

Understanding the decision to commence a dose administration aid

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Background and objectives

The use of dose administration aids (DAAs), such as compartmentalised boxes (eg dosette) or medicine packs (eg Webster-pak), is common, particularly among patients with chronic disease. The aim of this study was to investigate factors influencing patients' decisions to commence using a DAA with a view to summarising implications for practice for general practitioners (GPs).

Method

Semi-structured interviews were undertaken with participants living in a regional town in South Australia. Analysis of transcripts was facilitated using a qualitative analysis grid.

Results

Eight participants were interviewed. Four main themes included complexity of managing medications, DAAs as a cultural artefact, taking the lead in decision making, and weight of influence of health professionals.

Discussion

This study highlights the role of individual autonomy, close relatives and pharmacy staff in decisions to commence using a DAA. Tablets included in DAAs can take priority over inhaled and injected medications. GPs have an important role in ensuring that commencing a DAA helps empower patients to improve their healthcare management and does not inhibit communication between patient, doctor and pharmacist.

Dose administration aids (DAAs) are devices that allow medications to be stored in compartments organised according to an individual's dosing schedule. DAAs include manually filled dosettes and pharmacy-provided medicine packs (eg Webster-paks). The use of DAAs is common among patients with chronic disease who require multiple medications on an ongoing basis.¹ DAAs have been supported by a number of government programs around the world.^{2,3} DAAs are promoted through the Pharmaceutical Society of Australia to aid in the reduction of medication-related hospital admissions and adverse events.⁴

While many patients use DAAs, there is little contemporary Australian literature that investigates how patients make the decision to commence using DAAs, and who are the influential people involved in this decision.³ There are also few studies that give direction on when and how general practitioners (GPs) should discuss medication management tools with patients. This paucity of evidence was the impetus for this study. This paper presents an exploratory study that aimed to investigate the factors influencing patients' decisions to commence using a DAA and the implications for general practice.

Method

Participants were recruited from a large general practice clinic and a pharmacy located in a regional town of <30,000 people in South Australia. Participants were recruited through flyers left in the clinic and a local pharmacy inviting people to contact LT to indicate their interest in being interviewed about DAAs. Those who currently used a DAA, were considering a DAA, or had previously considered a DAA but were not currently using one were invited to participate in a semi-structured interview if they met the following inclusion criteria:

- spoke fluent English
- 18 years or older
- had a chronic illness
- taking more than two medications on a regular basis.

Residents of local aged care facilities were excluded as the decision to commence using a DAA was likely to be influenced

by resident management procedures and protocols at these facilities. Purposive recruitment of participants was intended to provide breadth of sampling across age, gender, housing arrangements and medical conditions.

Consenting participants attended an in-depth semi-structured interview of approximately one hour in length. Interviewing was considered the most suitable method to use to gather detailed information about patients decision-making processes regarding DAA use. All interviews were conducted by LT, an academic registrar who also consulted at the clinic. Semi-structured interview questions were informed by the trans-theoretical model of health behaviour change as a conceptual framework, which sees individuals move through pre-contemplative, contemplative and action stages.⁵ Areas explored included: who was involved in the process, circumstances at the time, experiences of shared decision-making, desired autonomy, and other important aspects that contributed to the decision-making process. Interviews were recorded and transcribed.

The academic registrar (LT), her primary supervisor (LW), who is a clinical academic working in general practice obstetrics and who worked at the study general practice 10 years ago, and an early career researcher new to the community (EB) contributed to the analysis. Using a constructivist methodology, transcripts were seen as a shared creation of understanding between participant and interviewer.⁶

Transcripts were analysed in QSR NVivo using thematic analysis by authors (LT and EB). Open codes were initially grouped together manually using a qualitative analysis grid to derive initial themes.⁷ A qualitative analysis grid tabulates each participant transcript across the rows, and uses columns to outline the contribution of each transcript to emergent codes.⁸ The research team members engaged in critical discourse to test and reshape emerging themes, and through a process of constant comparison with the interview

data, reached consensus on the final themes.⁸ Ethics approval was received from the Social and Behavioural Ethics Committee at Flinders University (Project number 7171).

