Published in final edited form as:
Med Care. 2010 April ; 48(4): 321–326.

DIFFERENCES IN THE DIAGNOSIS AND MANAGEMENT OF TYPE 2 DIABETES IN THREE COUNTRIES (US, UK AND GERMANY): RESULTS FROM A FACTORIAL EXPERIMENT

Olaf von dem Knesebeck, PhD[1,*], **Eric Gerstenberger**[2], **Carol Link, PhD**[2], **Lisa Marceau, MPH**[2], **Martin Roland, MD**[3], **Stephen Campbell, PhD**[4], **Johannes Siegrist, PhD**[5], **Werner de Cruppé, MD**[6], and **John McKinlay, PhD**[2]

[1]Department of Medical Sociology, University Medical Center Hamburg-Eppendorf, Germany

[2]New England Research Institutes, Watertown, USA

[3]Institute of Public Health, University of Cambridge, UK

[4]National Primary Care Research and Development Centre, University of Manchester, UK

[5]Department of Medical Sociology, Heinrich-Heine-University, Duesseldorf, Germany

[6]Department of Health Services Research, University Witten-Herdecke, Germany

Abstract

Objectives—This paper examines the diagnosis and management of type-2 diabetes when exactly the same "patient" is encountered by 192 randomly selected primary care doctors in three different health care systems - the US, UK and Germany.

Methods—We conducted a factorial experiment, employing two clinically authentic filmed scenarios, to examine country differences in the treatment of diabetes, while controlling for the effects of selected characteristics of patients and physicians. The "patient" in the first scenario presented with (undiagnosed) signs and symptoms strongly suggestive of diabetes, while the second scenario presented an already diagnosed "patient" with an emerging foot neuropathy. Physicians were asked how they would diagnose and manage the "patients" after watching the video vignettes using a questionnaire with standardised and open-ended questions.

Results—Regarding the first (undiagnosed) case, US doctors would ask significantly more questions than physicians from the UK and Germany ($p<.001$). German physicians would give less advice but would want to see the patient again much sooner ($p<.001$). Regarding the diagnosed case with an emerging foot neuropathy, US physicians would be most active in terms of questioning, testing, prescribing and advice giving. Again, physicians from Germany would be less active in terms of therapeutic strategies but they would like to see the patient again sooner ($p=.005$).

Conclusions—Although physicians in the three countries encountered exactly the same "patient", differences in diagnostic and management decisions were evident. The experimental design provides unconfounded estimates of health system differences while simultaneously controlling for the effects of selected patient attributes and physician characteristics.

[*]Corresponding author: Martinistr. 52, D-20246 Hamburg, Germany, Tel 0049 40 7410 57849, Fax 0049 40 7410 54934, o.knesebeck@uke.uni-hamburg.de.

This study was supported by the National Institute on Diabetes, Digestive, and Kidney Diseases, National Institutes of Health (DK 66425).

Keywords

International differences in health care; clinical decision making; undiagnosed diabetes; emerging foot neuropathy

Introduction

International differences in mortality and morbidity rates have been extensively reported. Such differences are typically attributed to either genetic variations between different population groups or country and cultural differences in life styles or risk behaviours associated with many diseases. Recent reports of between-country variations in healthcare suggest another explanation: international variations in mortality and morbidity rates may in part reflect international differences in the diagnosis and management of disease.[1,2] International differences in health care may result from several influences: first, there may be organizational differences (the way in which health care is financed and reimbursed in different countries); second, there may be national differences in provider behaviour (perhaps reflecting differences in cultural background or medical education); third, there may also be differences in patient behaviour (e.g., help seeking and compliance with treatment regimens).

