# Who knows they have a treatment plan?

Ieva Z Ozolins, Maria Donald, Allyson J Mutch, Ruth E Crowther and Nelufa Begum

School of Population Health, University of Queensland

## RESEARCH

**Corresponding Author:**

Ieva Z Ozolins

School of Population Health,

The University of Queensland,

Level 2, Public Health Building

Herston Rd, Herston, Qld 4061

Email: i.ozolins@uq.edu.au

## Abstract

### Background
Guidelines for the effective care of chronic and complex conditions increasingly recommend developing treatment plans in collaboration with patients as one strategy in a coordinated approach to management. We examined the socio-demographic characteristics associated with the development of treatment plans for patients with asthma, diabetes or a cardiovascular condition to establish what proportion of patients with these conditions recalled being consulted in the plan's preparation.

### Method
Serial, cross-sectional population based surveys using computer assisted telephone interviews (CATI) with 2,296 randomly selected adult participants with asthma, diabetes or a cardiovascular condition living in Queensland in 2006 and 2,203 adults with these conditions in 2008.

### Results
The proportion of patients with asthma, diabetes or a cardiovascular condition aware of having a treatment plan for their chronic condition increased almost two-fold between 2006 and 2008. Approximately half the respondents did not recall being asked for their input into the plan. Patients with a cardiovascular condition, older patients, and early school leavers were less likely to recall having a treatment plan. There were some variations when each condition was examined separately.

### Conclusion
Overall, the use of treatment plans and engagement of patients in their development remains low, particularly in those subgroups of the community who are most likely to benefit.

### Key Words
Care plans, cardiovascular disease, diabetes, asthma, chronic disease management, serial cross-sectional survey, patient engagement

## Background

Current guidelines for effective prevention and management across a range of chronic diseases draw on a clear body of evidence that endorses a coordinated approach between primary care, acute care services and patients[1-3]. Key to many of these guidelines is the development of a treatment or care plan in consultation with the patient to establish care needs, develop self-management strategies and identify requirements for referrals[1-7]. Federal government strategies include the Enhanced Primary Care Strategy (EPC) that provides specific Medicare Benefits Scheme (MBS) item numbers for team care arrangements and GP management plans for patients with a chronic condition "who will benefit from a structured approach to management of their care needs" *(Item 721, Medicare Benefits Schedule, May 2009).*

Despite growing evidence for the efficacy of treatment plans[8-9] and clear recommendations for their development in published guidelines, uptake remains mixed[10]. Changes to the EPC in 2006, which included the introduction of co-payments to allied health care providers for services identified by treatment plans, have been associated with an increase in claims for scheduled items[10], but there is limited research assessing the engagement of patients in the development and implementation of treatment plans. Questions also arise about the development and implementation of plans across different chronic conditions.

This paper reports on the level of awareness of and contribution to treatment plans by patients with chronic disease in Queensland. The participants responded to cross-sectional surveys undertaken as part of a multiple component framework evaluating the Queensland Strategy for Chronic Disease 2005-2015[11].

## Method

### Study design

Cross-sectional population based surveys were conducted with people with chronic disease in Queensland, Australia in 2006 and in 2008. Participants' access to and satisfaction with health care was explored using data collected from computer assisted telephone interviews (CATI) with a random sample of the adult population with chronic disease. The telephone survey collected information on lifestyle health risk factors, utilisation of health care services and physical and psychological well-being among adults aged 18 or older. The interview took on average 21 minutes.

Once contact with an adult 18 years or more had been made, screening questions were asked to establish the number of people in the household eligible for inclusion in the survey. If more than one individual qualified for selection, one adult was asked their age position in the household relative to the other eligible adults. A participant was then randomly selected from the household according to their age position. The purpose of the survey was explained and after consent by the participant the questionnaire commenced. Surveying continued until approximately equal numbers of participants in each of the disease categories had been surveyed. Oversampling occurred in three policy target zones.

### Participants

In 2006, 2,296 people (83.1% of the eligible people invited to participate) with chronic disease participated in the CATI survey. In 2008, 2,203 people (64.6% of the eligible people invited to participate) completed an interview. Participants aged 18 years and older were included if they reported having one of the following three groups of chronic medical conditions: (i) asthma, (ii) diabetes mellitus/high blood sugar, or (iii) a cardiovascular condition. In order to determine asthma, diabetes and cardiovascular condition status respondents were asked: *"In this study we need to interview people who have ever been told by a doctor or nurse or at a hospital that they have (condition). Does your (condition) meet these criteria?"* For asthma, the term *"asthma and have had symptoms of asthma or taken medication for asthma in the last 12 months"* was used as a description. For diabetes, the term *"diabetes"*

