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Title: Decision-making: initiating insulin therapy for adults with diabetes

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ABSTRACT

Aim: This paper is a report of a study to describe nurses' perceptions of decision-making and the evidence-base for the initiation of insulin therapy.

Background: Several theoretical perspectives and professional's attributes underpin decision-making to commence insulin therapy. The management of type 2 diabetes is moving from secondary to primary care and this affects how clinical decisions are made, by whom and the evidence-base for these decisions.

Method: A postal survey was conducted with a stratified sample of 3478 Diabetes Specialist Nurses and Practice Nurses across the four countries of the United Kingdom with a special interest in diabetes. A total of 1310 valid responses were returned, giving a response rate of 37.7%. A questionnaire was designed for the study and pilot-tested before use. Responses were given using Likert-type scales. Data were collected during 2005 and 2006, and one reminder was sent.

Results: People with diabetes are seen as having little influence in decision-making. Consultant physicians appear to be influential in most decisions, and the nursing groups held varying perceptions of who made clinical decisions. Nurses' identified different responsibilities for those working solely in secondary care from those working in both community and secondary care. Practice nurses were not as involved as anticipated.

Conclusion: Nurses working with people with diabetes need to encourage them to become more active partners in care. Clinical guidelines can assist in decisionmaking

where nurses are least experienced in initiating insulin therapy.

Keywords: adults, decision-making, diabetes, insulin initiation, nurses, questionnaire, survey

SUMMARY

What is already known about this topic

- Complex healthcare interventions, multiprofessional team-working and empowering patients all contribute to creating a challenging environment in which decisions about patient care are made.
- There is relatively little decision-making in the management of people with type 1 diabetes, but in type 2 diabetes there are many clinical options available of which insulin is one.
- There are wide variations of practice with regard to insulin initiation, especially in relation to people with type 2 diabetes

What this paper adds

- People with diabetes and their carers were not seen as active partners in the decisions about initiation of insulin treatment.
- Consultant physicians held key roles in decision-making, regardless of type of diabetes.
- Diabetes Specialist Nurses appeared to have different influences on insulin initiation depending on the type of diabetes and care setting, while Practice Nurses did not seem to be key professionals in insulin initiation.

INTRODUCTION

It is estimated that diabetes is the fifth leading cause of death globally (Roglic et al 2005). This constitutes a pandemic, with 80% of these people having type 2 diabetes (Amos et al 1997). The definitive United Kingdom Prospective Diabetes Study (UKPDS) demonstrated the need for people with type 2 diabetes to commence insulin therapy sooner than previously thought (UKPDS 1998a, 1998b), although the evidence-base does not suggest insulin regimes, types or doses.

To address these projected healthcare needs, the United Kingdom (UK) has moved from a specialist model of care to one in which diabetes management is effectively conducted in primary care, with referral to specialist services as needed. In the UK there is a National Health Service in which care is provided free at the point of delivery and targets for clinical management are set at a national level. Chronic disease management here is multiprofessional, and nurses have a leading role in the care of people with diabetes. The initiation of insulin therapy has traditionally been the role of Diabetes Specialist Nurses (DSNs). However, with developments in care, Practice Nurses (PNs) are being further educated in diabetes and commencing insulin therapy for people with type 2 diabetes in the community.

BACKGROUND

A literature review was undertaken on decision-making in diabetes. Databases Current Index to Nursing and Allied Health Literature, OVID, Cochrane Database of Systematic Reviews, American College of Physicians Journal Club, Database of Abstracts of Reviews of Effects, Cochrane Control Trials Register, British Nursing Index and Medical Literature Analysis and Retrieval System were searched from 1982 – 2006 using the keywords decision-making; diabetes mellitus; insulin; child; diabetes

specialist nurse; clinical nurse specialists; community health nursing; physicians; families; consultant physicians; blood glucose; haemoglobin A; glycosylated haemoglobin; insulin start dose; insulin dosage calculation; practice nursing; clinical parameters. Results were refined and honed until literature relevant to this study was identified.

