How is gout currently managed, and is there interest in changing the way we deliver care? A qualitative exploratory study

Elizabeth Hoon, Jessie Edwards, Philip Robinson,[B] Debra Rowett, Nigel Stocks, Helen I Keen,[A] Catherine L Hill[A]

[A]Joint senior authors.
[B]Deceased.

Background and objective
This study aimed to understand how gout is currently managed in Australian primary care and to assess the level of interest in changing the delivery of care for gout.

Methods
This pragmatic qualitative study was conducted among Australian general practitioners (GPs), pharmacists and adults living with gout. Semi-structured interviews were conducted and analysed using thematic analysis.

Results
The key theme identified was that chronic gout has low priority compared to managing other conditions, and management is often responsive to patient action. Lack of confidence was expressed about medication regimens for multimorbidities. Regarding changing care delivery, there was widespread interest in enhancing pharmacists' role in providing medication reviews and guidance, but there were conflicting views between some pharmacists and GPs about clinical decisions and prescribing arrangements.

Discussion
Interpreting findings based on Wagner's chronic care model, it is apparent that there are multiple potential opportunities to change practice that might improve gout management.

GOUT is a common and significant health problem with a prevalence of approximately 1.5% in the Australian community.[1] In addition to causing disability and joint damage, gout contributes to morbidity and mortality associated with chronic kidney disease and cardiovascular disease and might have a role in diabetes and obesity.[2] The effect on the community is increasing, with the World Health Organization Global Burden of Disease study reporting a 49% increase in gout disability-adjusted life years between 1990 and 2010 and concluding that 'this evidence is a significant prompt to optimise treatment and management of gout at individual, community and national levels'.[3] Despite this recommendation, studies indicate that gout remains significantly undertreated and outcomes for patients are far worse than might be expected.[4]

Gout is the result of hyperuricaemia and is effectively managed with urate-lowering therapy (ULT). Indications for ULT, ULT titration programs and objective targets of ULT are published and widely accepted.[5,6] However, there appear to be challenges in translating these guidelines into widespread clinical practice, as most Australians with gout are undertreated.[1] Evidence suggests that these barriers are driven by both patient and physician factors,[7] with a study based in the USA identifying that health providers and patients view gout differently.[8] Clinicians tended to view gout as easily managed, while patients reported challenges in effective management and purposeful nonadherence to medication.[8] A 2019 Australian study by Kong et al examining the factors that contribute to uncontrolled gout and hospital admissions emphasised the multiplying effects of lack of knowledge and understanding of gout from both patients and health providers; perceptions of gout being insignificant to patient overall health; levels of community-level misconstrued beliefs and stigma; and lack of continuity of care.[9]

This study aimed to enhance our understanding of the factors driving current clinical practice when managing patients living with gout across various Australian community settings, including a range of relevant clinicians' (general practitioners [GPs] and pharmacists) and patient perspectives. This study is timely given recent changes to the landscape of gout management. First, the 2016 publication of a clinical practice guideline for gout from the

American College of Physicians (ACP) differed substantially from many of the guidelines of established rheumatological bodies. This ACP guideline recommended against initiating long-term ULT in most patients after a first gout attack or in patients with infrequent attacks and did not provide specific advice concerning ULT.[10] Although an expert panel (the Gout, Hyperuricemia and Crystal-Associated Disease Network [G-CAN]) has since reviewed current evidence and published a position that re-emphasises a 'treat-to-target' approach for gout,[11] the ACP's guideline might have influenced management of gout in primary care. The second recent change to the primary care landscape in Australia has been a debate about the role of pharmacists, particularly in relation to their scope of practice in prescribing rights, with the introduction of pharmacy prescribing in Queensland for urinary tract infections.[12] Given these additions to the rheumatological and primary care landscape, this study was driven by the following research questions: First, how is gout currently managed in Australian primary care? Second, is there interest in changing the way we deliver gout care, and what changes might be implemented?

Methodology

Study design, setting and recruitment

An exploratory qualitative study design, informed by a limited realist philosophical position,[13] was chosen to understand how gout is currently managed in Australian primary care from multiple stakeholder perspectives. Attitudes about potential changes to current ways of delivering care for gout were also explored. This study was conducted among practising GPs and pharmacists and adult patients living with gout in an Australian community setting. Sampling for range was used,[14] with participants recruited across multiple states and work settings (eg community-based, general practice-based and hospital-based pharmacists) and living varying distances from major metropolitan centres. Participants were recruited across South Australia, Queensland and Western Australia. Recruitment of clinicians occurred through engagement with professional networks such as GP liaison services, Primary Health Networks (PHNs) and the Drug and Therapeutics Information Service (DATIS) medicines optimisation service. Recruitment of clinicians continued until preliminary data analysis indicated that there was sufficient information power to answer the research questions.[15] Recruitment of adult patients living with gout occurred through Arthritis Australia affiliate organisations and outpatient clinics in a South Australian hospital setting. Patient recruitment proved challenging, and consequently, the level of information power from this group is less certain.

