

# GPs' approach to insulin prescribing in older patients: a qualitative study

Gina Agarwal, Kalpana Nair, Jarold Cosby, Lisa Dolovich, Mitchell Levine, Janusz Kaczorowski, Chris Butler and Sheri Burns

## ABSTRACT

### Background

Evidence suggests that insulin is under-prescribed in older people. Some reasons for this include physician's concerns about potential side-effects or patients' resistance to insulin. In general, however, little is known about how GPs make decisions related to insulin prescribing in older people.

### Aim

To explore the process and rationale for prescribing decisions of GPs when treating older patients with type 2 diabetes.

### Design of study

Qualitative individual interviews using a grounded theory approach.

### Setting

Primary care.

### Method

A thematic analysis was conducted to identify themes that reflected factors that influence the prescribing of insulin.

### Results

Twenty-one GPs in active practice in Ontario completed interviews. Seven factors influencing the prescribing of insulin for older patients were identified: GPs' beliefs about older people; GPs' beliefs about diabetes and its management; gauging the intensity of therapy required; need for preparation for insulin therapy; presence of support from informal or formal healthcare provider; frustration with management complexity; and GPs' experience with insulin administration. Although GPs indicated that they would prescribe insulin allowing for the above factors, there was a mismatch in intended approach to prescribing and self-reported prescribing.

### Conclusion

GPs' rationale for prescribing (or not prescribing) insulin is mediated by both practitioner-related and patient-related factors. GPs intended and actual prescribing varied depending on their assessment of each patient's situation. In order to improve prescribing for increasing numbers of older people with type 2 diabetes, more education for GPs, specialist support, and use of allied health professionals is needed.

### Keywords

insulin; primary health care; qualitative research; type 2 diabetes mellitus.

## INTRODUCTION

Current prevalence figures estimate that 16% of people aged 65 years and over have diabetes.<sup>1,2</sup> In 1995, the number of people aged 65 years and over with type 2 diabetes in the developed world was 28 million — this is expected to double by 2025.<sup>3</sup> In the UK, it is estimated that between 10% and 25% of older people have diabetes.<sup>4</sup> As healthcare provision shifts from secondary to primary care, type 2 diabetes management continues to be a growing and expected part of the GP's role. In an increasingly ageing population of people with type 2 diabetes, tighter control, including greater use of insulin and combination therapies, may be important in ensuring better outcomes and fewer complications, and may also be helpful in the day-to-day management of diabetes.<sup>5-9</sup>

There is some literature to suggest that in older people insulin may be under-prescribed.<sup>10</sup> In 1999,

**G Agarwal**, MRCGP, CCFP, assistant professor and Canadian Diabetes Association postdoctoral fellow; **L Dolovich**, PharmD, associate professor, Department of Family Medicine, McMaster University, Hamilton, ON, Canada. **S Burns**, BA, research coordinator; **K Nair**, MSc, research coordinator; **M Levine**, MD, associate professor, Centre for Evaluation of Medicines, St Joseph's Hospital, Hamilton, ON, Canada. **J Cosby**, PhD, assistant professor, Department of Health Studies, Brock University, St Catharines, ON, Canada. **J Kaczorowski**, PhD, associate professor, UBC Department of Family Practice, Vancouver, BC, Canada. **C Butler**, MD, MRCGP, professor of primary care medicine, Centre for Health Sciences, Cardiff University School of Medicine, Cardiff, UK.

### Address for correspondence

Dr Gina Agarwal, Department of Family Medicine, McMaster University, 75 Frid Street, Hamilton, ON, L8P 4M3, Canada. E-mail: gina.agarwal@gmail.com

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only 11% of older people with diabetes were prescribed insulin (compared with approximately 40% in either: engaged diet change or taking oral hypoglycaemics).<sup>10</sup> Some specialists believe that GPs fuel patient resistance to insulin,<sup>11</sup> and postpone its use despite high patient plasma-glucose levels,<sup>12</sup> yet little information is known about the GP perspective. This study fills an important gap by exploring the process and rationale for prescribing decisions of GPs regarding insulin when treating older adults with type 2 diabetes.

## METHOD

Qualitative research methods were used. Sampling was purposive and an attempt was made to find physicians that varied in age, type of practice (academic versus non-academic), and sex. In order to focus the search for GPs, potential participants were randomly selected from a list of actively practising GPs within a 1-hour driving radius of a large suburban city in Ontario, Canada (Canadian Medical Directory of Doctors).<sup>13</sup> GPs were randomly sampled from this list, given the large number of physicians in the geographic area of interest. Letters of invitation that outlined study requirements were mailed to eligible doctors; those that expressed an interest in participating were contacted and consented by a research assistant.