Language and theories

Complex healthcare interventions, multiprofessional team working and empowered patients all contribute to creating a challenging environment in which decisions about patient care are made. However, decision-making itself has no clear definition and many terms are used to describe it: clinical decision-making, clinical judgement, clinical inference, clinical reasoning, diagnostic reasoning, decision analysis, intuitive reasoning, evidence-based care, critical thinking, discriminative thinking, pattern matching (Thompson 1999, Hallett et al 2000, Buckingham & Adams 2000a, Buckingham & Adams 2000b, Harbison 2001, Bliss & While 2003, Rashotte & Carnevale 2004, Bakalis & Watson 2005, Dowding & Thompson 2004). The variability of language results in different understandings that are much debated and researched. A few theories of decision-making provide a framework in which to understand this concept.

Thompson (1999) has proposed three theoretical stances. First, he discusses the systematic-positivist stance that considers decision-making as a hypothetico-deductive rational process. Here, decision-making is a linear process and a pragmatic approach is adopted (Hallett et al 2000). The process requires both induction and deduction (Buckingham & Adams 2000a). The field of cognitive psychology provides the

theoretical underpinning, and an information processing model provides the framework. A sound knowledge-base is required (Arries & Nel 2004), although Thompson et al (2004) found that nurses relied on experienced human sources for evidence as opposed to research itself. This confirms earlier findings that the largest source for influencing practice was practice-based knowledge (Luker & Kendrick 1992). The second theoretical stance proposed by Thompson (1999) is the intuitive-humanistic theory that uses intuitive judgment and separates the novice from the expert, thus building on the work of Benner (1984), and expertise is thought to be acquired through experience (Rashotte & Carnevale 2004). Both the systematic-positivist stance and intuitive-humanistic theories have strengths and limitations. Common themes identified in both theories are communicability, simplification, context specificity and applicability. Thompson (1999) considers that while each have something to offer, it may be more appropriate to consider a third theory - the cognitive continuum. The cognitive continuum, as a framework for research is appropriate for multidisciplinary team-working where others may be perceived as 'experts' in clinical positions.

Theories of decision-making, therefore, draw on differing philosophical concepts and disciplines such as cognitive and social psychology, philosophy, artificial intelligence and statistical theories. Other theories that explain decision-making use a utility approach, prospect theory or social cognition model (Bekker et al 1999).

Smith Higuchi et al (2002) defined six major thinking processes of description, selection, representation, inference, synthesis and verification. They demonstrated that clinical decision-making is a complex cognitive process and that different thinking

skills were used in medical and surgical care settings. Rashotte & Carnevale (2004) further state that clinical decision-making appears to be a continuous, sequential learning process that requires three critical elements. These elements are experiential learning, reflective practice and transformative learning. They state that clinical decision-making is context-specific and is an ongoing process of sense-making. Hoffman et al (2004) identify several contextual factors of decision-making that include experience, education, level of appointment, area of practice, beliefs and values.

Thompson et al (2004) stated that evidence-based decision-making is an active process, and that there needs to be a degree of fit between the information provided and the decision task. Rashotte & Carnevale (2004) state that decision-making is an exclusively cognitive function, thereby disregarding social phenomena that also have a bearing on this form of knowing.

The nursing profession does not appear to agree on any one model or theory of decision-making; rather, this is seen as eclectic, dynamic and fluid (Rashotte & Carnevale 2004) rather than as a linear process (Bliss & While 2003) and may in fact embody both intuitive and diagnostic reasoning compatibility (Hallet et al 2000). Professionals' own attributes may also affect decision-making.

Professionals' attributes

Hoffman et al (2004) identified factors that accounted for the greatest variability in clinical decision-making: holding a professional occupational orientation; level of

appointment; area of clinical speciality and age. They found that neither education nor experience was statistically significantly related to decision-making. The value of the professionals' role, as defined by a valid and reliable questionnaire, was the most statistically significant predictor over experience and educational level to strongly influence decision-making. However, the model they developed only accounted for a low amount of variability in decision-making.

Bakalis & Watson (2005) found that length of clinical experience was statistically correlated to the frequency of decision-making, although there was no difference based on educational level of nurses. Several authors suggest that less experienced nurses will use rules for decision-making, although this suggestion is not evidence-based (Benner 1984, Rashotte & Carnevale 2004, Dowding & Thompson 2004). Thompson et al (2004) found that education and clinical experience were poor predictors of how useful nurses found protocols and guidelines for decision-making in clinical practice.

