

# Primary Health Care Nurses Caring for People with Diabetes: an integrative review of the literature

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Julie Cowley

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## Abstract

The aim of this integrative literature review was to analyse and synthesize findings from primary empirical studies concerning how nurses in primary care, care for people with diabetes (PWD).

Diabetes is a recognized health priority in United Kingdom (UK) and New Zealand (NZ). Health policies are directing a shift in diabetes services from secondary to primary care. New Zealand primary health care (PHC) nurses are playing an increasing role in caring for a growing number of people with diabetes (PWD) and as such, need to be positioned effectively to contribute to preventing or minimizing associated long term diabetes complications. This research project has identified contrasted and highlighted similarities or differences in breadth and context in NZ nursing practice with UK practice and established important concepts and subsequent implications for this emerging role in NZ.

The findings of this integrated review indicate that PHC nurses have developed extended and in some instances advanced specialised practice in caring for PWD across the breadth of the wellness disease continuum. Contextual factors have had a significant influence on how the role has emerged in both countries. The role is more evident in the UK and findings from the UK literature have implications for this emerging specialised PHC nursing role in NZ, particularly in relation to nurses increased role in medicine management of PWD.

Recommendations are that new diabetes policies or programmes of care have structures that promote and support effective relationships and collaboration between all providers of the diabetes team. Education for this role should be provided at a nationally agreed standard where nurses' competencies are measured. Furthermore appropriately qualified diabetes PHC nurses should have an increased role in medicine management and/or prescribing in NZ primary care similar to UK nurses. Finally, contribution of the emerging role of the diabetes PHC nurse should seriously be considered within the context of 'Better, Sooner, More Convenient Primary Care' structures that are designed to address chronic disease management and health inequities within the NZ population.

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## Section One

### Introduction

Diabetes is a significant health concern for the NZ population (MOH, 2009). The Ministry of Health (2007) has projected that the prevalence of type 2 diabetes will increase by approximately 45% over the decade 2001-2011, and primary care is signalled to take a larger role in caring for these people. Changes in nursing roles in NZ primary care could influence the future care of these PWD.

During attendance at several National Diabetes Nursing conferences I have heard informal narratives from diabetes nurses inferring that primary care nurses “have only an interest” in diabetes care. This inference to “having only an interest” as opposed to being a nurse specialising in diabetes with increased knowledge and skills has held a certain position in my mind. Leading me to the point of needing to explore and describe the endeavours of nurses in primary care caring for people with diabetes. The following questions have formed the direction of the review.

How are PHC nurses in NZ caring for PWD and are PHC nurses being effectively positioned to improve the outcome of people with diabetes in preventing or minimizing the diseases’ long term complications? To gain an understanding of the research topic this study will be informed by Whittemore and Knafli’s (2005) modified integrative review methodology of relevant literature.

The aim of this integrative review is to analyse and synthesize findings from empirical studies concerned with how nurses in primary care are caring for PWD. The intention is to identify, contrast and highlight similarities or differences in breadth and context in NZ with UK nursing practice. These findings may help improve the outcome of people with diabetes in preventing or minimizing the diseases’ long term complications.

The practice nurse (PN) in NZ is more recently referred to as a PHC nurse, for the purpose of this project the reference to the PHC nurse is usually about a nurse working in a general practice setting unless mentioned otherwise.

There are similarities in the way primary care in NZ and the UK is organised and in some instances NZ primary care has followed initiatives or trends from the UK (Hoare, Fairhurst-

Winstanley, Horsburgh, & McCormick, 2008). Similarly diabetes is a well established health priority in NZ (Health Funding Authority, 2000; Ministry of Health, 2008, 2009) and the UK (Department of Health, 2000). Therefore it is intended that identifying and highlighting similarities and differences in UK and NZ diabetes nursing in primary care may inform PHC nurses and fund holders in NZ an account of the topic. This could ensure PHC nurses in this emerging role are positioned effectively to contribute to the care of PWD. Including UK literature in this study may add information to this emerging role in NZ.

Section one comprises a description of the historical and policy influences that have been a stimulus to the development of the PHC diabetes nursing role. Influential government policies are identified and a summary provided of the diabetes health priority. A brief description of my position as a diabetes nurse will be included and the section concludes with the strategies engaged for the literature review.

Section two presents an analysis of selected literature on the topic of how nurses in primary care are caring for people with diabetes. Data evaluation and analysis follow stages described by Whitemore and Knafl (2005). Empirical papers are evaluated and synthesized together with grey literature. A thematic structure provides a framework for presenting the literature review. Analysis of the literature includes identifying, contrasting and highlighting similarities and differences in NZ with UK practice in an attempt at discovering the breadth and context of the nurses' practice.

In section three the findings are discussed in relation to NZ nursing practice. Possible new directions, trends or approaches in this emerging role of caring for PWD in primary care are exposed following the integration and synthesis of the themes identified in section two. Finally strategies will be proffered to address some identified challenges.

## **Background**

### **The Diabetes Health Priority**

Diabetes is a well established health priority for NZ due to its increasing prevalence at an accelerated rate (MOH, 2007). It is a major risk factor for cardiovascular disease that is heart attack and stroke. Diabetes is the major preventable cause of renal failure and subsequent dialysis, lower limb amputation and avoidable blindness. Diabetes is also a major contributor to inequalities in life expectancy for Maori, Pacific people and Asian (HFA, 2000; MOH, 2008).

A report on diabetes surveillance (MOH, 2007) concludes that the prevalence of diagnosed type 2 diabetes is projected to increase by approximately 45% over the decade from 2001 to 2011. One of the MOH 2009/10 National Health targets includes better diabetes and cardiovascular services, specifically calling for three improvements. Firstly an increased percent of the eligible adult population will have had their cardiovascular disease (CVD) risk assessed in the last five years. Secondly an increased percent of people with diabetes will have completed their free annual reviews and thirdly there will be an increased percentage of people with diabetes having satisfactory or better diabetes management (MOH, 2009).

In primary care, improvement and achievement towards the National Health targets is managed and measured by local Primary Health Organizations' (PHO's) with a programme termed the "PHO Performance Programme" (PPP). PHOs and District Health Boards (DHBs) negotiate and agree local targets for performance indicators and providers are financially incentivized to meet these targets. The two current funded diabetes performance indicators are one for the percentage of people detected with diabetes and another for the percentage of people expected to have diabetes that have completed their free annual reviews (DHBNZ, 2010). A further new information only indicator concerned with the number of people prescribed metformin compared to a sulphonylurea was added in January 2010 (DHBNZ).

The rise in numbers of people with diabetes is a global concern and health departments in most developed countries are making this a health priority. In the UK the DOH has a National Service Framework (NSF) for Diabetes that details standards and a delivery strategy for diabetes (DOH, 2001, 2002b). In contrast to NZ in UK primary care there is a voluntary programme termed the Quality and Outcomes Framework (QOF) whereby there are a great many more clinical indicators for general practices to achieve covering a wide range of chronic health conditions. The QOF was announced in 2003 and as at 2004 there were eighteen indicators specifically for diabetes (DOH, 2008). Similar to NZ, practices' are financially rewarded for achieving these clinical indicators. Hoare et al. (2008) mentioned that nurses in primary care play a major role in achieving the QOF and subsequently it is common practice for patients with long-term conditions to be managed solely by nurses. Several UK authors describe the influence of health policies such as the initial GP Contract in 1990 and the QOF on the development of GP "mini-clinics" operated by nurses in general

practice (Findlay, 2005; Freeman, 2009; Hill, 2009). A list of the above health policies or reports is provided for the reader in appendix A.