An experienced, trained interviewer conducted the in-person interviews using a semi-structured interview guide that focused on eliciting information related to the process used and factors considered when prescribing insulin. The interview guide was modified as interviews proceeded to reflect emerging themes that required further exploration.<sup>14,15</sup> Participant demographic information was also collected. Interviewing continued until no new ideas emerged and theoretical explanations of emerging phenomena were evident.<sup>16</sup> Interviews were recorded and transcribed verbatim.

Data were analysed using a grounded theory approach as the study aim was to understand the process of decision making related to insulin use in older people and the factors that influence this process.<sup>15</sup> Two investigators independently read all transcripts and discussed the findings with the research team, ensuring that emerging themes received adequate opportunity for discussion to allow the developing theory to become saturated.<sup>17</sup> This involved repeated reading of all transcripts during the coding process to ensure that there was both depth and breadth within each theme, and that disconfirming evidence had also been accounted for in the analysis. Investigators validated themes by referring back to the original transcripts. Data collection stopped when

## How this fits in

Insulin therapy is under-prescribed in older people, and some known factors that influence prescribing are GPs' concerns about patient resistance to insulin and potential side-effects. This study has helped to identify that both patient and physician factors have an impact on insulin prescribing, with GPs' intended and actual prescribing varying depending on their assessment of the patients' situation. Under-prescribing of insulin in older people could be improved by more GP education, better specialist-GP communication, and the use of more allied health professionals to provide support networks for patients and GPs.

saturation was reached as denoted by a repetition in information being heard in the interviews.<sup>18</sup> Qualitative software (QSR NUD\*IST, NVivo) was used to assist with data organisation.

## RESULTS

Twenty-one GPs were interviewed for approximately 50 minutes each. Sixteen doctors were male. The median age of participants was 54 years (range 37–74 years) and the median length of time since graduation was 27 years (range 8–46 years). Nine GPs described themselves as being academic practitioners.

Seven main factors influenced insulin prescribing, and each is described in more detail below.

### GPs' beliefs about older people

GPs believed their older patients had many physical concerns, such as eyesight problems and compromise with manual dexterity, that could cause difficulties in insulin administration and self-monitoring. They were also concerned that possible cognitive impairment could affect patients' ability to recall taking medication. They believed older people might react differently to medications in general, compared with older patients, and felt they had a higher risk of developing a hypoglycaemic episode after insulin therapy:

*'Not a whole lot different than treating younger patients except that the special issues that come into play are, I guess, their physical ability to manipulate bottles and needles, their cognitive ability to monitor blood sugars and administer their medications as they should. I guess the other issue is you always kind of have the fear of the frail, old diabetic person who is very sensitive to small changes in insulin, and the risk of causing a hypoglycaemic problem in that person if you treat them the same as maybe a younger robust person.'* (GP, 4)

GPs felt older patients would be less receptive to medication regimen changes, although subsequently

more compliant with new regimens than younger patients. Many GPs described how the challenges of initiating insulin therapy became easier as patients were encouraged by symptom improvement, and as medication-related issues were discussed to improve knowledge.

#### **GPs' beliefs about diabetes and its management**

General beliefs related to diabetes were discussed that reflected experience with managing chronic illnesses. Many GPs felt providing diabetes care caused a high clinical burden and increased the need for greater vigilance. For example, more tests and adherence to strict standards of monitoring added to already time-pressed consultations:

*'The huge thing, which is raising its head already and will in the future, is the enormous burden of people with diabetes. The ever-increasing demand to reach tighter and tighter guidelines, and the limited resources available to help us do that. So in an ideal world we could do more and do it better if we were more available. So in an ideal world you'd be on the phone with someone very regularly, as often as once every 2 or 3 days to do adjustments and get it right. It's not, it's barely realistic now and it will become less and less realistic next year and the year after and the year after.'* (GP, 8)

GPs described diabetes as a disease that required self-management and input or ownership from patients. Empowering patients could be challenging, although very necessary in order to foster testing of blood sugars and improve understanding of why testing is needed. Patient self-management, though key, was difficult to foster:

*'And the bottom line is the disease is difficult to control. It changes with the time of day. It changes with what you eat and what you haven't eaten and whether you exercise or whether you haven't exercised. It changes with the temperature of the day. I mean there are lots of factors that go into monitoring your sugars. It's not, you know, it's not friendly to be wandering around with your diabetic kit, you know in your purse or in your pant pocket. You don't necessarily, you're in church on a Sunday morning you're a bit sweaty and you're light headed and you're dizzy. You're not likely to slip out into the washroom, you're reluctant to go anywhere on your own, you want somebody with you. So even monitoring yourself in situations during the day is problematic.'* (GP, 18)

#### **Gauging the intensiveness of therapy required**

Views varied among participants regarding how aggressively to treat older patients with diabetes. Most doctors felt less stringent control in this age group was acceptable. Many expressed frustration that there seemed to be no definitive evidence upon which to base their actions; therefore, GPs used their own experience and beliefs to inform their actions:

*'I would have a higher threshold for poor sugar control [in more frail older people]. So with younger people I guess I try to get a more tighter sugar control, and with older people I'm less concerned I guess.'* (GP, 10)

*'I just haven't seen any evidence that shows that being really aggressive in elderly [people] makes a difference in how long or how well they live. As soon as I see that, I will get aggressive, but I've never seen anything like UKPDS [UK Prospective Diabetes Study]. If there is something out there, then somebody's got to convince me of it.'* (GP, 2)

Some GPs expressed the view that age alone should not necessarily be a sufficient indicator of physiological characteristics. They felt that there was a distinction between 'young-old' and 'old-old', almost drawing a line between the 65-year to late-70-year-old age group, who appear fitter and healthier, and the over-80-year-old age group who seem to be more frail. However, GPs also recognised that some older people did not fit into these stereotypes about age, and preferred to personalise the care that they offered:

*'I would individualise because each person is so different; different people age differently. There are some who are late into their 80s and early 90s who are quite lively and active and function well. And then there are others who are much younger and that are showing lots of ageing physiologically.'* (GP, 15)

GPs were capable of analysing the contexts within which their patients lived, and trying to assess whether their patients would indeed benefit from insulin, considering everything else:

*'I think if somebody is older and there are a lot of other medical things going on, and you can't sit there and judge for sure how long somebody is going to live. But if they've got a lot of other medical problems, I'm thinking, "well, what's the advantage of introducing insulin, how much more benefit are they going to get in terms of*

tighter control, is it really going to change their life expectancy that much?'. (GP, 12)

'... At 54, 20 years later you know, I'm going to be on dialysis and you're going to be running around the bay. But in seniors, I cut them a lot of slack, their lives are complicated enough, they may be on multiple pills, their vision may not be good. They kind of ... look at me like, you know, "you're just such a kid dearie". Their ... concept of risk is a little different than mine, there are worse ways than just dying or having a heart attack ... You just don't want more paraphernalia and more stuff to do in a day, testing and taking pills. So I kind of understand that for them ...' (GP, 21)

In their 'personalisation of therapy', GPs were aware they were making an assessment of a patient's quality of life and that this would influence their prescribing behaviour. They sought affirmation of their assessments by having ongoing discussions with their patients and checking whether the patients' assessment of their quality of life was similar:

'Do I tend to be as aggressive when it comes to somebody nearing the end of their life? No. I tend not to be aggressive but more the thought that this is a better quality of life. Even though the sugars may not be as good, but that's pretty good because we might extend a life by a month, if that's a big deal, it depends on the person. If they say, "yes, doctor it's a big deal to me" then I'll do whatever they say. But I think at that age, most of the people are looking for quality not the quantity of life and I think we can work on that.' (GP, 19)

### **Need for preparation for insulin therapy**

Participants noted a patient's reaction towards needles as a significant barrier to prescribing insulin. The very words 'needle' or 'injection' carried complex connotations and, sometimes, the suggestion of starting insulin could signify a message of failure in other therapies to the patient, that is, that 'drastic' measures were now needed. GPs were cognisant of the psychological hurdles patients would need to surmount in order to feel more comfortable with commencing insulin treatment, and the need for multiple discussions to lessen the fears their patients had. In this way, GPs sought to 'lay the groundwork' for the experience of going onto insulin to ensure future success:

'... I think it's helpful if it's introduced as just a one-time thing at night to start, and then it's a

gradual stepwise approach, and you don't just throw out what you've done before, and just more see it as adding one more bit ...' (GP, 10)

'So starting patients for example, in office, giving them or giving themselves the first injection and having a demonstrator insulin pen sometimes is one of the, the best ice breakers to get them to understand. "Well gee that was an injection. I hardly felt that. I didn't think that would be such an easy thing to do, to hold that pen you know against my skin. I hardly felt anything go in." Just spending the time to familiarise themselves with what is insulin.' (GP, 18)

Once the decision to start insulin has been made, preparation for therapy seems to be a central factor that leads patients' practitioners to switch from the decision to prescribe to the decision not to prescribe, or vice versa. This preparation for therapy could be done by a variety of people (practice nurse, diabetes educator, or GP), over several visits and in different settings (GP surgery, hospital, or local diabetes education centres).