Patient involvement

If decision-making involves theoretical knowledge and experience being applied to a clinical situation, it could be argued that patients are the passive recipients of professional care. However, in chronic disease management, patients become experts in their own conditions and hence demonstrate theoretical knowledge and experience.

A Health Technology Assessment team reviewed 825 papers on decision-making, of which 547 were included in the report (Bekker et al 1999). Of these studies, only 26

explicitly involved patients in the decision-making process (Bekker et al 1999). In an observation study, Millard et al (2006) looked at community nurses' involvement of patients in the decision-making process. They identified five types of patient behaviour in decision-making on an 'involving-non-involving' continuum and found that nurses could promote or deter involvement in decision-making through their communication skills. While healthcare philosophy promotes patient empowerment and participation, the reality is that participation in clinical decision-making from a patient and carer perspective is a complex concept (Thynne et al 2003, Claassen 2000) and may be facilitated, or not, by healthcare professionals (Millard et al 2006, Gravel et al 2006). However, Florin et al (2006) found that nurses thought that patients wanted greater involvement in decision-making than the patients actually said they wanted.

Shared decision-making

A systematic review of shared decision-making in clinical practice as perceived by healthcare professionals has recently been published (Gravel et al 2006). Of almost 1000 references reviewed, only 31 met the inclusion criteria. The most-cited barriers to involving patients in decision-making were time constraints, lack of applicability due to patient characteristics and the clinical situation. Other factors cited were perceived patient preferences for a model of decision-making that did not fit with a shared decision-making model and not agreeing with asking patients about their preferred role in decision-making (Gravel et al 2006).

Gravel et al (2006) reported the facilitating factors for shared decision-making as motivation from healthcare professionals, positive impact on the clinical process,

positive impact on patient outcomes. This suggests that healthcare professionals anticipate a positive outcome before trying to involve patients in decision-making, demonstrating a paternalistic approach to care and not fully engaging with a shared care philosophy. Other factors facilitating shared decision-making were perceptions that shared decision-making is useful and or practical, patient preference for a shared decision-making model, and patient characteristics. However, the systematic review included mostly work conducted with physicians, and very little is known about other healthcare professionals (Gravel et al 2006).

Patient involvement is increasingly emphasised in all aspects of care through the UK National Service Framework for Diabetes. In a study to develop a diabetes-specific scale to measure patient's desire to participate in medical decision-making, it was found that there was a desire by patients for discussion and information but this might stop short of actual decision-making (Golin et al 2001). In another study it was found that DSNs were most likely to choose the type of insulin, whereas patients were more likely to choose the injection device (Thynne et al 2003).

Clinical decision-making is hard to define. It is influenced by the attributes of professionals themselves. While the philosophy of involving patients in decision-making is being promoted, this is limited in practice partly by professionals. Shared clinical decision-making therefore between professionals and patients is still evolving.

Insulin initiation

There is relatively little decision-making in the management of people with type 1 diabetes. Due to the autoimmune processes, people are dependent on exogenous

insulin for their survival (Matthews 2007). In type 1 diabetes, decisions relate more to the insulin regimen and the injection device rather than the need for insulin. In type 2 diabetes the decision about insulin therapy is less clear cut. There are many clinical options available to people with type 2 diabetes, of which commencing insulin is one. The UKPDS (1998a, 1998b) demonstrated the benefits of insulin therapy in preventing long-term complications of diabetes. Protocols represent an attempt to derive algorithms for care to ensure that people with type 2 diabetes start insulin relatively quickly after diagnosis (Nathan et al 2006). In a literature review, Davis et al (2006) concluded that there were wide variations of practice with regard to insulin initiation, especially for people with type 2 diabetes in the UK.

THE STUDY

Aim

The aim of the study was to describe nurses' perceptions of decision-making and the evidence base for the initiation of insulin in the United Kingdom

The study objectives were:

To identify the range of healthcare professionals who influence the decision that a person needs to commence insulin and nurses' perceptions of their influence.

