

# THE PERCEPTION OF GPs & CDEs ON DIABETES CARE AND REFERRALS ACROSS THE PRIMARY AND TERTIARY CARE

---

(June 2012)



Table of Contents

List of Figures .....4

List of Tables .....4

1. INTRODUCTION .....5

    Emerging Trends in Diabetes ..... 5

    Objectives of the Study ..... 5

    Outline of the Report ..... 6

2. METHODOLOGY.....7

    Focus Groups with GPs and PNs..... 7

    Survey with the CDEs ..... 8

3. LITERATURE REVIEW OF DIABETES CARE AND REFERRAL PRACTICES .....9

    Diabetes Care ..... 9

    Referral Triggers ..... 10

    Current Models of Diabetes Care for People with Diabetes..... 13

    Government Policy and Support for Diabetes ..... 14

4. ROLE OF GPs IN DIABETES CARE AND REFERRAL PRACTICES .....16

    Role of GPs in Diabetes Care ..... 16

    Referral Triggers and Patterns/ Pathways to AHPs by GPs..... 18

    Other Triggers for Referrals by GPs..... 20

    Sources of Variability in Referral Practices ..... 21

5. ROLE OF CDEs IN DIABETES CARE AND REFERRAL PRACTICES .....25

    Defining the CDEs..... 25

    The Roles of the CDE ..... 26

Referral Triggers to CDEs..... 27

Referral Patterns to CDEs..... 29

6. DISCUSSIONS/ISSUES RELATED TO REFERRALS OF PEOPLE WITH DIABETES BETWEEN GPs AND CDEs .....31

    What GPs Value from CDEs..... 31

    Issues faced by GPs around Team Care and Management Plans ..... 36

7. RECOMMENDATIONS FOR A REFERRAL FRAMEWORK FOR DIABETES CARE .....38

REFERENCES .....44

**List of Figures**

Figure 1: Referral Patterns and Patient Needs ..... 10  
Figure 2: Description of Roles of Practitioners involved in Diabetes Care ..... 12  
Figure 3: The Care Continuum ..... 22  
Figure 4: Should Patients be Referred During Initial Diagnosis ..... 28  
Figure 5: Settings where CDEs work ..... 30  
Figure 6: Time Spent by CDE per Consultation ..... 33  
Figure 7: Chronic Disease Care Plan User Pathway ..... 40

**List of Tables**

Table 1: Probes used for Focus Group Discussions with GPs and PNs ..... 8  
Table 2: Description of Respondents ..... 8  
Table 3: Referral Practices of GPs for People with Diabetes ..... 18  
Table 4: Specialty of Care of CDEs ..... 27  
Table 5: Triggers for Referral to a CDE..... 28  
Table 6: Why Seek Advice from CDEs? ..... 29  
Table 7: CDE Area of Expertise..... 32  
Table 8: Advertisement of Services by CDEs..... 33  
Table 9: Number of Different Patients seen by CDEs Each Month..... 34  
Table 10: Clinical Coordinators of Care..... 35  
Table 11: Communication with Main Clinical Coordinator..... 35  
Table 12: Practical Coordinators of Care ..... 36  
Table 13: Pathway--Ideal ..... 40  
Table 14: Pathway--Without PNs..... 41  
Table 15: Pathway--GPs without access to AHPs/GPs who don't access AHPs..... 42

## 1. INTRODUCTION

### Emerging Trends in Diabetes

The health care environment is undergoing rapid changes with a shift in focus from tertiary care to primary care provision, and this shift is also evident within the delivery of diabetes services. The impetus for the changes in diabetes care is due to various factors. Firstly, there is an increasing incidence and prevalence of diabetes, in particular, type 2 diabetes. It is estimated that almost 1 million Australians have been diagnosed with diabetes, and the AusDiab Study 2005 reveals that the diabetes prevalence is 7.4%, one of the highest in the Western nations. Almost 4% of Australians were diagnosed with diabetes in 2007-08, which had doubled since 1989-90 (AIHW 2009).

Secondly, with the subsequent increase in the number of people with diabetes, there has been a rising cost of public health expenditure. In 2003 diabetes and its complications accounted for over 8% of the total disease burden (AIHW 2009). In a report by the government, “A National Health and Hospitals Network: Further Investments in Australia’s Health” (2010), it predicts that with more than 50 percent of GP consultations for people with chronic conditions, the burden of chronic disease is projected to dramatically increase, and the spending on type 2 diabetes is projected to increase by as much as 520 percent between the period 2002-03 and 2032-33. Thirdly, there are increasing difficulties for persons with diabetes accessing specialist diabetes education and care resulting from the increasing consumer demand due to increasing prevalence and incidence of diabetes, workforce expansion not keeping pace with demand and, historically, location of diabetes education services within the tertiary care sector.

Finally, the recent emerging trends of diabetes education specialist providers’ location in the primary care sector being limited by providers, public and general practice unfamiliarity and public policy support. Given these emerging trends in diabetes, it is recommended that strengthening the professional collaboration and team approach to diabetes care has the potential to: support the person with diabetes; contribute to improving access to self-care advice; and improve diabetes endpoint outcomes thereby reducing health care expenditure attributed to diabetes. There are a number of transition processes within this approach, the better-known transition between two care sectors, the specialist diabetes education practitioners in the tertiary sector and the generalist diabetes education practitioners in the primary care sector. The newer transition is now being established between the general practitioner and practice nurse in the General Practice/Super Clinic and the credentialed diabetes educator working in primary care (predominantly the community health sector and private practice).

### Objectives of the Study

The Project is supported by Novo Nordisk, a leading worldwide company in diabetes care that strives to develop new techniques and products to improve the lives of people with diabetes. It also promotes collaboration with the various stakeholders who share a common goal of minimizing risk from diabetes. The main aim of the project that is implemented by the Australian

Diabetes Educators Association (ADEA) is to develop a diabetes referral framework across the primary care sector and in between primary and tertiary care. The framework will provide generalist diabetes education practitioners (i.e. GPs and practice nurses) with a suggested map for referral of persons with diabetes to credentialed diabetes educators working in primary care and diabetes specialists working in the tertiary care sector. The main outcomes of the Project are to:

1. Identify and report on current service delivery models including an assessment of their strengths and weaknesses; and
2. Identify the strength, role and scope of the practice of: (a) Diabetes education generalist practitioners in the primary sector, that is, general practitioners (GPs) and practice nurses (PNs); and (b) Diabetes education specialist practitioners in the primary sector and tertiary sector, that is, the credentialed diabetes educators (CDEs).

### **Outline of the Report**

The reported is divided into two main parts—role of GPs in diabetes care and referral practices and the role of CDEs and their referral practices. The report starts with a description of the methodologies adopted for the purpose of the study, followed by a broad literature review of the current diabetes care and referral practices and patterns. The next two sections examine the discussions based on the focus groups conducted with GPs and based on the survey conducted with the CDEs on their perception of their role in diabetes care and referral practices. A section that analyses the discussions and issues is included and this is followed by a set of recommendations.

## 2. METHODOLOGY

A mixed method approach was adopted for the study where the first stage included a focus group with GPs and PNs and the second stage involved a survey with the CDEs.

### Focus Groups with GPs and PNs

A focus group methodology was selected for this study. Focus groups research collects qualitative data by engaging a small number of people around a particular set of issues (Onwuegbuzie et al 2009), and it is recognized as an important 'data gathering technique' (Rodriguez et al 2011). In this particular study, focus group discussions were conducted with GPs and practice nurses to investigate the subjective experience of GPs when managing people with diabetes, and the referral triggers and pathways that they utilized. To encourage a wide cross-section of GPs to participate multiple strategies were used. Through the Australian General Practice Network ([www.agpn.com.au](http://www.agpn.com.au)), divisions of GPs in major metropolitan and regional cities were identified. Contact was initiated with the local divisions of GPs, and with the assistance of the divisions participations were invited through advertisements in the divisions' newsletters. This was followed by an invitation that was sent out by personal mail to individual GPs and practice managers. To incentivize participation, GPs were able to acquire 3 Category Two QI&CPD points by participating in the focus groups. An honorarium was also paid to the participants since it required them to participate after work hours. A total of 10 focus groups were conducted with a total number of 53 participants. Of the 10 focus groups, eight of them were conducted in metropolitan cities and two in rural cities.

Upon receiving their interests to participate, detailed information regarding the study and logistics of the focus groups were sent. In it a brief introduction to the study, objectives and deliverables were included. Prior to the start of the discussions, written consent to participate in the focus groups and to audio record the session was obtained. Each focus group had between 3 to 9 participants and each session went on for approximately 90 minutes with a 15 minutes break. The focus groups were conducted within the months of February through July of 2011.

The focus groups sessions were structured by a set of probes that were identified based on four key learning objectives (the probes are shown in Table 1). Firstly to identify the consultation issues pertaining to the delivery of diabetes care by GPs and PNs. Secondly to define the roles of GPs and other health care professionals in managing diabetes. Thirdly to identify what the current triggers for referral of a patient with diabetes to somebody else in the management team. Finally to try to develop a framework that provides both GPs and PNs a map for referral of patients with diabetes to CDEs working in primary and endocrinologist and CDEs in the tertiary care. Each probe had a set of questions, and a moderator asked the questions and kept control of the discussion so that it stayed within the broad probes. However, the format was not rigid and discussions were fluid and open ended, and the probes were used to mainly give format to the discussions.

**Table 1: Probes used for Focus Group Discussions with GPs and PNs**

|         |   |
|---------|---|
| Probe 1 | Roles of GPs in diabetes care   |
| Probe 2 | Referral patters of people with diabetes                                |
| Probe 3 | Perception of the roles of other health care providers in diabetes care |
| Probe 4 | Perception of the roles of CDEs in diabetes care                        |
| Probe 5 | Strengths and weaknesses of GPs in diabetes care                        |
| Probe 6 | Issues pertaining to the delivery of diabetes care by GPs               |
| Topic 7 | Collaborative design of a local referral framework                      |

The recordings of the focus groups were transcribed which were then read and re-read purposively by 4 researchers. Key themes were identified and were subject to thematic analysis using the qualitative NVivo software.

### Survey with the CDEs

To review current referral practice between GPs and CDEs and to determine the experience of CDEs on referral from general practice, a survey was sent out to CDEs in January 2012. An online survey was designed using SurveyMonkey ([www.surveymonkey.com](http://www.surveymonkey.com)). The survey was divided into four sections excluding a short section on personal characteristics: practice specifics, value-addition as a CDE, work systems and processes and networks in diabetes management. In total there were all of 35 questions in the entire survey.

The survey was piloted twice before the final version was sent using the database in the ADEA National Office—once in October 2011 and then a second trial was sent out in December 2011. The survey was open from January through the end of March 2012, and two notifications were sent within this period to remind the respondents to complete the survey. There were 320 respondents to the survey, which reflects 32.5% of the target population. Of the total respondents, a total of 286 were credentialled and another 19 were working towards their credentialling (refer Table 2 ).

**Table 2: Description of Respondents**

|                                 | CDE/DE Database* |             | Respondents |             |
|---------------------------------|------------------|-------------|-------------|-------------|
|                                 | Total            | Total %     | Total       | Total %     |
| CDEs                            | 973              | 99%         | 286         | 89%         |
| Provisional/Working Towards CDE | 12               | 1%          | 19          | 6%          |
| Missing data                    |                  |             | 15          | 5%          |
| <b>TOTAL</b>                    | <b>985</b>       | <b>100%</b> | <b>320</b>  | <b>100%</b> |

\* Based on Initial Credentialling Date

### 3. LITERATURE REVIEW OF DIABETES CARE AND REFERRAL PRACTICES

#### Diabetes Care

Diagnosis can take place at both the primary and tertiary care levels. GPs are often the first point of contact for people diagnosed with diabetes. Although the roles of GPs are really important in diabetes care, particularly in implementation of the components of the diabetes cycle of care (Saunders et al 2008); numerous studies (for example, Proudfoot et al 2007, Infante et al 2004, Aylen et al 2006, Harris 2008, Taggart et al 2009) show that GPs are only able to provide sub-optimal care to people with diabetes. The main barriers in the provision of effective care in the general practice are because of the limited organizational capacity to provide structured care (Harris 2008; Proudfoot et al 2007), lack of time and work pressure (Harris 2008; Aylen et al 2006), and a lack of knowledge of what is available in terms of diabetes education services (Aylen et al 2006).

Figure 1 shows where the referral practices fit in the overall cycle of care for people with diabetes determined by the individual needs and circumstances of patients throughout the continuum of their diabetes. GPs are often the first point of contact for people with diabetes. Referrals are made by the GP to the relevant levels of care depending on the type of diabetes. Normally and when available, GPs refer persons with type 1 diabetes directly to tertiary care, either to an Endocrinologist, an ambulatory care service operated by a TDC or for hospitalisations. For type 2 diabetes, the referral patterns vary. At the basic level, i.e. the primary level of care, persons with type 2 diabetes are managed by GPs themselves and/or a PN. The person's needs at this level are fairly simple at the diagnosis stage, requiring a complications screening and basic information about weight loss, diet, exercise and smoking. The AIHW 2010 Report states that diabetes was the third most frequently managed chronic condition by GPs. This comprised 2.5% of all health problems managed by GP in the year 2007-08 at a rate of 3.9 per 100 encounters, which is a significant increase from 2.6 per 100 encounters in the year 1998-99. In the same year (2007-08), GPs made 6.1 referrals to specialists (tertiary degree of care) and 5.3 referrals to allied health care professionals (the second degree of care) per 100 diabetes problems managed.

