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## Appendix 1

**Table: Translation of previous findings in the health educational program**

<b>Behavioral determinants</b>	<b>Findings from the focus group and questionnaire study and literature review</b>	<b>Translated into intervention</b>	<b>Items in the questionnaire</b>	<b>Number in baseline questionnaire</b>
<b>Knowledge</b>	Patients lack knowledge about risks	The PIL was discussed during the meetings and a website and newsletter was developed.	Increased risk UTI	48
	Patients lack knowledge about risk factors		Increased risk LRTI	41
	Patients lack knowledge about symptoms		Increased risk complicated UTI	50
		Care providers discussed symptoms of infections with the patients.	Increased risk complicated LRTI	43
			Not always fever in UTI	49
			Coughing/fever in LRTI	42
<b>Perceived severity</b>	Patients do not perceive infections as dangerous	During the meetings a video of a DM2 patient's experiences with infections was discussed.  Care providers discussed risks of infections with the patients.	Cystitis is dangerous	51
			Bronchitis is dangerous	44
<b>Perceived susceptibility</b>	Patients underestimate their risk of infections	During the meetings examples were used to assess a person's risks and those of others.  Care providers discussed risks of infections with the patients.	Increased risk infections	30
			Increased risk complications	31
<b>Perceived benefits</b>	Patients are not sure that medical attention would benefit them	Statements that aimed at demolishing perceived benefits and barriers were discussed during the meetings and solutions were offered.	Feeling secure contacting the GP	37
<b>Perceived barriers</b>	Fear of insulin therapy		Not afraid of insulin therapy	38
	Feeling like a whiner		Not feeling like a whiner UTI	52
			Not feeling like a whiner LRTI	45
<b>Social support</b>	Partner is important	Patients were asked to show the PIL to partners and partners were also invited to take part in GP visits.	Support from partner	39

<b>Self-efficacy</b>	Patients are less confident to contact the GP if they experience symptoms of infections in the following circumstances: <ul style="list-style-type: none"> <li>- Dial-direct system</li> <li>- Telephonic consultation</li> <li>- Practice far away</li> <li>- Practice difficult to reach</li> <li>- Wait and see receptionist</li> <li>- Not being at home</li> <li>- In the weekend</li> <li>- Being busy</li> <li>- No transport</li> </ul>	During the meetings a video of a DM2 patient's experiences with infections was discussed.  Patients were rewarded in the sense of being praised for good behavior when they consulted the GP because of symptoms of an infection	Confident symptoms UTI Confident symptoms LRTI Confident if: <ul style="list-style-type: none"> <li>- Dial-direct system</li> <li>- Telephonic consultation</li> <li>- Practice far away</li> <li>- Practice difficult to reach</li> <li>- Wait and see receptionist</li> <li>- Not being at home</li> <li>- In the weekend</li> <li>- Being busy</li> <li>- No transport</li> </ul>	53 46 40
<b>Need for information</b>	Patients report that they need more information	The PIL was discussed during the meetings and a website and newsletter was developed.	Knowledge about symptoms Need more information	35 36
<b>Intention</b>	About three quarters of all patients intend to contact the GP if they experience symptoms of a LRTI		Seeking medical attention UTI Seeking medical attention LRTI	54 47

Abbreviations: PIL, patient information leaflet; GP, general practitioner; DM2, type 2 diabetes mellitus; UTI, urinary tract infection; LRTI, lower respiratory tract infection

## Appendix 2

## **Recruitment letter**

**General practitioner**  
Telephone: 0-  
Address:  
Area code/City:

**Date**  
September 3, 2007

**Re.:** DELPHI trial

**Subject**  
Invitation to participate in Diabetes Fund project (DELPHI trial type 2 diabetes)

Dear Sir, Madam,

I would like to invite you to participate in the DELPHI trial because you have diabetes type 2. This research will focus on the study of urinary tract and respiratory tract infections in diabetes Type 2 patients. The aim is to prevent these infections from becoming serious or long lasting. The trial will take place in close cooperation with the University Utrecht Medical Center of Utrecht (UMC) Julius Center, the Dutch Diabetes Patient Association (DVN) and your local Municipal Health Service (GGD).

### **What will the trial cover?**

Based on research, a health education programme on urinary tract and respiratory tract infections in diabetes type 2 patients has been developed for both patients and general practitioners. We intend to study the effect of this programme, in which half of the participating general practitioners and patients will receive extra information on infections (the intervention group) and be compared to the other half who will receive regular care (the control group). The trial will not last long and is planned for September 2005 up to and including March 2006.