To identify the criteria used to determine when insulin treatment should be started.

To determine to what extent clinical decision-making is based on individualised assessment, protocols or other approaches.

Design

A survey approach was adopted using a pre-tested questionnaire.

Participants

All DSNs listed in a commercially-available database and an equivalent sample size of Practice Nurses (PNs) were the population for the study. Primary care practices with four or more GPs were chosen as they were considered more likely to offer a structured diabetes service including insulin initiation. Questionnaires were sent to practices and addressed to PNs with a special interest in diabetes (PND) but, if none were employed, then the questionnaire could be completed by a generic PN. A sample of 3478 practitioners was identified by accessing all DSNs on the database (n=1739) and matching this number with the equivalent number of PNs working in primary care with 4 or more GPs (n=1739). Stratified sampling methods were used to ensure that there were matched numbers of DSNs and PNs from the four countries of the UK, with the number of DSNs per country being the influencing number.

The questionnaire

The questionnaire had two sections. In the first section respondents were asked about their perceptions of decisions related to initiating insulin at their place of work, while acknowledging that they personally might not be responsible for all aspects of this. In the second section people were asked to respond in relation to their own personal practice. The same questions were asked in relation to people with type 1 or type 2

diabetes. Nurses were asked to score their own perceptions of the roles of those in their own professional group as well as how they perceived other nursing groups; responses were given on a Likert-type scale. Demographic details were captured at the end of the questionnaire.

Pilot study

A panel of experts ensured the face validity of the questionnaire, and it was piloted in both the UK and Australia and test-re-tested (n=150) prior to use. Those involved in the pilot study were excluded from the main study. The questionnaire was amended in light of comments received to ensure clarity and reduce range of responses.

Data collection

The questionnaire was distributed by post in November 2005, and a reminder letter was sent in January 2006.

Ethical considerations

The study was approved by the Office of Research Ethics Committee in Northern Ireland. The keepers of the databases distributed the questionnaires to the identified sample to ensure anonymity.

Data analysis

Results were analysed using the Statistical Package for the Social Sciences version 11. Descriptive statistics were used and the differences between DSNs in secondary care (DSNSC), DSNs in primary care (DSNPC), DSNs working in both primary and secondary care (both) and PNDs were tested for statistically significant differences.

The threshold for statistical significance used was $P < 0.05$, although some results achieved greater levels of statistical significance ($P < 0.001$).

RESULTS

A total of 1310 questionnaires was returned, giving a response rate of 37.7%. Of the returned questionnaires, 65 were returned blank with a covering note explaining why they were not completed, and therefore 1245 were analysed. A similar response rate was acquired from all four countries. Results are presented as totals, these vary as not every person answered each question.

The results are also presented according to whether the data relate to the overall aspects of insulin initiation in the respondents' place of work ($n = 1245$) or the individual's personal practice ($n = 492$ type 1 diabetes; $n = 785$ type 2 diabetes). Thus, the sample size was reduced when considering respondents' personal practice.

Of the respondents, 38.2% ($n=474$) were PNDs; 19% ($n=235$) were DSNSCs; 16.5% ($n=205$) were DSNs (Both); 12.8% ($n=159$) were DSNPCs with the remainder comprising generic PNs, nurse consultants and others (13.4%, $n=157$). Years of experience in this work varied from more than 10 years (27.2%, $n=208$) to over half having less than six years' experience (57.1% $n= 436$). When analysed by professional group, it appeared that PNDs had only recently started initiating insulin as the majority of them (72.8%, $n=145$ PNDs) had less than 3 years' experience of this. This is compared to 15.6% ($n=36$) of DSNSCs; 16.3% ($n=32$) of DSN (Both); and 34.8% ($n=48$) of DSNPCs with less than 3 years' experience. These results were statistically significant ($\chi^2 = 249.1$, $df=12$, $p<0.001$).

Most nurses who answered the question (93.3%, n=791) had attended a diabetes study day, with 49.3% (n=418) acquiring diploma level study. Only a small percentage (13.4%, n=114) had studied at Masters' degree level, and these were predominantly DSNs, with only three being PNDs.

