Users' perspectives of the Chronic Disease Management System: A pilot study

Kay M Jones, Trisha Dunning

Care planning is now an integral part of general practice in Australia. General practice management plans are designed to assist in chronic disease management which requires interdisciplinary team care. An electronic care-planning program – the Chronic Disease Management System – was developed to facilitate care planning in general practice and was evaluated using type 2 diabetes as the test condition. Both healthcare professionals and people with diabetes were involved in the evaluation of the software.

The Australian government introduced care planning into general practice in 1999. This now includes general practice management plans (GPMPs) to help GPs manage patients who require interdisciplinary care, such as those with diabetes (Zwar et al, 2007). This involves the GP and at least two other healthcare professionals (HCPs) in developing the plan using a team care arrangement (TCA) (Martin et al, 2009).

Home medicines reviews, introduced in 2001, can also be undertaken to assist with managing medicines and preventing medication-related problems (Department of Health and Ageing [DHA], 2010a; Emblen and Miller, 2004). Patients can also receive monitoring and support services from a practice nurse on behalf of the GP (Mills and Fitzgerald 2008; DHA, 2010b). In March 2010, the Australian Government announced a $436 million programme for each person with diabetes to sign up with a single GP for a personalised care plan (Roxon, 2010).

Evidence suggests that a structured approach to diabetes care, including physician support (Gensichen et al, 2009), can lead to better health outcomes (Adaji et al, 2008). However, the lack of shared knowledge has hampered the effectiveness and efficiency of consultations when patients were referred to specialists or educators by GPs (Pharmaceutical Alliance, 2007). Nonetheless, while current team care planning provides increased opportunities for multidisciplinary care in chronic conditions (Harris et al, 2010), it has been suggested that care planning rarely results in genuine collaboration between HCPs and patients (Shortus et al, 2007). In addition, patients have been fatalistic about their illness, affecting their use of services (Shortus et al, 2005).

Although the effectiveness of current IT-based interventions is unclear (Costa et al, 2009), it is clear that as technology use increases, healthcare delivery processes are changing. This includes the way health information is

Article points

1. The authors interviewed people with diabetes and healthcare professionals during the intervention and development phase of a new electronic care-planning program.
2. The effectiveness of current IT-based interventions in primary care is unclear.
3. The study provides insight into an under-researched topic that is vital to reforming chronic illness care globally.

Key words

- Care planning
- Information technology
- Perceptions

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1. Technology has changed the way healthcare professionals engage with each other and with patients.
2. Information systems that support patient care have led to better care outcomes.
3. The researchers set out to explore the perceptions of people with diabetes and healthcare professionals during the intervention phase of a new electronic care-planning system.

collected, processed and used (American Health Information Management Association, 2006), with care management delivered through secure patient web communications shown to improve outcomes for people with type 2 diabetes (Ralston et al, 2009). Significantly, technology has changed the way HCPs engage with each other and with patients. Reported outcomes include patients maintaining their confidence in their healthcare providers and information systems used to support patient care, which has led to better care outcomes (Zwar et al, 2006; Inner East Primary Care Partnership [IEPCP], 2007), improved patient satisfaction (Royal College of General Practitioners [RCGP] Health Informatics Group, 2009), increased opportunities for access to care provided by allied HCPs, including chiropractors, diabetes educators, dietitians, occupational therapists and podiatrists (DHA, 2010c), and GPs being mindful that self-management is an integral part of primary care (Glasgow et al, 2001).

The pilot project

The intervention for this project included developing, establishing and testing a broadband-based network of secure, scalable and sustainable services known as the Chronic Disease Management System (CDMS) to support the management of chronic disease and collaboration among the care team and the person with the condition. With patients' consent, an external provider gathers information relevant to the development of a GPMP from GPs through an e-referral system, using the GPs' existing clinical software. The information is used to create a patient record and uses best practice rules to generate a GPMP for them. The GPMP is returned to the GP through the e-referral system for authorisation or amendment, and is then distributed and agreed to by the care team through a coordinated electronic process.

The GPMP is available to the patient in electronic format; the GP can also provide a printed copy. All transactions are conducted using the CDMS health service, which is a secure internet broadband network that conforms to all relevant technical standards. CDMS sends reminders and alerts via email and text messages to patients and the care team, who then have the option of responding.

It is important when introducing new technology that the views of both healthcare professionals and patients are taken into account. The aim of this part of the project was to explore both sets of users' perceptions and experiences of using CDMS during the intervention phase of the project.

Type 2 diabetes (T2D) was used as the demonstrator condition to evaluate CDMS in routine general practice settings.

Method

Sampling population and sample

The sampling population comprised 12 GPs and seven practice nurses (PNs) from seven general practices, five diabetes educators (DEs) and 99 patients participating in CDMS from the Barwon South West Region, Victoria, Australia. The study sample comprised eight HCPs (four GPs and three PNs from four practices), one DE and 10 patients. Participants were selected to ensure they were able to provide relevant information and were broadly representative of the sampling population (Emblen and Miller, 2004; Liamputtong and Ezzy, 2005).