The second level of care is often provided by a CDE and a multi-disciplinary team. This allows people with type 2 diabetes access to a range of services, which includes the development of personal care plans, setting targets during the initial years and in the following years, providing medications, undertaking regular complications screening and initiating intensified diabetes treatment options. Once the disease progresses, the care may have to be provided by tertiary services. Management of longstanding type 2 diabetes is frequently more complex and often requires insulin initiation, insulin and glycaemic stabilisation, prevention strategies for acute diabetes complications and management of advanced chronic diabetes complications.

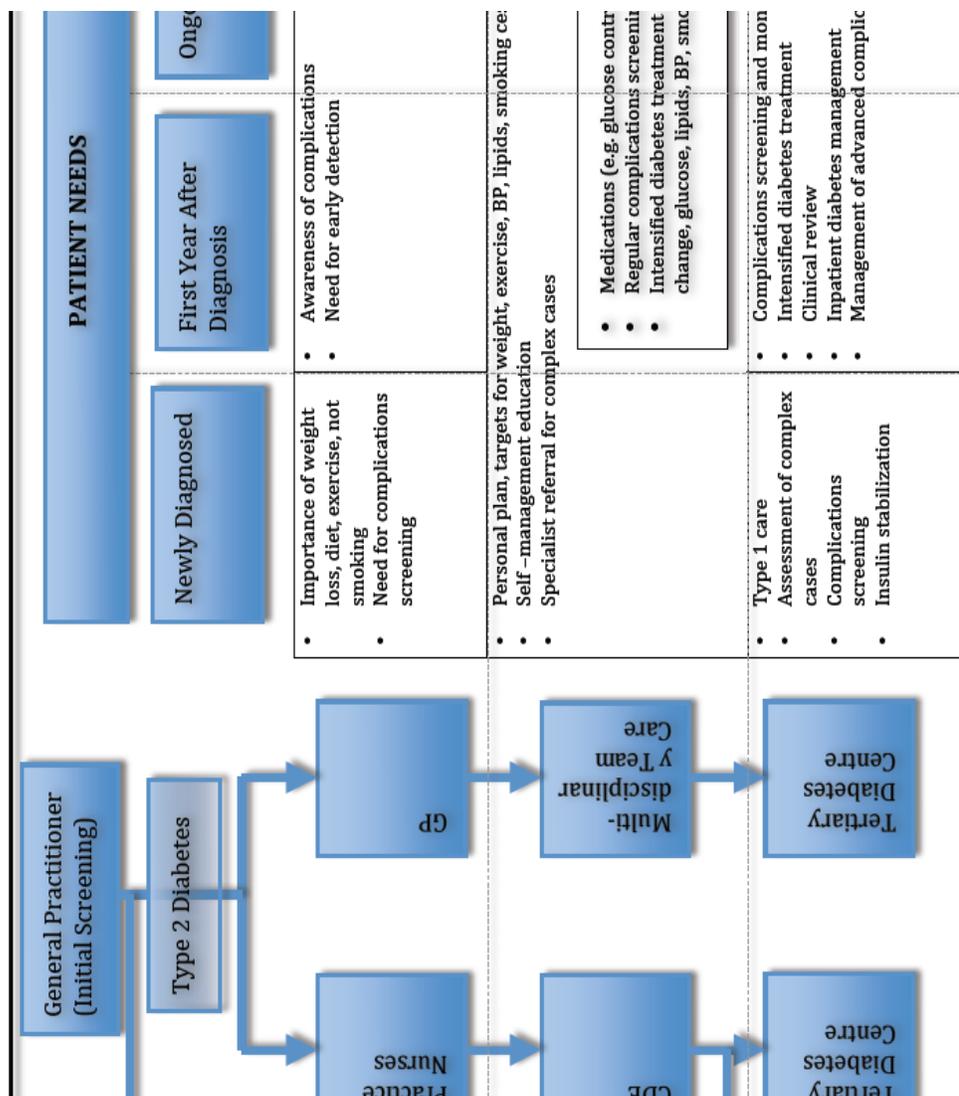


Figure 1: Referral Patterns and Patient Needs

### Referral Triggers

As recommended by the Guidelines for Type 2 Diabetes in the Diabetes Management in General Practice (2010/11) Report, referral triggers should at the minimum occur and include those practitioners mentioned below:

1. CDE: Initially and then as patient becomes more familiar with management, as considered necessary by patient, GP or CDE.
2. Dietitian: Ideally initially, then as considered necessary by patient, GP or dietitian.
3. Endocrinologist:
  - a. Children, adolescents and adults with type 1 diabetes if the GP is not confident with management
  - b. Pregnant women with established diabetes and women with gestational diabetes

- c. People with diabetes and uncontrolled hyperglycaemia or with significant complications
4. Ophthalmologist or Optometrist: Initially and then at least every two years.
5. Podiatrist: Ideally initially and then regularly if there is/are peripheral vascular disease, neuropathy, skin and/or nail problems, etc.

Some of the other allied health professionals who may be consulted by the patients depending on the needs are exercise professional, oral health professional and pharmacists (See Figure 2 for descriptions of each of the roles and responsibilities of the various actors in the entire spectrum of diabetes management).

In a recently released publication of the ADEA developed in conjunction with the AIP(?) a guideline is suggested for referral to a CDE based on the immediacy of the timing. An immediate referral is suggested: for newly diagnosed diabetes; when there is sub-optimal glycaemic control and/or risk factors for developing diabetes complications; when commencing or adjusting diabetes medicines including insulin therapy; for diabetes in pregnancy; and when patients lack self-care knowledge, skills or confidence. For non-immediate referrals: when the diabetes is well-controlled and when consultation has occurred as a part of the annual cycle of diabetes care.

### The Multidisciplinary Team in Diabetes Care

1. **Credentialed Diabetes Educator:** The diabetes educator can often spend more time than the general practitioner has available, consolidating the patient's knowledge and skills regarding eating plan, physical activity, self-monitoring, medication usage, foot care, etc.
2. **Dietitian:** The role of the dietitian in the management of diabetes is paramount. Lifestyle changes alone (healthy food and regular exercise with ensuing weight loss) are sufficient for glycaemic control in the majority of patients with newly diagnosed type 2 diabetes.
3. **Endocrinologist/Diabetologist/Paediatrician:** The advice of a specialist physician may be valuable for people with complicated problems related to diabetes—especially children, adolescents and adults with type 1 diabetes or diabetes in pregnancy. In many cases the specialist will be part of an organized, multi-disciplinary diabetes care team which can provide a comprehensive diabetes education program.
4. **Exercise Professional:** When initiating a physical activity program in a patient who has been relatively inactive, the help of a physiotherapist with a special interest in exercise routines or an exercise physiologist may be of benefit.
5. **General Practitioner:** The general practitioner has the central role in coordinating management of the person with diabetes and in education, counseling and softening the 'technology/person interface' often felt by people with a chronic condition.
6. **Practice Nurse:** In many practices, the practice nurse is invaluable in establishing, managing and implementing systems for diabetes care.
7. **Ophthalmologist/Optomtrist:** All people with diabetes need to be assessed regularly by an ophthalmologist or optometrist. Early detection of retinopathy, before visual loss occurs, markedly improves prognosis for sight.
8. **Oral Health Professional:** Dental and periodontal problems are common in people with diabetes who need to see a dentist regularly.
9. **Pharmacists:** Pharmacists are frequently consulted by members of the community about a wide range of health issues. Pharmacists usually know the health problems and prescribed medications and can provide useful advice on medication usage and potential problems.
10. **Podiatrist:** The podiatrist renders expert preventive care. If there is evidence of neuropathy, macrovascular disease, anatomical problems or a previous foot problem, early referral is desirable and regular review is necessary.

Source: Diabetes Australia and Royal Australian College of General Practitioners. (2010). *Diabetes Management in General Practice: Guidelines for Type 2 Diabetes*. Diabetes Australia Publication.

11. **Diabetes Nurse Practitioner:** The Diabetes Nurse Practitioner will use her clinical skills and experience to manage diabetic patients of the Diabetes Centre, deriving support from guidelines and existing work practice in delivering this task: provides a link between patients, the Diabetes Centre, General Practitioners, other health care providers and community organizations; actively promotes diabetes health awareness and primary prevention; and demonstrates a high standard of professional practice and clinical leadership that incorporates education and research.

Source: Jane Payne (2007), *Diabetes Nurse Practitioner Guidelines: Role and Scope of Practice from original work by Jane Overland and Belinda Brooks*, Nurse Practitioners RPAH  
[http://www.health.nsw.gov.au/resources/nursing/practitioner/np\\_diabetes\\_bankstown\\_pdf.asp](http://www.health.nsw.gov.au/resources/nursing/practitioner/np_diabetes_bankstown_pdf.asp)

**Figure 2: Description of Roles of Practitioners involved in Diabetes Care**

## Current Models of Diabetes Care for People with Diabetes

The models that are currently being adopted in the provision of diabetes care and education are:

1. **By GPs:** Under such a model, GP provides diabetes education, support, counselling and interventions. However, some GPs employ PNs to assist them with care, and especially care coordination. Many GPs collaborate with their PNs to develop an internal management structure of care coordination which includes completing GPMPs and TCAs and organising for people with diabetes to attend appointments for diabetes education and other speciality health care services such as dietetics and podiatry. The role of GPs in the provision of diabetes care has been recognized within the health care system. They are able to provide comparatively better long term care for patients as compared to the services provided by specialists (Harris 2008). GPs are also able to extend their services to a wider population. And they are better suited to manage patients with chronic disease since they are more effective in dealing with co-morbidity than specialist providers (Harris & Zwar 2007).
2. **Nurse-Led Clinics:** In a nurse-led clinic, the nurse, who has a dual qualification as a Registered Nurse and a CDE, coordinates and provides service in a diabetes clinic, either on a full-time basis, or more often on certain days undertaking other tasks in the general practice for the remainder of the time. However, RN CDEs increasingly choose to practice independently, establishing their own small businesses or entering into sub-contract arrangements with local GPs. The RN CDEs, in addition to providing diabetes education and care, are frequently responsible for a variety of other activities such as arranging education, maintaining equipment, providing system support for appointment schedules, data mining for quality assurance, billing, recalls and reviews for screening and monitoring outcomes and delivery of professional development and training in diabetes management and care to other health care providers and students in the practice. In a study conducted by Eley et al. (2008) in Queensland and Victoria, it was found that the nurses' skills complemented GPs' skills in enhancing patient care and that it provided holistic patient care.
3. **Multidisciplinary Teams:** Diabetes is such a disease that has no cure, nevertheless its effects can be minimized. One way to minimize effects is through integrated care by GPs, PNs, CDEs, dietitians and podiatrist (Grimmers-Sommers et al 2008). Although diabetes is predominately treated in general practice, increasingly it is also being treated under shared care arrangements with specialist diabetes services using multidisciplinary teams
4. (Zwar et al 2007). The multidisciplinary team comprises of 'diverse health care professionals who communicate regularly about the care of defined group of patients and participate in that care on a continuing basis' (Zwar et al 2007). The team commonly included GPs, nurses and allied health providers (AHPs) (which again include diabetes educators, dietician and podiatrist). The multidisciplinary team chalks out a care plan as a tool for communication and coordination of care and maintain communication about the patient's progress (Pirkis et al 1997; Zwar et al 2007). The use of multi-disciplinary teams and coordinated care have demonstrated to improve quality of care and patient outcomes and adherence to guidelines and metabolic control (Taggart et al 2009, Harris

& Zwar 2007). Studies have also found that shared care programs led to improvements in patients diabetic control, knowledge and control, confidence in dealing with diabetes and better self management practice (Pirkis et al 1997). In order for effective general practice, it is important that the general practice must be well organized through teamwork and practice system. There must be effective leadership, shared sense of responsibility and a common goal, cooperation, trust and respect, use of skills of all team members and clear roles and responsibilities (Taggart et al 2009). It was found that the impacts of the use of multidisciplinary team was the greatest for newly diagnosed patients, long-term diabetics who were complacent (Pirkis et al 1997) and that such a use of multidisciplinary team reflected the response to emerging patterns of needs based on the ageing population and changing pattern of disease (Mitchell et al 2008). Multidisciplinary teams are really helpful in moderating demands on the health system by managing health care needs through the primary care sector by preventing, deferring or reducing the demands on the secondary and tertiary sectors (Mitchell et al 2008).

5. Tertiary Diabetes Centres: Diabetes Centres or Ambulatory Care are for those patients for which hospitalization could be avoided if preventive care and early disease management were applied in the ambulatory setting. Timely and effective ambulatory care can help reduce the risks of hospitalization by: preventing onset of an illness or condition; controlling an acute episodic illness or condition; or managing a chronic disease or condition (Ansari et al 2002). Treatment in these diabetes centres are comprised of two key elements: the provision of routine diabetes care which includes adjustment of glucose-lowering medication, review of issues which may affect glycaemic control, with monitoring and treatment of diabetes complications and comorbidities; and structured complications screening, where patients are reviewed on a regular basis for diabetes complications screening according to a set of protocols or guidelines (Cheung et al 2008).