The aim of the study was to determine who makes the decision to commence insulin therapy in people with diabetes and the evidence base for the process. There were differing perceptions of the influence of professional groups on who made this decision. These are presented by diabetes classification as there were differences according to the two types.

Decision-making in type 1 diabetes

Professionals' perspectives

The majority of respondents (73.7%, n=612) perceived consultant physicians, followed by the DSNs (57.6%, n=478) as having the most influence over the decision to commence insulin. Few respondents indicated that people with diabetes, GPs or other medical staff had 'a lot' of influence. Even fewer respondents thought that PNDs, general PNs or carers had 'a lot' of influence over the decision.

Nurses' perceptions of influence by professional group are presented in Table 1. Most groups perceived consultants as having 'a lot' of influence, while GPs had the least influence in decision-making. DSNs saw themselves as having most influence over insulin initiation (80.1%, n=185), and those working across both

primary and secondary care as having ‘a lot’ of influence. The groups who perceived themselves as having the least influence were DSNPCs and PNs.

Over half of those who responded to this question (53.3%, n=417) indicated that the final decision to commence insulin in adults with type 1 diabetes was made by the consultant physician. However, 23.8% (n=186) thought that the decision was made jointly and that no one professional group was responsible for the final decision.

At a later stage in the questionnaire, those who personally initiated insulin were asked about their practice. They replied that either the consultant or DSNPC were responsible for the majority of decisions about the type of insulin to be used in type 1 diabetes (70.3%, n=360). These respondents considered this to be a joint decision in only 15.2% (n=78) of situations.

The evidence-base in type 1 diabetes

Clinical guidelines are used more often to inform the decision-making process in type 1 diabetes than clinical protocols or care pathways (Table 2). Over a quarter of the respondents who responded in relation to their individual practice (28.8%, n=239) claimed not to use any structured process.

Approximately half of those who responded ranked their clinical experience as used most often in determining the starting dose for people with type 1 diabetes (49.6% n=245); these respondents were predominantly those with more than 10 years’ experience (58.9% n=113), compared with 42.9% (n=3) of those with less than one years’ experience. Team agreement was rarely ranked first (13.9% n = 64, Table 3).

On further analysis, numbers per category in Table 3 varied considerably from over 10 years experience (n = 192); 1–10 years (n=288); less than one year (n=7).

Decision-making in type 2 diabetes

Professionals' perspectives in type 2 diabetes

Professional influence in the decision-making process to commence insulin therapy for people with type 2 diabetes differed from that for those with type 1 diabetes (Figure 1). It was thought that the consultant had 'a lot' of influence (45.9%, n=499), with the DSNSC following (42.3%, n=459). DSNPCs were the third most influential group at 36.0% (n=391). GPs (30.3%, n=329), people with diabetes (29.4%, n=319), and PNDs (26.6%, n=289) were perceived as being more prominent in this decision with people with type 2 diabetes than those with type 1 diabetes.

Approximately a third of respondents thought that the final decision to initiate insulin therapy in people with type 2 diabetes was made jointly, and that no single health professional was responsible (34.2%, n=343). Whilst the consultant physician was reported to make the final decision by 22.5% (n=226) of respondents, only 14.8% (n=149) reported that this was the GP's responsibility.

All DSNs saw themselves as having the greatest influence on the decision to commence insulin (Table 4). Consultant physicians, while appearing to have some influence, were not as influential here as in type 1 diabetes. GPs were not considered very influential by anyone except the PNDs, who perceived GPs as wielding more influence than DSNs.

The evidence-base in type 2 diabetes

It would appear that guidelines were used more often than clinical protocols or care pathways to inform the decision-making process in type 2 diabetes (Table 2). Only 18.0% (n=195) claimed not to use any structured process.

Among those who personally initiated insulin therapy, almost half ranked their clinical experience as the most frequently-used method of determining the starting dose (48.3%, n=378). Respondents with more than 10 years' experience of initiating insulin were less likely to use protocols, guidelines or pathways (17.7%, n=41) than those with less than one year of experience (12.9%, n=12).