or high blood sugar" was used, and for a cardiovascular condition, the term *"a heart condition or that they've had a stroke"* was used. Respondents who replied affirmatively were defined as having the condition, as were those in the cardiovascular condition cohort who reported any of the following; heart attack, angina, irregular heart rhythm or missed heart beats, heart disease or coronary heart disease, hardening of the arteries or atherosclerosis, thrombosis, stroke or transient ischaemic attacks (TIA). Women who had been diagnosed with gestational diabetes were excluded from the survey. The 2006 survey was completed by 730 (31.8%) participants with a cardiovascular condition (CVD), of which 19.6% (n=143) indicated that they had experienced a stroke or TIA; 813 (35.4%) participants with asthma, and 669 (29.1%) participants with diabetes. The results from 84 (3.7%) respondents, who were not able to confirm that they had diabetes although they had been told that they had "high blood sugar", have not been included in this report. The 2008 survey was completed by 736 (33.4%) participants with CVD, of which 16.4% (n=121) had experienced a stroke or TIA; 733 (33.2%) respondents with asthma, and 647 (29.4%) respondents with diabetes. Results of 87 (3.9%) people with high blood sugar have not been included.

### Questionnaire

The survey collected data on health and socio-demographic characteristics including gender, age, marital status, highest level of education attained and employment status. Questions relating to awareness of treatment plans included *"As far as you are aware do you have a treatment plan for your [condition]?"* If respondents were unsure, they were prompted with the following statement: *"A treatment plan, sometimes known as a care plan or management plan, is a formal document that describes the care and treatment of your [problem]. The plan should specify what your health needs are and describe how these needs are going to be met and by whom."* Interviewees who answered 'yes' were asked the follow up question: *"Were you asked for your ideas when your treatment plan was being put together?"*

### Statistical Analysis

Chi square test was used to compare the percentage of people within each chronic disease group who were aware of a treatment plan in 2006 with the percentage of people aware of a treatment plan in 2008, and to compare the percentage of people within each chronic disease group who recalled

being asked for their ideas in 2006 with the percentage of people who recalled being asked in 2008. Multivariate logistic regression analyses were used to examine how gender, age and level of education attained were related to participants' awareness of having a treatment plan. Analyses were conducted using Stata version 11 (Statacorp, College Station, USA). Missing data and "don't know" responses comprised less than 5% of responses in all cases other than those pertaining to educational status. In 2008, 135 (6.1%) people did not report their highest level of education attained.

## Results

### Participants

In the 2006 survey, 46.1% of participants were male, 49.9% were aged 18-59 years, 34.6% were aged 60-75 years and 15.5% were aged 76 years or older. 12.5% had completed a bachelor's degree or higher, 50% had completed senior high school or a trade certificate or diploma course, and 37.5% had achieved junior high school or lower. In the 2008 survey, there was a significantly greater representation of younger and more highly educated participants. Of this sample, 44% were male, 52.3% were aged 18-59 years, 35.9% were aged 60-75 years and 11.8% were aged 76 years or older. 16.6% had completed a bachelor's degree or higher, 50.9% had completed senior high school or a trade certificate or diploma course, and 32.5% had achieved junior high school or lower.

### Treatment plans

In all three chronic disease groups the percentage of respondents who were aware of a treatment plan for their condition increased significantly between 2006 and 2008 (Table 1). In 2006 approximately one in ten patients with CVD was aware of a treatment plan; in 2008 this rose to around one in five. Increases were also reported for diabetes and asthma; one in five patients with diabetes or asthma reported they were aware of a treatment plan in 2006, increasing almost two-fold in 2008. Of the respondents who knew they had a treatment plan, the percentage engaged in the development of the plan did not change significantly between 2006 and 2008. This result held for all conditions (Table 1).

Comparisons of proportions of respondents who were aware of a treatment plan for their chronic condition by gender, age group and education are presented in Table 2. In 2006 and 2008, respondents aged 76 years and older were significantly less likely to be aware of a treatment plan than respondents in the younger age groups. Respondents in 2006 who had achieved junior high school education or lower (early school leavers)

were significantly less likely to be aware of a treatment plan than respondents who had completed senior high school or a trade diploma or certificate; in 2008 early school leavers were significantly less likely to be aware of a treatment plan than respondents who had completed a university bachelor degree or higher. There was no significant difference in the percentage of men and women who were aware of having a treatment plan in 2006 or 2008.

Data within each chronic disease group revealed some differences across the general patterns for socio-demographic characteristics. In 2006, significantly more females (21.5%) than males (14.7%) were aware of having a treatment plan for asthma (OR 1.5, CI 1.0-2.3) - this difference was not repeated in 2008. In the case of cardiovascular disease the reverse was true – more men (12.9%) than women (6.9%) were aware of a treatment plan in 2006 (OR 0.5, CI 0.3-0.9), but not in 2008. There were no gender differences for diabetes.