### **Government Policy and Support for Diabetes**

In 1999, through the Enhanced Primary Care initiative the government remunerated the GPs involved in multidisciplinary care plans for patients with chronic conditions and multidisciplinary care needs. New Medicare items for Chronic Disease Management were introduced in July 2005 to streamline care planning for individuals with chronic conditions and to facilitate multi-disciplinary care planning, which consisted of a GP Management Plan (GPMP) and a Team Care Arrangement (TCA) (Zwar et al 2006). The GPMP is a structured management for those patients with a chronic or terminal medical condition, and the TCA are for similar patients and also require ongoing care from a multidisciplinary team and at least two other health or care providers (Zwar et al 2008).

The multidisciplinary team chalks out a care plan as a tool for communication and coordination of care (Zwar et al 2007) and maintain communication about the patient's progress (both formally and informally through follow-up assessment forms) (Pirkis et al 1997). The plan identifies a comprehensive and longitudinal plan of action setting out the needs of the patient and the services and support needed to meet those needs. It also sets out to document the goals, the collaborating providers and the treatment/services that have been agreed upon before providing

the relevant parts of the TCA to the collaborating providers. Once the GP coordinates the development of a TCA, a rebate can be claimed.

In studies conducted by Shortus et al. (2007) all GPs covered under the scope of the study said that they used care plans to organize and facilitate clinical care delivery and engage patients in their care. In the same study findings showed that several GPs also used the care plans to help patients access private allied health providers. GPs made use of the care plans to provide patients general education about the clinical goals and tasks, and referred patients to AHPs for more specific self-management support. Various other studies (e.g. Pirkis et al 1997; Zwar et al. 2007) also provide evidences where a care plan has led to increase in the provision of multidisciplinary care for people with diabetes, and that in turn led to significant improvement in patient's diabetic control.

In addition, the government will also establish Medicare Locals and GP Super Clinics. Medicare Locals are independent legal entities responsible for improving primary health care service delivery at the local level, to reduce services gaps and improve access to high quality integrated care. Medicare Local links to local communities, health professionals and Aboriginal Medical Services, and works closely with local GPs and Local Hospital Networks to identify and address local needs, improves patient care and the quality and safety of health services. In terms of how the establishment of Medicare Local will affect diabetes care, the government expects that it will be useful in organizing a roster of allied health professionals such as nutritionists and diabetes educators to provide sessional services to different GP clinics in an area which has been identified as having a large number of diabetics living in that particular area. The government has committed \$290.5 million over four years to establish Medicare Locals across Australia, and the first set is to start operation my mid-2011 and the remaining by mid-2012 (DoHA 2010a). The government also intends on improving primary health care by committing to 36 GP Super Clinics around Australia, and will provide further funding of \$355 million over four years for the establishment of 23 new GP Super Clinics and for approximately 425 GP and primary care services to be upgraded and extended to deliver GP Super Clinic style of services (DoHA 2010b). GP Super Clinics basically provides a broad range of services to the patients at a single location. Services provided by such Super Clinics include allied health services, group education (a particular reference has been made by the government to the delivery of diabetes education), counseling, preventive health services and specialist outreach.

## 4. ROLE OF GPs IN DIABETES CARE AND REFERRAL PRACTICES

### Role of GPs in Diabetes Care

Through the discussions with the GPs on their role in diabetes care, GPs felt that although diabetes was best managed by a multidisciplinary team, GPs were the ‘central drivers’<sup>1</sup> of the whole diabetes care process. Studies also support this finding where type 2 diabetes is predominantly managed by GPs (Aylen et al 2006). GPs felt that they were: the first person that the patients contacted; the person who often diagnosed the diabetes; the person who facilitated the process of management through referrals and constant monitoring of the patient; and the person who medically managed the patient. GPs were also ‘uniquely placed’ in the spectrum of diabetes care because they could play a role in the prevention and early intervention of diabetes with basic things like weight control, stress management and physical exercise, and also because GPs often knew their patients, families and special circumstances.

GPs thought that they were best placed to provide ‘continuity of care’. In the overall long-term care of people with diabetes, it has been argued that GPs provide better long-term care than other specialist services (Harris 2008). Some plausible reasons could be because the GPs are the providers they see most frequently and who have the opportunity to look after patients often. GPs also have a ‘better understanding’ of the patients and are the ‘one constant figure in their life’. Because diabetes is also a chronic disease where the patients have more than one chronic condition at the same time, GPs are also considered to be the most effective in dealing with co-morbidity (Harris & Zwar 2007). An important perspective of the GPs in this regard was that they were in the best position to ‘look at the whole picture’ and they were the ones who had to ‘deal with everything and sort of tie the As with the Bs and the Cs’.

To get a better perspective to the role of GPs in diabetes care, and based on the findings of the study, GPs roles in diabetes care have been classified into three broad categories: as the first point of contact, as the provider of care and as the coordinator of care. It must be mentioned that while the roles in diabetes care can be classified into these three broad categories, there are GPs who don’t necessarily fit into one particular category. On one hand of the spectrum, there are GPs who restrict their roles to each of the three categories and on the other hand of the spectrum, there are GPs who tend to provide the entire care themselves.

#### *GPs as the first point of contact*

GPs saw their main role as diagnosing people with diabetes. The initial diagnosis would be done in a number of ways: through routine test like BMI, blood tests, IGT and other tests, and also look out for people with family history of diabetes, and check to see if they are at high risk of diabetes through their weight. Most GPs also agreed that consultation during the initial diagnosis was challenging and not as straightforward. GPs drew similarities between diabetes and ‘mental

---

<sup>1</sup> All quotes in the following sections, unless specified otherwise, are by GPs who participated in the focus group discussions.

health consultation' during the initial diagnosis stage stating that it required people to realize that they were ill and that their condition was not curable. Hearing that they were diagnosed with diabetes would 'scare people away' and diagnosis often meant more than just doing FPGs and included conducting HbA1c and glucose tolerance tests. The initial consultation also required GPs to establish good relations with patients, reassure them of their new condition and to be there for the patients. It was also important to motivate patients and to try and keep them on their tracks, and encourage them to come back for follow-up visits.

### *GPs as the provider of care*

Almost all GPs thought that they were the main providers of diabetes care, particularly type 2 diabetes. This perception is supported by a study conducted by Infante et al (2004:71) where participants viewed GPs as their 'main healthcare provider'. After diagnosis of diabetes, GPs then make a decision as to whether the patients should undergo a pharmacological or non-pharmacological treatment. For patients who upon diagnosis were already quite severe, GPs had to review the patient's whole management up to the point. As providers of care GPs had to do the routine checks, annual and six-monthly HbA1c tests, annual cardiovascular checks, and checks for the eyes, legs, pulses, reflexes and sensations. GPs also provided patients with information on the involvement of long-term care and conduct follow-ups on a regular basis. GPs felt that it was important to ensure that patients had enough knowledge of the illness and what it could lead to. At this stage, GPs mostly set out three targets: first was the blood glucose and HbA1c levels; second was the blood pressure targets; and third was the fasting blood test, HDL, LDL and cholesterol.

GPs tended to differ on their involvement in the providing of care. Some GPs stuck to the more routine roles and passed on their patients to other health care providers, such as CDEs and dietitians, for some of the provision of care. However, there were some GPs who took on the entire task of the provision of care. This depended on the characteristics of the GP or the situation that the GP worked in. For instance, there was a GP based in a metropolitan city who basically managed the patient right from routine checks such as blood tests, fasting blood sugars, HbA1c to discussing lifestyle, diet and exercise. He also initiated metformin if the sugar level was still high and conducted the entire examination including checking the blood pressure, peripheral pulse, sensation and neuropathy. There was another GP based in a rural city who worked in a solo practice and had to do most of the things himself. He would provide them medication and also educate the patients on the disease.

### *GPs as the coordinator of care*

One of the main roles that GPs saw for themselves in the care of people with diabetes was as 'coordinator of care'. GPs role as the key coordinator in diabetes-related care has been acknowledged in the literature too (Comino et al 2006). The role as coordinator was important for two reasons. Firstly, the nature of the disease required the patients to be treated for other chronic conditions too. GPs thought that a lot of the times patients forgot that the treatment involved other systems. In this regard, GPs thought of themselves as 'advocates' for patients helping 'steer them through the health system [getting] them to the places they need to go at the time they need to go', and as 'primary care coordinator of their management lifelong'. Secondly,

especially within the framework of a multidisciplinary team care of diabetes, the role of the GP as the central coordinator was important. GPs thought that they were in the best position to see patients as a ‘whole’ whereas other saw them as ‘bits’. As coordinators of care, GPs viewed themselves as providing holistic approach and coordinating the complete package for the patient. It was also the onus of the GPs as coordinators to ensure a comprehensive management of the patient and avoid any fragmentation of care. GPs felt that a control body was necessary otherwise there would be too many other bodies ‘mixing things up and assuming that one person is going to do it and not the other, and people get missed and caught up in the system’. Some GPs also cautioned that there was also a point where they became a ‘traffic policeman’ that they did not have an active involvement in the patient’s care. Other GPs felt that the model was evolving. As one GP put it:

‘We always think that we are the hub of the spoke of a wheel but I think the model is evolving. And I think it is a stage of transition into allied health so we still call ourselves the hub but I think it is a matter of time that the paradigm is not a hub and spoke but a more flatter model’.

**Referral Triggers and Patterns/ Pathways to AHPs by GPs**

From the focus groups, a pattern of referral pathways and the specific triggers was discerned. Table 3 shows the referral to the various practitioners in the spectrum of diabetes care mentioned alongside the different stages of the disease.

**Table 3: Referral Practices of GPs for People with Diabetes**

| <i>GP—to—</i> ↓                   | <b>Initial Diagnosis</b>   | <b>Specific Treatment/ Care</b>   | <b>Complications</b>   |
|-----------------------------------|--|---|--|
| <b>GP</b>                         | Rarely—only when patients are not satisfied with a particular GP.  |   |  |
| <b>Practice Nurse</b>             | Delegation of responsibilities in managing the annual cycle of care and management plans.  |   |  |
| <b>Allied Health Professional</b> | Usually to CDEs and dietitians for initial education about the disease, medication, diet and lifestyle. Exercise physiologist is also referred to at this stage. | Referrals were made to specific AHPs. For example, feet problems to a podiatrist, eye problem to an ophthalmologist, etc. |  |
| <b>Tertiary Diabetes Centre</b>   | When GPs want their patients to have easier access to a cohort of AHPs that are co-located.  |   |  |
| <b>Specialist</b>                 | Type 1 patients, children and sometimes GDM patients.  | When GPs are unable to control and manage the patients or when patients are non-compliant.                                | Referrals are made mostly at this stage when there are complications in the disease. |

### *GP to GP*

Such type of referrals occur rarely, and only when the patients are not satisfied with the services of a particular GP. In such events patients often tend to go to another GP for consultation.

### *GP to Specialists*

Referrals to endocrinologists in the initial stages of the management were made usually when GPs came across people with type 1 diabetes, children diagnosed with diabetes and in some cases patients with GDM. The other times when GPs referred patients to endocrinologists were when they were unable to manage the patients and adequately control their diabetes.

‘I do throw my hands up and say: look I can spend more time and history is important to get into what the patient is doing and all that but oftentimes, if it gets to the point then I refer them off to the specialist or I will say to them: this is what I have done, and I am not winning I can’t get good control what can be done. And the specialist would take over and hopefully control the patient a bit better.’

Some GPs however did complain that the endocrinologists are busy and difficult to get an appointment. In such cases, the patient’s care fell back on the GP or in some situations GPs consulted with other GPs to come up with a solution, for instance one of the GP said that: ‘If you put four GP heads together, you often come up with a solution without an endocrinologist’.

### *GP to Allied Health Professionals*

When it comes to referring to AHPs, GPs tend to make use of a wide array of allied health services. GPs acknowledge the importance of the involvement of a multidisciplinary team when managing people with diabetes. Among the various AHPs that the GPs mentioned in the focus groups, the most frequently used are CDEs, dietitians, podiatrists, exercise physiologists and ophthalmologists. The services of AHPs were availed at different stages of care. Generally referrals to CDEs and dietitians were made during initial diagnosis of diabetes: ‘the initial education and managing diabetes and getting them confined are really really essential’. Referrals to podiatrists, ophthalmologist and the others were made when specific problems related to diabetes arose, and such referrals were often made during subsequent stage of the disease. An issue that a number of GPs raised when it came to ensuring a comprehensive management of the patient was the chance of fragmentation of care. Referrals to numerous practitioners could potentially create problems within the practitioners themselves as to who is the main coordinator of care. As one GP put it: ‘So often referral to other people can lead to fragmentation so that you lose the patient to that person, and their care is not so good as a consequence’.