Results

Eight participants aged 26–77 years were interviewed. Five participants were female, six used a medicine pack and all had a number of medical conditions, most commonly diabetes and hypertension (Table 1). Living arrangements included living in their own home, renting and housing trust accommodation. One participant used a dosette but was contemplating changing to a medicine pack, and one participant was managing their own medications without a DAA. Participants were assigned pseudonyms to assure anonymity. Quotes were not assigned to individual participants to avoid identification, given the regional setting in which this study took place. Four main themes emerged:

- complexity of managing medications
- DAAs as a cultural artefact
- taking the lead in decision making
- weight of influence of health professionals.

The complexity of managing medications

Participants reported increased difficulties managing their medications before commencing a DAA. For all participants, the challenge of taking multiple medications at different times throughout the day was a common theme that led to DAA use.

Well, I was getting in trouble, getting mixed up with the medication names because quite often they change; it's the same product but they change brand names and I thought, I've got to do something and we got the ball rolling after that.

The number of medications reported at which management of medications became too difficult varied with age. The youngest participant, 'Anne', reported that three different medications were

manageable without the use of a DAA but six or more was too confusing. Older participants reported that three different medications were too difficult to manage. Issues commonly reported to compound the complexity of medication management included medications being similar in appearance, and any changes in physical appearance or name when generic brands were used.

It got complicated when you have to drop one, or, you have an issue with one, or your blood pressure's up, or your blood pressure's down, or you've got to add one or take one out. It's just – and some of the names, some of the names become confusing. The doctor will call it one thing and then when you get the tablet it's got another name on it.

The majority of participants described that they had additional medications to take not contained in DAAs (eg inhalers, injections and some vitamins; Table 1). These added to the complexity of deciding to manage their medications using a DAA. Participants seemed to focus on the tablets included in their DAA, potentially neglecting other medications.

I try harder than before. Yeah. I suppose I'm trying to be more responsible for my health – like trying to stay on track ... because I'm always taking them [tablets in DAA] now. I'm always thinking about them.

DAAs as a cultural artefact

An object created by humans that gives information about the culture of its creators or uses can be described as a cultural artefact.⁹ This theme was about DAAs being viewed as culturally acceptable items among the community and those close to participants such as family and friends. Participants had heard positive reports about DAA use and had friends or family members that used DAAs. One participant commented:

I heard about it and how much better it would be for me to have my medication organised rather than sitting in a plastic container in all its different boxes.

Table 1. Summary of participant demographics and attitudes to DAAs

Participant	Gender	Age	Medication administration	Participant's description of their health conditions
'Anne'	Female	26 years	Medicine pack In addition to inhalers	Arthritis, asthma
'Robert'	Male	74 years	Medicine pack	Shortness of breath, tremor
'Lyn'	Female	58 years	Medicine pack In addition to inhalers	Post-traumatic stress disorder, type 2 diabetes, asthma, hypertension, high cholesterol
'Allen'	Male	77 years	Medicine pack In addition to inhalers	Heart problems, Meniere's disease, high blood pressure
'Eileen'	Female	75 years	Dosette In addition to inhalers	Asthma, depression, hay fever, problematic gallbladder, cysts on spleen, fibrosis in lungs, high blood pressure
'Thomas'	Male	66 years	Medicine pack In addition to fish oil and iron tablets	Type 2 diabetes, restless leg syndrome
'Sarah'	Female	45 years	Medicine pack, used dosettes for two years before In addition to vitamin B	Type 2 diabetes, high blood pressure
'Rebecca'	Female	73 years	Not using a DAA	Heart condition, previous cancer, high blood pressure

The majority of participants reported that DAA use was an expected part of managing their health over time, and formed part of the acceptability of these devices in a social context and in society in general.