### **Support with insulin administration for patients from informal or formal healthcare provider**

All participants indicated that patient support (whether from family or health professionals) was important for them and their patients in the decision to commence insulin therapy. The support and presence of family members was essential for an older person to take insulin, whether in a role of overseeing everything totally, or a supportive adjunct to monitor progress independently and to check the process:

'... Because when they're [with somebody], the few patients that I have, there is somebody with them who are watching it so if they are not able to do it, somebody's living with them who does and who handles it quite well, so I haven't run into that, that they're making mistakes ...' (GP, 10)

'One would be interested in what their supports were. Do they live alone? Is there someone coming in and visiting on a regular basis? What role the children played, was there a husband, was there a best friend, etc, someone who they could rely on, that would be important.' (GP, 19)

In some cases, not wanting to put a burden on the family was a deterrent for starting insulin. In situations where the older patient received constant assistance from a caregiver/nurse, it was easier to recommend

insulin, as the GP felt someone reliable would be administering the medications. However, GPs also recognised the burdens on the caregivers too:

*'Again, if their cognitive function is low then you need definitely some caregiver to do that. And I think it's more of a burden on the caregiver as she is doing so many things. Now on top of that if she has to give the insulin as well, then we make sure she does more sugar levels, which means it's more of a burden on her, and the caregiver has to have one more job to do this day ...'* (GP, 13)

However, in some cases in which the care received by an older resident at a nursing home was not adequate, a GP would simplify the treatment:

*'I've been burned once by an elderly lady who lives in a very third-rate retirement home. She's in her 90s and she's probably smarter than most of the care attendants that take care of her. And she's had some episodes where her sugars went way, way up, over 30 and that makes me worry about this kind of 'let it be' philosophy I have about sugars in seniors because she was pretty sick. I can't remember, I think it was the UTI [urinary tract infection] that kind of put her over the edge. So I may not be doing them any favours in terms of some degree of reasonable control to keep them from going from 5 to 30 with intercurrent infections but it's a real struggle. And the retirement home does not feed her the proper food for [a] diabetic diet. The staff really don't know how to do things around her glucometer. So I guess it comes back to living circumstances. I also think I feel a little insecure about prescribing.'* (GP, 21)

GPs also relied on specialists or clinics to reinforce the need for insulin, and on nurses to assist with teaching and monitoring. The assistance provided helped the GP overcome the initial barriers to starting insulin, and provided valuable time and input where he or she was burdened due to other practice pressures:

*'Oh I'm lucky, I'm very lucky because I have a diabetic nurse who comes in on Saturdays and brings in all the pens and things and sits them down, and explains it to patients, gives them a sample and says, "this is what you do".'* (GP, 19)

#### **Frustration with management complexity**

Some participants expressed a frustration towards the multiplicity of factors related to the prescribing, monitoring, and use of insulin, the complexity of the

treatment regimens, and the work implications of needing to start a patient on insulin. They felt many patients did not adequately understand the long-term ramifications of diabetes and how important insulin therapy could potentially be. For some GPs, these feelings were 'countered' by access to a good support system:

*'Well frustration is one of them. You know you're trying to impress upon them [patients] this is important to their health, and for one reason or another you know, they're not getting it.'* (GP, 11)

The addition of another layer of treatment such as insulin, which would make treatment even more complex, was challenging, and added further difficulties around administration, monitoring, dosing, and possibilities of mistakes and side-effects, which were hard to face knowingly. This sentiment seems to be able to influence the decision to actually prescribe insulin or not, despite the assessment of a patient's need for it.