### *GP to Tertiary Diabetes Centre*

GPs also preferred to make referrals directly to the tertiary diabetes centres for easier access rather than having to look up specific practitioners. Sending them to the tertiary diabetes centre located either in the hospitals or in the community health centres where multiple allied health

professionals and specialists are co-located. Having the practitioners located under one roof was also convenient for the patients as they did not have to travel large distances to get treatment.

### *GP to Practice Nurse*

Practice Nurses (PNs) take on a supportive role to the GPs, and because the GPs are often time-constrained having a PN has been perceived as helpful. Most GPs who had PNs said that PNs took on the responsibility of reviewing the annual cycle of care and going through the goals of the management plans. One of the participants who was a PN said that: 'together with the GP, the patient and myself decide who the patient might like to see and we decide that together and look at who the patient might like to see'. GPs also delegated the task of provision of basic information on diet and exercise to the patients to the PNs.

### *Self-Referral*

There were also some instances where patients took it upon themselves to make referrals, either to other allied health professionals or specialists. These referrals were based on either recommendations made by friends and families or if they had a friend who was an allied health professional. In such instances, GPs were quite open to patients negotiating and making their own choice: 'they feel involved and responsible'.

### **Other Triggers for Referrals by GPs**

As we saw earlier GPs thought of themselves as the central role in terms of coordinating the care. As coordinators of care they provide patients with a number of choices of allied health professionals they could consult with. To a large extent, patients also accepted the role of the GPs as coordinators. As one GP put it: 'there is a certain loyalty to the GPs and there are a number of patients who will accept anything we tell them and they won't go anywhere else'. The GPs also agreed that there was a spectrum of patients ranging from those who controlled their diabetes and did not require further consultation to the other side of the spectrum of complicated cases who required a lot of other health inputs. Some of the other main reasons for referrals to allied health professionals were:

1. GPs just did not have the time to spend with the patients. It was the first diagnosis where the GPs are required to provide long consultations to the GPs. A GP stated that:

'I don't look forward to that [i.e. first consultation] much. There is a lot of education you've got to tell them what diabetes is all about and you have got to give them some materials. And you have got to touch on the importance of looking after their feet, having their eyes checked and regular monitoring because it is progressive condition and there is going to be follow-up for the rest of their lives and they are going to develop complications and that's why it is so important to control the blood sugar'.

Normally the consultations are only made for 10 – 15 minutes and GPs feel that is not possible to do everything within that time frame. Patients also do not want to stay longer as

they do not want to pay for the extra time. In addition patients need to be constantly reminded of their targets that require time and effort.

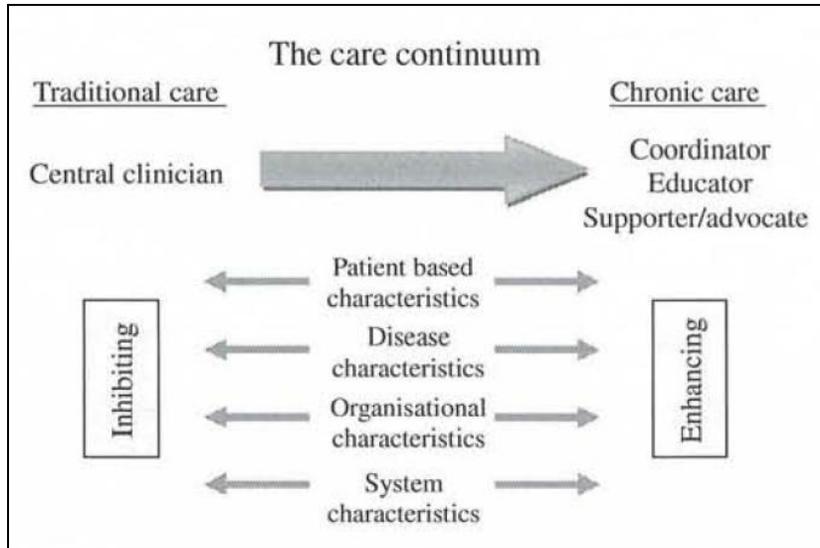
2. The nature of the disease itself, which tends to affect other systems as well. GPs remarked that such chronic illnesses require the involvement of a multidisciplinary team, and it was not just a relationship between the GP and the patient but a ‘broader relationship’ with other allied health providers. The use of multidisciplinary team in diabetes has shown to have positive effects on both provider behavior as well as improving patient outcomes for people with diabetes (Dennis et al 2008). In addition, these allied health services were perceived by the GPs as a specialized skill that complemented their limitations:

‘If you are going to undertake training in something, you need to use it. So if you don’t have the time to use it and if there is another person who can do the job for you then you have to think about whether you want to do it or not.’

3. Fulfilling the requirements of the annual care plans helped in referring patients to other health care professionals. Upon diagnosis, patients normally got their care plan in the first year, and GPs made use of the care plans to provide general education about clinical goals and tasks, and also referred patients to allied health professionals for more specific self-management support. In a study conducted by Zwar et al (2007) it was found that the use of care plans prompted comprehensive review of patient as well as referrals to other health professionals. These findings were consistent with the views of the GPs, and they remarked that EPC made it ‘easier to access allied health care environment’.

### Sources of Variability in Referral Practices

Using the framework (with reference to Figure 3) as used by Young et al (2010) to analyse the factors enhancing or inhibiting referral pathways to consumer health organizations in primary care, it will be insightful to use a similar framework, modified slightly, to examine the sources of variability in referral practices. Thus in addition to the four characteristics, i.e. patient-based characteristics, disease characteristics, organisational characteristics and system characteristics, two more characteristics are considered for the purposes of the study—other practitioners and GP characteristics.



Source: Young, C. E., Mutch, A. J., Boyle, F. M., & Dean, J. H. (2010). Investigating referral pathways from primary care to consumer health organisations. *Australian Journal of Primary Health*, 16, 260-267.

**Figure 3: The Care Continuum**

*Disease Characteristics*

An obvious variation in referral is dependent on the type of diabetes. Patients with type 1 diabetes were almost always referred straightaway to specialists. Some GPs also sent their GDM patients to specialists. When it came to people with type 2 diabetes, GPs felt that it depended on the ‘spectrum of diabetes which is enormous’. Furthermore GPs also thought that: ‘Diabetes is probably the main disease which fits in this multi-practitioner disease model, and I don’t think I can think of any other disease that comes close to diabetes’. Therefore this nature of diabetes required that numerous referrals be made depending on the stage of the complication. On one hand of the spectrum were the acute cases which the GPs were comfortable managing. On the other hand when the disease got more complicated and became chronic GPs referred them to either specialists or allied health professionals. Some of the common triggers for referrals were during initial diagnosis, when the HbA1c kept rising in spite of increasing medication and when the patients were at the edge of insulin use.

*Patient-Based Characteristics*

Referrals by GPs depended on the patient’s demographic and characteristics. GPs often referred children to specialist as they found them ‘difficult to control’ and some GPs treating mature population who were high risk patients sent them to other allied health professionals. Referrals also tend to vary depending on the compliance of the patients towards managing their diabetes. In certain cases GP felt that the patients were ‘really aware of the disease’ and were well-controlled and managed, and hence did not require a referral. However, more often than not, patients were not compliant and were not managing their diabetes well. In such cases GPs referred them to specialists and to other health professionals for treatment as well as for sending

a message from a third party. ‘Even if the third party is relatively minimal in time commitment, [it helps to] hear it from somebody else: this is serious and not to be taken lightly’.

### *Organizational Characteristics*

The type of practice affected the variability in referrals. GPs that practiced in larger practices where allied health professionals were co-located within the same premises referred patients more frequently because of the easy accessibility. Whereas GPs that practised either solo or in smaller practices had to do most of the treatment and care by themselves: ‘if you are in a small practice, you don’t have the accessibility or the support of the extra allied health people or nurses for that matter’. An issue that a GP highlighted was that a major limitation of multidisciplinary care was not having a team located at the general practice:

‘The whole concept of going two suburbs away to see the diabetes educator, who never sees the GP, talks to the GP and sees the patient. There has to be regular communication between the team players for it to work properly. We just don’t get that in the current model’.

Although the point of where the geographic location of the practice did not come out strongly, some GPs located in the regional cities did think that that ‘country’ GPs had to be more ‘hands-on’ and ‘do more than city GPs’ because of the limitation of access to services and specialists.

### *System Characteristics*

Having GP management plans and through the EPC, the five visits to allied health professionals that people with diabetes are entitled to each year facilitated in the referrals by GPs to other health providers. Although most GPs found the paperwork burdensome, in some cases it served as reminders to GPs to complete the annual cycle of care for patients. With regard to the costs, there appeared to be conflicting issues: GPs acknowledged that time is a ‘huge factor’ and patients normally come in for 10-15 minute appointment, which were not sufficient. Patients were not willing to stay for longer since they did not want to pay, and it was a ‘matter of outsourcing’. On the other hand, patients did not want the management to be outsourced since it costs them more money. GPs voiced patients concern that the fees for allied health professionals was escalating, and that patients ‘try and squash as much as they can into the GP consultation’ so that they can either get reimbursement from Medicare or try to get bulk-billed.

### *Other Practitioners Characteristics*

Variance in referrals occurred when GPs and their patients saw the added value that an allied health professional brought to the diabetes care. On a positive note, GPs were keen to refer their patients to an allied health professional if they thought the service provided was good.

‘I found by accident [an AHP] who was very good [and] she charged quite a lot. But even those who pay privately get their money back in gold so I just send them to her. I have used her before, but didn’t realize her expertise in diabetes was so good. She has improved a lot of the care.’

On a negative side, some GPs found locating the services of some allied health professionals difficult therefore affecting access for patients requiring their services.

### *GP Characteristics*

The personality of a GP also accounted for variability in the referral practice. At one end, there were GPs who did everything themselves and were comfortable catering to the entire needs of a diabetes patient right from diagnosis to treating them for acute complications. This was in spite of having access to allied health services. It was only when the case became severe that they referred to the specialists. Some older GPs said that this was probably a trait in the 'old days' when 'GP used to do everything' but now they have 'outsourced a lot of material out', and reflected the 'progression of what the GP is today'. On the other end, there were GPs who had no interest in diabetes and preferred that everything be done by others, such as the CDE and the dietitian. Then there were a majority of those GPs who fell in between the two extremes: those who saw themselves as the 'coordinators' and the 'central drivers' of the whole multidisciplinary team. Another trait of GPs that affected the way they referred people with diabetes was their knowledge of providing advice on diabetes and their skills in initiating insulin. Those GPs who were not comfortable initiating insulin or providing advice about diet and exercise referred their patients to allied health professionals such as CDEs, dietitians and exercise physiologists.

## 5. ROLE OF CDEs IN DIABETES CARE AND REFERRAL PRACTICES

### Defining the CDEs

An important aspect of diabetes care is in the provision of education about the disease to the patients. Diabetes education is an integral component of diabetes care for the patients as well as their families, support systems and caregivers, and as management of diabetes has become increasingly complex the profession of a diabetes educator has emerged (AADE 1999). The AADE (2005) define diabetes educators as a group of ‘health care professionals who have achieved a core body of knowledge and skills in the biological and social sciences, communication, counseling and education who have experience in the care of people with diabetes... and the mastery of the knowledge and skills to be a diabetes educator is obtained through formal and continuing education, individual study and mentorship’. In Australia, the term CDE is used by the ADEA to ‘identify those health professionals who provide comprehensive, interdisciplinary diabetes self-management education as described by ADEA and who meet the criteria of the ADEA Credentialing Program’ (ADEA).

In educating people with diabetes, CDEs integrate diabetes self-management education with clinical care to promote physical, social and psychological well being (ADEA). Findings demonstrate that self-management of diabetes leads to better results. For instance, based on systematic reviews and meta-analysis studies there is a positive impact of diabetes self-management on glycaemic control, mental well being and quality of life (Rose et al 2009). Self-management has been defined as ‘the individual’s ability to manage the symptoms, treatment, physical and psychosocial consequences and lifestyle changes inherent in living with a chronic condition’ (Newman et al 2004, p. 1523 cited in Handley et al 2010). Australia has put in place policies that favour diabetes self-management as an appropriate and effective intervention (Rose et al 2009); and the concept of self-management has been a key for the success of policies such as the Expanded Chronic Conditions Model, which adopts a broad approach to management of chronic conditions by focusing on community participation, integration of health care providers and placing the person and their family at the centre of care (Handley et al 2010).

Diabetes was described by the GPs as a ‘silent disease’ that required patients to understand the complexities of the disease through extensive education. Although some GPs felt that they could provide education on diabetes to the patients, most of the GPs said that they did not have the time that is often required to provide adequate education. The 15 or 30 minutes consultation they had was not sufficient, and they acknowledged the fact that it takes a long time to educate people in terms of diabetes. Initial education was considered a fundamental aspect of diabetes care and critical for good self-management of diabetes (Loveman et al 2008). GPs considered the role of CDEs as ‘essential’ and the initial education about managing diabetes and getting the patients confined were really important. GPs felt that the 1- 2 hour consultation that CDEs provided was long enough to talk to patients about the effects of the disease and the complications that could possibly arise: ‘It is not simply sugar, but it is beyond that and it is going to affect every organ in his body’.