### **Time required**

What we would like you to do is to fill out a questionnaire at the start of the trial in September 2005, and one at the end in March 2006. Answering the questions will take  $\pm$  30 minutes. If you are selected for the control group (by randomisation) then you need take no further action. You can still request for the results of the trial to be sent to you if you wish. If you are selected for the intervention group, you will be invited to participate in the health education programme. This means that you will receive an invitation to participate in the programme on diabetes and infections sometime in October that will be held in your district. The informative meeting will take place around mid-October and will take two hours at the most. In early 2006 there will be another (short) information moment to remind you of some things.

### **What we would like you to do**

Please let us know what your reaction to this request is by filling out the enclosed reply card and returning it to us as soon as possible. Do not forget to put your name and address on the back of the card! If you have any questions or would like additional information, please contact Leonie Muller, DELPHI trial researcher, who will gladly provide the information you need (email: l.m.a.muller@umcutrecht.nl or phone: 030-2538620 on Tuesdays/Wednesdays between 16.00 and 17.00 PM).

On behalf of the DELPHI research group, the DVN and the GGD departments, we would like to thank you for considering this request.

### Your general practitioner

*DELPHI research group:* Leonie M.A.J. Muller; Kees J. Gorter, general practitioner and project leader; Eelko Hak, clinical epidemiologist; Guy E.H.M. Rutten, general practitioner, professor; Municipal Health Services of Fryslan, Hart voor Brabant, West Brabant and Gelre-IJssel.

**Baseline questionnaire**

Number: 

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# Diabetes type 2 and infections



**Julius Center for Health Sciences and Primary Care**

## **Patient questionnaire: diabetes type 2 and infections**

### **Objective:**

To gain insight into behavioural determinants for infections in diabetes type 2 patients.

### **Participants:**

People of 45 years and older with diabetes mellitus.

### **Time required:**

Filling out the questionnaire will take approximately 30 minutes.

### **Significance:**

This study will provide answers to questions on how diabetes patients behave regarding frequently occurring infections and which factors play a role in this matter. More information in this area could result in improved treatment and the prevention of infections in diabetes patients.

### **Confidentiality:**

The questionnaire will be identified by a patient number and a practice number and not by your name and address. Your patient number is only known to the treating doctor and he/she is not allowed to disclose your name and address to the university unless you give your permission. All data will be treated with confidentiality and processed anonymously and will not be passed on to your general practitioner without your permission.

### **Research team:**

Drs L.M.A.J. Muller, health sciences

Dr DR. K.J. Gorter, general practitioner, project manager

Dr E. Hak, clinical epidemiologist

Professor Dr G.E.H.M. Rutten, professor for diabetes in primary care

### **Questions:**

If you have any questions or comments on this study, please contact Leonie Muller by telephone. University Medical Center of Utrecht, room 6.118, Julius Center: 030-2538620 (tu/we/thu) / l.m.a.muller@umcutrecht.nl.

**General instructions:**

Please mark your answer clearly in the appropriate box with a cross and keep within the box borders; use a blue or black ballpoint. There is only one possible answer for each question unless otherwise indicated. When you complete your answers, take the situation as it is at the time of answering.

<b>A. Questions on diabetes</b>	<i>Mark with a cross or enter your answer</i>
1. Since when have you had diabetes?	<div style="text-align: center;">↓</div> Since <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
2. Who do you regard as your main treating professional?	<input type="checkbox"/> GP <input type="checkbox"/> hospital specialist <input type="checkbox"/> other, namely .....
3. Since which year have you been under supervision?	Since <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
4. How often each year do you consult your main treating professional for your diabetes?	<input type="text"/> times per year
5. Are you on a diet for your diabetes?	<input type="checkbox"/> yes <input type="checkbox"/> No → go to question 7
6. Do you follow the diet for your diabetes as recommended by your specialist?	<input type="checkbox"/> always <input type="checkbox"/> usually <input type="checkbox"/> sometimes <input type="checkbox"/> not usually <input type="checkbox"/> never
7. Do you take tablets for your diabetes?	<input type="checkbox"/> yes <input type="checkbox"/> No → go to question 10
8. <b>If yes, what kind of tablets?</b>	<input type="checkbox"/> Tolbutamide, Diamicon (gliclazide), Amaryl (glimepiride), Daonil (glibenclamide), Glibenese (glipizide) <input type="checkbox"/> Glucophage (metformine) <input type="checkbox"/> Avandia (rosiglitazon), Actos (pioglitazon) <input type="checkbox"/> Novonorm (repaglinide), Starlix (nateglinide) <input type="checkbox"/> Glucobay (acarbose)