This paper examines international differences in the diagnosis and management of type 2 diabetes. We focus on three countries, each of which has a different approach to the organisation and financing of health care: the largely private insurance-based health care system in the United States (US), the National Health Service government-supported, tax-based system in the United Kingdom (UK), and a system characterized by decentralized care administered by social security agencies (Germany). Almost all of the initial diagnosis and clinical management of diabetes in these three countries is undertaken by primary care providers. The overall aim of our study is to simultaneously measure the effect of country (the health care system), patient attributes, and physician characteristics on the diagnosis and management of diabetes mellitus by primary care doctors in the three countries. We are principally concerned with any such differences between the three countries, after controlling for selected patient attributes and characteristics of providers which have been shown also to influence physician behaviour.[3,4]

Methods

Study design

We employed a complete factorial experimental design (with clinically authentic filmed vignettes) to estimate the unconfounded influence of physician characteristics (gender and years of clinical experience), patient attributes (age, gender, race/ethnicity, socio-economic status) and the effect of the country (US, UK and Germany) on medical decision making when providers encounter “patients” that have identical signs and symptoms strongly suggestive of either undiagnosed diabetes or already diagnosed diabetes but with emerging neuropathic complications (both common medical situations for primary care providers). Professional actors played the role of patients in the two clinical scenarios. In the first scenario a “patient” presented clear signs and symptoms suggesting diabetes, including feeling sluggish with increased fatigue, weight loss greater than three months without diet or increased exercise, increased thirst, and frequent urination, particularly at night. In the second scenario (an already diagnosed case) the “patient” displayed symptoms suggestive of an emerging foot neuropathy, reporting “burning in the feet which sometimes goes up the ankle” and also that the burning sensation was not constant but that it “comes and goes”. Patients in both vignettes were moderately overweight. Both vignettes were developed with

the input of experienced clinicians from each country. Since they advised the study team that real patients seldom present as pure “text-book cases” several minor distractions were embedded in the presentations to increase the clinical authenticity of the clinical scenario. Each filmed encounter simulated an interview with a primary care doctor and was 5-7 minutes in duration, reflecting the average length of a consultation with a primary care physician (not including a physical exam).

The signs and symptoms for each scenario were embedded in a script which was used for filming. The actors portraying American patients had American accents, while the very same patients in the UK had English accents. For the German part of the study the scripts were translated into German and then back into English to identify discrepancies between original and back-translation. This forward-backward process was repeated until satisfactory agreement was attained. To ensure clinical accuracy and comparability with the other two countries the speaker was asked to adhere to the translated script, instead of giving priority to synchrony. Care was taken to construct a culturally neutral medical practice setting for the filming.

The vignettes were presented to primary care physicians in their own practices on DVD. While the actor/patients all presented with exactly the same signs and symptoms, they differed by age (35 vs. 65 years), gender (male vs. female) and socio-economic status (low vs. high, depicted by their current/former occupation as a janitor/cleaner or lawyer). In addition, race/ethnicity was varied in the US (black vs. white vs. Hispanic) and race was varied in the UK (black vs. white). As black patients in Germany are very rare, only white patients were included in the German component of the study. One video of each of the clinical scenarios was presented in series to each physician. Thus, starting with the vignette of the undiagnosed case, all physicians watched two videos.

Questionnaire

Immediately after viewing each vignette, the physicians were asked a range of questions concerning diagnosis and clinical management, using a questionnaire with both standardised and open-ended questions. This interview included questions concerning their most likely diagnosis (for the undiagnosed case), test ordering, prescriptions, lifestyle recommendations, and what other information they might seek. In terms of information seeking behaviour, the question was whether the physicians would ask the patient any additional questions (yes/no) and if so, what kind of question(s) they would ask (open ended). In terms of diagnostic decision making, physicians were asked what they thought was going on with the patient (open ended). Moreover, physicians were asked whether they would conduct an examination (yes/no) and whether they would order any tests for this patient (yes/no). Additionally they were asked to name the tests they would order and to describe the examination (with given answer categories). In terms of therapy, we wanted to know if physicians would prescribe or recommend any medication (yes/no), if they would refer the patient to another health care professional (yes/no) and when they would like to see the patient again (in days). Finally, physicians were asked if they would recommend any lifestyle advice or behaviour change (yes/no) and if so, what kind of advice they would give (open ended). For the open-ended questions, coding frames were developed and answers were summarised into categories.