Data collection and analysis

One-to-one semi-structured telephone interviews were conducted with participants by an experienced qualitative health services researcher (EH) throughout 2021. GPs and pharmacists were interviewed first, with preliminary analysis informing the data collection from patient participants. With consent, interviews were audio recorded (interview duration range: 15–35 minutes). A semi-structured interview guide was developed and adapted for each professional/patient group, with the interview guide pilot tested with practising GPs. Interview data were professionally transcribed verbatim and reviewed by researchers for accuracy. The transcripts were de-identified as soon as they were received back and stored securely on a password-protected computer. Data analysis was guided by the template style of thematic analysis by two researchers, EH and JE.[16] Selected interview transcripts from different participant groupings were read, with initial codes derived using the two broad study questions as a general a priori frame. Coding was refined inductively, with data and researcher triangulation utilised.[17] Discussions involving all the research team (including rheumatologists, a pharmacist and a GP) were used to gain agreement on the clustering of codes and to generate final themes. This study received ethics approval from the Central Adelaide Local Health Network Low Risk Ethics committee (reference number 14094).

Results

Overall, data were collected from 25 participants (nine pharmacists [three hospital based and six community based], six GPs and 10 patients) (Table 1). GPs recruited to this study tended to be older than the pharmacists recruited, and all but one of the patient participants were men. The key themes generated are described in relation to the two research questions: First, how is gout currently managed in primary care? Second, is there interest in changing the way we deliver care, and what changes might be implemented? For each question, a summary of the key themes is presented followed by further details of each theme. Supporting quotes are presented in Tables 2 and 3.

Question 1: How is gout currently managed in primary care?

Gout is typically managed by GPs and patients with acute and long-term preventative medicine. It was acknowledged by many GPs and some patients who participated in this study that gout was considered a lower priority compared to other patient comorbidities (Question 1 [Q1] Theme 1), and for some patients, it was not recognised as a pressing issue for which to seek medical care (Q1 Theme 3). There was a broad understanding of appropriate ULT, but there was some confusion reported by GPs about the most up-to-date protocols, especially when managing patients with multimorbidities (Q1 Theme 4). There was general agreement that gout flares were managed well when patients had prompt access to relieving medicine such as colchicine (Q1 Theme 2). Overall, there was recognition that the long-term management of and prophylaxis protocol for gout could be improved.

Q1 Theme 1: Gout is a low priority compared to other comorbidities

It was widely acknowledged that most patients with gout commonly experience other significant health issues, such as diabetes and cardiovascular disease. GPs reported that when patients were not experiencing a flare, regular and ad-hoc GP appointments were often arranged around their other health conditions. Other factors identified as affecting the prioritisation of gout were that flares were generally suppressed by the prescribed medicine; moreover, if the patient did not have an ongoing prescription, then there was limited impetus and opportunity to discuss and monitor for gout.

Q1 Theme 2: Challenges to timely access to GPs

Overall, clinician participants in this study reported that gout flares were straightforward to treat and managed fairly well. In some settings (eg regional) and circumstances (eg no appointments available with a GP), pharmacists were concerned that it could be difficult for patients to access a prescription for the acute episode in a timely fashion to relieve their pain. Several pharmacists highlighted that over-the-counter anti-inflammatories were not sufficient to help patients manage their gout-related pain and that this could result in additional burden for the patient and the health system through patients subsequently attending the emergency department at the local hospital.

Table 1. Participant demographic characteristics

Participant ID	Sex	Age group (years)[A]	Role	Location
1	Male	<35	Pharmacist	Hospital
2	Female	<35	Pharmacist	Hospital
3	Female	35–54	GP	GP practice, mixed billing
4	Female	35–54	GP	GP practice, mixed billing
5	Female	35–54	Pharmacist	GP pharmacy
6	Female	<35	Pharmacist	Hospital
7	Male	35–54	Pharmacist	Community pharmacy
8	Male	35–54	GP	Aged care
9	Female	35–54	Pharmacist	Community pharmacy
10	Female	35–54	Pharmacist	GP practice, mixed billing
11	Female	35–54	Pharmacist	Community pharmacy
12	Male	≥55	GP	GP practice, mixed billing
13	Female	35–54	Pharmacist	Community pharmacy
14	Male	35–54	GP	Unassigned
15	Male	≥55	GP	GP mixed billing
16	Female	35–54	Patient	Not applicable
17	Male	≥55	Patient	Not applicable
18	Male	≥55	Patient	Not applicable
19	Male	35–54	Patient	Not applicable
20	Male	≥55	Patient	Not applicable
21	Male	≥55	Patient	Not applicable
22	Male	≥55	Patient	Not applicable
23	Male	35–54	Patient	Not applicable
24	Male	≥55	Patient	Not applicable
25	Male	≥55	Patient	Not applicable