### **Diabetes Nursing in Primary Care**

There are a number of statutory documents and papers written addressing the increasing prevalence of diabetes as seen above. Likewise there are a quantity of documents and papers written that refer to, or support primary health care nursing and nurse-led care (see appendix A). The first most significant paper in NZ was the Primary Health Care Strategy (PHCS) (King, 2001). King indicated that the advancement of the PHC nurse role would be crucial to the implementation of the strategy. Subsequent to this a further report to the Ministry of Health (MOH) from the expert advisory group on PHC nursing referred to how PHC nursing should be redesigned or redefined (MOH, 2003). The expert advisory group described the specialty approach to nursing practice when nurses provide specified or specialist care for specific conditions or disease states and gives an example of the Diabetes Nurse Specialist (MOH).

Practice nurses in NZ are the largest group of nurses providing primary care for people with diabetes (Kenealy et al, 2004). Since the introduction of the primary healthcare strategy in 2001 there is an increasing quantity of literature describing how primary health care nurses are expanding and developing their practice to meet the vision of the primary healthcare strategy (McKinley, 2006; McKinley, 2007; Minto, 2006; MOH, 2005). McKinley (2006) describes new practice nurse led clinics evolving in preventative, maintenance and chronic illness management. She mentions a growing number of practice nurse specialists with responsibilities of providing care using evidenced based clinical practice guidelines for people with diabetes.

A recent publication by Findlayson, Sheridan and Cumming (2009) reports findings from interviews completed in 2006 and a survey in 2007 of general practice staff, PHOs, practice nurses and nurse leaders. The report mentions the growth in some nurses' roles and capabilities especially in chronic conditions and how nurses have embraced nurse-led clinics such as specialist diabetes and asthma clinics. Further generic details are provided on the nurses expanding role and this report has useful findings and subsequent recommendations for primary health care nursing generally.



Historically the majority of diabetes nursing has occurred within a secondary setting by hospital nurses with inpatients or patients seen in outpatient clinics. Due to concern over an epidemic of diabetes in NZ a national strategy by the MOH (1997) reviewed the whole structure and delivery of diabetes care and placed primary care at the centre of diabetes detection and management. This shift together with a new payment to primary care providers for a diabetes annual review (DAR) is thought to have encouraged the devolvement of diabetes care from general practitioners' (GPs) to practice nurses (Kenealy et al., 2004). Personal experience suggests that the DAR provides a useful platform for PHC nurses to launch a specialty into diabetes nursing. Cameron (2004) alludes to an earlier example in 1990 of a PHC nurse specifically being available for diabetes education in her general practice surgery.

The importance of the DAR programme for diabetes nursing in primary care warrants further description. The programme was initiated in June 2000 by the HFA to assist people who have been diagnosed with diabetes better manage their condition and lower the risks of complications. It entitles people who have been diagnosed with type 1 or type 2 diabetes to have a free annual health check from their GP or a registered PHC nurse trained in diabetes. The purpose of the check is to ensure that key tests which assist in identifying diabetes complications early have been completed for the year and to plan treatment for the year ahead (Brady, 2007). Although GPs or PHC nurses complete the DARs it is difficult to locate any reliable data on the numbers completed by the two providers as each individual practice will have differing methods for capturing and transferring the data to the local diabetes teams for analysis and reporting. Nevertheless there are several instances where the contribution of nurses completing DARs is cited (Davies, 2006, 2010; Hefford, et al., 2010; Kenealy et al., 2004).

In NZ we are currently witnessing a shift in primary care to view diabetes in conjunction with other chronic conditions such as cardiovascular disease, respiratory diseases and some cancers. This shift is seen in reference to programmes of care or within a framework of care for chronic conditions or long term condition management (MOH, 2004; MOH, 2008; National Health Committee, 2007). Hence when reviewing any recent literature related to diabetes nursing in primary care one should consider information where diabetes has been specifically mentioned within the chronic care or long term condition context. To not

recognize this would exclude descriptions of where nursing in primary care has contributed to the care of people with diabetes. One such instance is Care Plus a national programme introduced in 2004 to provide funds for primary care principally to strengthen support for managing people with chronic illness. A report by Carol Boustead Gibb (CBG) health research (2006) stated that the Care Plus programme was delivered in five percent of practices by a nurse only, and in five percent it was doctor only. In the remaining 90 percent of practices Care Plus was GP-led in half and nurse-led in the other half. Diabetes was listed as the second most common condition people were seen for after hypertension. (CBG Health Research, 2006).

A further shift in diabetes is the shift from secondary to primary care of delivering services as mentioned by Ryall (2007). Blue (2009) discusses possible projects including nurses developing advanced skills that support the supervision of patients at home or in the community, giving diabetes management as an example.

From personal experience and as mentioned by others, nurse-led clinics in various forms have been in existence in general practice in New Zealand since at least the mid 1990's (Docherty, 1996). This is not unlike the UK where nurse-led clinics in primary care and in particular chronic disease management including diabetes are well established (DOH, 1999, 2000; Hill, 2009; Kirby, 2005).

Hoare, Fair-Hurst-Winstanley, Horsburgh and McCormick (2008) describe the development of primary care nursing in the UK since 1997 when the then Labour governments' aim was for a clinically-led primary health care service. The above study also mentioned how several white papers influenced the development of primary health care nursing. The stimulus for employing and expanding practice nursing came from the GP contract in 1990 where doctors were paid to provide chronic disease clinics and most of this work was organised and delivered by practice nurses through nurse-led clinics. A further paper titled "Liberating the Talents" details several nurse-led services (DOH, 2002a). The NSF for diabetes (DOH, 2002b) has emphasized the role of the nurse in service delivery for diabetes patients and mentions nurse prescribing in optimising the role.

## **Personal Context and Positioning**

It is with the intention of increasing rigour and trustworthiness I have included the following account of my personal context and position as a diabetes nurse which firmly places me within the research area and details my close relationship with the topic. Fontana (2004) mentions reflexivity as one of the pillars of 'critical' qualitative research. Including a reflexive account is considered to increase the rigour of the research process, and the relationship of the researcher to the research should be made explicit according to Jootun, McGhee and Marland (2009).

Drawing upon three decades of nursing experience in primary healthcare, I have seen my role as a practice nurse change from a part receptionist part practice nurse to that of an advanced primary health care nurse with a speciality in diabetes nursing. Over the past ten years as a diabetes nurse in primary care I have observed a growing number of practice nurses developing specialities and running nurse-led clinics. Through exposure to practice nurse accreditation portfolios as an assessor and currently a moderator on the National Practice Nurse accreditation board I have had the privilege to witness nurses describe these advanced nursing roles in primary care.