Physician samples

The study was conducted in the US (New Jersey, New York and Pennsylvania), in the UK (Primary Care Trusts within 75 miles of Manchester) and in Germany (North Rhine-Westphalia). Eligible physicians were randomly selected from lists provided by local health care organizations. Selection was made within four strata, defined by combinations of the physicians’ gender and length of clinical experience. In order to preserve orthogonality and

to obtain clear separation by level of experience physicians were selected with either less than 12 years or more than 22 years clinical experience. Physicians had to be internists, family practitioners, or general practitioners in the US and Germany, or general practitioners in the UK. For a clear separation by country they had to have been trained at a medical school in their respective countries.

Unlike the majority of studies that address clinical decision making, the study reported here is experimental. Thus, generalizability of findings primarily arises from the design of the experiment: the extent to which the physician subjects represent relevant groups of physicians; and the clinical authenticity of the clinical encounter – the experimental intervention. The physicians were selected to represent the categories described above. The clinical encounters were carefully developed to ensure clinical authenticity, with oversight by physicians with extensive relevant clinical experience, focus group feedback from physicians not involved in the study and assessments of typicality by physician subjects in the experiment. The total number of physicians (experimental subjects) in the experiment determines the magnitude of the primary experimental effect(s) that could be detected. Analyses presented here are restricted to white patients for comparison purposes, resulting in a sample size of N=192 (n=64 in each country). For the main effects, the sample gave 80 percent power to detect an absolute difference in means of 20.4 percent for two groups, and an absolute difference of 24 percent for three groups (5% significance level, two tailed test). The response rates were 78% in Germany, 12.6% in the UK and 14.8% in the US.

Selected physicians were sent a letter of invitation. Thereafter, these physicians were screened by phone so that eligible doctors could be identified. An appointment was then scheduled for a one hour semi-structured in-person interview at the physicians' practice. Data were collected between 2005 and 2007. Participating physicians received a modest financial acknowledgement. Informed consent was signed by all participating physicians. This study was approved by formal relevant ethics procedures in each country: The consent form was approved by the New England Research Institutes' Institutional Review Board and conformed to requirements of German ethics committees, and in the UK the study was approved by the North West Research Ethics Committees. The overall study was approved by the New England Research Institutes Institutional Review Board.

Statistical methods

Analysis of variance was used to assess the country effect on physicians' diagnostic and therapeutic decisions. Given the balanced factorial design, the main effect due to country is orthogonal to (independent of) the main effects due to physician and patient factors. Tukey's studentized range multiple comparisons were performed to determine which countries were different if the overall test statistic for country was significant. Precise p-values are reported in the tables. $P \leq .05$ was considered to be an indication that the differences noted were statistically significant.

Results

The Patient with Signs and Symptoms Suggesting Diabetes Mellitus

Table 1 summarises major differences between primary care physicians in the US, the UK and in Germany in their strategies with respect to the case of (undiagnosed) signs and symptoms of type 2 diabetes. After the physicians saw the filmed vignettes of the patient we asked if they would ask the patient any additional questions. The average total number of questions is highest in the US (6.6) ($p<.001$), followed by the UK and Germany (4.6 both). Correspondingly, there are several significant differences in the topics that would be raised

by doctors. US physicians would be the more likely to ask about medical and family history (p=.010), smoking behaviour (p=.010), and about psychosocial problems (p=.001).

Although all physicians encountered exactly the same patient on the video vignette, there are country differences in the percentage of medical practitioners who mentioned diabetes as a possible diagnosis. Table 1 shows that 86% of the UK, 61% of the German and 48% of the US physicians mentioned diabetes when asked what they thought was the most likely condition. The UK significantly differs from the other two countries in this regard (p<.001). 14 to 36 % of the physicians would do a fasting glucose test; with UK physicians more likely to do this test than US physicians (p=.029). In addition, there are significant country differences in terms of ordering a casual glucose, fasting lipids and casual lipids test (p<. 001).