9.	How often do you take these tablets?	<input type="text"/>	times per day
10.	Do you use insulin?	<input type="checkbox"/> yes	<input type="checkbox"/> No → go to question 13
11.	<b>If yes, what kind of insulin do you use?</b>	<input type="checkbox"/> short-lasting insulin	<input type="checkbox"/> mid to long-lasting insulin
		<input type="checkbox"/> a combination of 1 and 2	<input type="checkbox"/> mixture of insulin (ready-to-use mixture of short and middle-lasting)
12.	How many units of insulin do you use and when do you inject it?	..... time .....	.....units
		..... time .....	.....units
		..... time .....	.....units
		..... time .....	.....units
13.	Do you take the medication for your diabetes as recommended by your specialist?	<input type="checkbox"/> always	<input type="checkbox"/> usually
		<input type="checkbox"/> sometimes	<input type="checkbox"/> not usually
		<input type="checkbox"/> never	<input type="checkbox"/> not applicable, I do not take any medication for my diabetes
14.	Is your blood sugar under good control?	<input type="checkbox"/> always	<input type="checkbox"/> usually
		<input type="checkbox"/> sometimes	<input type="checkbox"/> not usually
		<input type="checkbox"/> never	
15.	Do you measure your blood sugar levels yourself?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
16.	Are you a member of the Dutch Diabetes Patient Association?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

<b>B. Questions on your general health</b>		
↓		
17.	Do you currently suffer from any other chronic disease or disorder (apart from diabetes) that has lasted for more than 3 months?	<input type="checkbox"/> Yes <input type="checkbox"/> No → go to question 19
18.	Which other chronic disease do you have?  <i>Here indicate only those disorders for which you have consulted a doctor during the last 12 months (more than one answer possible)</i>	
1.	Heart failure:	<input type="checkbox"/> Yes <input type="checkbox"/> No
2.	Another heart disease (e.g. rhythm disorders or heart attack)	<input type="checkbox"/> Yes <input type="checkbox"/> No
3.	High blood pressure	<input type="checkbox"/> Yes <input type="checkbox"/> No
4.	COPD (chronic bronchitis or emphysema)	<input type="checkbox"/> Yes <input type="checkbox"/> No
5.	Another respiratory disease (e.g. asthma)	<input type="checkbox"/> Yes <input type="checkbox"/> No
6.	Cancer or its effects	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.	Thyroid abnormalities	<input type="checkbox"/> Yes <input type="checkbox"/> No
8.	(Early) dementia	<input type="checkbox"/> Yes <input type="checkbox"/> No
9.	Effects of a stroke (brain infarct or brain haemorrhage)	<input type="checkbox"/> Yes <input type="checkbox"/> No
10.	Urine incontinence	<input type="checkbox"/> Yes <input type="checkbox"/> No
11.	Kidney stones	<input type="checkbox"/> Yes <input type="checkbox"/> No
12.	Severe kidney disease	<input type="checkbox"/> Yes <input type="checkbox"/> No
13.	Chronic bladder infection	<input type="checkbox"/> Yes <input type="checkbox"/> No
14.	Pelvic organ prolapse (only women)	<input type="checkbox"/> Yes <input type="checkbox"/> No
15.	Inflammation of the nasal cavities, sinus or jaw cavities	<input type="checkbox"/> Yes <input type="checkbox"/> no
16.	Allergies	<input type="checkbox"/> Yes <input type="checkbox"/> No
17.	Depression	<input type="checkbox"/> Yes <input type="checkbox"/> No
18.	Stomach ulcer or duodenal ulcer	<input type="checkbox"/> Yes <input type="checkbox"/> No
19.	Severe intestinal disturbance for longer than 3 months	<input type="checkbox"/> Yes <input type="checkbox"/> No
20.	Gallstones or inflammation of the gallbladder	<input type="checkbox"/> Yes <input type="checkbox"/> No
21.	Liver disease or liver cirrhosis	<input type="checkbox"/> Yes <input type="checkbox"/> No
22.	Thyroid abnormalities	<input type="checkbox"/> Yes <input type="checkbox"/> No
23.	Back disorder that is stubborn to treat and has lasted for more than 3 months, or hernia.	<input type="checkbox"/> Yes <input type="checkbox"/> No
24.	Joint wear and tear (arthrosis) of knees, hips or hands	<input type="checkbox"/> Yes <input type="checkbox"/> No

25.	Joint wear and tear (chronic rheumatism, rheumatoid arthritis) of hands	<input type="checkbox"/> Yes	<input type="checkbox"/> No
26.	Joint wear and tear (chronic rheumatism, rheumatoid arthritis) of feet	<input type="checkbox"/> Yes	<input type="checkbox"/> No
27.	Other chronic rheumatism, lasting for more than 3 months	<input type="checkbox"/> Yes	<input type="checkbox"/> No
28.	Epilepsy	<input type="checkbox"/> Yes	<input type="checkbox"/> No
29.	Dizziness with falling over	<input type="checkbox"/> Yes	<input type="checkbox"/> No
30.	Migraine	<input type="checkbox"/> Yes	<input type="checkbox"/> No
31.	Severe skin disease	<input type="checkbox"/> Yes	<input type="checkbox"/> No
32.	Cancer or other malignant disorder	<input type="checkbox"/> Yes	<input type="checkbox"/> No
33.	Other, namely		