The GPs also thought that the role of providing education was beyond their GP skills and as a 'lone ranger' the management of diabetes would be difficult and not sustainable. In this respect, the GPs perceived the roles of CDEs as 'reinforcer', 'reassurer' and 'motivator'. Typically a CDE is involved in ongoing care of people with diabetes, educating, counseling and also providing advice on medication and management of intercurrent illness (Loveman 2009). The GPs were able to witness the benefit the impact of good education on patients and many GPs received good feedback from the patients on some of the CDEs that they were referred to.

### **The Roles of the CDE**

Primarily the CDE is to educate people with diabetes and their families about the disease and how to manage it. In doing so, CDEs generally adopt a client-centred approach and help people in understanding among others some of the following issues (based on findings from AADE 1999 and ADEA 2011):

- Describing the diabetes disease process and treatment options;
- Using medications (if applicable) for therapeutic effectiveness;
- Monitoring blood glucose and urine ketones (when appropriate), and using results to improve control;
- Preventing, detecting and treating acute complications;
- Preventing (through risk reduction behavior), detecting, and treating chronic complications;
- Goal setting to promote health and problem solving for daily living;
- Integrating psychosocial adjustment into daily life;
- Promoting preconception care, management during pregnancy, and gestational diabetes management (if applicable);
- Understanding their personal health risks;
- Exploring the meaning and implications of these risks in the context of their personal, social and cultural world and in terms of their current behavior; and to
- Activating them to determine a comprehensive self-management plan that will maximize their health outcomes.

In Australia, based on the survey with the CDEs, findings showed that in addition to providing diabetes education they also performed a wide range of care (refer

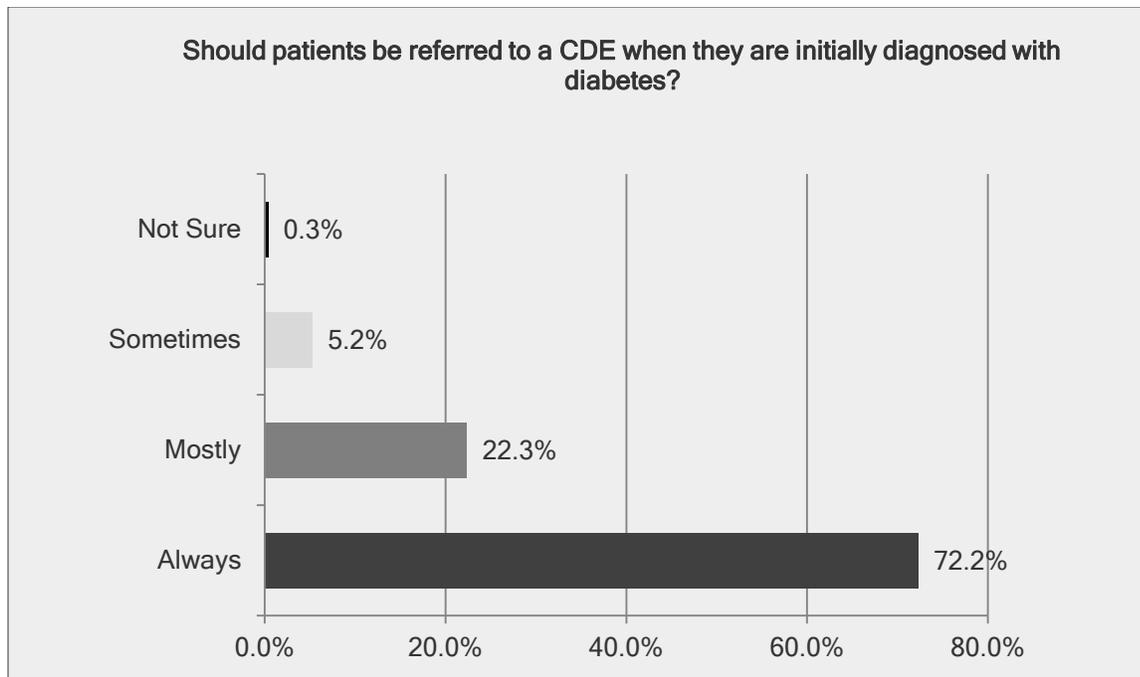
Table 4). A large majority of the CDEs specialized in elderly care (55%), followed by GDM (36%) and insulin-pump therapy (35%). Whereas relatively fewer CDEs specialized in care for Indigenous Australians (17%) and pre-conception care (20%).

**Table 4: Specialty of Care of CDEs**

| <b>Do you have specialty areas of care?</b> |                         |
|---|-------------------------|
| <b>Answer Options</b>                       | <b>Response Percent</b> |
| GDM   | 35.6%                   |
| Insulin pump therapy                        | 34.9%                   |
| Pre-conception care                         | 19.5%                   |
| Indigenous Australians                      | 17.2%                   |
| Elderly (65-80 years)                       | 55.2%                   |
| Very Elderly (above 80 years)               | 31.4%                   |
| Transitional care                           | 21.8%                   |
| Teenagers                                   | 21.5%                   |

**Referral Triggers to CDEs**

Referrals to CDEs were considered important, and GPs liked to get a CDE involved immediately—someone who is all about ‘education, education, education’. There were three main triggers for referrals to CDEs: firstly, during the initial diagnosis; secondly, when initiating insulin; and thirdly, when there was poor control. Of the three triggers, most GPs normally referred to CDEs during diagnosis. It was at the beginning of the diabetes journey the patients needed the most information and guidance on medications, lifestyle, diet and equipment use. Handley et al (2010) agree that the time of diagnosis is a major event in the lives of patients and their families and can be a traumatic and life changing experience. GPs found the newly diagnosed very challenging, and they have so many things going around them and so much information have been told to them by family members or they have read, and they have no idea of what information they are taking in. It was at this stage that the GPs appreciated the input from the CDEs who were able to spend the extra time with the patients to help patients self-manage their diabetes, and also follow-up frequently. Fig. ... also indicates that CDEs agreed that patients should be referred to them during initial diagnosis—an overwhelming 95% of the CDEs stating that patients should be referred during initial diagnosis.



**Figure 4: Should Patients be Referred During Initial Diagnosis**

The other triggers when CDEs were almost always referred to for a first visit, in addition to initial diagnosis were when (refer Table 5): there was a recurrent or severe episode of hypoglycaemia; introducing diabetes medicines and insulin therapy; and if glycaemic targets or desired clinical goals were not met. Some of the other triggers are when patients exhibit little self-care knowledge or lack the skills and confidence.

**Table 5: Triggers for Referral to a CDE**

| Thinking of the first time a patient is referred to you, what are the triggers for this referral? |               |       |           |        |                |
|---|---------------|-------|-----------|--------|----------------|
| Answer Options  | Almost Always | Often | Sometimes | Rarely | Response Count |
| Initial diagnosis of diabetes   | 122           | 127   | 49        | 8      | 306            |
| When introducing diabetes medicines and insulin therapy   | 119           | 148   | 34        | 3      | 304            |
| When changing diabetes medicines and insulin therapy  | 97            | 137   | 63        | 7      | 304            |
| If glycaemic targets or desired clinical goals are not met  | 114           | 157   | 29        | 4      | 304            |
| If patients exhibit little self-care knowledge  | 78            | 158   | 66        | 4      | 306            |
| If patients exhibit little skills or confidence   | 66            | 149   | 81        | 9      | 305            |
| When there is recurrent or severe episodes of hypoglycaemia and/or ketoacidosis                   | 126           | 101   | 60        | 19     | 306            |
| During diagnosis of chronic diabetes complications or other co-morbidities                        | 77            | 113   | 93        | 22     | 305            |

The other triggers for referral from GPs to CDEs depended on the GPs. Some GPs were fairly comfortable initiating insulin on their own so there would not be required to refer to the CDEs. For those GPs who did not initiate insulin, one of the ‘biggest role’ was to transfer people on to

insulin through a referral to the CDE. Similarly for those patients who were unable to manage their diabetes, GPs preferred to refer them to the CDEs to either reinforce the message to control their diabetes or for further education. Although GPs complained that one of the key reasons for referrals to CDEs was because they were unable to provide adequate time to patients, CDEs when asked why they thought people with diabetes should seek advice from CDEs, majority of them thought that because they were able to provide critical information the people with diabetes required and also provide additional information that other health professionals were unable to provide (refer Table 6).

**Table 6: Why Seek Advice from CDEs?**

| <b>Why do you think people with diabetes should seek advice from CDEs? (Please select one or more categories as applicable)</b> |                         |
|---|-------------------------|
| <b>Answer Options</b>   | <b>Response Percent</b> |
| Because GPs do not have the time  | 58.5%                   |
| Because CDEs are able to provide critical information required for people with diabetes   | 79.7%                   |
| Because CDEs are able to provide additional information that other health professionals are unable to provide                   | 82.7%                   |

**Referral Patterns to CDEs**

There are various ways in which the GPs access CDEs. In the literature review on the models of diabetes care, CDEs were accessed through nurse-led clinics, the multidisciplinary team and in the tertiary diabetes centres. The focus group discussions with GPs identified four different patterns, depending on where the CDEs were located:

- i. CDEs co-located within the same practice: Some of the practices had a CDE in their centre and they tried to keep patients within the centre itself. Having them co-located was easier in terms of logistics, and some GPs also felt that co-location was important to form part of a multidisciplinary team. A GP noted that:

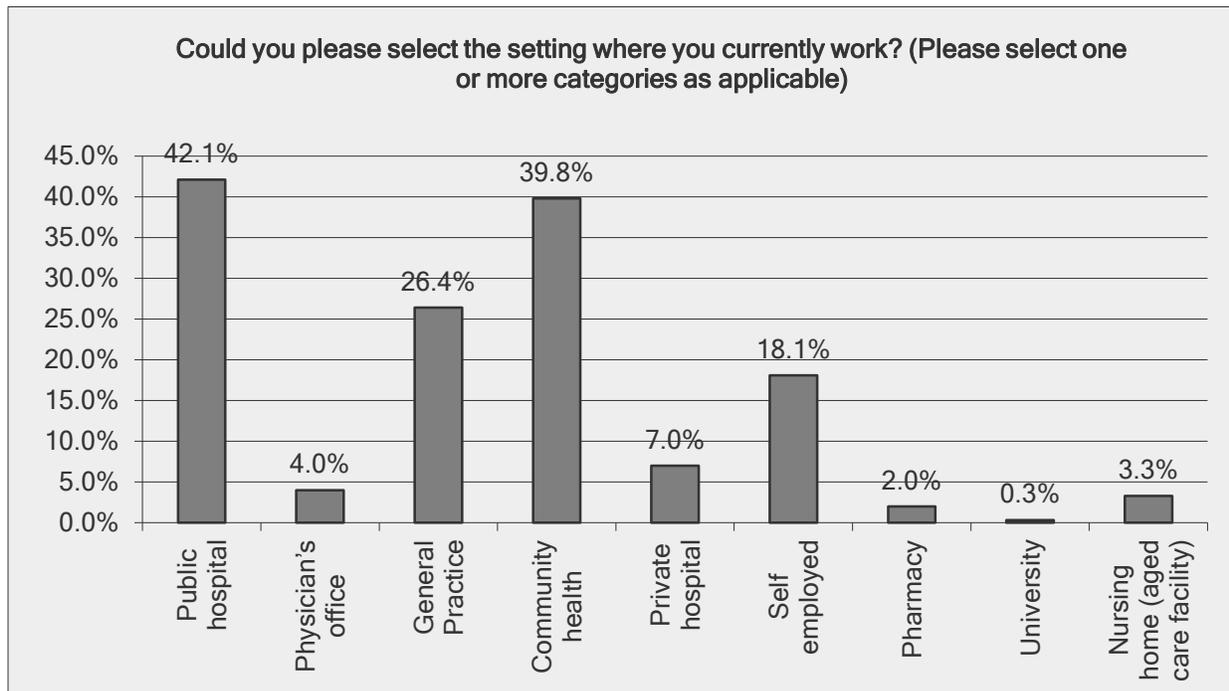
‘To have a team you really need people at the general practice. The whole concept of going two suburbs away to see the diabetes educator, who never sees the GP, talks to the GP and sees the patient. There has to be regular communication between the team players for it to work properly’.

- ii. Community Health Centres: GPs used the community health centre to access the CDEs. Sending the patients to these centres was convenient because they would normally be able to refer to other allied health professionals such as dietitians who are located in these centres. In some cities like Orange, rather than referring their diabetes patients to private dietitian or nutritionist, GPs sent most of their patients through the diabetes education centres.

- iii. Tertiary Diabetes Centres/ Hospitals: Referrals to CDEs were made through the hospitals, and GPs seemed to think that the hospitals had good diabetes services. Some GPs also used the web to look up CDEs and others had the opportunity to meet them in meetings.
- iv. Private Sector: Some GPs preferred using private CDEs as they found it easier to access them, and in fact some of them usually started search for a CDE from the private sector. They also preferred CDEs who bulk billed and took on the additional responsibility of advising on diet in the absence of a dietitian.

Within these categories, CDEs either chose to provide group or individual sessions with the patients. GPs thought that there were advantages of using both these two methods. A group session will allow the patients to exchange notes and tips from other participants and individual sessions would allow for tailor-made discussions to suit an individual's needs. GPs also gave patients a couple of choices, and the patients could choose which CDEs to visit.