Data collection and analysis

Two semi-structured interview schedules were developed to address the aims. Each comprised 18 questions which covered:

- Learning about CDMS.
- Experiences during the development of the GPMP and TCA, including personal involvement in the process.
- Understanding the purpose of GPMPs and TCAs
- Experiences using the CDMS.
- Advantages and disadvantages.

All interviews were conducted in 2009, lasted approximately 30–45 minutes, were audio taped and transcribed verbatim.

The framework method was used to analyse data (Ritchie and Spencer 1994). Data were analysed independently by two investigators; when there was a difference of opinion, the issues were discussed and agreement reached.

Findings

How participants learnt about CDMS

HCPs learnt about CDMS through information circulated via their professional networks. Eight patients learnt about CDMS from their GPs, one from a practice nurse and one from the researchers. This suggests networking and teamwork may be strong in the Barwon Region.

Developing and individualising GPMP and TCA, and involving the patient in decisions

HCPs reported they felt CDMS suited their management style. Some described initial challenges with CDMS ("clunky" and "slow"), but many described how the system improved incrementally throughout the intervention period. Comments about CDMS were reported to the developers, because this was a key aspect of the formative evaluation process, to ensure the system met users' needs.

The ability to tailor the GPMP for each patient during the development process, using this version of CDMS, was described as valuable by HCPs:

> ***"Because of the template you can individualise them [the plans]." (PN1)***
>
> ***"Everything is there and it's not just diabetes, so you can deal with other issues." (DE)***

Two GPs reported they individualised GPMPs and TCAs to meet patients' needs and relied on the information that PNs collected.

PNs reported that, while they do not develop the GPMPs, they collected important information for the patient and liked the system because "it is much easier, far less time consuming [than the traditional method]" (PN1, PN2). However, the DE was not sure whether patients were actively involved in the planning process.

Most patients agreed their GPMP was developed to suit their specific needs:

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1. Interview questions covered the development of the new system and the purpose of the general practice management plans (GPMPs).
2. The ability to tailor the GPMP for each patient during the development process, using this version of Chronic Disease Management System, was described as valuable by healthcare professionals.
3. The system was considered much easier that the traditional method.
4. Most patients agreed their GPMP was developed to suit their specific needs.

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1. System issues were reported to the developers, who rectified problems.
2. Patients were being informed by GPs about the purpose and value of the care plans.
3. Patients did not tend to access their general practice management plans via the Chronic Disease Management System (CDMS) because they did not own computers.
4. Most healthcare professionals were positive about the CDMS.

> *"Yes, the doctor always asked me, have you been to a podiatrist?" (Pt7)*

Two GPs felt they involved their patients when developing a care plan and TCA. However, some GPs said that patient involvement was "probably not as much as I would have liked, it is a matter of learning and being comfortable that you are happy to involve the patient a bit more" (GP4).

The majority of the patients felt they were involved in the development process:

> *"Yes [the GP] gave me a print out and explained more than usual." (Pt4)*

> *"[The GP] explained what it is [care plan] and what the tests mean and why he is doing things." (Pt5).*

One patient noted a network system issue in the early stages of CDMS development:

> *"The computer said I'd gone to an eye specialist, but I haven't and I wasn't asked. It wasn't explained that I was supposed to make the appointments." (Pt10).*

This was reported and the CDMS developers rectified the problem, which did not recur.

The purpose of GPMPs and TCAs

Of importance, all participants were aware of the purpose of GPMPs and TCAs, which suggests that patients are being informed by GPs about the purpose and value of these management tools. For example, GPMPs and TCAs:

- Improve communication (GP2).
- Support financial reimbursement for GPs for managing complex illnesses (GP3).
- Increase awareness of the need to co-ordinate diabetes management (DE, PN1).
- Help people manage their diabetes more effectively (PN3).
- Gather information about ways of managing diabetes and help us understand why people develop diabetes (Pt4).

One patient raised the importance of personal responsibility: "I think [it's] just to encourage our gender, males, to take a bit more responsibility for their own health" (Pt1). This comment was of importance because it has been reported that generally males do not seek health advice (Zwar et al, 2007), and subsequently is worthy of further study.

Using the CDMS process

All HCPs used CDMS to develop GPMPs and TCAs. While none reported receiving text messages or telephone calls, all reported receiving emails.

Few patients reported accessing their GPMPs and TCAs via CDMS. Significantly, seven did not own a computer and one did own a computer but did not use it. This raises questions not addressed or answered in this pilot study, such as how patients generally use new broadband-based health services and programs, and how a lack of or inability to use computers could be addressed.

