

Safer Prescribing and Care for the Elderly (SPACE): feasibility of audit and feedback plus practice mail-out to patients with high-risk prescribing

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ABSTRACT

INTRODUCTION: High-risk prescribing in general practice is common and places patients at increased risk of adverse events.

AIM: The Safer Prescribing and Care for the Elderly (SPACE) intervention, comprising audit and feedback plus practice mail-out to patients with high-risk prescribing, was designed to promote medicines review and support safer prescribing. This study aims to test the SPACE intervention feasibility in general practice.

METHODS: This feasibility study involved an Auckland Primary Health Organisation (PHO), a clinical advisory pharmacist, two purposively sampled urban general practices, and seven GPs. The acceptability and utility of the SPACE intervention were assessed by semi-structured interviews involving study participants, including 11 patients with high-risk prescribing. Interviews were audio-recorded, transcribed verbatim and analysed using a general inductive approach to identify emergent themes.

RESULTS: The pharmacist said the SPACE intervention facilitated communication with GPs, and provided a platform for their clinical advisory role at no extra cost to the PHO. GPs said the feedback session with the pharmacist was educational but added to time pressures. GPs selected 29 patients for the mail-out. Some GPs were concerned the mail-out might upset patients, but patients said they felt cared for. Some patients intended to take the letter to their next appointment and discuss their medicines with their GP; others said there were already many things to discuss and not enough time. Some patients were confused by the medicines information brochure.

DISCUSSION: The SPACE intervention is feasible in general practice. The medicines information brochure needs simplification. Further research is needed to test the effect of SPACE on high-risk prescribing.

KEYWORDS: Prescription medicines; patient safety; ageing; primary health care

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Introduction

Avoidable adverse drug event (ADE) hospital admissions are common, costing health systems billions of dollars every year.^{1–3} Approximately 10% of hospital admissions in older people are medication related, of which more than half are

considered preventable.^{4,5} Most ADE admissions are caused by commonly prescribed drugs. Non-steroidal anti-inflammatory drugs (NSAIDs), antiplatelet medications and anticoagulants together account for one-third of ADE admissions.^{1,5,6}

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WHAT GAP THIS FILLS

What is already known: High-risk prescribing and avoidable adverse drug event hospitalisations in older people are common, costly and distressing. The most effective, cost-effective and practical approach to safer prescribing in everyday practice is not yet known.

What this study adds: The SPACE intervention, comprising audit and feedback plus practice mail-out to patients with high-risk prescribing, is feasible in general practice. Work is needed to test in a larger trial the effect of the SPACE intervention on rates of high-risk prescribing.

The greatest predictor of ADEs is the number of medicines a person is taking.⁷ Polypharmacy, the taking of multiple medicines, is increasing as more people are living longer with more chronic conditions. Despite evidence to guide safe prescribing, high-risk prescribing is also common in older people, with one in five prescriptions considered potentially inappropriate.^{8–10} High-risk prescribing places patients at increased risk of ADEs. While patients' individual circumstances may justify high-risk prescribing, it is important that medicines are regularly reviewed for on-going appropriateness and discontinued or initiated as appropriate, to minimise harm.¹¹ However, there are many barriers to the regular review of medicines in everyday general practice.¹²

Variation in prescribing between practices and regions suggests prescribing could be improved.^{13,14} However, the most effective, cost-effective and practical approach to safer prescribing in everyday practice is not yet known.^{15,16} Translating research evidence into practice is difficult. Complex interventions as part of on-going quality improvement programmes show the most promise, in particular interventions that combine audit, feedback, incentives to participation and patient engagement.^{15,17–19} The Australian Veterans' Medicines Advice and Therapeutics Education Service (MATES) quality improvement programme, which delivers four topics per year, has shown promising results in the Australian veterans population.¹⁸ The MATES programme is based on sound theoretical underpinnings; the intervention uses prescribing audits, patient-based feedback and education for GPs,

and a practice mail-out to at-risk patients with an information brochure and a letter inviting them to discuss their medicines when they next see their GP. The mail-out to empower patients and promote patient engagement in medicines management is a novel addition that may be key to provoking change in GP prescribing behaviour.²⁰

The MATES programme provides a model that could be adapted for use in New Zealand primary care. In New Zealand, patients are registered with one general practice that is responsible for all on-going prescribing, including of medicines initiated by a specialist; nearly all practices use computer practice management systems capable of generating prescribing data, lists of patients and patient letters; and all practices are organised into Primary Health Organisations (PHOs) that hold funding contracts and organise initiatives to improve patient care. Many larger PHOs already employ clinical advisory pharmacists. An adapted MATES programme could be delivered through PHOs to promote regular medicines review and support safer prescribing in general practice.