We knew about them, because different people we know use them [DAAs] and we've talked about them [DAAs], and we knew that they were available. It was just one of those things we knew we'd have to do one day.

There was some stigma that DAA use was for the elderly and associated with a loss of independence. One participant had actively chosen not to commence using a DAA despite being asked from time to time by pharmacy staff whether she had considered a DAA. This association of DAA use with being elderly was consistent with the reaction from another participant's family member.

After I'd made the decision and signed up for it [DAA], when I took it [DAAs] home and I had it out, Mum's like 'Why have you got those, because it makes you look like an old person?'

Despite the majority of participants seeing benefits, one participant with a strong desire for autonomy said that she would feel disempowered if medications were removed from their packages, as it would be more difficult to remember medication names and what the medications were for. This participant had actively chosen not to use a DAA despite being asked by pharmacy staff from time to time.

Taking the lead in decision-making

Five participants described making an active choice to commence using a DAA. Familiarity with DAAs through family and friends influenced this decision. All participants described a short length of time taken to decide to use a DAA but estimated they had been contemplating DAA use for approximately six months prior. Two participants had a more passive role in the decision-making process, which was strongly influenced by their partners who, prior to commencing a medicine pack, had taken the primary role in organising prescriptions, picking

up medications and filling dosettes each week.

Well, we had all the tablets in the cupboard, as you probably realised, and the wife says well, why don't we get a Webster [medicine] pack and see if that works. So we went down to the chemist and talked to them about the Webster [medicine] pack, and they said yes, we can do that. So then we went on from there.

Weight of influence of health professionals

All six participants described being exposed to active marketing of DAAs at pharmacies. DAAs were prominent on shelves and advertised actively. The only health professionals mentioned by participants as actively influencing the decision to commence a DAA were pharmacists and pharmacy assistants. Pharmacy staff played a major role in participants' decision to commence using a DAA, with participants describing being approached directly, some on a number of occasions. Five participants described that

this positively influenced their decision to commence a DAA.

Well every time I went to the chemist to get my medication I saw the Webster [medicine] pack there. So I enquired about it and they said it makes it a lot easier to have a Webster [medicine] pack, to be on track and so forth.

All participants explained that once they had made the decision to use a DAA, they went on to discuss it with their GP. While participants described a good therapeutic relationship with their GP, whom they perceived had an ongoing role in their care, GPs were validators in the DAA decision-making process for these participants rather than leaders or collaborators with the pharmacists.

I went up the chemist and we got things going from there rather than the doctor. We [participant and partner] did it ourselves. So then we went on from there, we spoke to the GP, he said yeah, that's a good idea.

A common assumption among participants was that GPs, other specialists and pharmacists worked together to manage patients' care. They assumed that the pharmacist would alter medicine pack medications once they had communicated with other members of their healthcare team. One participant described being prescribed pain medication for a recent burn. He was bewildered that this medication was still contained in his DAA even though he no longer had any pain.

Discussion

This study found that most participants saw DAAs as a solution for the problem of finding management of their medications complex. There was little evidence that they spoke to their GP about these concerns prior to making the decision to use a DAA, with much of the pre-contemplative and contemplative phase guided by interactions with pharmacy staff, close family and social influence. There was evidence of inaccurate beliefs about inter-professional communication between pharmacists and doctors. This is important

because current Australian guidelines recommend that prior to commencing a DAA, other medicine management strategies should be considered including simplifying the drug regimen, education and counselling, and a medicines reminder chart or alarm.¹⁰ These strategies were not a recalled part of the decision process for the participants in this study. This finding is consistent with a previous study that showed that patient education regarding medication occurs at a rate of only 3.1 per 100 consultations in Australian general practice,¹¹ and a more recent study found that in a hypothetical patient scenario, only 44% of GPs suggested information and education where poor adherence was related to a patient's uncertainty about why she was taking medications rather than her inability to manage them.