Results concerning specific clinical actions are summarized in Table 2. Compared to Germany and the UK, more US physicians would prescribe some type of medication for the patient in the vignette (p<.001). Primary care physicians in the US (2.6 pieces) and the UK (1.9 pieces) do not differ in the average number of pieces of advice, but the German physicians would give significantly less advice (1.2 pieces) (p<.001). Country differences can additionally be found in the kind of advice that was given. The recommendation to change exercise habits would be given by 72% of the US physicians, while the comparable rate in Germany and the UK is about one-third to one-half the rate in the US (p<.001). Significant differences are also evident for nutrition and dietary advice (US 77% vs. UK 48% vs. Germany 28%, p<.001). Only 6% of the German physicians would offer advice about smoking, while 1/4 to 1/3 of the US and UK physicians would offer such advice (p<. 001). In terms of referrals there are no significant country differences. However, German physicians would like to see the patient again much sooner (3.7 days) than British (10.9 days) or American physicians (15.7 days) (p<.001).

The Diagnosed Case With An Emerging Foot Neuropathy

Table 3 shows the results of the country differences in strategies when presented with a case of diagnosed diabetes with an emerging foot neuropathy. US physicians would ask more questions than their UK and German counterparts (as in the case of undiagnosed diabetes) (p<.001). There are several significant differences regarding topics raised between the three countries. Compared to the UK and Germany more US physicians would ask about previous neuropathy and adherence with diet, or about nutrition (p<.009). In terms of questions about smoking, US and UK physicians do not differ significantly, however these questions would be asked by significantly fewer German physicians (p=.001). 92 to 95% of the physicians would do some type of foot examination (no significant country differences). Clinical experts identify three essential components of a foot examination for diabetes: a monofilament/vibration test for loss of sensation, a check of foot pulses for peripheral vascular disease, and a skin check for ulcers.[5,6] Concerning these three components, there are significant country differences, especially between the US and the other two countries (p<.05). Although the case presented includes a patient-reported HbA_{1c} level 6.9, 77% of the US physicians would repeat the HbA_{1c} test, far more than in the two other countries (p<. 001). The US physicians are significantly more likely to request a fasting lipids test (p<. 001).

Table 4 shows that no UK or German physicians would prescribe antidiabetic agents after having seen the second clinical scenario, while 28 % of the US physicians would do so (p<. 001). Significantly more patient advice would be given in the US than in Germany (p=.003), and there are country differences in the kind of advice that would be given. These differences are significant in terms of recommendations to do foot self examinations, change exercise habits, increase compliance with medications and stop smoking. Moreover, a lower

proportion of German than of UK and US physicians would refer the patient to a podiatrist or a chiropodist (p<.001). Referrals to an ophthalmologist are significantly less frequent in the UK than in the US (p=.005). Although the time to the next appointment does not significantly vary between the US (38.0 days) and the UK (34.2 days), German physicians would like to see the patient again significantly sooner (20.1 days), p=.005, as they would for the undiagnosed case.

Discussion

This paper examines differences in diagnostic and clinical management decisions with respect to type 2 diabetes in three countries (US, UK and Germany). We conducted a factorial experiment using clinically authentic vignettes depicting "patients" presenting symptoms suggestive of either (undiagnosed) diabetes, or already diagnosed diabetes with neuropathic complications. This design has been used successfully in previous studies to estimate the effects of non-medical factors on clinical decision making.[1-3,7-10] Even though the study subjects (physicians) viewed exactly the same cases (all patients presented identical signs and symptoms) we found significant differences between the three countries. Regarding the undiagnosed case, US doctors appear more active in terms of information seeking behaviour (additional questioning). In contrast, German physicians would give less advice, but would like to see the patient again much sooner. Regarding the diagnosed case with an emerging foot neuropathy, US primary care physicians would be the most active in terms of questioning, testing, prescribing and advice giving. Again, physicians from Germany would be less active in terms of therapeutic actions, but they would want to see the patient again much sooner.