My role as a diabetes nurse is concerned with caring for a population of people with diabetes in a general practice setting. This care is delivered across the wellness-disease continuum. I have a specific job description as a diabetes nurse that includes contact with people with diabetes in an "ad hoc fashion" together with running a nurse-led diabetes clinic on specific days. The role is diverse and includes consultation across the disease spectrum for people with pre-diabetes, newly diagnosed diabetes and people with diabetes related complications and annual diabetes reviews. In addition to patient and family/whanau education I provide diabetes education for the entire practice team. The majority of my diabetes practice involves people with type 2 diabetes. My job description is not limited to completing DARs but extends to in depth education for patients and family/whanau on all aspects and complexities of self-administration of insulin. The DAR appointment includes all the requirements as per the service specification (see appendix B). A cardiovascular risk assessment (CVRA) is included with the DAR and a subsequent diabetes care plan devised. Although my nursing practice is not dedicated solely to caring for PWD, my knowledge and expertise is mostly beyond the generalist diabetes nurse as described in the NDNKSF (2009) and covers aspects of speciality practice. The integration of theory, practice and experience

has given me a degree of autonomy in providing interventions for PWD. My diabetes nursing practice is based on best practice guidelines (NZGG, 2003; NZGG, 2009; Sign, 2010). I use expert clinical decision making skills to support patient self-management. A collaborative approach is taken to plan care, negotiate changes in treatment with patients and their patients GP's and refer to other health agencies as required. Diabetes may be the initial focus of these clinics but due to the 'nature' of the general practice setting and a holistic approach of PHC nursing other health concerns or chronic diseases are often addressed. I believe an essential factor for assisting people with chronic disease management requires reflexive strategies, partnerships and relational practice that is culturally safe.

As evidenced above I have a certain degree of nursing knowledge and experience in caring for PWD. I recognise that this is my individual practice based on my values and experiences and it may or may not be replicated by other nurses in primary care. Each section of the project from initial selection of literature through to analysis, synthesis and conclusion has called upon a degree of reflection and self-analysis of my own position as the researcher. This personal reflexive approach has heightened my awareness of the influence my nursing role may have in the contribution and construction of the meanings in this research project. Furthermore I acknowledge the impossibility of remaining outside the subject matter as I am part of the world under study. According to Carolan (2003) reflexivity requires an awareness of the researchers' contribution to the collection of data and construction of meanings throughout the research process and an acknowledgment of the impossibility of remaining outside of one's subject matter while conducting the research.

This heightened awareness, reflection and critique of the topic has increased my understanding of my own role and given direction for advancing areas of my own practice.

## **Search Methods**

This review involved a comprehensive search of electronic databases that can be accessed by computer such as CINAHL (Cumulative Index to Nursing and Allied Health Literature) database, ProQuest, Ebscohost and Ovid and Google. Key search terms were developed and refined to extract relevant literature for further reading and analysis. Initial key search terms included "nurse-led", primary care, diabetes, nurse clinics, general practice, community and practice nurse(s/ing) these terms were combined in varying combinations then extended to

include chronic disease/illness management as it was identified that diabetes care is often referred to within the context of chronic care literature. The inclusion criteria were all papers that made a reference to the role of nurses caring for people with diabetes in primary care. Further searching included references and cited authors from research articles.

156 electronic papers were identified dating back twelve years. Papers excluded were those referring only to nursing in a secondary care setting or studies not concerning nursing in the UK or NZ. UK literature was included due to the similarities in UK and NZ primary care organization and the aim of the project; furthermore due to word limit restrictions of this research report a full international review was prohibitive.

There were several references to the role made in grey literature such as government policy documents and reports, many journal feature articles, news items and individual opinion pieces; these have provided useful background information for the project.

Primary empirical papers on the topic of how diabetes nurses in primary care practice in NZ were limited. In this study primary refers to the original source of work. Empirical papers are based on research determined through observation and/or experimentation and found in peer reviewed journals. The UK literature on this topic has been more extensively researched hence there predominance in the thirteen empirical papers reviewed.

## **Methodology**

Broome (2000) describes an integrative review as being a specific method of review that summarizes past theoretical and/or empirical literature to provide a more comprehensive understanding of a particular healthcare problem or phenomenon or in this instance a question. An advantage of this type of review is the ability to combine research from diverse methodologies such as experimental and non-experimental, qualitative and quantitative research hence lending to a richer review of the research topic. According to Whitemore and Knafl (2005, p. 546) "Integrative reviews ... have the potential to build nursing science, informing research, practice, and policy initiatives". This justifies the use of this methodology to review varied literature concerned with how primary care nurses care for people with diabetes. In addition Torraco (2005) describes the use of an integrative literature review as appropriate for holistic conceptualisation and synthesis of new or emerging topics as is diabetes nursing in primary care in NZ.

This integrative review is informed by Whitemore and Knafl (2005) based upon Coopers (1998) framework of five stages, problem formulation, literature search, data evaluation, data analysis and presentation. The use of a framework is considered necessary for enhancing the rigour of the research project (Whitemore & Knafl). Problem identification in this instance is the question “How are PHC nurses in NZ caring for people with diabetes?”

#### **Data Evaluation**

Of the limited primary empirical papers on the topic some were of larger quantitative studies and a few were smaller qualitative descriptive studies with small sample sizes. The approach utilised to evaluate the quality of papers for this review of diverse primary sources has followed that proposed by Kirkevold (1997) similar to historical research where authenticity, methodological quality and informational value of the data are considered. A summary of the sources for evaluation are described based on the following elements author/ year/country, aims/background, method and conclusions listed alphabetically by author see Table 1.

#### **Data Analysis**

The fourth complex stage is that of data analysis, which authors Whitemore and Knafl (2005) and Kirkevold (1997) state there is no gold standard for this process. An iterative process which in this context meant reading and re-reading the literature was employed to extract and compare data within the papers. Then to analyse and synthesize themes and patterns within the literature sample concerning how nurses in primary care, care for people with Diabetes in NZ and the UK. Miles and Huberman (1994) describe an approach of data analysis compatible for an integrative review of varied data, as consisting of data reduction, data display, data comparison, conclusion drawing and verification. This approach has been utilised for this project.

#### **Data Reduction and Extraction**

To assist the data analysis process a matrix was developed to record and code the data extracted from each paper. Data was broken down into initial subgroups according to country of origin UK or NZ papers. Then relevant data from each primary source was extracted on to a single page and entered onto a matrix facilitating an organised approach to compare the primary sources on specific issues.

### ***Data Display***

Data display involved extracting data from the thirteen individual papers onto a matrix around particular themes. This started the process of comparison, looking for patterns of similarities and differences between the UK and NZ literature.

### ***Data Comparison***

The next step was data comparison where an iterative approach was employed to review the data displays of primary source data to identify patterns, themes and relationships. A further element of data analysis described by Whitemore and Knafl (2005, p. 551) "...Making contrasts and comparisons" was pertinent to this project.

### ***Conclusion Drawing***

In this final phase of the data analysis general conclusions were drawn from the particular similarities and differences in how nurses care for people with diabetes in the UK and NZ. The conclusion involved an analysis, followed by synthesis and integration of the unifying concepts and discrepant issues within the themes.

### **Presentation**

To assist readers understanding of the research project a concept map demonstrates the integration and synthesis of the research themes. Further discussion was given supporting the development of the conceptual map concerning the relationships, integration and synthesis of the emergent themes.

### **Ethics**

The issue of ethics in a literature review is not concerned with obtaining ethical approval as no human participants are involved. Nevertheless, ethical considerations such as respect and truthful representation of original authors work have been applied in the project. Sources have been referenced according to American Psychological Association (APA) guidelines 2010. Although the majority of paper sources are from a UK perspective consideration has been given to meet The Treaty of Waitangi obligations of partnership, participation and protection when referring to the NZ context. Chronic conditions are a major driver of health inequalities and diabetes in particular, is approximately three times more common in NZ Maori (NHC, 2007) therefore findings and subsequent implications from the study are likely to have greater importance for Maori.