[A]Age groups: <35, 35–54 or ≥55 years.

GP, general practitioner; ID, identification.

No patients in this study reported attending an emergency department to access care due to a gout flair, although one reported being an inpatient for gout.

Q1 Theme 3: Patient action drives long-term gout management

GPs commonly talked about the management of gout in relation to how they treated the whole of the patient over time. GPs talked about the need to respect patient choices and highlighted that not all patients wish to take long-term medication, especially if they are not experiencing gout flares. Several patients in this study acknowledged that they had not taken gout medicine because of side effects and generalised hesitancy about using medications long term. GP-identified factors contributing to how they delivered care were the demographics of patients who tend to have gout, patients' preferences and the difficulty for patients enacting lifestyle changes. Several GPs and patients acknowledged that this approach to care might lead to challenges in managing gout in the longer term where prescriptions have lapsed.

Changes to clinical management of gout were reportedly driven by the symptoms that led patients to seek care from GPs. However, some patients reported that they did not seek care from their GP even when they experienced gout-related pain. Moreover, several patient participants reported that other psycho-social factors had affected how they had managed gout and whether they had sought timely medical treatment.

Q1 Theme 4: Lack of prescribing confidence when multimorbidities present

Although there was widespread acknowledgement that guidelines and resources for gout management exist (Therapeutic Guidelines [www.tg.org.au] and Australian Medicines Handbook [https://amhonline.amh.net.au] were commonly mentioned by GPs), some GPs reported a lack of confidence about approaches to prescribing to achieve optimal ULT. The transition from acute to preventative management was identified as a prescribing challenge, particularly for patients with multimorbidities. Allopurinol dosage was a specific point of concern for some GPs and pharmacists.

Question 2. Is there interest in changing the way we deliver care, and what changes might be implemented?

Overall, most GPs and pharmacists in this study were not looking to disrupt the perceived centrality of GPs managing gout. However, the role of pharmacists in medication reviews and medication guidance to GPs was valued by all stakeholder groups, and most pharmacists reported that they were in a position to enhance their role in this area (Q2 Theme 1). Many pharmacists highlighted the importance of having patient-focused educational resources for gout (Q2 Theme 4), and GPs were interested in refresher education related to treatment protocols around transitions between flares and preventative treatments and for patients with multimorbidities (Q2 Theme 4).

Pharmacists in this study highlighted their role in counselling patients about lifestyle,

Table 2. Illustrative quotes supporting themes generated for Question 1: How is gout currently managed in primary care?