Figure 5 shows that of the CDEs who responded to the survey, a majority of the CDEs are based in public hospitals and community health centres, followed by general practice and self-employed. These findings are consistent with how GPs normally tend to find and use CDEs. However, with regard to co-location although GPs found it very convenient, very few CDEs tend to work from the physician's office.



**Figure 5: Settings where CDEs work**

## 6. DISCUSSIONS/ISSUES RELATED TO REFERRALS OF PEOPLE WITH DIABETES BETWEEN GPs AND CDEs

### What GPs Value from CDEs

#### *Partnership*

GPs perceived the care provided to people with diabetes as a partnership with the CDEs. A GP said that he saw the CDEs as ‘a support when we run into difficulties and need their expert advice prior to the endocrinologist’. Another GP said: ‘I like to get a diabetic nurse educator involved immediately, someone who is all about education, education, education.’ GPs identified the key responsibilities of the CDEs was providing basic information on self-management. Firstly, patients required information about diabetes itself and the CDEs were to ‘dispel the myths or the misconceptions’ of diabetes. Then there are other information that is useful for the patients as well as the members of the family. Information related to lifestyle and diet are really important for patients, particularly those patients who were non-medication and were on diet control.

GPs appreciated the value of education and stated that once a person was educated, then it became easier to ‘look after all of their other bits: their eyes, their blood pressure, sexual dysfunction, their arteries and all of it’. It was felt that CDEs also helped in toning down the otherwise high expectations of the GPs of the patients, and making more realistic targets by ‘appropriately pitching their advice at the right time and right place’, and helping patients meet targets where GPs are having difficulty getting their patients to achieve. Another area of expertise that CDEs were seen to possess was in equipment knowledge. GPs looked to CDEs to provide advice with regard to the use of glucometers, changing needles, pens, and other devices. While some GPs initiated insulin for their patients, there were other GPs who preferred to seek the assistance of CDEs when initiating insulin. Other areas where CDEs input was appreciated was when the patient was not a ‘willing partner’ or when there were language difficulties or cognitive difficulties; to guide patients during sick days and driving requirements; and when they needed to know other organizations such as Diabetes Australia or some other organizations.

#### *Expertise*

In the survey with the CDEs, respondents were asked of the various services they provide in addition to what GPs could provide, such as, dietary knowledge, initiation of insulin, etc. (refer Table 7). This was plotted against their advantages in terms of time, knowledge and experience. In almost all services provided, more than 80% of them felt that they had more time to spend with patients than the GP. When it came to having an up to date knowledge, CDEs were more comfortable with services such as initiation of insulin and enabling patients to monitor and interpret glucose pattern than teaching patients the use of medicines effectively and incorporating physical activity into daily life. In terms of their experience over GPs, CDEs possessed more experience in enabling patients to monitor and interpret glucose pattern, initiation of insulin and enhancing patient’s understanding of diabetes as compared to services such as teaching patients the use of medicines effectively and incorporating physical activity into daily life.

**Table 7: CDE Area of Expertise**

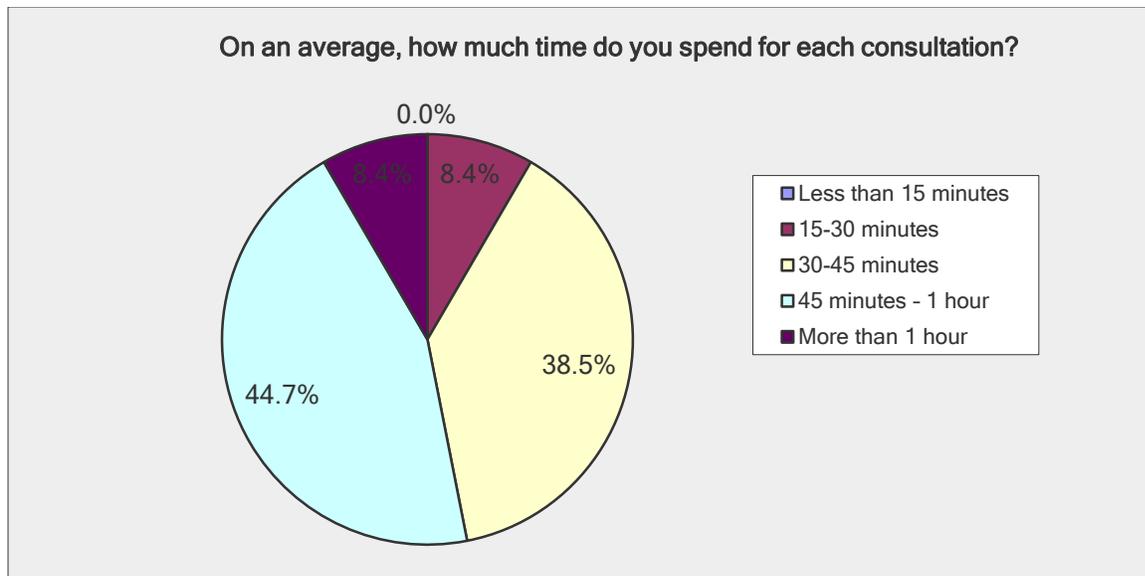
| A patient has just been referred to a CDE by a GP. In your experience, what is it that a CDE can provide to that patient in addition to what a GP could provide? |                                 |       |                           |       |  |       |                |
|--|---------------------------------|-------|---------------------------|-------|--|-------|----------------|
| Answer Options   | More time to spend with patient |       | More up to date knowledge |       | More experience with patients with a range of issues |       | Response Count |
|  | Dietary Knowledge               | 245   | 83.6%                     | 206   | 70.3%  | 205   |                |
| Initiation of Insulin  | 273                             | 89.8% | 231                       | 76.0% | 233  | 76.6% | <b>304</b>     |
| Enhance patient’s understanding of diabetes and enabling them to make informed lifestyle and treatment choices   | 269                             | 88.2% | 219                       | 71.8% | 233  | 76.4% | <b>305</b>     |
| Incorporating physical activity into daily life  | 263                             | 86.5% | 176                       | 57.9% | 198  | 65.1% | <b>304</b>     |
| Use of medicines effectively and safely  | 258                             | 86.3% | 161                       | 53.8% | 162  | 54.2% | <b>299</b>     |
| Enable them to monitor and interpret their blood glucose patterns  | 268                             | 87.6% | 221                       | 72.2% | 251  | 82.0% | <b>306</b>     |

However, GPs also raised a few issues in the focus group discussions: The first issue was with regard to the awareness and information GP had of the process and qualification to become a CDE. Most GPs when asked how one became a CDE, said that they had ‘no idea’. Some of them had a vague idea that one had to undergo a course and they had to be accredited but did not know who accredited and what the course entailed. Upon being informed of the actual accreditation process of becoming a CDE, the GPs were shocked to find out the amount of time and effort that was required to become a CDE. There were also quite a few GPs who felt that some CDEs ‘take on too much of our role’ and that the CDEs wanted all the latest test results and other information that the GPs thought that they did not need to know.

*Quality Care*

As discussed earlier, GPs did not have the time that the patients required, especially during the initial diagnosis. GPs were able to dedicate only 10 – 15 minutes of their time with their patients. On the other hand, approximately 45% of the CDEs spent more than 45 minutes per consultation, and another 40% spent between 30 – 45 minutes per consultation (refer Figure 6). There were GPs who acknowledged the quality of care that CDEs provided:

‘I found a [CDE] and she actually went from private to hospital and now back to private. She charged quite a lot. But even those who pay privately get their money back in gold so I just send them to her. I have used her before, but didn’t realize her expertise in diabetes was so good. She has improved a lot of the care.’



**Figure 6: Time Spent by CDE per Consultation**

*To be Proactive*

GPs valued the CDEs to be proactive, that is, GPs appreciated CDEs who came advertising their services either to the GPs themselves or to their practice. Some GPs also mentioned that they had CDEs who came into the practice and they searched the database, sent the letters out, arranged for consultations with the GP and took over the management of all the diabetic patients. While this may seem to be a case of an extremely proactive situation, the survey (refer Table 8) revealed that less than 2% of them advertised their services and only 6% of the CDEs went to hospitals/ practices to introduce themselves. Almost 60% of them relied on recommendations from GPs and other health professionals and another 33% relied on their hospital/practice to advertise their services.

**Table 8: Advertisement of Services by CDEs**

| How do you typically inform other health practitioners and patients about the service you provide? |                  |                |
|--|------------------|----------------|
| Answer Options   | Response Percent | Response Count |
| Your hospital/ practice does it for you  | 33.0%            | 95             |
| I advertise my services in the newspaper and other platforms                                       | 1.7%             | 5              |
| I go to hospital/ practices and introduce myself   | 6.3%             | 18             |
| Patients have been recommended by their GPs or other health professionals of my services           | 59.0%            | 170            |

Based on their perceptions of CDEs, GPs highlighted that one of key issues around referrals to CDEs was availability of CDEs. GPs said that ‘there’s not many around’ and they found it difficult to access CDEs. When there were those CDEs who provided good services, GPs complained that most of them did not advertise themselves well enough. An experienced GP who had been on several committees related to diabetes commented that although there was a significant deficit of access to CDEs and the number of CDEs employed was not sufficient. Based on the trend in the increasing number of people with diabetes and the fact that a little more than 50% of the CDEs (refer Table 9) provide their services to more than 30 different patients each month, it may be the case that there are not enough CDEs out there to provide care to all the patients.

**Table 9: Number of Different Patients seen by CDEs Each Month**

| <b>On an average, how many different patients would you normally see in a month?</b> |                         |                       |
|--|-------------------------|-----------------------|
| <b>Answer Options</b>  | <b>Response Percent</b> | <b>Response Count</b> |
| Less than 5  | 0.0%                    | 0                     |
| 6 to 10  | 3.9%                    | 12                    |
| 11 to 15   | 7.1%                    | 22                    |
| 16 to 20   | 11.0%                   | 34                    |
| 21 to 25   | 13.5%                   | 42                    |
| 26 to 30   | 11.0%                   | 34                    |
| More than 30   | 53.5%                   | 166                   |

*Communication*

GPs were concerned that the CDEs taking on the coordinating role in diabetes care could lead to fragmentation of care. GPs complained that they did not receive ‘proper feedback’ from the CDEs and that they did not communicate well. There were also chances of confusing the patients when the GPs said one thing to the patient and the CDE said something else. On confirming with the CDEs the concern they took on the GPs role: CDEs felt that when it came to being the *clinical* coordinator, approximately 70% of the CDEs thought that the GPs were always or almost always the coordinators, as opposed to 54% of the CDEs who thought that CDEs were always or almost always the coordinators (refer Table 10). And 94% of the CDEs agreed that the person whom they identified as the main coordinator in the clinical care was with whom they communicated often about the patient’s clinical care (refer Table 11).

**Table 10: Clinical Coordinators of Care**

| <b>Diabetes care often requires multi-disciplinary teams. In these teams one person tends to be a coordinator. If the following person is in the team, how likely are they to be the main CLINICAL coordinator of a patient's care?</b> |               |       |                      |       |                  |       |                     |       |              |       |                       |      |
|---|---------------|-------|----------------------|-------|------------------|-------|---------------------|-------|--------------|-------|-----------------------|------|
| <b>Answer Options</b>   | <b>Always</b> |       | <b>Almost always</b> |       | <b>Sometimes</b> |       | <b>Occasionally</b> |       | <b>Never</b> |       | <b>Response Count</b> |      |
| GPs   | 85            | 29.0% | 114                  | 38.9% | 64               | 21.8% | 21                  | 7.2%  | 9            | 3.1%  | 293                   | 100% |
| PNs   | 13            | 4.7%  | 32                   | 11.6% | 99               | 35.7% | 76                  | 27.4% | 57           | 20.6% | 277                   | 100% |
| CDEs  | 38            | 12.9% | 93                   | 31.6% | 117              | 39.8% | 31                  | 10.5% | 15           | 5.1%  | 294                   | 100% |
| Endocrinologist   | 37            | 12.8% | 57                   | 19.7% | 107              | 37.0% | 58                  | 20.1% | 30           | 10.4% | 289                   | 100% |
| Dietitian   | 2             | 0.7%  | 21                   | 7.2%  | 77               | 26.6% | 95                  | 32.8% | 95           | 32.8% | 290                   | 100% |
| Podiatrist  | 5             | 1.7%  | 7                    | 2.4%  | 42               | 14.5% | 94                  | 32.5% | 141          | 48.8% | 289                   | 100% |
| Exercise Physiologist   | 1             | 0.4%  | 6                    | 2.1%  | 23               | 8.2%  | 79                  | 28.0% | 173          | 61.3% | 282                   | 100% |
| Pediatrician  | 28            | 10.7% | 43                   | 16.5% | 76               | 29.1% | 48                  | 18.4% | 66           | 25.3% | 261                   | 100% |
| Aboriginal Health Worker  | 5             | 1.9%  | 35                   | 13.5% | 70               | 27.0% | 67                  | 25.9% | 82           | 31.7% | 259                   | 100% |
| Other Specialists   | 3             | 1.3%  | 10                   | 4.4%  | 57               | 25.3% | 82                  | 36.4% | 73           | 32.4% | 225                   | 100% |

**Table 11: Communication with Main Clinical Coordinator**

| <b>Is the above person also the person who you communicate with primarily about this patient's clinical care?</b> |                         |                       |
|---|-------------------------|-----------------------|
| <b>Answer Options</b>   | <b>Response Percent</b> | <b>Response Count</b> |
| Very often  | 72.7%                   | 216                   |
| Often   | 20.5%                   | 61                    |
| Sometimes   | 5.1%                    | 15                    |
| Rarely  | 0.3%                    | 1                     |
| Not Sure  | 1.3%                    | 4                     |

When it came to being the *practical* coordinator of a patient’s care (refer Table 12), 54% of the CDEs who responded felt that it was the GP who was always or almost always the main coordinator whereas 71% of those CDEs who responded felt that the CDEs were the main practical coordinator of patient’s care.