Some methodological limitations should be considered when interpreting our findings. Since filmed patients were used in the study, physicians may behave differently under experimental conditions compared with real patients. To address this issue several steps were taken to enhance the external validity of the study design and to increase the clinical realism of the vignettes. To ensure the clinical authenticity of the filmed presentations, the scripts were co-written with and verified by experienced clinicians from each country. Experienced clinicians were also present at the filming and only professional actors were engaged. At the beginning of each interview during the fieldwork physicians were specifically asked how typical the patient on the video vignette was, compared to patients they encounter in everyday practice. 94% of the analysed US physicians considered the undiagnosed case either very typical or reasonably typical, in the diagnosed case this rate was 81%. Respective figures for the UK were 86% (undiagnosed), 69% (diagnosed) and 86% (undiagnosed), 88% (diagnosed) for Germany. Additionally, all physicians viewed the vignettes in the context of their own practice during normal practice hours so that it was likely they encountered real patients before and after they participated in the study. Prior to the interview, all physicians were instructed to respond as if the patient was one of their own patients. Patient management decisions result from the interaction between a physician and patient and are informed by results from a clinical examination. Consideration of these issues is precluded in an experiment using filmed vignettes and is an additional limitation of the method used here. Furthermore, while physicians were asked to respond and behave as they would do normally they may have viewed the interview as a test situation producing answers that are socially acceptable. However, there is no reason to believe that any bias would not be the same in each country. Finally low response rates in the US (about 15%) and in the UK (about 13%) may influence generalizability, whereas response rate in Germany was comparatively high (75%). These rates do not vary according to physicians' gender and experience in Germany and the US (not shown in detail). In the UK, response rates are significantly lower among female and more experienced physicians. Although non-response is considered a limitation, this study is an experiment and generalizability arises

from the extent to which the physician subjects represent relevant groups of physicians (these are consistent with higher levels of dissatisfaction in the US and UK than in Germany) and the clinical authenticity of the clinical encounter.

The methodology used in the study also has strengths and added value over previous research. The factorial experiment allows the estimation of independent and un-confounded country differences in clinical decision making while simultaneously controlling for different types of patient (age, gender, social status, and race) and provider influences (gender and length of clinical experience). Although there are many more physician attributes and patient characteristics that could be considered, those included have been shown to affect the decision making process.[3,4] In addition, the experimental approach with filmed patient vignettes offers the possibility to integrate non-verbal signs (the patients in both vignettes were moderately overweight).

While there are international studies on needs, complications and mortality in patients with diabetes,[11-13] little is known about country differences in the diagnosis and management of type 2 diabetes by primary care physicians. Cross-national studies are required to understand whether health care variations between different national systems may contribute to reported country differences in rates of mortality and morbidity.

In our study physicians were asked how much time was allocated for a patient consultation (e.g., for a routine patient consultation): US primary care physicians are allocated on average 17 minutes and German physicians are allocated 9.5 minutes whereas the average primary care consultation in the UK is 10 minutes. US physicians have the most time allocated for patient consultations compared with UK and especially with German physicians. Given these country differences in consultation time, it is surprising that the US physicians didn't consider the video vignettes less typical than the German and UK physicians (see above) although the videos were the same length in all cases. At the same time, German physicians would like to see the patient again much sooner. Physicians in Germany seem to have a smaller time allocation for a single consultation while they would see the patients in smaller intervals. These different time restrictions are likely to be associated with differing structures of health care financing and reimbursement and might cause varying treatment strategies. Thus, characteristics of the health care system in each country may be one explanation for the observed country differences in health care with respect to the management of patients with type 2 diabetes.