In 2008, participants aged 60-75 with asthma (44.1%) were more likely (OR 1.6, CI 1.1-2.5) to be aware of a treatment plan than patients aged between 18 and 59 years (34.0%); this difference was not apparent in 2006. Age based trends for people with diabetes and CVD reflected the relationships identified for the whole sample; people aged 18-59 in 2006 with CVD were more likely to be aware of a treatment plan (16.9%) than people aged 60-75 (9.7%, OR 0.6, CI 0.3-1.0) or over 76 (5.3%, OR 0.3, CI 0.1-0.7); this relationship was not significant in 2008. People aged 18-59 in 2008 with diabetes (48.7%) were significantly more likely to be aware of a treatment plan than people aged 60-75 (36.9%, OR 0.6, CI 0.4-0.9) or over 76 years (21.1%, OR 0.3, CI 0.2-0.6). In this case the trend was not significant in 2006.

There were significant differences in the relationship between level of education achieved and awareness of a treatment plan identified for people with cardiovascular disease or diabetes, but not for people with asthma. In 2006, participants with diabetes who had obtained a senior high school or trade certificate (24.9%, OR 1.6, CI 1.1-2.4), but not those with a bachelor or higher degree (24.7%, OR 1.5, CI 0.8-2.8) were significantly more likely to be aware of a treatment plan than individuals with junior school or lower levels of attainment (17.4%). Of the participants with CVD in 2008, those with a bachelor or higher degree (33.3%) were significantly more likely (OR 2.1, CI 1.2-3.4) to be aware of a

treatment plan than individuals with junior high school or lower levels of attainment (18.7%). Although 24.3% of respondents who had achieved senior high school or a trade certificate were aware of having a treatment plan, this proportion was not statistically different from the early school leavers (OR 1.3, CI 0.9-2.0). Similar trends identified among patients with CVD in 2006 did not achieve significance.

## Discussion

Across the three groups of conditions the proportion of participants who were aware they have a treatment plan to manage their chronic illness almost doubled between 2006 and 2008. This result aligns with an increase in the number of claims made to the MBS for the preparation or review of GP Management plans and Team Care plans between the financial years ending June 2006 and June 2008 in Queensland and nationally[10] although the increase in the total MBS figures (per capita) is not of the same magnitude as that seen in our study. The introduction of the Allied Health Medicare Items in 2006 may provide a partial explanation for the rise in numbers and awareness of treatment plans. Medicare Australia statistics indicate that claims for specific allied health items in Queensland increased between 2006 and 2008, particularly for services provided by physiotherapists, podiatrists, dieticians, exercise physiologists, and diabetes educators[10].

There is increasing evidence that developing a care plan improves self-management support[12-13] and enhances access to community resources and allied health services, which are associated with improved outcomes in chronic disease care[8,14]. Despite evidence supporting the efficacy of treatment plans[8-9] and clear recommendations for the use of treatment or care plans in management guidelines for a range of chronic conditions, our data demonstrate that overall numbers of patients aware of having care plans remains relatively low – ranging from 42% for diabetes to 23% for CVD in 2008.

The higher percentage of patients with diabetes and asthma who were aware of a treatment plan, in contrast to those with a cardiovascular condition, may reflect patient and medical practitioner responsiveness to a range of initiatives focused on diabetes and asthma publicised in the community over the last twenty years (e.g. action plans for acute asthma attacks, the Diabetes Annual Cycle of Care used for the long term management of diabetes[15]). The reason for the significantly lower proportions of patients with cardiac conditions being aware of treatment plans despite the inclusion of care plans in evidence-based guidelines for management remains to be elucidated. Recent research

demonstrating the focus on individual risk factors for CVD, as compared to the management of multiple factors may provide some insight into the shortfall in the development of comprehensive treatment plans for this group of conditions[16].

Although between 2006 and 2008 there has been increasing awareness of treatment plans among patients with asthma, diabetes and cardiovascular conditions in Queensland, in general the proportion of patients who recall being consulted or included in the development of these plans has not changed. Overall, patients aged 76 years and over in particular were less likely to be aware of treatment plans and subsequently engaged in their development. The need to engage patients in the development of treatment plans draws from the growing body of literature that advocates informing, empowering and actively engaging people in their own care to enhance chronic disease management capacity[14]. This position is reinforced in the current policy environment which calls for a patient centred approach that actively engages individuals[17-18].

A final issue relates to the social patterning[19] of treatment plans. Our study reveals that disadvantaged groups (based on highest level of education achieved) are significantly less likely to be aware of treatment plans than more advantaged groups. These results appear to support a broader body of evidence which demonstrates that patients from disadvantaged backgrounds "receive systematically different patterns" of primary care[20] including; lower levels of preventive care[21], less referrals[20], shorter consultations[22] and higher rates of prescriptions[20] - despite higher rates of chronic illness[11]. Evidence also suggests GPs report feeling pessimistic about their ability to facilitate change amongst patients from disadvantaged backgrounds[22]. The current results appear to reflect some of these findings highlighting a need to understand the social patterning of care and develop appropriately targeted strategies to enhance the development of care plans and elevate processes of access and engagement for disadvantaged groups[23-24].