Question 1 themes	Supporting quotes
Theme 1: Gout is a low priority compared to other comorbidities As a condition with acute episodes, the longer-term management of gout has low priority compared to managing other comorbidities	*I'm on lots of other drugs but not for gout.* (Participant 18) *But not for gout, okay. Yeah.* (Facilitator) *No. I'm on blood pressure and cholesterol and asthma*. (Participant 18, patient)
	I think GPs get distracted by other things that they feel they need to be doing sometimes. Also, patients get distracted by bringing a number of different things to the GP, and the gout, which is kind of doing okay and then flares up occasionally and sort of ends up on the bottom of the list. (Participant 14, GP)
	Yeah, when people are not on preventative medication, I guess it's often – I probably often miss it – (I) *don't think about it* (to see where things are unclear) *with regards to the gout … flare up.* (Participant 3, GP)
Theme 2: Challenges to timely access to GPs Gout flares respond well to medicine, but there might be access issues to GPs' prescriptions	*So, we will manage it the best we can until they can get in to see somebody. But I mean if a situation is where it gets too bad in the middle of the night, then they just have to go to A&E. … It's these acute attacks that come at inconvenient times, obviously, that are mainly our problem.* (Participant 9, pharmacist)
Theme 3: Patient action drives long-term gout management The long-term management of gout is often responsive and reactive to patient action	*If you get an episode once every 5 years, you may not want to feel that you take a tablet every day to prevent something that happens once every 5 years and, between those 2 points, there's a spectrum, and it is ultimately for the individual to decide, being aware of all the pluses and minuses. So, what are the advantages of the preventative treatment, reducing potential damage to the joint with lowering uric acid? But the downside is every medication has side effects, and there is some but not massive extents, so that is an important consent, decision for the individual, and circumstances vary.* (*Participant* 15, GP)
	No, it's just older middle-aged blokes who just can't be bothered taking a tablet every day when they're well. That's the rule of thumb. (Participant 12, GP)
	There are some irritating things. Allopurinol comes in very large packs. I don't know if it's 120 or 200 pills. So even though I get a repeat by the time I need the repeat, the script is out of date (Participant 18, patient)
	I went back to my GP and I said – because I was taking chronic medication … allopurinol … which I had to take every evening, which I did. But I simply – this pain is just never, ever going away. (Participant 17, patient)
	When you have those flares, do you go and see the GP, or do you see anybody else? (Facilitator) *No, I don't. I just put up with the pain*. (Participant 16, patient)
Theme 4: Lack of prescribing confidence when multimorbidities present Lack of confidence in medication regimes by pharmacists and by some GPs, particularly when people have multimorbidities	*Yep. My biggest issue is that initial starting allopurinol, and you've got to cover them with either colchicine or a non-steroidal for a certain number of weeks or months. There's no official guidance on that. Everyone's got a different – every resource you read has a different … protocol. But it's just that starting … There's no one recommendation that I can find*. (Participant 12, GP)
	I think acute gout is often well managed, but then there's all the … challenge comes in then if you're starting a uricosuric agent, the risk of another flare, how do you do that, the choice of treatment in an acute flare for somebody with multimorbidities? (Participant 9, pharmacist)
	Also, there's not a lot of guidance around things like allopurinol dosing and when they should be going up or down, and patients, how often they're getting exacerbations and things like that. (Participant 2, pharmacist)

A&E, accident and emergency; GP, general practitioner.

diet and medication, and this was understood to be acceptable to patients in the study (Q2 Theme 2). There were conflicting views expressed between some pharmacists and many GPs about the potential to extend the scope of practice for pharmacists in testing and prescribing for gout (Q2 Theme 3) (refer to Table 3 for supporting quotes).

Q2 Theme 1: Enhancing pharmacists' role in providing medication reviews

A key area of concern identified by many pharmacists in this study was that there are patients with unmonitored gout and unreviewed treatment regimens who would benefit from medication reviews. Pharmacists noted that gout is rarely a prompt for review. There was interest expressed in enhancing pharmacists' role in providing medication reviews and advice to GPs for both long-term and transitional gout treatment.

Q2 Theme 2: Counselling patients as a key role of pharmacists

Pharmacists reported that one of their main roles in the management of gout was regular provision of medication advice and lifestyle counselling to pharmacy customers when filling their prescriptions. Patient participants also expressed confidence in the advice provided by pharmacists, with several patients noting that they purposefully sought medication advice from pharmacists. One participant reported that they appreciated the opportunity to seek advice about the management of gout from a naturopath who was part of their local pharmacy staff.

Q2 Theme 3: Who should prescribe gout medication?

While the central role of GPs in managing gout was accepted by most participants in this study, being approached by a patient in acute pain was reported as concerning for many pharmacists, as they were only able to provide over-the-counter anti-inflammatory medication. In settings where timely access to GPs is a challenge, and appropriate caution is taken, some pharmacists considered an extension of their scope of practice to dispensing colchicine as appropriate.

When asked, GPs expressed concern about the potential for pharmacists to extend their scope of practice for gout management. Reasons for this concern included the need for medical input beyond medication prescribing and potential confusion about clinical roles for patients. When specifically asked, many patients in this study stated that they would be open to extending the role of pharmacists in the areas of testing and prescribing medication for gout.

Q2 Theme 4: Need for education about allopurinol use/dosage and evidence-based diet and lifestyle recommendations

Refresher education related to treatment protocols, especially for managing medication transitions between flares and preventative treatments and for patients with multimorbidities, was identified as an area of interest by GPs and some pharmacists. Clinicians indicated that educational support should be delivered through standard professional development pathways. Clear patient education resources about the benefits of preventative medication adherence was also highlighted as an area of potential improvement.