In descending order of frequency the following criteria were identified as having 'a lot' of influence over deciding to start insulin: symptoms of hyperglycaemia (83.8%, n=693); rising HbA1c (80.3%, n=673); complications of diabetes (76.7%, n=636); patient choice (63.5%, n=527); ability to self care (61.3%, n=509); weight loss (58.5%, n=483); difficulties with tablets (51.5%, n=424); social situation (46.1%, n=381) and body mass index (32.0%, n=263).

Analyses of these items by profession indicated some differences. DSNSCs were less likely to give 'a lot' of consideration to a patient's choice (52.4%, n=122) than those in other respondent groups (DSNPC: 73.0%, n=103; DSN Both: 61.7%, n=121; PNDs: 72.3%, n=146). Similarly, the social situation was not given 'a lot' of consideration by DSNSCs (38.8%, n=90) compared with DSNPCs (49.3%, n=69) or

PNDs (49.0%, n=100). PNDs were more likely than DSNs to give 'a lot' of consideration to rising HbA_{1c} (88.8%, n=182) and less to symptoms of hyperglycaemia (77.2%, n=156).

Patient choice (75.1%, n=636), clinical expertise (65.2%, n=552), recent research (51.1%, n=433) and local guidelines/protocols (49.2%, n=417) were the four influences cited most often by respondents as guiding the decision to initiate insulin in people with type 2 diabetes.

DISCUSSION

A response rate of 37.7% was achieved, and this is fairly typical from a postal questionnaire (Burns and Grove 2005). Some researchers would consider this poor (Bryman 2001), while others acknowledge that response rates are variable (Parahoo 1997, Bowling 1997). A sample size calculation estimator (<http://www.surveysystem.com/sscalc.htm>) indicates that a response rate of a third would be considered representative of the wider population, and this was achieved. There was evidence of proportional representation from respondents between the four countries of the UK between DSNs and PNs and this is a strength of the study.

The literature demonstrates that less experienced nurses use rules for decision-making (Benner 1984, Rashotte & Carnevale 2004, Dowding & Thompson 2004) and our results support this as experienced nurses stated that they used their clinical experience as opposed to protocols to determine the starting dose of insulin. Experienced nurses could be perceived as taking an intuitive-humanist stance, according to Thompson (1999). No explanation can be suggested in relation to

educational experience because of the small numbers holding Master's degrees. In the UK, Master's degree-level thinking is construed as advanced nursing practice (Scottish Government 2008). Experience and educational attainment would be worthy of further study as more nurses acquire diabetes-specific education at an advanced level.

Nurses working in different clinical settings reported their own influence in decision-making in the initiation of insulin according to diabetes type. Responses from the differing care settings demonstrated that clinical decision-making about initiation of insulin is complex. This may reflect custom and practice, where previously all those requiring insulin were managed in secondary care settings; however, it does raise some issues in relation to the role of DSNPCs, as it gives the impression that they do not feel as influential in care direction as those in secondary care. The data also suggest that PNDs do not yet feel that they have 'a lot' of influence in this decision.

Commencing insulin in people with type 2 diabetes may be a complex decision, as described by Harbison (2001), and this may account for the differing picture evident in primary care. However, it may be that as DSNPCs and PNs expand their roles there needs to be more transparency in decision-making between all members of the healthcare team to promote multiprofessional working, as proposed by Buckingham & Adams (2000a).

There is no patient choice issue in whether to start insulin in people with type 1 diabetes as they are dependent on insulin for survival. In such a clinical situation, where there are no options, care is based on diagnostic reasoning (Hallett et al. 2000,

Harbison 2001) which is similar to prescriptive decision-making (Bliss & While 2003).

People with type 2 diabetes appear to have more influence in the decision to commence insulin than those with type 1. This may be due to the fact that they are living with diabetes prior to requiring insulin and so become knowledgeable about the condition and experts in their own care. Coupled with this, insulin is not a requirement for sustaining life and this may affect their willingness and ability to influence decisions about its use.

Individuals' involvement in decision-making in diabetes is an area worthy of further research. Studies indicate that nurses think that patients wish for more involvement in their care than patients themselves actually state (Bekker et al 1999, Florin et al 2006, Millard et al 2006). Our results support the view that nurses do not actively involve people in the decision-making process.