Acknowledgments

This study was supported by the National Institute on Diabetes, Digestive, and Kidney Diseases, National Institutes of Health (DK 66425). We acknowledge important contributions to this study by John D. Stoeckle, MD and James B. Meigs, MD (Massachusetts General Hospital, Harvard Medical School), Edward Horton, MD (Joslin Diabetes Center, Harvard Medical School), Professor Werner A. Scherbaum, MD, PhD (Department for Endocrinology, Diabetes and Rheumatology, University Hospital Duesseldorf), Professor Max Geraedts, MD (Department of Health Services Research, University Witten-Herdecke, Germany)

References

1. McKinlay JB, Link C, Marceau L, et al. How do doctors in different countries manage the same patient? Results of a factorial experiment. Health Serv Res. 2006; 41:2182–201. [PubMed: 17116115]

2. Knesebeck, Ovd; Bönte, M.; Siegrist, J., et al. Country differences in the diagnosis and management of coronary heart disease – a comparison between the US, the UK and Germany. BMC Health Serv Res. 2008; 8:198. [PubMed: 18823556]

3. Burns RB, Freund KM, Moskowitz MA, et al. Physician characteristics: do they influence the evaluation and treatment of breast cancer in older women? Am J Med. 1997; 103:263–9. [PubMed: 9382117]
4. Arber S, McKinlay JB, Adams A, et al. Patient characteristics and inequalities in doctors' diagnostic and management strategies relating to CHD: a video-simulation experiment. Soc Sci Med. 2006; 62:103–15. [PubMed: 16002197]
5. American Diabetes Association. Preventive foot care in people with diabetes. Diabetes Care. 2003; 26:S78–9. [PubMed: 12502623]
6. Rydén L, Standl E, Bartnik M, et al. Guidelines on diabetes, pre-diabetes, and cardiovascular diseases: executive summary. The Task Force on Diabetes and Cardiovascular Diseases of the European Society of Cardiology (ESC) and of the European Association for the Study of Diabetes (EASD). Eur Heart J. 2007; 28:88–136. [PubMed: 17220161]
7. Feldman HA, Freund KM, Burns RB, et al. Nonmedical influences on medical decision making: an experimental technique using videotapes, factorial design, and survey sampling. Health Serv Res. 1997; 32:343–66. [PubMed: 9240285]
8. McKinlay JB, Potter DA, Feldman HA. Non-medical influences on medical decision making. Soc Sci Med. 1996; 42:769–76. [PubMed: 8685745]
9. Peabody JW, Luck J, Glassman P, et al. Comparison of vignettes, standardized patients, and chart abstraction: a prospective validation study of 3 methods for measuring quality. JAMA. 2000; 283:1715–22. [PubMed: 10755498]
10. Veloski J, Tai S, Evans AS, et al. Clinical vignette-based surveys: a tool for assessing physician practice variation. Am J Med Qual. 2005; 20:151–7. [PubMed: 15951521]
11. The LEA Study Group. Comparing the incidence of lower extremity amputations across the world: the Lower Extremity Amputation Study. Diab Med. 1995; 12:14–8.
12. Wang SL, Head J, Stevens L, et al. Excess mortality and its relation to hypertension and proteinuria in diabetic patients. The World Health Organisation multinational study of vascular disease in diabetes. Diabetes Care. 1996; 1996; 19:304–12.
13. Rubin RR, Peyrot M, Siminerio LM. on behalf of the international DAWN advisory panel. Health care and patient-reported outcomes. Results of the cross-national Diabetes Attitudes, Wishes and Needs (DAWN) study. Diabetes Care. 2006; 29:1249–55. [PubMed: 16732004]

Table 1

Diagnostic strategies of primary care physicians in a case of undiagnosed type 2 diabetes by country

Strategy	p country	Countries			
		Germany	UK	US	Tukey's Multiple Comparisons
Number of questions (means)	<.001	4.6	4.6	6.6	US > UK = Germany
Questions about (%)					
• Medical history	.010	45	36	63	US = Ger; Ger = UK; US > UK
• Family history	.003	47	59	78	US = UK; UK = Ger; US > Ger
• Psychosocial problems	.001	45	25	58	US = Ger; Ger = UK; US > UK
• Smoking	.010	27	27	48	US > UK = Ger
Diabetes diagnosis (%)	<.001	61	86	48	UK > Ger = US
Testing (%)					
• Fasting glucose	.029	25	36	14	UK = Ger; Ger = US; UK > US
• Casual glucose [a]	<.001	56	44	11	US < Ger = UK
• Fasting lipids	<.001	6	19	39	US > UK = Ger
• Casual lipids [b]	<.001	52	19	6	Ger > US = UK

[a] If the physician ordered a fasting glucose, then casual glucose is coded as "no".