Section One has provided a background to the study including the diabetes health priority, and associated influential health policies related to the emerging diabetes nurse role in primary care. A brief description has been given of my own position as a diabetes nurse in primary care, concluding with the research strategies and methodology employed for the project. Section two will now continue with an analysis of the selected literature followed by evaluation, integration and synthesis of the findings.



## Section Two

The following section comprises an analysis of the findings from selected literature on the topic of how nurses in primary care are caring for people with diabetes. Data is evaluated and analysed, patterns and themes identified. Comparisons are made between UK and NZ data, contrasting and highlighting similarities' between the countries.

### Empirical Studies

The thirteen primary empirical studies included for this review are a combination of qualitative and quantitative methodologies. Self reported questionnaires featured among seven studies. A standard format for summarizing the methodological information, findings and conclusions of individual empirical studies are presented in Table 1. From this data display began the iterative process of identifying patterns and themes and comparing and contrasting data from the literature resulting in an integration and synthesis of information from all the research papers.

Table 1: Summary of Empirical Studies included in the Integrative Review

Author(s)	Aim(s)/background	Method	Findings/Conclusions
Carey & Courtney (2007) UK	To examine the prescribing practices of nurse supplementary prescribing in diabetes. Nurses in several roles including general practice are involved in the management of medicines for diabetes patients	Survey design, postal questionnaire, and random sample. 214 participant nurses in the UK. 177 nurses from primary care of which 141 were working in a general practice as either a practice nurse or nurse practitioner	Diabetes Nurses in general practice appear to prescribe most frequently and the use of the supplementary prescribing provided a practical framework within which to prescribe medicines for people with diabetes. Nurses required specialist training and general practice nurses prescribed a broader range of products.
Courtney & Carey (2007) UK	To examine Nurse Independent/ Nurse Supplementary Prescribing for people with diabetes and the extent to which these nurses feel prepared for this role.	A survey design with a postal questionnaire. Random sample. 439 participants of which 369 from primary care and 275 of these from a general practice setting	Prescribing has extended the role of nurses in the UK working with people with diabetes. Specialist training is a prerequisite and further exploration of the prescribing programme is recommended.

Davies (2006) NZ	To establish practice nurses perceptions of their contribution to the care of individuals with chronic health conditions.	An exploratory descriptive study, purposive sample of 11 female practice nurses. Semi-structured interviews and thematic content analysis used to develop themes from the data.	Nurses contribute to care of individuals with chronic health conditions in three key areas. In preparing individuals for appointments. In direct care and by the giving of information. Each of these themes consisted of a considerable level of complex processes by the practice nurses all inextricably interwoven within the care.
Greaves et al (2003) UK	To explore UK practice nurses views about converting diabetic patients from oral hypoglycaemic agents to injected insulin in primary care.	Purposive sample of 25 practice nurses completed semi-structured interviews. These were interpreted using content analysis.	Practice nurses recognised the benefits for patients of converting people to insulin in primary care. However PN's needed specific training; protected time, a team work approach, formal mentoring and supervision to overcome perceived barriers of insulin conversions.
Harris & Cracknell (2005) UK	To see if re-organising diabetes care and introducing a nurse-led clinic would improve parameters of care for people with diabetes	Compared parameters of care in 170 adult diabetes patients with type 2 diabetes provided in a twice yearly GP-led clinic, with a subsequent 15-month period of a weekly nurse-led clinic.	The standard of care for patients with type 2 diabetes was improved by the use of an appropriately supported nurse-led clinic in a general practice. The nurse used individual patient management plans and protocols to improve diabetes.
Horsburgh, Goodyear-Smith, Yallop (2008) NZ	To evaluate nurse-led service delivery to reduce risk of CVD and diabetes in primary care and community settings	Action research project over 2 years in 6 primary care sites. Thematic analysis of data from meetings. Included review of quantitative data in terms of numbers screened.	The nurses demonstrated that by a systematic approach they were able to progress CVD risk assessments targeting at risk groups. This was made possible by strong leadership, collaboration through teamwork & competencies.
Kenealy et al (2004) NZ	To report on diabetes related work roles, training and attitudes of practice nurses in New Zealand surveyed in 1990 and 1999	A longitudinal survey design with postal questionnaires sent to all South Auckland Practice nurses in 1990 and 1999.	PN's showed an increase in post-registration diabetes education, they cared for more patients and had increased involvement in more complex cases. The nurses were no more likely to adjust treatment in 1999 than in 1990.
Kenny,	To describe some	Descriptive postal	PN's delivered a large proportion of

Pierce & McGerty (2002) UK	key features of diabetes care carried in primary care settings in Northern Ireland	questionnaire survey of general practices. 70 5 response rate = 252 participant practices.	diabetes care provided in the community. PN's education needs to be addressed together with initiatives to improve primary-secondary care interface.
Johnson & Goyden (2005) UK	Exploration of views and concerns of professionals after the introduction of a new & more integrated model of diabetes care	Semi-structured interviews of 17 healthcare professionals including practice nurses	Nurses were more concerned about the impact of change in practical terms on their role. Themes Included time, training, workload, collaboration, relationships and communication.
McDowell, Coates, Davis, Brown, Dromgoole, Lowes, et al. (2009) UK	To describe nurses' perceptions of decision-making and the evidence base for the initiation of insulin in the UK.	Survey approach, Postal questionnaire to all DSN and an equivalent size of PN with a special interest in diabetes. 1310 questionnaires returned were analysed using descriptive statistics.	The different nursing groups held varying perceptions of who made the clinical decisions. Different responsibilities were identified between nurses in secondary from those in the community. Practice nurses were not as involved in decision making over the initiation of insulin. People with diabetes were seen as having little influence in decision making.
Peters et al (2001) UK	To explore the perceptions of nurses regarding their current and future role in the management and care of people with type 2 diabetes in the community.	A two round Delphi study from random samples of practice nurses with role in diabetes (97) and diabetes specialist nurses (69). Postal self-completed questionnaires, data analysis used frequencies and descriptive statistics.	Nurses reported key themes concerning their role that were identified and grouped under headings of clinical practice, responsibility, communication, knowledge, rewards and patient's roles. The nursing groups shared commonalities but dissent occurred both within and between individual nurse groups on issues of responsibility, prescribing, service delivery, resources and patient factors.
Pierce, Agarwal, & Ridout (2000) UK	To describe some key features of diabetes care in primary care England and Wales	Descriptive postal survey to 1873 randomly selected general practices	A large proportion of diabetes care takes place in the community and much delivered by practice nurses. Many practices have a special interest in diabetes and felt supported by secondary care.
Stewart, Dyas, Brown, &	To establish practice nurses attitudes and beliefs towards health promotion in relation to diabetes	Face to face semi structured interviews carried out as part of qualitative research	The extension of the PN role in providing diabetes care associated with BP management may have occurred without consideration of

Kendrick (2006) UK	care	undertaken within a cluster RCT. 43 Nurses selected were responsible for providing diabetes care.	extra training. Reorganisation of care within the practice is required for nurses to extend their role.
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## Data Comparisons and Contrasts

Six major concepts emerged from the analysis of findings from retrieved empirical papers concerning how nurses in primary care, care for people with diabetes. The employment situation and the context of the nurses practice setting. What constitutes the daily activities of the nurse? How nurses are involved in medicine management. How the PHC nurse needs inter and multidisciplinary successful relationships. Education that the PHC diabetes nurse requires for the role. Within these concepts comparisons and contrasts are made between UK and NZ literature and discussed under the appropriate headings. For congruence of this report the newer term PHC nurse may be used to replace that of a PN where a nurse is employed in a general practice setting.

