association between higher referral rates to secondary care by doctors who are more psychosocially oriented (23).

Many patients could not easily identify the reason for their admission, or readily list their health conditions. This appeared particularly so for patients with heart conditions, and although the researchers did not have access to their primary presenting diagnosis, no participants identified '*heart failure*' as one of their health conditions. Patient lack of awareness of heart failure has been identified previously (24) and it is thought that the term may be being avoided by health professionals as anxiety provoking (25). Alternatively, heart failure has been recognised to be difficult to diagnose and differentiate from comorbid conditions (26).

Identified in this study were a mixture of factors that could be readily modified and other factors that are far less modifiable. For example, the socioeconomic status of a town is complex and unable to be readily influenced, at least in the short term, and particularly from within the health system. However, embedding individualised, meaningful exercise and rehabilitation programmes, action plans and GP management

plans may be far more readily influenced, within the health system. The influence of socioeconomic disadvantage and psycho-social factors on potentially avoidable hospitalisations was recognised by health professional and patient participants alike, and health professionals were exploring innovative ways to address these issues. However, there was a level of frustration associated with the inflexibility of services to respond to these needs. Participants appreciated the value of the long term, local health professional workforce and pro-active local council in provision of services. Patients spoke of actively choosing care at the local hospital in preference to larger, more urbanised health services. Patients also spoke of their connection to the town and the region, often decades long. The role of 'place' in health and well-being has been well recognised (27).

Conclusion

Factors associated with potentially avoidable hospitalisation were complex and inter-related. These factors encompassed factors related to access to, and disease management within, primary care and socioeconomic disadvantage. These results suggest that there is a need for improved, contextualised, subtle indicators of access to primary care and quality healthcare to monitor and ultimately address reduce unnecessary hospitalisations.

Abbreviations

COPD
chronic obstructive pulmonary disease
COREQ
consolidated criteria for reporting qualitative research
GP
General Practitioner
HARP
hospital avoidance risk programme
HIP
health independence programme
ICD
international classification of disease
LGA
local government area
PAH
potentially avoidable hospitalisation

Declarations

Ethics approval and consent to participate

Ethics approval was granted by the Northeast Health Wangaratta Human Research Ethics Committee (project 175, August 2016). Signed, informed consent was obtained from each interviewee.

Consent for publication

Each author has provided their consent for publication.

Availability of data and materials

All data relevant to the study are included in the article or uploaded as supplementary information.

Competing interests

None to declare.

Authors' contributions

Author contributions: KG and TA designed the study, collected, analysed and interpreted data. RD acted as the independent third person during analysis. KG, TA and RD drafted the article and revised it critically for important intellectual content. SW and DK contributed to subsequent drafts. All authors read and approved the final draft.

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References

1. Australian Institute of Health and Welfare. Potentially preventable hospitalisations in Australia by age groups and small geographic areas, 2017–18. 2019 [Available from: https://www.aihw.gov.au/reports/primary-health-care/potentially-preventable-hospitalisations/contents/overview.
2. Australian Institute of Health and Welfare. Rural & remote health., 2019 [cited 2020 27/02/2020]. PHE 255:[Available from: https://www.aihw.gov.au/reports/phe/193/rural-remote-health/contents/access-to-health-care.