We developed the Safer Prescribing and Care for the Elderly (SPACE) intervention by adapting the MATES intervention to the New Zealand primary care context. The aim of this study was to test the feasibility of the SPACE intervention in one Auckland PHO, involving two practices and seven general practitioners (GPs). For the feasibility study, we chose the high-risk prescribing topic of NSAIDs and antiplatelet medications. We chose this topic because these medicines cause many ADE admissions and fatal ADEs,⁵ their high-risk prescribing is common,^{21,22} their prescribing can be improved^{15,17,18} and patients with risk factors can be identified. Findings from this feasibility study will inform optimisation of the SPACE intervention before testing in a larger trial its effect on high-risk prescribing rates.

Methods

The setting was two purposively sampled urban general practices; one medium-sized and one solo practice, in one Auckland PHO. Participants were the PHO clinical advisory pharmacist, all seven GPs in the participating practices, and

patients identified as having high-risk prescribing who received the mail-out.

The SPACE intervention comprises a practice audit to identify patients with high-risk prescribing; patient-specific feedback and education to GPs delivered by the PHO clinical advisory pharmacist at an outreach visit; a tick-box for GPs to indicate which patients are to receive the mail-out; and a practice mail-out to patients with information about their medicines and a letter inviting them to discuss their medicines when they next see their GP (Appendix 1).

Feasibility of the intervention was assessed using semi-structured interviews. Patient participants were recruited via letter of invitation that was included in the intervention mail-out. One researcher (RT) conducted all the interviews. Interviews were guided by an interview schedule that included several open-ended questions with flexible prompts (Appendix 2). The interviews explored participants' views on the acceptability and utility of the intervention. Participants were asked to express their views, and informed that they would not be judged or compared, and that their responses would not affect their relationship with their GP or their usual care. All interviews were audio-recorded with permission and transcribed verbatim. Transcripts were read and coded, and the codes grouped into emergent themes using the general inductive approach.^{23,24} A final list of themes and subthemes was developed.

Ethical approval for this interview study was obtained from the University of Auckland Human Participants Ethics Committee (Ref no. 017983).

Results

The practice audits identified 86 patients with high-risk prescribing for the chosen topic. The PHO clinical advisory pharmacist delivered one-on-one feedback and education to all seven GPs. GPs selected 29 patients to receive the mail-out, and 13 (45%) responded via email or mail to indicate willingness to interview. The main reason GPs chose not to send the mail-out was because the high-risk prescribing had already ceased (eg the NSAIDs had been only a short course).

Eleven patients were interviewed; the remaining two could not be contacted. The clinical advisory pharmacist and all seven GPs were interviewed. Interviews lasted between half and one hour, depending on how much information participants had to share. Participant characteristics are shown in Table 1. In general, participants said the SPACE intervention was acceptable and useful. Participant quotes are given in Tables 2 and 3.

Audit and feedback

PHO clinical advisory pharmacist

The pharmacist said that the SPACE intervention would appeal to PHOs that already employed clinical advisory pharmacists because there was no extra cost, and the focus on safer prescribing aligned with PHO goals. The SPACE intervention facilitated pharmacists developing relationships with GPs to influence their prescribing behaviour. The intervention provided a structured format for PHO pharmacists to do what they were employed to do, and provided pharmacists with a useful foot-in-the-door with GPs, who were sometimes 'too busy' to see the pharmacist. On average, the pharmacist spent ~15 min giving feedback to each GP. Feedback sessions were made more efficient by culling from the list of patients those who had been prescribed only a short course of NSAIDs.