### Employment Situation

Government policies in the UK concerned with shifting services from secondary to primary care have influenced primary care diabetes nursing employment and practice. This was a common theme agreed among several papers (Greaves et al, 2003; Kenny, Pierce & McGerty 2001; McDowell et al, 2008; Pierce, Agarwal & Ridout, 2000). In NZ in 2004 it was thought that changes in the health system would have a substantial effect on the practice nurse role in caring for PWD (Kenealy et al, 2004). Over the decade from 1990 to 2000 nurses in UK general practice have had significant involvement in diabetes mini-clinics either alone or together with a GP as evidenced by national surveys in the UK and Northern Ireland respectively (Kenny, Pierce & McGerty 2001; Pierce, Agarwal & Ridout, 2000). Along with the PHC run diabetes mini-clinic from UK literature, another type of working arrangement included 'shared care', where teams of a specialist physician and a DSN were assigned to individual general practices creating integrated 'shared care' schemes (Johnson & Goyder, 2005).

Nevertheless PHC nurses were most frequently mentioned as playing a role in the community of caring for people with diabetes in the UK (Peters et al, 2001) as opposed to Diabetes Specialist Nurses (DSN). The DSN was employed by either hospitals or community trusts, these nurses worked across the community as opposed to one practice (McDowell et

al, 2008; Peters et.al. 2001). Similarly in NZ practice nurses/PHC nurses are also the largest group of nurses providing care for people with diabetes (Kenealy et.al, 2004) in the community. However included in one UK study was reference to a different level of provider in the role of a health care assistant to assist the PHC nurse in running the nurse-led GP supported diabetes clinic (Harris & Cracknell, 2005).

In the UK and NZ practice nurses are identified as generalist nurses however when referring to diabetes care it was common to see the PHC nurse described as having a sub-speciality or special interest in diabetes care (Harris & Cracknell, 2005; McDowell et al, 2008; Peters et al, 2001) but to a lesser degree in NZ (Davies, 2006). Furthermore earlier in NZ comparing 1990 to 1999 the practice nurse/PHC nurse role in diabetes care had substantially developed but was limited by employment status and structure of PHC (Kenealy et al, 2004).

PHC nurses with a diabetes speciality reported variable levels of professional responsibility for diabetes care, whether a PHC nurse in either country or as DSN in primary care UK. Nurses working in diabetes mini-clinics (Davies, 2006; Harris & Cracknell, 2005; Kenny, Pierce & McGerty, 2002; Pierce, Agarwal & Ridout, 2000; Peters et al, 2001) describe an increased level of professional responsibility. PHC nurses in NZ mentioned although care was usually delegated by GPs they gave descriptions of innovation and carefully planned care in response to individual patients needs, an example of an extended role into case management (Davies, 2006).

The UK has provided ongoing general practice-based programmes of care for diabetes (Peters et al, 2001) earlier than in NZ. In NZ it was proposed that a new payment to general practices for completing the diabetes annual review (DAR) would encourage devolvement of diabetes care from GPs to PHC nurses (Kenealy et al, 2004). The majority of PHC nurses interviewed in Davies (2006) were contributing to the DAR and some thought they could complete these alone. Primary care nurses are seen to be contributing to these diabetes care programmes across both countries.

Factors that featured in several studies were the lack of time for nurses to complete their work. Nurses in primary care working in isolation; they may not be the only nurse in the practice but may feel isolated in their specialty role. Furthermore nurses may also lack the opportunity to implement different ways of working due to the way the practice is

organised. (Davies, 2006; Greaves et al, 2003; Kenealy et al, 2004; Stewart, Dyas, Brown & Kendrick, 2006).

### **Diabetes Nursing Activities**

Similarities are seen between both UK and NZ when viewing the daily practice of a diabetes nurse in primary care, driven by similar basic universal requirements of people with the diabetes disease state. These similarities in diabetes nursing practice such as case finding, educators of people newly diagnosed, biomedical tests and measures and providing ongoing education and support in the community are also shared between DSN and practice nurses (Peters et al, 2001). However, UK diabetes programmes of care that address increasing diabetes prevalence and its associated complications, have possibly influenced UK nursing practice activities greater than similar NZ models of care. An example of this is the reporting of UK PNs involvement in medicine management (Carey & Courtney, 2008; Courtney & Carey, 2007; Greaves et al, 2003; Harris & Cracknell, 2005; Johnson & Goyder, 2005).

Nursing practice activities are seen described across the breadth of the diabetes disease state. Descriptions include nurses involvement with diabetes prevention, detection and case finding (Davies, 2006; Peters et al, 2001), to insulin conversion and management of people with diabetes and its associated co-morbidities (Carey & Courtney, 2008; Courtney & Carey, 2007; Johnson & Goyder, 2005).

Patient education is a considerable component of nursing practice in both countries particularly education for people newly diagnosed with type 2 diabetes. Lifestyle interventions are an important aspect of diabetes management (NZGG, 2003). Education on dietary intervention, weight management, physical activity and smoking cessation are the critical parts of diabetes health care (NZGG) and featured as routine care provided by PHC nurses (Davies, 2006; Harris & Cracknell, 2005; Greaves et al, 2003; Kenealy et al, 2004 Peters et al, 2001). In NZ those nurses working in an organised diabetes clinic as opposed to opportunistic care were more likely to deliver a greater depth of education/information to do with pathophysiology and causes of diabetes and medication management (Davies, 2006). In some instances patients need to accomplish technical skills related to managing their diabetes such as blood glucose monitoring or learning insulin injection techniques. The latter is more prevalent in UK than in NZ literature and also evident more in recently (Carey & Courtney, 2008; Courtney & Carey, 2007; McDowell et al, 2008).

Biomedical measurements are a universal feature of diabetes nursing practice (Davies et al, 2006, Harris & Cracknell, 2005; Kenealy et al, 2004; Peters et al, 2001) and are requirements of funded programmes of diabetes care such as the DAR and the QOF (Brady, 2007; Findlay, 2005). These measurements together with information gathered from the patient concerning concordance with lifestyle changes and medications, informed the assessment the nurses used to further review and develop individualised diabetes management plans (Harris & Cracknell, 2006).

### **Medicine Management**

Medicine management is a further vital aspect of diabetes care. As glycaemic control deteriorates over time polypharmacy is often necessary. Nine years following diabetes diagnosis 75% of people may require multiple therapies to achieve good glycaemic control (Turner, Cull, Frighi & Holman, 1999). Due to the high likelihood that PWD are on regular medicines an element of how nurses' care for PWD includes issues related to medicine management. Similarities are identified in UK and NZ literature describing the role of the nurse in establishing a patient's medication concordance and providing information on medicine action and side effects (Davies et al, 2006; Harris & Cracknell, 2005).