**Table 12: Practical Coordinators of Care**

| <b>If the following person is in the team, how likely are they to be the main PRACTICAL coordinator of a patient's care?</b> |               |       |                      |       |                     |       |              |       |                       |             |
|--|---------------|-------|----------------------|-------|---------------------|-------|--------------|-------|-----------------------|-------------|
| <b>Answer Options</b>  | <b>Always</b> |       | <b>Almost always</b> |       | <b>Occasionally</b> |       | <b>Never</b> |       | <b>Response Count</b> |             |
| GPs  | 53            | 18.4% | 101                  | 35.1% | 115                 | 39.9% | 19           | 6.6%  | <b>288</b>            | <b>100%</b> |
| PNs  | 33            | 12.1% | 74                   | 27.1% | 126                 | 46.2% | 40           | 14.7% | <b>273</b>            | <b>100%</b> |
| CDEs   | 67            | 23.1% | 138                  | 47.6% | 73                  | 25.2% | 12           | 4.1%  | <b>290</b>            | <b>100%</b> |
| Endocrinologist  | 22            | 7.7%  | 69                   | 24.2% | 149                 | 52.3% | 45           | 15.8% | <b>285</b>            | <b>100%</b> |
| Dietitian  | 4             | 1.4%  | 34                   | 12.0% | 152                 | 53.5% | 94           | 33.1% | <b>284</b>            | <b>100%</b> |
| Podiatrist   | 4             | 1.4%  | 12                   | 4.3%  | 128                 | 45.4% | 138          | 48.9% | <b>282</b>            | <b>100%</b> |
| Exercise Physiologist  | 1             | 0.4%  | 8                    | 2.9%  | 94                  | 33.9% | 174          | 62.8% | <b>277</b>            | <b>100%</b> |
| Pharmacist   | 4             | 1.5%  | 7                    | 2.6%  | 84                  | 30.8% | 178          | 65.2% | <b>273</b>            | <b>100%</b> |
| Pediatrician   | 21            | 8.1%  | 49                   | 18.9% | 114                 | 44.0% | 75           | 29.0% | <b>259</b>            | <b>100%</b> |
| Aboriginal Health Worker   | 11            | 4.3%  | 47                   | 18.4% | 113                 | 44.1% | 85           | 33.2% | <b>256</b>            | <b>100%</b> |
| Other Specialists  | 2             | 0.9%  | 13                   | 5.9%  | 114                 | 51.8% | 91           | 41.4% | <b>220</b>            | <b>100%</b> |

**Issues faced by GPs around Team Care and Management Plans**

The GP Management Plan was found to be a ‘powerful’ and ‘useful’ tool to GPs since it helped them list all aspects of diabetes care that they wanted patients to be aware of. Similarly GPs also found that the team care arrangement also triggered referrals to other health service providers such as doing the annual review for kidney, urine test and eye check. It helped get the patients ‘foot in the door’ and realize that there was value in referring to the allied health services. GPs also thought the plans gave the patients a basic idea of the resources and the funds that were available, and that these plans were better than the previous scenario where they did not even get to see the health services.

There were, however, numerous issues with the team care arrangements and the management plans. GPs said that the five visits that the plans allowed for visits allotted for allied care was limited and not sufficient, especially for diabetes. Patients would normally visit a CDE, dietitian and a podiatrist. Most patients would also request for numerous visits with the podiatrist: ‘when they come and say five visits [it] means they want three visits with the podiatrist’, and a lot of the patients had more than five visits a year but they paid for the extra visits on their own. GPs also experienced that patients demanded access to the dentists within the five visits. GPs also complained that the rebate through the EPCs and the plans was not sufficient. The costs of the services that the allied health professionals were charging were escalating, and the ‘gap is getting bigger’ and patients had to bear a huge out of pocket costs.

The plans also generated a lot of paperwork and put more pressure on the workload on the GPs. They also found the rules ‘overwhelming’ and ‘pain’ requiring them to explain to the patients the complicated process of being eligible for the plans. Arranging the team care as a part of the plan was also troublesome since they had to have all the members of the allied health professionals agree to be a part of the team before actual referrals are made.

## 7. RECOMMENDATIONS FOR A REFERRAL FRAMEWORK FOR DIABETES CARE

### Recommendations made by GPs

The GPs came up with a number of recommendations towards improving diabetes care. They suggested that information of the available services and resources was important. A website with information about the allied health services available within the locality with the list of names and their charges would be useful. Some GPs thought that it may be even more helpful if the website had a specific space for the health providers separate from a public one. GPs also said that there should be more information provided with regard to the role of the CDEs. Another strategy was to have a directory of all specialists and allied health professionals by locality that the GPs could look up when referrals were required to be made.

The paradigm of the hub and spoke model of diabetes care where the GP was the hub was evolving and in a stage of transition. It was envisaged that the model would be a more ‘flatter’ model. In such a model the patients rather than the GPs would be the one pulling the strings and it would be the patients who would know exactly what they needed to know with regard to the disease. GPs felt that ‘nothing done under the current model is optimal unless the patients is very diligent about contributing to their own self-management’ and therefore patients had to get actively involved in controlling their illness by self-pacing themselves and setting reminders. Upon being asked if a broad framework or a map for diabetes referral would be useful for GPs, differing views were offered. A few GPs did not really see a need for it stating that they did not think it would change their practice to have a written down referral pathway. Since there were GPs ranging from those who individually managed the diabetes care themselves to those who preferred to refer to the CDE and other allied health professionals the entire management of diabetes, there would have to be one for different sets of GPs. On the other hand, there were GPs who thought that ‘diabetes was one of those conditions that you have got set of guidelines for management, you have got care plans [and ] it is very structured’ which they found really useful. It was recommended that a broad skeletal framework could be developed which included the fundamentals and that could be customized according to the needs of the patient. Another recommendation was to have a system which clearly outlined a step-wise plan, specifically focusing on the initial stages. An example provided was: diagnosis could be step 1, step 2 could be to see a CDE, the third step to see a podiatrist and after that the plan could be based on individual needs. Some GPs mentioned that some of their practices used to have a set of guidelines that one could check upon diagnosis of diabetes. Although this practice had stopped GPs found that this was very useful. The guidelines would contain a pack that listed down the blood glucose tests, cholesterol tests, had a copy of the results and other information that could be provided to the patients.

In order to overcome some of the challenges with the existing care plan for people with diabetes, a few of the GPs made a valuable recommendation. They suggested that the health care plan should be similar to the mental health care plan. The GPs pointed out that the mental health care plan made six end reviews and then they had another six reviews, and it was basically the idea of the review that they should benefit from. For instance after the end of five visits, an additional three more visits could be allowed as a review. Again similar to the mental health care plan, GPs suggested that there should be an item number for the compensation of GPs time for

coordinating the plan since they found that the work involved was ‘complex, time consuming and required expertise’.

### **Recommendation for Care Plan User Pathway for Diabetes**

Based on the Chronic Disease Care Plan User Pathway (refer Figure 7) recommendations of a few pathways (refer Tables 13 – 15) have been suggested to suit the customized need of the GP. The Chronic Disease Care Plan User Pathway provides a comprehensive framework of the utilization of practitioners in the management of chronic care and the various activities that are required in preparing and establishing GP Management Plan. The practitioners involved are the GPs, Practice Nurses, Practice Administration and the Allied Health Professionals. The activities involved are the consultation, plan preparation and establishment, treatment and review. The framework also shows the type of interaction, i.e. if it is face-to-face, face-to-patient, phone or e-mail.

Table 13 shows the Chronic Disease Care Plan User Pathway simplified to show the various activities by the practitioners that are involved. It has been adapted slightly to include the Specialist as one of the practitioners. This pathway is represented as the Ideal Pathway which GPs should engage in order to maximize benefits from the GPMP as well as the treatment for the patients by involving all the practitioners involved in diabetes care. It is evident that GPs have realized the necessity and benefit of involving teams to manage diabetes care. All GPs should strive to use this Ideal Pathway when managing people with diabetes.

However, based on the discussions with GPs, an ideal pathway is not always easy to follow based on the various characteristics and nature that was discussed in earlier sections, such as the GP’s characteristics, location, availability of the PNs, etc. To suit a customized need, Table 14 and Table 15 show a form of how the framework can be adapted. For instance, Table 14 shows the pathway where GPs do not have a PN or a Practice Administrator to help in preparing and establishing plans, and this pathway shows the GPs the task that s/he should be doing to maximize the benefits of care for the patient through the GPMP. Table 15 is another adaptation of the framework and shows the pathway if the GPs do not access the AHPs. In this case, the GPs may not be able to maximize the benefits of the GPMP. While it is not recommended for GPs to use this pathway, especially in the treatment of people with diabetes which requires comprehensive care from a host of practitioners, it is recommended that the GPs should not neglect to provide the minimum care that is required for patients. With reference to Figure 1 in the literature review section, which shows the referral patterns and patient needs, GPs if not accessing the AHPs must at the least take on some of the important tasks that are provided by AHPs. For the newly diagnosed, GPs must make personal plans, identify targets for weight, exercise, BP, lipids and smoking cessation; and for on-going care, GPs must provide medications, conduct regular complications screening and intensified diabetes treatment.

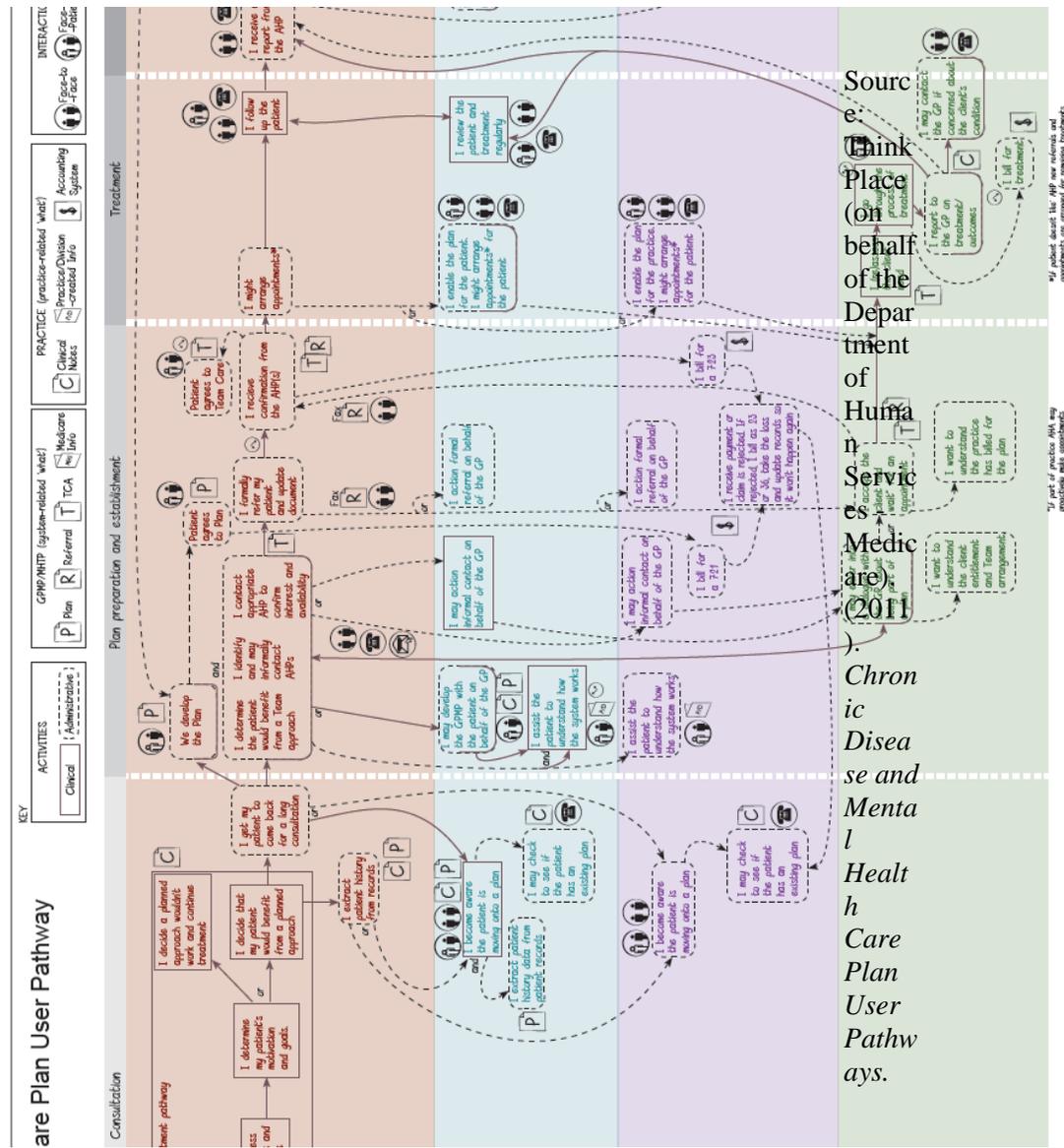


Figure 7: Chronic Disease Care Plan User Pathway

Table 13: Pathway--Ideal

|              |                      | ACTIVITY   |  |  |  |
|--------------|----------------------|--|--|--|--|
|              |                      | Consultation   | Plan Preparation and Establishment   | Treatment  | Review   |
| PRACTITIONER | General Practitioner | <ul style="list-style-type: none"> <li>See the patient</li> <li>Assess needs and issues</li> <li>Decide that patients would benefit from a planned approach</li> </ul> | <ul style="list-style-type: none"> <li>Develop a plan</li> <li>Determine the patient would benefit from a team approach</li> <li>Contact appropriate AHP to confirm interest and availability</li> <li>Formally refer</li> </ul> | <ul style="list-style-type: none"> <li>Decide a planned approach wouldn't work and continue treatment</li> <li>Follow up on the patient</li> </ul> | <ul style="list-style-type: none"> <li>Receive a report from AHP</li> <li>Review plan and outcomes</li> <li>Renew the plan if needs/issues remain</li> </ul> |