It would appear that there are specific issues in clinical decision-making in primary care. Given the current philosophy to promote the management of diabetes within primary care, there is a need to support those in primary care to assume greater decision-making abilities around the initiation of insulin.

While the consultant physician and the DSNPC were perceived as having 'a lot' of influence in initiating insulin therapy for people with type 1 diabetes, this influence was seen as less than for those with type 2 diabetes. In this latter situation, the person with diabetes, the GP and the DSNPC were perceived as having greater influence

compared with their roles with people with type 1 diabetes. Hoffman et al (2004) reported that the value of a professional's role was a major predictor in decision-making, and had more influence than education and experience. However, these differences between professionals' perceptions of influence in those with type 1 and type 2 diabetes may be because of the fact that insulin is not essential for the maintenance of life in type 2 diabetes; or alternatively, it may indicate the growing confidence of primary care professionals in managing this aspect of care.

DSNSCs were less likely to give consideration to patient choice or to consider their social situation when commencing insulin therapy. This may be because they focused only on the immediate clinical need or might not appreciate the personal situation of the individual in their social context. This would be worthy of further research. Further research is also needed to explore the perspectives of other multidisciplinary team members and people with diabetes about decision-making in relation to initiation of insulin therapy.

Study Limitations

The study had a number of limitations. Psychometric testing of the questionnaire for validity and reliability was not undertaken. The questionnaire was designed to capture the working practice of both teams and individual practitioners. This resulted in complicated analysis and presentation of results. The response rate might be considered low, although the same results were found within the four countries of the UK and there was no skewing of results. The study was conducted in the UK and, although the UK is leading changes in practice, further research is needed to establish

practice in other countries in relation to decision-making about insulin therapy initiation.

CONCLUSION

The person with diabetes should be central to all care delivered. Much more work is required to ensure that the individual is given the opportunity to be an active partner in decision-making about their own care. Clinical guidelines are more appropriate for less experienced nurses, and can be used to develop nurses in their roles.

Our findings could be used to inform professional development and role expansion in this specialist field because they capture a change in service delivery in primary care as nurses are on the cusp of expanding their roles.

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Table 1: Adults with Type 1 diabetes: Those considered to have ‘a lot’ of influence upon the decision to commence insulin by professional group

| | DSN (Primary) | | DSN (Secondary) | | DSN (Both) | | PND | |
|---------------------------|---------------|------|-----------------|------|------------|------|-----|------|
| | No. | % | No. | % | No. | % | No. | % |
| GP | 15 | 16.3 | 18 | 7.8 | 20 | 10.0 | 81 | 3.5 |
| Physician / Diabetologist | 67 | 72.8 | 171 | 74.0 | 130 | 64.7 | 201 | 83.1 |
| DSN (Secondary care) | 32 | 34.8 | 185 | 80.1 | 141 | 70.1 | 91 | 37.6 |
| DSN (Primary care) | 36 | 39.1 | 45 | 19.5 | 97 | 48.3 | 42 | 17.4 |

Table 2: Use of guidelines in diabetes

| Use of: | Type 1 diabetes | | Type 2 diabetes | |
|---------------|-----------------|-------|-----------------|-------|
| | No. | % | No. | % |
| Protocols | 434 | 55.9% | 659 | 64.9% |
| Guidelines | 524 | 66.8% | 793 | 76.7% |
| Care Pathways | 329 | 42.7% | 541 | 53.4% |
| None used | 239 | 28.8% | 195 | 18.0% |

Numbers and Percentages total more than 100 as respondents gave equal ranking to more than one response.

Table 3: Most used method of determining the initial starting insulin dose

| | Type 1 | | Type 2 | |
|-----------------------|--------|------|--------|------|
| | No. | %* | No. | %* |
| Calculation | 92 | 19.6 | 119 | 16.0 |
| Doctors instruction | 114 | 24.1 | 107 | 14.5 |
| Clinical experience | 245 | 49.6 | 378 | 48.3 |
| Protocol / guidelines | 87 | 18.8 | 246 | 31.9 |
| Team agreement | 64 | 13.9 | 118 | 16.0 |

* Percentages total more than 100 as respondents gave equal ranking to more than one response.