Table 1. Participant characteristics

	Characteristic		Number (n)
Patients (n = 11)	Gender	Women	4
		Men	7
	Age (years)	Under 65	3
		65–79	4
		Over 80	4
	Time with current GP	Less than 10 years	4
		10–20 years	5
		More than 20 years	2
GPs (n = 7)	Gender	Female	4
		Male	3
	Employment	GP partner	3
		Long-term locum	4
	Years in practice	Less than 10	2
		10–20	3
		More than 20	2

GPs

GPs reported that the feedback sessions were educational and they appreciated being prompted to review prescribing. Some GPs liked going through the patient list with the pharmacist, while others preferred to go through the list themselves in their own time. They sometimes added a comment in the patient record to remind themselves a patient had high-risk prescribing. They did not want any alerts added in the practice management system. GPs were concerned about competing demands and time constraints. They said two prescribing topics per year might be do-able, but that four would be too many.

Mail-out to patients with high-risk prescribing**GPs**

GPs supported the practice mail-out to patients identified as having high-risk prescribing to encourage engagement in their medicines management. However, GPs wanted that the mail-out be carefully designed to avoid upsetting patients or harming the GP–patient relationship. GPs appreciated having control over which patients received the mail-out.

Patients

Most patients said the mail-out made them feel cared for; they were reassured to know someone was checking their medicines. No patient reported being upset or worried. Most patients said they trusted their GP to know which medicines were best for them. Some said they would take the letter with them to their next appointment, because the letter told them to. However, some patients said they would not because there were already too many things to discuss in the brief time they had with their GP. They did not want to make a separate appointment to see their GP about their medicines because of the cost. Some patients said the medicines information brochure was confusing; they thought the brochure did not apply to them, or did not know which medicines they were taking.

Prescribing topic: NSAIDs and antiplatelet medicines

Both the GPs and the pharmacist said the NSAIDs and antiplatelet medications topic was a good one to choose because these medicines were commonly prescribed. Suggestions for future topics included: serotonin syndrome, inhalers, benzodiazepines, proton pump inhibitors and anticoagulant medications.

Discussion

The SPACE intervention was designed to promote medicines review and support safer prescribing in everyday general practice. The intervention comprises practice audit to identify patients with

Table 2. Participant views on the Safe Prescribing and Care for the Elderly (SPACE) intervention: audit and feedback

Participant	Acceptability and utility	Examples
GP	Educational	'You try and hope you're up to date with things but I find [the pharmacists] help extremely helpful.' [D-3]
	Patient-specific feedback useful	'It's useful to go over individual patients and individual issues.' [D-1]
	One-on-one feedback works better	'[When the pharmacist] gave me the list and we went through it quickly, you know that's a better way for me to do it... I think the more personal interaction works better.' [D-3]
	One-on-one feedback is time consuming	'I'm not sure whether we needed to sit down with [the pharmacist] to go through every patient with her. Maybe we could just get the list of patients that we could review quickly and then decide who needs a letter sent to ... time consuming.' [D-4]
Pharmacist	Promotes time with GPs	'It's quite good with this that it forces the time that you actually have to sit down with them.'
	Difficult to get time with GPs	'If you want a really strict time frame to get in touch with the GPs it is a bit more difficult ...'
	One-on-one works well	'I think relationship wise with the pharmacists and the GPs that [one-on-one] works well.'
	SPACE promotes medicines review	'It just forces that looking at something that's probably not the acute problem for that patient but could contribute to health problems for them.'
	SPACE aligns with Primary Health Organisation (PHO) goal	'most [PHOs] would be interested in this because ... anything that helps to [improve patient care]... That's the goals of PHOs isn't it?'

high-risk prescribing, patient-specific feedback and education to GPs, and a practice mail-out to at-risk patients with a medicines information brochure and a letter inviting them to discuss their medicines when they next see their GP. The mail-out seeks to empower patients and promote engagement in their medicines management.