Discussion

To identify opportunities to improve gout care in primary health settings, it is important to compare the findings of the present study not only to relevant empirical studies but also consider them in relation to contemporary chronic care models and theories,[18] including those focused on understanding how patient complexities affect care and health outcomes.[19,20] This study found that as a chronic condition that often presents with acute flares, gout is commonly not considered a pressing priority for patients or GPs unless painful gout episodes drive patients to seek care. We also found that as many patients with gout have other health conditions (eg diabetes and cardiovascular disease) and/or live with psycho-social challenges, gout might remain a low priority for ongoing management. These findings align with those of Kong et al (2019) emphasising the lack of priority given to gout by patients despite pain and disability and the poor understanding of optimal management by both patients and health providers.[9] In contrast to a US-based study by Harrold et al,[8] where health providers perceived medication adherence as relatively good, GPs in our study acknowledged the challenge of translating clinical guidelines into practice while practising 'minimally disruptive medicine'.[21] They talked about the challenge of gout management while working to lessen treatment burden for patients who might not take gout medications because of side effects or because they were generally hesitant about taking preventative medication.[20]

The present study also revealed that despite clinical guidelines for gout management being available, there remains uncertainty for some clinicians and patients on treatment regimens, particularly when patients live with multimorbidities. This aligns with the findings of a recent international systematic review and quality assessment of gout clinical practice guidelines,[22] which emphasised that while they appear to perform well in scope and purpose, and clarity of presentation, guidelines do less well in the domain of 'Applicability', indicating that improving the usefulness of gout guidance is challenging. Although not specifically addressed by the participants, some of the uncertainty expressed by clinicians might be driven by the 'treat to symptoms' approach recommended by the ACP,[10] which is articulated by clinicians in Q1 Theme 3 and contrasts with the more widely accepted treat-to-target approach advocated by the European Alliance of Associations for Rheumatology (EULAR)[5] and the American College of Rheumatology (ACR).[6] GPs and pharmacists in this study identified that particular advice on appropriate use and titration of medication, especially following an acute episode and in the context of patients living with common multimorbidities, would be useful.

As Wagner's chronic care model (CCM) highlights,[18] to improve care, multicomponent practice changes in the areas of self-management support, decision support, delivery system design, clinical information systems, healthcare organisation and community resources can strengthen provider–patient relationships and health outcomes.[23] The findings here point to potential improvements in practice in many of these CCM domains (identified in italic type below). Of particular note, most clinicians in this study agreed that patients could benefit from regular serum urate monitoring, and patients with complex health conditions with multiple medications should be appropriately monitored,

Table 3. Illustrative quotes supporting themes generated for Question 2: Is there interest in changing the way we deliver care, and what changes might be implemented?