3. Passey ME, Longman JM, Johnston JJ, Jorm L, Ewald D, Morgan GG, et al. Diagnosing Potentially Preventable Hospitalisations (DaPPHne): protocol for a mixed-methods data-linkage study. BMJ Open. 2015;5(11):e009879.
4. Eggli Y, Desquins B, Seker E, Halfon P. Comparing potentially avoidable hospitalization rates related to ambulatory care sensitive conditions in Switzerland: the need to refine the definition of health conditions and to adjust for population health status. BMC Health Serv Res. 2014;14:25.
5. Hodgson K, Deeny SR, Steventon A. Ambulatory care-sensitive conditions: their potential uses and limitations. BMJ Qual Saf. 2019;28(6):429-33.
6. Coller RJ, Nelson BB, Sklansky DJ, Saenz AA, Klitzner TS, Lerner CF, et al. Preventing hospitalizations in children with medical complexity: a systematic review. Pediatrics. 2014;134(6):e1628-47.
7. Muenchberger H, Kendall E. Predictors of preventable hospitalization in chronic disease: Priorities for change. Journal of Public Health Policy. 2010;31(2):150-63.
8. Longman JM, Singer JB, Gao Y, Barclay LM, Passey ME, Pirotta JP, et al. Community based service providers' perspectives on frequent and/or avoidable admission of older people with chronic disease in rural NSW: a qualitative study. BMC Health Serv Res. 2011;11:265.
9. Longman JM, Rix E, Johnston JJ, Passey ME. Ambulatory care sensitive chronic conditions: what can we learn from patients about the role of primary health care in preventing admissions? Aust J Prim Health. 2018.
10. Falster MO, Leyland AH, Jorm LR. Do hospitals influence geographic variation in admission for preventable hospitalisation? A data linkage study in New South Wales, Australia. BMJ Open. 2019;9(2):e027639.
11. Nelson BB, Coller RJ, Saenz AA, Chung PJ, Kaplan A, Lerner CF, et al. How Avoidable are Hospitalizations for Children With Medical Complexity? Understanding Parent Perspectives. Acad Pediatr. 2016;16(6):579-86.
12. Saurman E. Improving access: modifying Penchansky and Thomas's Theory of Access. J Health Serv Res Policy. 2016;21(1):36-9.
13. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. International journal for quality in health care. 2007;19(6):349-57.
14. Braun V, Clarke V. Using thematic analysis in psychology. Qualitative research in psychology. 2006;3(2):77-101.
15. Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. BMC Medical Research Methodology. 2008;8:http://www.biomedcentral.com/content/pdf/1471-2288-8-45.pdf.
16. Australian Government Department of Health. Modified Monash Model. 2015 [Available from: http://www.doctorconnect.gov.au/internet/otd/publishing.nsf/Content/MMM_locator.
17. State Government of Victoria Department of Health. Benalla. Department of Health; 2014.

18. Glenister K, Disler R, Hulme A, Macharia D, Wright J. The mosaic of general practice bulk billing in regional Victoria. Aust J Gen Pract. 2019;48(1-2):77-8.
19. Benalla Health. Benalla Health Strategic Plan 2016-2020.; 2016.
20. Daly MR, Mellor JM, Millones M. Do Avoidable Hospitalization Rates among Older Adults Differ by Geographic Access to Primary Care Physicians? Health Services Research. 2018;53(S1):3245-64.
21. Ross Baker G, Abrams H, Bell C, Blackstien-Hirsch P, Brown G. Enhancing the Continuum of Care. Report of the Avoidable Hospitalization Advisory Panel.; 2011.
22. Provencher V, Clemson L, Wales K, Cameron ID, Gitlin LN, Grenier A, et al. Supporting at-risk older adults transitioning from hospital to home: who benefits from an evidence-based patient-centered discharge planning intervention? Post-hoc analysis from a randomized trial. BMC Geriatr. 2020;20(1):84.
23. Franks P, Williams GC, Zwanziger J, Mooney C, Sorbero M. Why do physicians vary so widely in their referral rates? J Gen Intern Med. 2000;15(3):163-8.
24. Selan S, Siennicki-Lantz A, Berglund J, Fagerstrom C. Self-awareness of heart failure in the oldest old-an observational study of participants, less than or equal to 80 years old, with an objectively verified heart failure. BMC Geriatrics. 2016;16.
25. Barnes S, Gott M, Payne S, Seamark D, Parker C, Gariballa S, et al. Communication in heart failure: perspectives from older people and primary care professionals. Health & Social Care in the Community. 2006;14(6):482-90.
26. Fry M, McLachlan S, Purdy S, Sanders T, Kadam UT, Chew-Graham CA. The implications of living with heart failure; the impact on everyday life, family support, co-morbidities and access to healthcare: a secondary qualitative analysis. BMC Family Practice. 2016;17(1):139.
27. Eyles J, Williams A. Sense of place, health, and quality of life: Ashgate; 2008.

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- COREQ.pdf
- Appendix1.docx