The United Kingdom Prospective Diabetes Study Group (UKPDS) (1998) identified that improved glycaemic control in type 2 diabetes reduced the risk of micro and macrovascular disease. Furthermore, they found that an intensified treatment including conversion to insulin therapy may be needed (UKPDS). These recommendations have been adopted in the UK NSF for diabetes (DOH, 2001) and the NZ guidelines on management of type 2 diabetes (NZGG, 2003). A consequence in the UK has been the increasing shift in the traditional role of insulin conversion in secondary care to primary care nursing. Insulin conversion refers to when a person with type 2 diabetes needs to change from oral medicines to insulin therapy to gain improved diabetes control. Views from PNs in the UK showed an understanding of the benefits of converting to insulin in primary care (Greaves et al, 2003) however, issues of time, training, confidence and adequacy of support systems for the nurses emerged (Greaves et al, 2003; Johnson & Goyder, 2005). PNs with a diabetes speciality appeared to have less clinical experience than DSN and as such found that using clinical protocols or pathways helpful when starting people on insulin (McDowell, 2008). Insulin conversion as part of the PN role is not currently evident in current NZ empirical literature. Nevertheless

evidence does suggest that this is occurring in different areas of the country (Ratcliffe, 2008) and evidenced by the authors.

In the UK nurse prescribing is demonstrated within the role of PHC nurse caring for PWD (Carey & Courtney, 2008; Courtney & Carey, 2007; McDowell et al, 2008). An in-depth description of the different models of nurse prescribing in the UK is not possible in this paper. However, prescribing was viewed positively and nurses held the belief that prescribing extended the role they could play in the management of diabetes (Courtney & Carey, 2007). Appropriately qualified UK PNs are prescribing diabetes medicines together with medicines for co-morbidities of PWD by utilising the practical supplementary prescribing framework (Carey & Courtney, 2008). In contrast little is known about the situation in NZ of PHC nurse prescribing for PWD apart from an ambivalence in attitude to the prospect of nurse prescribing by PNs in 1999 (Kenealy et al, 2004). The difference in nurse prescribing between UK and NZ are a reflection of the different policies and regulations pertaining to nurse prescribing. In NZ Nurse prescribing is part of advanced nursing practice (Courtney & Carey, 2008) that of a nurse practitioner with a masters level of qualification. However nurse prescribing by diabetes nurse specialists in NZ is in the process of development by Health Workforce New Zealand and a long-term expected outcome could see prescribing in the community by equivalently qualified nurses (Health Workforce New Zealand, 2010).

### **Relationships**

The theme of successful relationships amongst all providers of diabetes care was evidenced as influencing how PHC nurses care for PWD. This is considered from two opposing aspects. Either the relationship is recognised by the PHC nurse as already occurring or, as needing to occur to enable an effective nursing contribution to care of PWD.

UK and NZ PHC nurses establish successful relationships when referring PWD to the wider health team for services outside their practice, such as podiatry or exercise programmes (Davies, 2006; Harris & Cracknell, 2005;). Moreover PHC nurses have developed relationships to overcome specific challenges when working with a variety of GPs in a large practice in NZ (Davies, 2006). Earlier in the UK the emphasis towards delivering more care in the community was thought to lead to implications for the working relationships of GPs and PHCNs (Peters et al, 2001). However a close working relationship with a GP assisted the



successful establishment and running of a nurse-led GP supported clinic in the UK (Harris & Cracknell, 2005). Some nurses thought that GPs offered limited support and/or lacked time or specialist diabetes knowledge to assist nurses (Greaves et al, 2003). In a NZ setting it was recognised that where good communication and team meetings occurred, nursing services were most likely to develop progressively (Horsburgh, Goodyear-Smith and Yallop, 2005).

The importance of the PHC nurse relationship with secondary care services or secondary care DSN is documented in both UK and NZ literature. Some evidence is given that this already occurs (Davies, 2006). However, differing reports are provided on the success of these relationships (Greaves et al, 2003; Kenny, Pierce & McGerty, 2002; Pierce, Agarwal & Ridout 2000). Absence of referral criteria, lack of organisation (Davies, 2006) and differences between PHC nurses and DSN over role responsibilities were evident (Peters et al, 2001). In the UK there is a strong desire by PHC nurses for increased relationships and closer collaboration with secondary care to support the shift of diabetes services from secondary to primary care (Johnson & Goyder, 2005). In particular, is the claim for closer collaboration with secondary care for support with activities related to insulin conversion in primary care (Greaves et al, 2003; McDowell et al. 2008).

### **Nursing Education and Knowledge**

“A major prerequisite for nurses to provide up to date diabetes care and education wherever they practice, is a fundamental level of knowledge, competence and confidence”. (Snell. 2009, p.5)

In the UK and NZ specific diabetes postgraduate training is available at varying levels (Davies, 2006; Greaves et al, 2003; NZNO, 2010). The role of a PHC nurse in general practice is viewed as that of a generalist (Peters et al, 2001). However the work of a nurse in primary care caring for PWD is described as a nurse with a special interest in diabetes having attained additional knowledge pertaining to diabetes (Greaves et al, 2003, Harris & Cracknell, 2005; McDowell et al, 2008). Knowledge acquisition for chronic conditions is a lifelong process, education at postgraduate level and self-initiated learning via informal learning is noted (Davies, 2006). There is a consensus between countries that specific diabetes education is required for the role in PHC. However it is unclear from the empirical literature what, if any competency measures are in place in either country for a nurse in primary care to care for people with diabetes.

One predominate emerging theme across both countries is PHC nurses wish for more education and knowledge to care for PWD (Kenealy et al, 2004; Kenny, Pierce & McGerty, 2002; Pierce, Agarwal & Ridout, 2000), including formal education and practical experience. One NZ study highlighted the lack of opportunity for PHC nurses in the past to access relevant professional development and postgraduate study (Horsburgh, Goodyear-Smith & Yallop 2008). Furthermore a lack of education in the UK is cited as an inhibitory factor over how nurses care for PWD (Peters et al, 2001). It appears there is a close connection between the need for further knowledge and the shifting of services from secondary to primary care.

Together with shifting of services to primary care has been the shift of insulin conversion. To enable confidence in insulin conversion, PHC nurses requested increased ongoing education and knowledge over and above diabetes courses they had attended (Greaves et al, 2003) recognising experience-based training would be useful. Furthermore DSNs were implicated as being useful in passing on their knowledge with training and mentoring PHC nurses on insulin initiation (Johnson & Goyder, 2005).

Educational requirements are a foremost issue for PHC nurses prescribing for PWD. As yet there is little empirical literature concerning education for nurse prescribing in this developing role in NZ. Although in 1999 Kenealy et al (2004) mentioned that PNs foresaw personal difficulties of training, however these difficulties were not clarified. In a very recent report New Zealand Nursing Council will be specifying qualifications and training for a proposed emerging role of DNSs prescribing for PWD (Health Workforce New Zealand, 2010). Due to differing regulations and nurse prescribing models in the UK it is difficult to compare education requirements between the countries. However it is well recognised in the UK that specialist training in prescribing is a prerequisite for competence in this extended nursing role in primary care (Carey & Courtney, 2008; Courtney & Carey, 2007).

In concluding section two a review has been given of the findings, presented under six major themes identified in the literature. In section three these themes will be discussed leading to an integration and synthesis of the themes and their related contextual influences.