Figure 1: Decision making Type 1 vs Type 2 diabetes

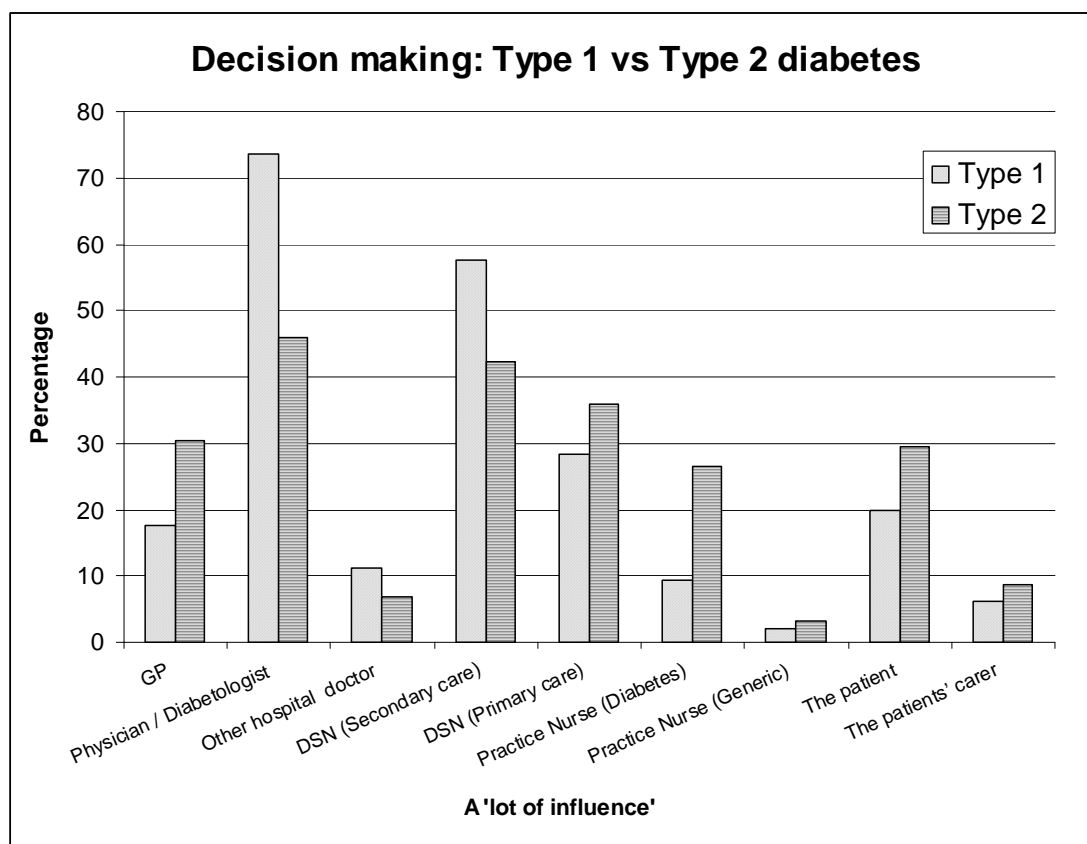


Table 4: Adults with Type 2 diabetes: Those considered to have ‘a lot’ of influence upon the decision to commence insulin by professional group

| | DSN (Primary) | | DSN (Secondary) | | DSN (Both) | | PND | |
|---------------------------|---------------|------|-----------------|------|------------|------|-----|------|
| | No. | % | No. | % | No. | % | No. | % |
| GP | 44 | 28.6 | 26 | 11.1 | 34 | 16.7 | 204 | 50.0 |
| Physician / Diabetologist | 51 | 33.1 | 156 | 66.7 | 113 | 55.4 | 143 | 35.0 |
| DSN (Secondary care) | 36 | 23.4 | 180 | 76.9 | 132 | 64.7 | 82 | 20.1 |
| DSN (Primary care) | 109 | 70.8 | 69 | 29.5 | 111 | 54.4 | 72 | 17.6 |
| Practice Nurse (Diabetes) | 37 | 24.0 | 20 | 8.5 | 18 | 8.8 | 192 | 47.1 |