Question 2 themes	Supporting quotes
Theme 1: Enhancing pharmacists' role in providing medication reviews Enhancing pharmacists' role in providing medication reviews and advice to GPs for both long-term and transitional gout treatment	*I think a lot of people when they think of gout – and I know they go, oh, drinking too much, but I haven't done this, I haven't done that. They don't look at their medications. So that's somewhere where we can be involved, as you said, like picking up their blood pressure medications or their diuretics or whatever else may be – I suppose giving them the gout in the first place.* (Participant 9, pharmacist)
Theme 2: Counselling patients as a key role of pharmacists Pharmacists consider counselling patients about lifestyle, diet and medication a key part of their role	*Normally, I talk to them about at least what are they eating or what seems to be flaring it up and that sort of thing. I suppose just trying to work out if it's gout or something else that's causing that pain in their foot.* (Participant 11, pharmacist)
	They (the pharmacist) *just told me, they just sat me down and said, listen, this can happen or this could happen or this, until you get used to it. … Pharmacists are really good like that. I've got a really good pharmacist. I mean, I always ask them for advice. If I'm taking anything new. I've always asked them what it could do to you, and they know.* (Participant 17, patient)
Theme 3: Who should prescribe gout medication? Conflicting views between some pharmacists and GPs about the clinical decisions and prescribing arrangements for gout	*We have quite a bit at certain times of the year. It normally happens, as you know, on a Friday afternoon when nobody's got appointments available or anything. So yeah, being – I know we have quite a bit in the community, and then – but trying to get somebody in to see somebody for an acute attack can be quite tricky.* (Participant 9, pharmacist)
	It might be quite nice if we had some colchicine or something like that available. I mean, not everyone can take an NSAID, and an NSAID isn't always effective for gout pain in every patient and, yes, there is – obviously there's some negatives in regards to everyone using NSAIDS too, which can make it a little bit difficult. … My only hesitation would be in regards to not having availability on pathology or updated pathology potentially, if it was linked with high uric acid or urates, you know what I mean? Like, in terms of that, if it was a diagnosed repeat attack of gout, and we were very, very comfortable with the fact that it potentially presented, is exactly the same, as the previous attack, I'd be comfortable in treatment but not if it was an initial attack. (Participant 13, pharmacist)
	But I don't think I'd be able to hand over care completely to a pharmacist. Just because I think there still needs to be some medical advice of the issues. (Participant 4, GP)
	At least with pharmacists, I worry that things could happen that I'm not kept in the loop on … it's a good opportunity, they're a vulnerable group, those guys, for a lot of other reasons. Maybe having a good relationship with their GP through how you manage their gout together could then make them want to talk about depression or angina, and whatever. … But (in relation to other allied health involvement) *there's just a bit of a risk over engaging patients with too many appointments, so it would be better to have a sort of informal process, rather than a kind of a – too many structured reviews in a lot of cases.* (Participant 14, GP)
	Well, at the moment, I see it more as a threat, to be honest. I find that pharmacists do tend to do more and more things … like with sleep apnoea and insomnia management. (I find it a bit) *strange to take away – I mean pharmacists are really good at medication-related things. If they start to mingle more with what the doctor should be doing it takes* (that) *away, and it's a bit confusing for the patients too.* (Participant 3, GP)
Theme 4: Education needs Need for education about allopurinol use/dosage and evidence-based diet and lifestyle recommendations	*I think the other aspect is just a lack of education. As I mentioned, my only education I have received was from a tertiary degree that didn't really look at monitoring urate levels. How high can a urate-lowering therapy go in terms of doses or what's the – and I don't believe I received any further training after that. So there's definitely a knowledge gap for pharmacists.* (Participant 1, pharmacist)
	Yeah, I think pharmacists feel so much more confident maybe providing advice around diabetes or hypertension, but, when it came to gout, they potentially – some would hesitate and sort of go, oh, I don't know near as much about that one. (Participant 13, Pharmacist)
	Education is good and the sort of education that's still straightforward … a little kind of a table where you can lay out doses of allopurinol, preventative medications and duration of that, and when to have your blood tested, what the target is … all on one page, which is great. … I think … (for) *GPs, to sort of remind them and their patients that gout is treatable and preventable and that if you do what your doctor's telling you. In those cases, we'll fix it pretty well. So, a few that are kind of* (unclear) *at the top that are quite good as well. Especially for the GPs that aren't quite as confident because I think it's the confidence that really the issue.* (Participant 14, GP)

GP, general practitioner; NSAID, non-steroidal anti-inflammatory drugs.

including through medicine reviews. Identified barriers to regular monitoring include inadequate reminder systems (*Clinical Information Systems*), competing demands within clinical consultations (*Delivery System Design* and *Organisation of Healthcare*) and management of multiple conditions by the patient (*Self-Management Support*). Taking greater advantage of pharmacists' role in review and guidance for gout medication, especially related to long-term use of gout medication and poly-pharmacy (*Delivery System Design*), might be useful for both GPs and patients. Although there is some evidence that pharmacists can facilitate a 'treat-to-target' approach,[24] GPs were concerned about pharmacists driving the management of gout. Pharmacists themselves seemed focused on acute management rather than the potential for enabling a treat-to-target approach. It must be noted that in this analysis, the themes of diagnosing and ongoing management versus medication review were not explored or raised by the participants. This might be an area of future exploration to better understand stakeholder concerns.

Pharmacists stressed their role in the provision of lifestyle education to patients living with gout and requested consistent evidence-based educational resources to support this role (*Self-Management Support* and *Community Resources and Policies*). It is noted that while involvement of a naturopath and incorporation of their advice was valued by one of the patient participants in this study, this does not align with evidence-based recommendations or any existing guidelines. To address perceived barriers to accessing timely GP care, several pharmacists in this study expressed an interest in extending their scope of practice for gout management to being responsible for testing and/or prescribing for established gout. While GPs had concerns about this potential change to the delivery of care, there is a need to consider care pathways to support patients in gaining timely access to medication for gout flares where there are barriers such as out-of-date scripts (*Clinical Information Systems*) and long wait times to consult with a GP (*Organisation of Healthcare*).