## Section Three

### Discussion

Discussion in this section is based on the conclusions drawn following the analysis of the findings in section two. Specific themes emerged from the literature concerning how PHC nurses care for PWD. One theme was a desire by nurses for further diabetes education evidenced in both countries even when nurses had already received education they requested more. In contrast to the UK where nurses were requesting further education on medicine management, NZ nurses were unlikely to request further education on this issue. This is probably due to significant differences in UK and NZ nurse prescribing regulations. UK PHC nurses have an increased role in medicine management including starting insulin and a significant role in prescribing for PWD, whereas in NZ these areas are currently under development and as such, not yet evident in NZ empirical research.

The need for effective relationships between the PHC nurse and other providers of the diabetes interdisciplinary and multidisciplinary team was obvious in both countries. It is worth noting this included the need for successful and effective relationships between PHC nurses and the GPs. Similar to effective relationships, PHC nurses felt that increased support and collaboration from the secondary care diabetes team was necessary in establishing and maintaining the specialist role of caring for PWD in primary care evidenced in both UK and NZ.

Finally it is recognised that in caring for PWD in the community, PHC nurses have needed to and have been willing to extend and/or advance into specialised practice to achieve this emerging role of caring for PWD across the wellness disease continuum. The UK PHC nurse role in caring for PWD has been in existence longer than in NZ but there are close similarities in most aspects of nursing practice across the wellness disease continuum apart from noteworthy differences with nurse prescribing and insulin conversion.

Integration and synthesis in this review has revealed the significant relationship between the above themes and the following contextual influences pertaining to the emerging role of specialist diabetes PHC nurse (see figure 1). Contextual influences over the development of the role have been the increasing diabetes prevalence and the resulting UK and NZ health policies that have signalled a need for innovative ways of practicing that address diabetes complications. These innovations have fallen largely on the realm of primary care, with

health policies recommending shifting services from secondary to primary resulting in differing employment situations so far more evident in the UK. PHC nurses are seen heavily involved in these new models of care for PWD which is likely to be in nurse-led clinics specifically for diabetes, although shared care arrangements are also seen. These differing employment arrangements are more evident in the UK literature but suggested in NZ health policies.

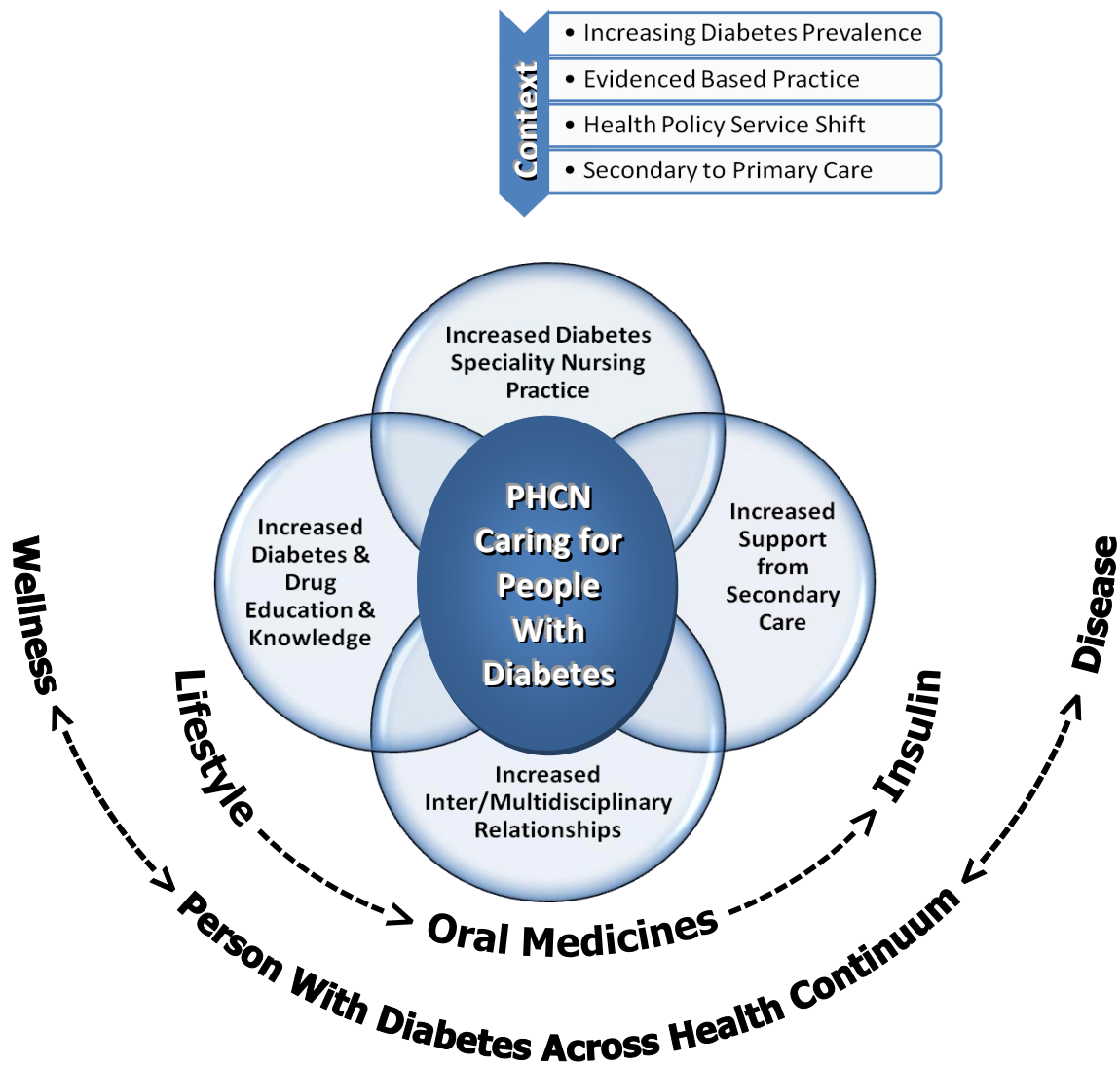
Added to the health policy context is the influence from research guiding best practice interventions to address the progressive nature of the disease. Research is commonly based upon increased attention in reducing diabetes micro and macrovascular complications with the use of more medicines as an adjunct to long term lifestyle interventions. The research supporting use of more medicines sooner in preventing diabetes complications has directly impacted on how PHC nurses practice in the UK. Insulin initiation and nurse prescribing according to best practice guidelines and protocols for PWD is well established within the role of the UK PHC diabetes nurse.

Several limitations apply to this study, one being the word limit of the project which led to limiting literature to comparing only UK and NZ data. A larger piece of work including all international studies could provide a greater depth on the topic. Secondly, limiting the type of paper in the review to primary empirical papers excluding opinion pieces and narratives may have somewhat limited the findings particularly from a NZ perspective. There was very limited NZ empirical literature in this emerging role in NZ however; evidence from UK literature has provided useful findings for the role in NZ. This literature review could form part of a larger piece of research of the topic in NZ. Further research should include evaluating the impact of nursing actions from this role on the wellbeing of a PWD.

Figure 1 on page 26 shows a diagram of the integration and synthesis of the concepts identified from this research. It illustrates how the combination of contextual factors, of increasing diabetes prevalence, evidenced based practice; health policy service shift and secondary to primary care have directly influenced the role of the PHC nurse caring for PWD. It demonstrates how PWD across the wellness disease continuum require increasing interventions to address their disease progression. Central to these contextual factors and PWD is the PHC nurse role are the concepts that have evolved from this study. These describe what requirements the nurse needs to effectively contribute towards improving the outcomes of PWD across the wellness disease continuum.