**PERCEPTIONS ON GPS & CDES ON DIABETES CARE**

|  |                                   |   |   |  |   |
|--|-----------------------------------|---|---|--|---|
|  |                                   |   | patient and update document   |  |   |
|  | <b>Practice Nurse</b>             | <ul style="list-style-type: none"> <li>Extract patient history from records</li> <li>Become aware that patient is moving onto a plan</li> <li>Extract patient history data from patient record</li> </ul> | <ul style="list-style-type: none"> <li>May develop the GPMP with the patient on behalf of the GP</li> <li>Assist the patient to understand how the system works</li> <li>May establish informal contact with AHP on behalf of the GP</li> </ul> | <ul style="list-style-type: none"> <li>Enable the plan for the patient</li> <li>Review the patient and treatment regularly</li> </ul>                                  |   |
|  | <b>Practice Administration</b>    | <ul style="list-style-type: none"> <li>Become aware the patient is moving onto a plan</li> <li>Check to see if the patient has an existing plan</li> </ul>  | <ul style="list-style-type: none"> <li>Assist the patient to understand how the system works</li> <li>May establish informal contact with AHP on behalf of the GP</li> <li>Receive payment.</li> </ul>  |  |   |
|  | <b>Allied Health Professional</b> |   | <ul style="list-style-type: none"> <li>May enter into a dialogue with the GP about being part of a team</li> <li>Accept the client and wait for an appointment</li> </ul>   | <ul style="list-style-type: none"> <li>(Re) assess the client need</li> <li>Go through the process of treatment</li> <li>Report to GP on treatment/outcomes</li> </ul> |   |
|  | <b>Specialist</b>                 | <ul style="list-style-type: none"> <li>See the patient (Type 1 diabetes)</li> <li>Assess needs and issues</li> </ul>  |   | <ul style="list-style-type: none"> <li>Go through the process of treatment</li> </ul>  | <ul style="list-style-type: none"> <li>Receive a report from AHP</li> </ul> |

**Table 14: Pathway--Without PNs**

| PR<br>AC | ACTIVITY     |                                    |           |        |
|----------|--------------|------------------------------------|-----------|--------|
|          | Consultation | Plan Preparation and Establishment | Treatment | Review |
|          |              |                                    |           |        |

**PERCEPTIONS ON GPS & CDES ON DIABETES CARE**

|  |                                   |   |   |   |  |
|--|-----------------------------------|---|---|---|--|
|  | <b>General Practitioner</b>       | <ul style="list-style-type: none"> <li>• See the patient</li> <li>• Assess needs and issues</li> <li>• Decide that patients would benefit from a planned approach</li> <li>• Extract patient history from records</li> <li>• Become aware that patient is moving onto a plan</li> <li>• Check to see if the patient has an existing plan</li> </ul> | <ul style="list-style-type: none"> <li>• Develop a plan</li> <li>• Determine the patient would benefit from a team approach</li> <li>• Contact appropriate AHP to confirm interest and availability</li> <li>• Formally refer patient and update document</li> <li>• Assist the patient to understand how the system works</li> <li>• Receive payment.</li> </ul> | <ul style="list-style-type: none"> <li>• Decide a planned approach wouldn't work and continue treatment</li> <li>• Follow up on the patient</li> <li>• Enable the plan for the patient</li> <li>• Review the patient and treatment regularly</li> </ul> | <ul style="list-style-type: none"> <li>• Receive a report from AHP</li> <li>• Review plan and outcomes</li> <li>• Renew the plan if needs/issues remain</li> </ul> |
|  | <b>Allied Health Professional</b> |   | <ul style="list-style-type: none"> <li>• May enter into a dialogue with the GP about being part of a team</li> <li>• Accept the client and wait for an appointment</li> </ul>   | <ul style="list-style-type: none"> <li>• (Re) assess the client need</li> <li>• Go through the process of treatment</li> <li>• Report to GP on treatment/outcomes</li> </ul>  |  |
|  | <b>Specialist</b>                 | <ul style="list-style-type: none"> <li>• See the patient (Type 1 diabetes)</li> <li>• Assess needs and issues</li> </ul>  |   |   | <ul style="list-style-type: none"> <li>• Go through the process of treatment</li> </ul>  |

**Table 15: Pathway--GPs without access to AHPs/GPs who don't access AHPs**

|                     |                             | <b>ACTIVITY</b>  |  |
|---------------------|-----------------------------|--|--|
| <b>PRACTITIONER</b> |                             | <b>Consultation &amp; Plan Preparation and Establishment</b>   | <b>Treatment &amp; Review</b>  |
|                     | <b>General Practitioner</b> | <ul style="list-style-type: none"> <li>• See the patient</li> <li>• Assess needs and issues</li> </ul> | <ul style="list-style-type: none"> <li>• Continue treatment</li> <li>• Follow up on the patient</li> </ul> |

## PERCEPTIONS ON GPS & CDES ON DIABETES CARE

|  |                                |  |  |
|--|--------------------------------|--|--|
|  | <b>Practice Nurse</b>          | <ul style="list-style-type: none"><li>• Extract patient history from records</li><li>• Assist the patient to understand how the system works</li></ul> | <ul style="list-style-type: none"><li>• Review the patient and treatment regularly</li></ul> |
|  | <b>Practice Administration</b> | <ul style="list-style-type: none"><li>• Assist the patient to understand how the system works</li><li>• Receive payment.</li></ul>                     |  |
|  | <b>Specialist</b>              | <ul style="list-style-type: none"><li>• See the patient (Type 1 diabetes)</li><li>• Assess needs and issues</li></ul>                                  | <ul style="list-style-type: none"><li>• Go through the process of treatment</li></ul>        |

## REFERENCES

- Ageing, D. o. H. a. (2010a). Building a 21st Century Primary Health Care System: Australia's First National Primary Health Care Strategy. D. o. H. a. Ageing. ACT.
- Ageing, D. o. H. a. (2010b). A National Health and Hospitals Network for Australia's Future - Delivering better health and better hospitals
- AIHW 2009. Diabetes prevalence in Australia: an assessment of national data sources. Cat. no. CVD 46. Canberra: AIHW. Viewed 13 June 2012 <<http://www.aihw.gov.au/publication-detail/?id=6442468288>>.
- Ansari, Z., N. Carson, et al. (2002). "The Victorian Ambulatory Care Sensitive Conditions Study: reducing demand on hospital services in Victoria." *Australian Health Review* **25**(2): 71-77.
- Aylen, T., L. Watson, et al. (2006). "Nurse specialists co-managing diabetes within general practice." *Eur Diabetes Nursing* **3**(1): 28-33.
- Britt H, Miller GC, Charles J, Henderson J, Bayram C, Pan Y, Valenti L, Harrison C, O'Halloran J, Fahridin S 2010. General practice activity in Australia 2009-10. General practice series no. 27. Cat. no. GEP 27. Canberra: AIHW.
- Cheung, N. W., A. McElduff, et al. (2005). "Type 2 diabetes in pregnancy: a wolf in sheep's clothing." *Australian and New Zealand Journal of Obstetrics and Gynaecology* **45**: 479-483.
- Dennis, S. M., N. Zwar, et al. (2008). "Chronic disease management in primary care: from evidence to policy." *Med J Aust* **188**(8 Suppl): S53-56.
- Eley, D. S., C. B. Del Mar, et al. (2008). "A nurse led model of chronic disease care - an interim report." *Aust Fam Physician* **37**(12): 1030-1032.
- Grimmer-Somers, K., W. Dolejs, et al. (2008). "Integrated GP and allied health care for patients with type 2 diabetes." *Aust Fam Physician* **37**(9): 774-775, 777-779.
- Handley, Janice; Pullon, Sue and Gifford, Heather. Living with Type 2 Diabetes: 'Putting the Person in the Pilots' Seat' [online]. Australian Journal of Advanced Nursing, The, Vol. 27, No. 3, Mar/May 2010: 12-19. Availability: <<http://search.informit.com.au/documentSummary;dn=909724223077592;res=IELHEA>> ISSN: 0813-0531. [cited 17 Nov 10].
- Harris, M. (2008). "Challenges in diabetes management." *Aust Fam Physician* **37**(9): 716-720.
- Harris, M. F. and N. A. Zwar (2007). "Care of patients with chronic disease: the challenge for general practice." *Med J Aust* **187**(2): 104-107.
- Harris, P., L. Mann, et al. (2011). Diabetes Management in General Practice.

Infante, F. A., J. G. Proudfoot, et al. (2004). "How people with chronic illnesses view their care in general practice: a qualitative study." *Med J Aust* 181(2): 70-73.

Loveman E, Frampton GK, Clegg AJ (2008). The clinical effectiveness of diabetes education models for Type 2 diabetes: A systematic review. *Health Technology Assessment* 12(9):1-136.

Loveman, E., Royle, P., & Waugh, N. (2003). Specialist nurses in diabetes mellitus. In *The Cochrane Collaboration & H. J. Vrijhoef (Eds.), Cochrane Database of Systematic Reviews*. Chichester, UK: John Wiley & Sons, Ltd. Retrieved from <http://doi.wiley.com/10.1002/14651858.CD003286>

Mitchell, G. K., J. J. Tieman, et al. (2008). "Multidisciplinary care planning and teamwork in primary care." *Med J Aust* 188(8 Suppl): S61-64.

Onwuegbuzie, A. J., N. L. leech, et al. (2010). "Innovative Data Collection Strategies in Qualitative Research." *The Qualitative Report* 15(3): 696-726.

Pirkis Jane, Segal Leonie, Dunt David, Orr Tracey, Parsons Terree, Mossop Greg (1997) An Evaluation of a Diabetes 'Shared Care' Program in a Rural Division of General Practice . *Australian Journal of Primary Health* 3, 26–35.

Proudfoot, J., F. Infante, et al. (2007). "Organisational capacity and chronic disease care: an Australian general practice perspective." *Aust Fam Physician* 36(4): 286-288.

Rose, V., M. Harris, et al. (2009). "A better model of diabetes self-management? Interactions between GP communication and patient self-efficacy in self-monitoring of blood glucose." *Patient Educ Couns* 77(2): 260-265.

Saunders, M., P. Schattner, et al. (2008). "Diabetes 'cycles of care' in general practice - do government incentives help?" *Aust Fam Physician* 37(9): 781-784

Shortus, T. D., S. H. McKenzie, et al. (2007). "Multidisciplinary care plans for diabetes: how are they used?" *Med J Aust* 187(2): 78-81

Taggart, J., A. Schwartz, et al. (2009). "Facilitating teamwork in general practice: moving from theory to practice." *Australian Journal of Primary Health* 15: 24-28.

Young, D., Furler, J., Vale, M., Walker, C., Segal, L., Dunning, P., Best, J., et al. (2007). Patient Engagement and Coaching for Health: The PEACH study--a cluster randomised controlled trial using the telephone to coach people with type 2 diabetes to engage with their GPs to improve diabetes care: a study protocol. *BMC Family Practice*, 8, 20. doi:10.1186/1471-2296-8-20

Zwar, N. A., O. Hermiz, et al. (2007). "Do multidisciplinary care plans result in better care for patients with type 2 diabetes?" *Aust Fam Physician* 36(1-2): 85-89.

Zwar, N., I. Hasan, et al. (2008). "Multidisciplinary care plans and diabetes--benefits for patients with poor glycaemic control." *Aust Fam Physician* 37(11): 960-962.