A key strength of this qualitative study was its use of appropriate research strategies and techniques to promote rigour, including purposive sampling, consistent data collection techniques, peer review and ongoing analysis by two researchers to develop the thematic findings. Although it is recognised that this study has focused on the management of gout within the specific contextual setting of Australian primary care, affecting the straightforward transfer of findings, it is anticipated that learnings from this study will have relevance for other countries with similar primary healthcare systems. Despite the use of purposive sampling to recruit participants with varied clinical and lived experiences, it is acknowledged that the information power generated from patients' data in this study was somewhat limited because of study recruitment challenges.[15] Comparing our study findings to a recent Australian study of outpatient gout patients provides assurance that our data analysis offers insights in line with other relevant contemporary studies.[9]

Many of the challenges in delivering optimal primary care for gout identified here relate to the complexities of providing ongoing gout management in often-crowded primary care consultations while also attending to the needs and preferences of patients living with multiple health and psycho-social challenges, as well as attempting to lessen the treatment burden for patients. By interpreting the findings attained through Wagner's CCM, it is apparent that there are multiple potential changes to practice that might improve gout management, including the development of accessible and applicable decision support tools for use in primary care consultations, evidence-based educational resources for patients to support self-management for use in pharmacies and elsewhere in the community, and the promotion of pharmacists' roles in supporting medication review and guidance to GPs and patients for gout medication.

Authors

Elizabeth Hoon PhD, Researcher, Discipline of General Practice, Adelaide Medical School, University of Adelaide, Adelaide, SA; Course Coordinator, School of Public Health, University of Adelaide, Adelaide, SA

Jessie Edwards PhD, Researcher, Discipline of General Practice, Adelaide Medical School, University of Adelaide, Adelaide, SA

Philip Robinson PhD, Associate Professor, Department, School of Clinical Medicine, Faculty of Medicine, University of Queensland, Brisbane, Qld; Senior Staff Specialist, Department of Rheumatology, Royal Brisbane and Women's Hospital, Metro North Hospital and Health Service, Brisbane, Qld

Debra Rowett PSM, AdvPracPharm, Discipline Leader Pharmacy External Relations, Clinical and Health Sciences, University of South Australia, Adelaide, South Australia; Service Director, Drug and Therapeutics Information Service, Southern Adelaide Local Health Network, Adelaide, SA

Nigel Stocks PhD, Professor of General Practice, Discipline of General Practice, Adelaide Medical School, University of Adelaide, Adelaide, SA; Clinically Practising GP, Hills Medical Service, Adelaide, SA

Helen I Keen PhD, Clinical Associate Professor, School of Medicine, University of Western Australia, Perth, WA; Head of Service, Rheumatology Department, Fiona Stanley Hospital, Perth, WA

Catherine L Hill MD, Staff Specialist, Rheumatology Unit, Royal Adelaide Hospital, Adelaide, SA; Clinical Professor, Discipline of Medicine, The University of Adelaide, Adelaide, SA; Director, Rheumatology Unit, The Queen Elizabeth Hospital, Adelaide, SA; Chair, South Australian Medicine Evaluation Panel, Adelaide, SA

Competing interests: DR is a Director at Therapeutic Guidelines. HIK has received funding from Roche and Therapeutic Guidelines Australia and is a Board Member of the Australian Rheumatology Association. CLH has received funding from The National Health and Medical Research Council, the Hospital Research Foundation, Arthritis Australia and the Medical Research Future Fund. CLH was a Member of the Pharmaceutical Benefits Advisory Board and was a Board Member of the Australian Rheumatology Association (2016–22), the Hospital Research Foundation and the Australian and New Zealand Vasculitis Society. EH, JE, PR, NS and HIK have no competing interests to declare.

Funding: This study was supported by Ramiciotti Health Investment Grants.

Provenance and peer review: Not commissioned, externally peer reviewed.

Correspondence to:
Elizabeth.hoon@adelaide.edu.au

References

1. Robinson PC, Taylor WJ, Dalbeth N. An observational study of gout prevalence and quality of care in a national Australian general practice population. J Rheumatol 2015;42(9):1702–07. doi: 10.3899/jrheum.150310.
2. Karis E, Crittenden DB, Pillinger MH. Hyperuricemia, gout, and related comorbidities: Cause and effect on a two-way street. South Med J 2014;107(4):235–41. doi: 10.1097/SMJ.0000000000000082.
3. Smith E, Hoy D, Cross M, et al. The global burden of gout: Estimates from the Global Burden of Disease 2010 study. Ann Rheum Dis 2014;73(8):1470–76. doi: 10.1136/annrheumdis-2013-204647.
4. Owens D, Whelan B, McCarthy G. A survey of the management of gout in primary care. Ir Med J 2008;101(5):147–49.
5. Richette P, Doherty M, Pascual E, et al. 2016 updated EULAR evidence-based recommendations for the management of gout. Ann Rheum Dis 2017;76(1):29–42. doi: 10.1136/annrheumdis-2016-209707.
6. FitzGerald JD, Dalbeth N, Mikuls T, et al. 2020 American College of Rheumatology Guideline for the Management of Gout. Arthritis Care Res (Hoboken) 2020;72(6):744–60. doi: 10.1002/acr.24180.
7. Rogenmoser S, Arnold MH. Chronic gout: Barriers to effective management. Aust J Gen Pract 2018;47(6):351–56. doi: 10.31128/AJGP-11-17-4384.