#### **GPs' experience with insulin administration**

Within this group, most GPs had little experience of treating older patients with insulin. This lack of experience made some apprehensive about initiating it. Many used a referral to a local diabetes clinic to support their decision to commence insulin:

*'Personally, obviously as a GP I don't have the experience starting insulin as much as the specialists so I'm at much greater comfort with the pills. So sometimes you know what's right and then there's the little personal feeling that you have to make that step even though there's a little bit of a reluctance because of familiarity. I'm getting better at it.'* (GP, 4)

*'Well I think it's scary for them [patients], it's scary for me ... now the doctor is suggesting bringing out the big guns, the insulin as opposed to tablets. They don't see tablets as being a big threat. Certainly bringing out needles almost means, "well, gee, we're at the end of a rope here". It creates more fear with me because now I have to be very careful in making sure that they know how to do it.'* (GP, 7)

Conversely, GPs also described situations where their own experience or knowledge of particular nursing homes or less-than-ideal care situations, hindered them from considering insulin treatment as a viable option. Thus, the presence of support is a factor that can facilitate GPs in starting insulin, helping them to action this decision.

### **Variability in doctors' approach**

An overall observation was also made that there was a mismatch between what GPs considered ideal practice and what they themselves were able to offer in their individual settings. Some reasons for this mismatch between intent and behaviour included the GP's assessment that the quality of life of the individual patient needed to be considered; a sense that a more cautious approach was needed in real life; and a belief that less-tight control is acceptable when treating real-life older patients in reality. This highlights the likely unconscious beliefs that influence how treatment prescribing occurs in practice:

*'I mean I treat them [older people with diabetes] pretty much as vigorously as I treat somebody who is younger ... And I don't think that I see that any different. I don't think age is a problem ... [later on] ... If somebody who is 92 and diabetic, how keen am I going to be on putting them on insulin therapy? Obviously it's not going to be as much as somebody who is 35 and diabetic ... or a teenager and a diabetic.'* (GP, 9)

## **DISCUSSION**

### **Summary of main findings**

This study demonstrates a wide range of factors that influence GPs' prescribing of insulin for older people. Personal beliefs and appraisals of the older population, diabetes, and the intensiveness of insulin therapy influence GPs' decision making. Once the initial decision has been made to commence insulin, GPs will be further influenced in their decision to proceed by the level of available support from the patient's family or from professionals. GPs identified the importance of thoroughly preparing their patients for the decision to start insulin before initiating insulin therapy in this age group.

### **Strengths and limitations of the study**

The study utilised many steps to ensure rigour in its design. The cleaning of transcripts for accuracy, involving multiple investigators in the coding and analysis, and refining the interview guide to capture emerging themes helped to facilitate the saturation of themes. Despite these strengths, however, it is acknowledged that this sample of 21 GPs did not allow for in-depth comparison of different types of GPs (for example, rural versus urban, solo versus group practice). In addition, although GPs were screened prior to the interview to make certain that they did have seniors with diabetes in their practice, very few had actually initiated the use of insulin; it is recognised that this may not be reflective of practices at large. However, this was reflective of the sample that was

interviewed, as purposive samples were used that included GPs with older patients, and this indicates the state of experience in the study area.

### **Comparison with existing literature**

Previous research has also found that doctors' belief systems affect how they prescribe.<sup>19</sup> However, what specialists may have previously felt to be a dangerous 'postponement'<sup>19</sup> could, in fact, be part of a necessary and lengthy preparation process with the patient. GPs were careful to discuss issues that may affect quality of life (for example, patient fear), and also revisited these issues in subsequent consultations.

The finding that GPs may not have a standard approach for all older patients with diabetes may also be explained by their ability to gauge a situation based on intimate knowledge of their patients' background and personality. This reflects the process of individualising therapy, rather than a consistent 'disconnect' between stated and actual behaviour. For example, GPs develop a threshold for the maximum number of medications they are willing to prescribe to a patient, but this number will vary among their patients.<sup>17</sup>

### **Implications for future research and clinical practice**

This study offers useful insights regarding factors that influence insulin prescribing in older people in the primary care setting. In a scenario of ever-increasing numbers of older people with type 2 diabetes, GP prescribing of insulin would benefit from further support and intervention. Future research that purposefully seeks out GPs with experience of prescribing and monitoring insulin, as well as those that have deferred this route, would contribute to the literature.

Next steps could include GP-targeted education modules to clarify the evidence for use of insulin in older people, and focused on better communication between specialists and GPs. A trial testing different modes of education could help to inform how best to improve GP confidence in insulin prescribing. If left unaddressed, the under-prescribing of insulin due to the subconscious beliefs of GPs could increase the numbers of older people with poorly controlled type 2 diabetes.

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Hamilton Health Sciences Ethics Review Board (approval number 04-166)

**Competing interests**

The authors have stated that there are none

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