Three patients reported receiving phone calls and texts from CDMS. One patient was concerned about the time the text message was received: "It came about 1.15 pm for a 10 am appointment, but the appointment time was written as 11 pm."

Advantages and disadvantages of CDMS

Most HCPs were positive about CDMS. One (GP4) said: "When it is up and running and working well, it is certainly a lot quicker, it saves paperwork, faxing and time."

Other advantages included:

- Instant communication with allied health, ease of referral, rapid responses compared to the past of phone tagging, easy to find information and if patients could be contacted, that would be a bonus (GP1).
- Simplicity and efficiency of the system; it's a single repository, which makes it easy to share information, and it's the way forward for e-health in Australia (GP2).
- It's a step towards internet-based history and that's something I'm very interested in (GP3).
- It's a good prompt to follow-up and an easy way to follow the rules of Medicare with the

two-way communication (GP4).

GPs suggested improvements:

- It would be an advantage if the practice nurse could use the system, and if it was easier to navigate (GP1).
- Taking the longer term view, the next generation of doctors should be introduced to these documents [GPMPs] in an IT format that informs them and encourages them to use IT (GP3).
- The major disadvantage is that you have to enter data manually when it's already in our software program, so if there's a way they could extract data without us having to do it, that would be a good thing (GP4).

Some patients described personal advantages of CDMS which generally related to managing stress. Others felt there were no significant advantages to CDMS at the time, but felt: "if I could access it myself, it would be good keeping track of when everything's due, but I don't have a computer" (Pt2).

Most patients felt the time of the year when the GPMPs and TCAs were developed was a disadvantage. If the TCA was developed in late in the year, patients were unable to use all five TCA allied health visits because TCA policy stipulates that all five visits must be used within the calendar year.

HCPs commented about the changes and improvements to CDMS:

- This is an improvement on previous software; we do have a recall system that we've used, but it is a bit ad hoc (GP1).
- Having [project] staff involved was helpful because they consistently tried to work out difficulties (GP4).
- Waiting for medical software updates to come on line prevented other practices from participating in this research (GP2).
- Adding comorbidities would be really useful so the care plans can adapt to patients with other illnesses (GPs 2, 3, 4).

Home medicines reviews were generally described as being of value, but only two of the four GPs included a home medicines review: "Yes, they're great and I recommended various aids to assist compliance" (GP1).

GPs were asked whether they would continue using the CDMS process after the study ended. Three indicated they would, and the fourth GP indicated the decision to continue using CDMS would depend on future requirements such as costs.

Discussion

All participants held both positive and negative views about CDMS, its use and being involved in the development process. Of note, all HCPs indicated they felt CDMS provided a more structured approach to care and using CMDS facilitated communication among HCPs. Facilitating teamwork between general practice and allied and community health services has been reported as challenging (Harris et al, 2010), and was similarly found in this study. Subsequently, in this study the impact of improved communication on care and outcomes is unknown.

The majority of patients felt the GP collaborated with them to develop a GPMP, which is similar to other studies (Zwar et al, 2006; 2007; IEPCP, 2007; Shortus et al, 2007; Martin et al, 2009; RCGP Health Informatics Group, 2009).

Most HCPs provided useful information about how this broadband-based network could be improved to benefit both HCPs and patients, thus it was no surprise that negative comments were generally about the system itself, which was being developed throughout the study period. Patients emphasised the improved benefits and outcomes, such as the importance of being more involved in and responsible for their health (Zwar et al, 2006; IEPCP, 2007; Adaji et al, 2008).

GPs generally remained positive about their involvement and experiences during the study but noted some negative aspects. It would be useful to re-interview participating GPs to determine whether they had continued to use CDMS longer term and adopted it into routine practice. It appears GPs are more likely to use IT-based GPMPs and TCAs if the process is easy to use, saves time, and can improve the delivery of clinical care (Costa, et al, 2009).

Unsurprisingly, few patients accessed their GPMPs, most likely because the majority did

Page points

1. Both positive and negative views of the Chronic Disease Management System were expressed by participants.
2. Healthcare professionals provided information about how the system could be improved.
3. A key patient benefit was becoming more involved in their own health.

"The study provides insight into an under-researched topic that is vital to reforming chronic illness care both within Australia and the wider global community."

not use computers, even if they did own one (Costa et al, 2009). The finding provided important information about the reality of introducing such programs in the study sampling population and highlighted an issue that needs to be considered in future iterations of CDMS. Although many older people have embraced electronic media, the CDMS processes used to engage people in their care may not have been interpreted as personalised.

Conclusion

The study provides insight into an under-researched topic that is vital to reforming chronic illness care both within Australia and the wider global community.

The sample size was small, thus, the findings might not be able to be generalised outside the study. Nonetheless, the study is valuable because participants provided an insight and information about their experience and perceptions of using a new broadband-based chronic disease management system during its development (Zwar et al, 2006; IEPCP, 2007). ■

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