Findings suggest it is feasible for PHOs to use the SPACE intervention in general practices to support safer prescribing. However, its use will be curtailed by GP time constraints and competing demands. The SPACE intervention provides a structured format for clinical advisory pharmacists to do what PHOs employ them to do at no extra cost. GPs said they appreciated the education and the prompt to review prescribing. Some GPs were concerned the mail-out might upset patients, but patients said they were reassured to receive the mail-out and to know someone was checking their medicines. Some patients said they would take the letter to their next appointment and use it to prompt a discussion with their GP about their medicines, but other patients said there was not enough time in a consultation to talk to their GP about their medicines.

Findings from this study contribute to the growing body of literature on interventions to promote safer prescribing in general practice, and confirm the acceptability and utility of both audit and feedback, and patient empowerment through practice mail-out.^{15,20,25–29}

Strengths and limitations

Strengths of this study lie in having interviewed participants involved in different aspects of the intervention, including the clinical advisory pharmacist who delivered the patient-specific feedback, all GPs from participating practices and at-risk patients who received the mail-out. A limitation is that we worked with only one PHO. This PHO had well-established, pharmacist-led quality improvement processes in practices and motivated clinical advisory pharmacists with established relationships with practices. A further limitation is that patient participants were a self-selected group; only 13 of the 29 patients who received the mail-out (45%) agreed to interview, introducing a risk of bias. It is possible that the

patients who did not come forward for interview were distressed by the mail-out, or disinterested. It is also possible that participants provided responses seeking to please the interviewer, even though we provided reassurance that there were no right or wrong answers and that participants would not be judged or compared.

Conclusion and recommendations

High-risk prescribing and avoidable adverse drug event hospital admissions are common and costly. The most effective, cost-effective and practical approach to safer prescribing in everyday general practice is not yet known. Findings from this feasibility study suggest that the SPACE intervention

Table 3. Participant views on the Safe Prescribing and Care for the Elderly (SPACE) intervention: mail-out to patients identified as having high-risk prescribing

Participant	Acceptability and utility	Examples
Patients	Reassuring	'It was nice to receive a letter and see there is someone that cares.' [P-11] 'I actually found it was nice to know that someone was keeping an eye on things. Like you're not just another number that is getting tablets dished out to it.' [P-10]
	Take to GP	'Yes, it said to take it; it stated on the letter and I just took it for its word.' [P-2]
		'When I got the letter, I made the appointment and I went to [my GP].' [P-11]
	No time	'Why I wouldn't [take the letter to the GP] is you only get quarter of an hour with your GP; your time is very, very limited and it's not cheap to go to the GP.' [P-6]
	Trust in the GP	'Yeah well admittedly I completely trust them. I don't know anything about medicine.' [P-2]
	Confusing	'I thought it was about the blood thinning medicines or blood pressure medicines I'm taking at the moment. But it's all about arthritis medicines. It's confusing.' [P-7] 'My husband on the drugs that he's taking, and me with my arthritis... When I read every word of it, I thought, 'I wonder if they have missent it.' [Wife of P-6]
GPs	Involve the patient	'It's good to send [the letters]. I mean general practice, it is partnership. We have to involve the patient.' [D-2]
	Damage the relationship	'It really depends on the individual. Some people, patients, would appreciate it and would take up the offer to come in and review the medications, and others may respond to it negatively and perhaps that could cause more problems within the relationship.' [D-4]

could be used by PHO clinical advisory pharmacists to support safer prescribing in everyday practice. Findings suggest changes to optimise the SPACE intervention, including simplification of the medicines information brochure for patients. The next step is to test in a larger trial the effect of the SPACE intervention on high-risk prescribing rates.

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COMPETING INTERESTS

None.

Appendix 1

Disney Health Centre
East Health PHO, Auckland

January 2017

Mr Mickey Mouse
Disney Parade
Botany, Auckland

Dear *Mickey Mouse*

We at the *Disney Health Centre* are reviewing the prescribing of some medicines.

We have identified you as someone who has been prescribed the medicines we are reviewing. We enclose some information about these medicines for your interest.

When you are next in seeing your doctor, we encourage you to discuss your medicines and this letter.

Kind regards

Disney Health Centre

*** Please bring this letter with you to your appointment with your doctor.

NZ-MATES study: safer prescribing in general practice.

Provided by the University of Auckland in association with East Health PHO.

All medicines have risks and potential benefits.