Inappropriate DAA use is associated with potentially unnecessary medication use and drug interactions,¹² which highlights the importance of GP involvement.¹¹ Recognising that frequent changes to the physical appearance of medications can cause confusion and household stress, consultation with GPs and pharmacists provide opportunities for patients and their carers to ask about the challenges they face in adhering to medication and make deliberate decisions regarding limiting brand substitution rather than prescription of generic medications. This study highlights a number of practice implications that might be useful for GPs to consider during discussions with patients (Box 1). Exploring patients' attitudes to DAAs is important to discover an important minority group who have concerns about the potential for disempowerment and a preference to retain medicines in their original packs.

This study demonstrates that DAAs seem to shift the focus of medication adherence towards pills included in the DAA. Modest improvements in tablet adherence associated with DAA use have been demonstrated previously.¹³ An important new finding in this study is that this could potentially shift the focus away from non-packed items, such

as inhaled or injected medications. This finding highlights the need for GPs and pharmacists to consider the reasons for non-adherence before starting a DAA and ensure the purpose and importance of non-packed medications are not neglected by patients when initiating a DAA.¹⁴

This study suggests that the impetus to commence a DAA is frequently triggered by conversations with pharmacy staff, whereas GPs have less influence and simply act as validators after the decision is made. DAAs seemingly resulted in some patients handing over responsibility for their medication management to the pharmacist. Some participants seemed to assume the pharmacist was continuously liaising with their GPs and other specialists regarding the need for alterations in their medication regimen. This demonstrates the need for closer liaison with pharmacists through the use of medication management reviews and inter-professional case conferences.

A limitation of this study was that, because of difficulties in recruitment, there was a small sample size, and the participants were sampled using a convenience rather than purposive sampling technique. Despite this, there was a good spread of age and gender. Another issue was that although there was reasonable saturation of themes, the data were not well triangulated by participants who had actively chosen a dosette or not to use a DAA. Other limitations of this study include that patients were recruited from one general practice and one pharmacy in a regional centre. Therefore, there is reduced scope to generalise these findings to the broader population. Further studies investigating factors that influence patients' decisions to commence a DAA are needed.

GPs and pharmacists have a responsibility to develop professional partnerships to support collective decision making regarding DAA commencement, and review medicine pack medications regularly to understand the prescription and non-prescription contents and ensure medications are ceased in a timely manner.

Box 1. Suggested practice implications for general practitioners

Before patients have a dose administration aid (DAA):

- Ask patients about the challenges they face in adhering to medication
- Make deliberate decisions regarding generic medications versus limiting brand substitution
- Consider simplifying drug regimes
- Suggest medication reminder charts or alarms
- Explore patient's attitudes toward DAAs
- Invite patients to consider DAAs

When patients commence a DAA:

- Consider adherence issues for medications that cannot be packed into DAAs
- Ensure patients see their medicine pack as part of their general practitioner's role
- Develop professional partnerships with local pharmacists to support collective decision making

When patients are using a DAA:

- Ensure patients see their medicine pack as part of their general practitioner's role
- Review medicine pack medications regularly to avoid short-term medications being continued indefinitely
- Discuss the need for non-prescription medications to be included in medicine pack

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When GPs and pharmacists work together, there is greater patient satisfaction and more medication management problems identified and resolved.¹⁵

In summary, GPs have an important role in ensuring that commencing use of a DAA helps empower patients to better manage their medications. DAAs may or may not be the appropriate intervention where medication adherence is a concern. This study raises issues about the importance of GPs being more actively involved with patients' decisions regarding DAA use rather than just being 'validators' once the decision has been made. GPs may have access to information about patients that is relevant in assessing the appropriateness of DAAs, and whether other strategies may be of greater benefit. GPs need to actively engage with patients and pharmacists to ensure that using a DAA does not inhibit communication between patient, doctor and pharmacist.

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