[b] If the physician ordered a fasting lipid test, then casual lipids is coded as "no".

Table 2

Therapy decisions in a case of undiagnosed type 2 diabetes by country

	p country	Countries			
		Germany	UK	US	Tukey's Multiple Comparisons
Prescription of any medication (%)	<.001	5	2	20	US > Germany = UK
Number of pieces of advice (means)	<.001	1.2	1.9	2.6	US = UK > Germany
Advice about (%)					
• Exercise	<.001	22	38	72	US > UK = Germany
• Nutrition/diet	<.001	28	48	77	US > UK > Germany
• Smoking	<.001	6	34	23	US = UK > Germany
Any referral (%)	.052	8	22	11	US = UK = Germany
Time to next appointment (days)	<.001	3.7	10.9	15.7	US > UK > Germany

Table 3

Diagnostic strategies of primary care physicians in a case of diagnosed type 2 diabetes with emerging neuropathy by country

	p country	Countries			Tukey's Multiple Comparisons
		Germany	UK	US	
Number of questions (means)	<.001	3.3	3.8	5.7	US > UK = Germany
Questions about (%)					
• Previous neuropathy	<.001	2	9	25	US > UK = Germany
• Problems with footwear	.183	2	6	9	US = UK = Germany
• Adherence with diet/nutrition	<.001	25	13	48	US > Germany = UK
• Smoking	.009	9	30	27	UK = US > Germany
Foot examinations (%)					
• Any foot examination	.779	94	92	95	US = UK = Germany
• Check for ulcers	<.001	25	6	48	US > Germany > UK
• Vibration/monofilament test	<.001	72	39	64	Germany = US > UK
• Foot pulses	.040	53	67	73	US = UK; UK = Germany; US > Germany
Testing (%)					
• Fasting glucose/HbA_{1c}	<.001	19	14	77	US > Germany = UK
• Casual glucose [a]	.050	13	8	2	Germany = UK; UK = US; Germany > US
• Fasting lipids					
• Casual lipids [b]	<.001	0	25	61	US > UK > Germany
	.316	14	8	6	Germany = UK = US

[a] If the physician ordered a fasting glucose or HbA_{1C}, then casual glucose is coded as "no".

[b] If the physician ordered a fasting lipid test, then casual lipids is coded as "no".

Med Care. Author manuscript; available in PMC 2013 June 14.

Table 4

Therapy decisions in a case of diagnosed type 2 diabetes with emerging neuropathy by country

	p country	Countries			Tukey's Multiple Comparisons
		Germany	UK	US	
Prescription of antidiabetic agents (%)	<.001	0	0	28	US > Germany = UK
Number of pieces of advice (means)	.003	2.3	2.8	3.4	US = UK; UK = Germany; US > Germany
Advice about (%)					
• Foot self examinations	.024	11	16	28	US = UK; UK = Germany; US > Germany
• Exercise					
• Increase compliance with medications	.013	52	53	73	US > UK = Germany
• Nutrition/diet	.017	23	33	45	US = UK; UK = Germany; US > Germany
• Smoking					
	.068	48	50	67	US = UK = Germany
	.001	9	36	23	UK = US; US = Germany; UK> Germany
Referral (%)					
• Podiatrist/chiropodist	<.001	2	27	27	US = UK > Germany
• Ophthalmologist	.005	20	8	31	US = Germany; Germany = UK; US > UK
Time to next appointment (days)	.005	20.1	34.2	38.0	US = UK > Germany