- Increased knowledge for diabetes speciality nursing practice
- Increased support from secondary care
- Increased inter/multidisciplinary relationships
- Increased diabetes and drug education and knowledge

Figure 1. Integration and Synthesis of Concepts concerned with “How Primary Health Care Nurses Care for PWD”.



## **Conclusion**

In conclusion this integrative literature review of how UK and NZ PHC nurses care for PWD has revealed common themes between the countries and revealed some differences. Common themes are that UK PHC nurses and to a lesser degree NZ nurses have acquired specialist diabetes knowledge and expertise enabling them to care for PWD across the wellness disease continuum. Another common theme in both countries is the relationship between specific contextual factors and how they have influenced this emerging role.

These contextual factors are increasing diabetes prevalence and evidenced based practice that purports an increasing array of diabetes treatments. A further factor is the written health policies that attempt to address the mortality and morbidity of the disease. These policies have directed a shifting of services from secondary to primary care. These contextual factors continue to influence this emerging PHC nurse role and employment situation as both countries look for innovative solutions to address caring for an increasing number of people with diabetes. The most significant difference between the countries has been the health policies and regulations that have afforded the UK PHC nurse to take an increased role in medicine management for PWD.

There are significant implications from the literature for PHC nurses and fund holders or policy makers planning this emerging specialist role in NZ. These implications will be important when developing strategies or programmes of care to address the increasing prevalence of diabetes and the associated co-morbidities. The implications will be even more relevant in NZ population groups that have a greater prevalence of people affected with diabetes such as Maori, Pacific Islanders and Asians.

One implication identified from UK literature is that nurses having a greater role in medicine management require appropriate diabetes education and specific education on insulin initiation for the PHC nurses to feel confident in this role. Another implication is that when dealing with complex diabetes situations PHC nurses in UK and NZ both signalled a strong desire for increased relationships with secondary care specialist teams for support. The need for effective relationships with other members of the interdisciplinary and wider multidisciplinary team was also implied as a requirement for the success of this emerging role. Clearly demonstrating the aspiration of nurses to belong to and be part of the multidisciplinary team of providers caring for people with diabetes.

## **Recommendations**

Several recommendations can be made from this research to effectively position NZ PHC nurses as we move through a period of change due to shifting of services to primary care. Firstly the NZ population and specifically those populations at greater risk of developing diabetes such as Maori, Pacific Islanders and Asians should have the opportunity to access an affordable, appropriately qualified and skilled front line PHC diabetes nurse workforce for ongoing care.

All new policies and regulations concerning diabetes nursing in primary care need to include a structure that promotes and supports effective relationships and collaboration between all providers of the diabetes team. This should include a nationally agreed structure that promotes a transparent seamless system for clients accessing care between primary and secondary care diabetes services.

Education for this specialised advanced role in primary care should be delivered at a nationally agreed level that meets the clinical needs of the nurses and clients. Additionally, all education should meet nationally recognised standards where nurses' competencies are measured.

From the strong UK evidence I recommend that appropriately qualified PHC diabetes nurses should have an increased role in medicine management and/or prescribing in the NZ primary care setting. Furthermore this advancing PHC nursing role should be seriously considered as part of any review of NZ workforce, health strategies and policies such as "Better, Sooner, More Convenient Primary Care", that are designed to improve access and subsequent outcomes for people with diabetes and its associated co-morbidities.

## **Concluding Statement**

Diabetes and associated co-morbidities are increasingly more prevalent globally and in NZ, particularly for Maori, Pacific Islanders and Asians. This review has described how NZ PHC nurses have responded to a signal from health policies to play an increased role in caring for people with chronic disease, similar to that of UK nurses. However to develop this role further in NZ consideration should be given to nurse education, collaborative multidisciplinary relationships and regulatory changes enabling PHC nurses to manage medicines.



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## Appendices

### Appendix A

Relevant policies and/or reports concerning diabetes and nursing.

Year	Country	Policy/Report	Comments
1990	UK	The GP Contract	Expanding practice nursing, chronic disease clinics. Diabetes mini-clinics
1997	NZ	Strategies for the Prevention and Control of Diabetes	
1999	UK	Making a difference	Marks increasing role and autonomy of nurses in primary care, especially in chronic disease management
2000	UK	The NHS Plan	
2000	UK	Testing times a review of Diabetes services in UK and Wales	Report suggest much of routine management of diabetes could be done in primary care
2002	UK	National Service Framework Diabetes –Delivery strategy	Development of diabetes management to primary care, Philosophical shift to formally recognise diabetes self-management. Emphasizes role of nurse in service delivery
2002	UK	Liberating the Talents	Importance of nurses recognised in delivering The NHS plan in CDM
2003	UK	Investing in General Practice: The New GMS Contract	QOF initiated, nurses play a major role in achieving QOF targets
2000	NZ	National Health Strategy	Reducing the incidence and impact of diabetes priority
2000	NZ	Diabetes 2000	Start of free annual diabetes reviews. PHC nurses complete some of these
2001	NZ	Primary Health Care Strategy	Identifies primary health care nurses as crucial to its successful implementation
2003	NZ	Investing in Health	Framework for PHC nursing recommended
2004	NZ	Care plus	An overview of the careplus programme
2005	UK	Improving Care for people with Long Term Conditions	Review of UK & International Frameworks, importance of primary care nursing recognised
2006	NZ	Performance Management Programme	PMP starts, 2 diabetes indicators, PHC nursing practice contributes towards the targets.
2006	NZ	Review of Implementation of Care Plus	Practice Nurse role in delivering care plus mentioned
2007	NZ	MOH and DHB's: Effectiveness of the "Get Checked" diabetes programme	Appropriately trained registered primary healthcare nurse (diabetes nurse) can complete the annual diabetes review
2007	NZ	Better Sooner More Convenient	Specially trained PHC nurses involved in chronic care, case managers.
2007	NZ	Diabetes Surveillance	Population-based estimates and projections for New Zealand, 2001–2011
2008	NZ	Diabetes & CVD Quality Improvement Plan	Plan for addressing quality of care for diabetes and CVD
2008	NZ	Change in Primary care	Changes in primary care service delivery and operational models – increase in nurse clinics
2009	NZ	MOH Health Targets	Better diabetes and cardiovascular services
2009	NZ	Nursing Developments in Primary Health Care 2001-2007	Specialist Diabetes clinics mentioned

## Appendix B

### Minimum diabetes dataset to be reported to Local Diabetes Teams (Brady, 2007).

- NHI (national health index number)
- sex
- date of birth
- ethnic origin
- date of annual review
- type of diabetes
- year of diagnosis
- whether or not the patient is a smoker
- height
- weight
- date of last retinal examination or ophthalmologist review
- systolic blood pressure
- diastolic blood pressure
- HbA1c
- urine albumin:creatinine ratio (micro-albuminuria) (if clinically indicated)
- dip-stick test for micro-albuminuria (if clinically indicated)
- total cholesterol
- HDL-cholesterol
- triglyceride
- diabetes therapy (insulin, oral medication for glycaemic control, diet only)
- other relevant therapies (ACE inhibitor, anti-hypertensive medication other than ACE inhibitor, and HMGCo-A reductase inhibitor or statin); and
- other medication specifically for controlling hyperlipidaemia (not HMGCo-A reductase inhibitor).