8. Harrold LR, Mazor KM, Velten S, Ockene IS, Yood RA. Patients and providers view gout differently: A qualitative study. Chronic Illn 2010;6(4):263–71. doi: 10.1177/1742395310378761.
9. Kong DCH, Sturgiss EA, Dorai Raj AK, Fallon K. What factors contribute to uncontrolled gout and hospital admission? A qualitative study of inpatients and their primary care practitioners. BMJ Open 2019;9(12):e033726. doi: 10.1136/bmjopen-2019-033726.
10. Qaseem A, Harris RP, Forciea MA; Clinical Guidelines Committee of the American College of Physicians. Management of acute and recurrent gout: A clinical practice guideline from the American College of Physicians. Ann Intern Med 2017;166(1):58–68. doi: 10.7326/M16-0570.
11. Dalbeth N, Bardin T, Doherty M, et al. Discordant American College of Physicians and international rheumatology guidelines for gout management: Consensus statement of the Gout, Hyperuricemia and Crystal-Associated Disease Network (G-CAN). Nat Rev Rheumatol 2017;13(9):561–68. doi: 10.1038/nrrheum.2017.126.
12. Select Committee on Access to Urinary Tract Infection Treatment. Submissions open: Select Committee on Access to Urinary Tract Infection Treatment [press release]. Australian Medical Association (South Australia), 2023. Available at www.parliament.sa.gov.au/en/News/2023/01/13/00/42/News-Article [Accessed 22 February 2024].
13. King N, Brooks J, Tabari S. Template analysis in business and management research. In: Ciesielska M, Jemielniak D, editors. Qualitative methodologies in organization studies: Volume II: Methods and possibilities. Springer International Publishing, 2018; p. 179–206. doi: 10.1007/978-3-319-65442-3_8.
14. Small ML. 'How many cases do I need?': On science and the logic of case selection in field-based research. Ethnography 2009;10(1):5–38. doi: 10.1177/1466138108099586.
15. Malterud K, Siersma VD, Guassora AD. Sample size in qualitative interview studies: Guided by information power. Qual Health Res 2016;26(13):1753–60. doi: 10.1177/1049732315617444.
16. King N, Brooks J. Thematic analysis in organizational research. In: Cassell C, Cunliffe A, Grandy G, editors. The Sage handbook of qualitative business and management research methods: Methods and challenges. Sage, 2018; p. 219–36. doi: 10.4135/9781526430236.n14.
17. Liamputtong P. Qualitative research methods eBook. 5th edn. Oxford University Press, 2020.
18. Wagner EH, Austin BT, Von Korff M. Organizing care for patients with chronic illness. Milbank Q 1996;74(4):511–44. doi: 10.2307/3350391.
19. Shippee ND, Shah ND, May CR, Mair FS, Montori VM. Cumulative complexity: A functional, patient-centered model of patient complexity can improve research and practice. J Clin Epidemiol 2012;65(10):1041–51. doi: 10.1016/j.jclinepi.2012.05.005.
20. May CR, Eton DT, Boehmer K, et al. Rethinking the patient: Using burden of treatment theory to understand the changing dynamics of illness. BMC Health Serv Res 2014;14(1):281. doi: 10.1186/1472-6963-14-281.
21. May C, Montori VM, Mair FS. We need minimally disruptive medicine. BMJ 2009;339:b2803. doi: 10.1136/bmj.b2803.
22. Li Q, Li X, Wang J, et al. Diagnosis and treatment for hyperuricemia and gout: A systematic review of clinical practice guidelines and consensus statements. BMJ Open 2019;9(8):e026677. doi: 10.1136/bmjopen-2018-026677.
23. Coleman K, Austin BT, Brach C, Wagner EH. Evidence on the chronic care model in the new millennium. Health Aff (Millwood) 2009;28(1):75–85. doi: 10.1377/hlthaff.28.1.75.
24. Goldfien R, Pressman A, Jacobson A, Ng M, Avins A. A pharmacist-staffed, virtual gout management clinic for achieving target serum uric acid levels: A randomized clinical trial. Perm J 2016;20(3):15–234. doi: 10.7812/TPP/15-234.

correspondence **ajgp@racgp.org.au**