1. Pain medicines (eg for arthritis pain):

- Paracetamol (also known as Panadol®) is usually safest and tried first. It is most effective when taken regularly each day (eg four times per day).
- Non-steroidal anti-inflammatory drugs, including Brufen®, Nurofen®, Voltaren®, Ibuprofen, Naproxen and Diclofenac. These medicines help with pain and can often be taken just once per day.
- However, when taken daily for long periods of time, anti-inflammatory drugs also increase the risk of stomach ulcers and bleeding, and kidney and heart problems.
 - Take anti-inflammatory drugs with a meal.
 - If you have diabetes, kidney disease, heart problems or high blood pressure, talk to your doctor or pharmacist about which pain medicines are best for you.
 - Tell your doctor if you notice any unwanted effects such as indigestion or heartburn, swollen feet or ankles, sudden weight gain, or breathlessness.

Non-medicine tips for managing pain, including pain from arthritis:

- Exercise, especially low-impact exercise, keep your joints moving. Walk, dance, garden, swim, do Tai Chi ...
- Aim for a healthy weight – ask your doctor about a Green Prescription.
- Ask your doctor about local Self-Management groups (eg for pain or arthritis).

2. Blood thinning medicines:

- Aspirin and clopidogrel are blood thinning medicines taken to reduce the risk of clotting and thus to reduce the risk of stroke or heart attack.
- However, blood thinning medicines also increase the risk of bleeding. For most people, the risk of bleeding is small when compared to the potential benefits.
- Tell your doctor if you notice any abnormal bruising or bleeding, bloody or black bowel motions, new dizziness or blurred vision, itchy rash or swelling or heartburn.

Using your medicines safely:

- Understand what your medicines are for.
- Know how to take medicines properly – right time, right dose, right length of time.
- Recognise unwanted effects and know what to do if they occur.
- Tell your doctor and pharmacist about all the medicines you are taking, including medicines and supplements purchased from health food shops and supermarkets.

Ask your doctor and/or pharmacist for more information.

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Approved by the University of Auckland Human Participants Ethics Committee on September 2016 for 3 years, Reference 017983.

Appendix 2



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Interview questions (patients)

Research title: Safer prescribing in general practice: Feasibility of adapted Australian Veterans' MATES intervention in New Zealand primary care context

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Introduction

Thank you very much for taking the time to talk with me today.

This project is part of a developing body of research looking at improving the safety of prescribing in general practice. We are interested in your response to receiving the letter from your doctor containing an information brochure about your medicines and an invitation to discuss your medicines when you next see your doctor.

There are no right and wrong answers. You will not be judged or compared. Your responses will not influence your care. Your doctor will care for you as usual.

The interview will take ~15 to 30 min.

Demographics

- Could you tell me how old you are? Your gender?
- Do you live at home or in residential care?
- Do you live alone or with others? Who?
- Do you have a regular doctor who you see at the practice? How long have you been seeing this doctor?

Response to letter from your doctor / practice

1. How did you feel on receiving the letter from the practice?
 - o *Worried / interested / angry / happy / think they care about me / nervous about my medicines / not interested*
2. What was your response to the letter and information about medicines?
 - o *Life as usual, will await my next appointment / stopped taking medicines immediately / panic and make an appointment immediately / discuss with significant other / confused / ignored it and threw letter away / not interested, will leave it up to doc to decide what is best*
3. What did you think about the information brochure?
 - o *Didn't understand it / helpful, interesting / boring*
4. Will you discuss your medicines when you next see your doctor?
 - o *Yes / no / not sure / will leave it up to doc to decide*
5. Will you take the letter with you to your appointment? Why / why not?
 - o *Yes / no / not sure*
6. How do you feel about taking the medicines you are taking?
 - o *Don't like it / feel they are helping / affecting my quality of life but worth it*
7. Has receiving the letter altered your views about the risks and potential benefits of medicines?

Concluding comments.

That brings us to the end of the interview.

Is there anything else that you would like to add?

Do you have any additional comments that you would like to make as to the content of the interview or how it went?

Thank you very much for giving up your time to talk to me today. I have a \$30 gift voucher for you as a token of appreciation for your time and effort.