Although there is evidence of a difference between various socio-demographic groups in their apparent engagement with care plans for their chronic conditions, there are limitations of the study that need to be considered. The disease specific comparisons relied on small sample sizes and therefore the findings should be interpreted with caution. Co-morbid chronic disease states were not

measured by the survey; instead participants were asked questions about one randomly selected chronic disease. It is probable that some participants will have co-morbidities which have not been taken into account.

The study has the inherent limitations of many telephone based surveys; exclusion of those households without fixed landlines (Kempf & Remington, 2007). The demographic characteristics of mobile phone only households and those households without a phone have been found to differ significantly from those households with landlines (Blumberg, Luke, & Cynamon, 2006; Galesic, Tourangeau, & Couper, 2006). The excluded households tend to have younger residents and to be of lower socio-economic status. Residents of long-term health care facilities such as nursing homes, who are more likely to have complex or chronic medical conditions, are also excluded.

The CATI survey was not designed to examine what patients understood by the words "treatment plan". Only those patients who were unsure of having a treatment plan received further information from interviewers describing Medicare funded management plans or care plans; we cannot assume that those patients who responded immediately to the question had the same understanding of what a treatment plan is. The case of asthma plans is an example. Many members of the community, particularly those involved with or caring for children with asthma may consider the "asthma action plan" for acute exacerbations of asthma [25] a treatment plan, while GP Management Plans and Team Care Arrangements are generally more focussed on long term care and control.

## Conclusion

The purpose of this study was to examine the engagement of people with chronic diseases in their own health care. This large, cross-sectional population based study demonstrates significant improvements in the uptake of treatment plans, in whatever form, in Queensland between 2006 and 2008. We argue that in spite of this increased uptake, patients particularly in those subgroups of the Queensland community who are most likely to benefit, have not recognised or understood the value of their own input into management. It would appear that there are still significant opportunities for doctors and other health professionals to use development of treatment plans with their patients to empower and motivate their patients with chronic disease in managing their own health care.

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## PEER REVIEW

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## CONFLICTS OF INTEREST

The authors declare that they have no competing interests.

**Figures and Tables**

**Table 1:** *Patients aware of having a treatment plan and percentage who recall being involved treatment plan development, 2006 and 2008*

| Chronic condition | 2006 | 2008 | $\chi^2$, p-value |
|---|---|---|---|
| **Aware of treatment plan n (%)** | | | |
| Asthma | 157 (19.6) | 262 (36.2) | 52.5, p=0.000 |
| Diabetes | 155 (21.5) | 279 (40.6) | 60.0,p= 0.000 |
| CVD | 73 (10.3) | 167 (23.7) | 44.8, p=0.000 |
| **Involved in treatment plan n (% of those aware of having a treatment plan)** | | | |
| Asthma | 70 (47.0) | 137 (56.6) | 3.4, p=0.064 |
| Diabetes | 79 (52.3) | 145 (53.5) | 0.05, p=0.815 |
| CVD | 34 (49.3) | 63 (39.6) | 1.8, p=0.176 |

**Table 2:** *Multivariate logistic regression analyses for awareness of a treatment plan for 2006 and 2008.*

| | Variable | 2006 | | 2008 | |
|---|---|---|---|---|---|
| | | Aware of treatment plan n (%) | OR (95% CI) | Aware of treatment plan n (%) | OR (95% CI) |
| **Gender** | Male | 163 (15.9) | 1.0 | 307 (33.2) | 1.0 |
| | Female | 220 (18.3) | 1.2 (0.9, 1.5) | 401 (33.7) | 1.0 (0.8, 1.2) |
| **Age** | 18-59 | 232 (20.7) | 1.0 | 402 (36.2) | 1.0 |
| | 60-75 | 121 (15.8) | 0.8 (0.6, 1.0)* | 248 (32.8) | 0.9 (0.7, 1.1) |
| | 76+ | 32 (9.4) | 0.4 (0.3, 0.7)* | 55 (22.5) | 0.6 (0.4, 0.8)* |
| **Education** | Early school leavers | 116 (14.3) | 1.0 | 189 (28.7) | 1.0 |
| | Completed Senior School | 207 (18.8) | 1.3 (1.0, 1.7)* | 359 (34.5) | 1.2 (1.0, 1.5) |
| | Bachelor or higher degree | 56 (20.3) | 1.3 (0.9, 1.9) | 125 (36.8) | 1.3 (1.0, 1.8)* |