19.	Do you have an infection at present?	<input type="checkbox"/> Yes	<input type="checkbox"/> No → go to question 21
20.	If yes, what kind of infection?	<input type="checkbox"/> bladder infection <input type="checkbox"/> prostate infection <input type="checkbox"/> pyelonephritis (infection of the kidney pelvis) <input type="checkbox"/> respiratory infection <input type="checkbox"/> throat or ear infection <input type="checkbox"/> fungal foot infection <input type="checkbox"/> other, please specify:	
21.	During the last 12 months, how often have you consulted your GP; this includes surgery and home visits. <i>Please note: this does not include control moments or contact with the GP for repeat prescriptions.</i>	<input type="checkbox"/> 0 to 6 times <input type="checkbox"/> 7 to 11 times <input type="checkbox"/> 12 times or more	
22.	How often have you been admitted to hospital during the last 12 months?	<input type="text"/>	times
23.	Have you taken any antibiotics during the last month?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
24.	Do you take antibiotics as maintenance therapy?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
25.	Do you take prednisone as maintenance therapy?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
26.	How often have you had a respiratory infection during the past 12 months?	<input type="text"/>	times

27.	How often have you had a bladder infection and/or prostate infection during the past 12 months?	<input type="text"/>	times
28.	How often have you had pyelonephritis during the past 12 months?	<input type="text"/>	times
29.	Do you have any problems when performing normal daily activities due to bad physical or mental health?	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> sometimes <input type="checkbox"/> no, hardly ever <input type="checkbox"/> no, none whatsoever	

*Below you will find a number of statements about infections and diabetes type 2. This will just be referred to as diabetes for short. We would like to know what you think about these statements.*

**C. Statements on diabetes and infections**

30. I have more risk of getting infections than people who don't have diabetes.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
31. I have more risk of complications from an infection* than the average diabetes patient.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
32. I am good at estimating whether or not I am at high or low risk for complications from an infection compared to other diabetes patients.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
33. If my blood sugar is not stable when I have an infection then it is very important to adjust my diabetes medication accordingly.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know <input type="checkbox"/> not applicable, I do not take any medication
34. I have every confidence in the way that my GP will treat me when I contact him/her because I have symptoms that could indicate an infection.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree

\* Complications from an infection include the following:

- Hospital admission as a result of an infection;
- An infection that is more serious than usual;
- An infection that lasts longer;
- An infection that recurs often.

35.	I know which symptoms should alert me to a possible infection.	<input type="checkbox"/> yes, I am sure <input type="checkbox"/> yes, I do <input type="checkbox"/> yes, I think so <input type="checkbox"/> probably not <input type="checkbox"/> no, not at all
36.	I would like to have more information on the symptoms that accompany an infection.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> yes, maybe <input type="checkbox"/> probably not <input type="checkbox"/> no, none whatsoever
37.	I feel better (more sure of things) after contacting my GP when I have symptoms that could indicate an infection.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> yes, maybe <input type="checkbox"/> probably not <input type="checkbox"/> no, none whatsoever
38.	I worry that if I contact my GP when I have symptoms that could indicate an infection, I might have to start using insulin.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> yes, maybe <input type="checkbox"/> not really <input type="checkbox"/> not applicable, I already use insulin

*The following question applies to the influence that people in your environment have on whether or not you contact your GP when you have symptoms.*

39.	If I have symptoms that could indicate an infection, the following people support me in my decision to contact the GP:					
		<i>a lot of support</i>	<i>support</i>	<i>some support</i>	<i>no support</i>	<i>not applicable</i>
a.	Partner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*The next questions are concerned with those situations for which you think it will or will not be possible for you to contact your GP.*

40. If I have symptoms that could indicate an infection, then I think it will be possible for me to contact the GP in the following situations:

		<i>yes, certainly</i>	<i>probably</i>	<i>maybe, maybe not</i>	<i>probably not</i>	<i>no, certainly not</i>
a.	If the GP has a telephone with a choice menu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	If the GP has a telephone consultation service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	If the GP practice is a long way away	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d.	If the GP is not available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e.	If the practice assistant indicates that I should 'wait and see for a bit'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f.	If I am not at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g.	If it is during the weekend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h.	If I am too busy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i.	If I don't have any means of transport	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Below you will find a number of statements on lower respiratory tract infections (bronchitis and pneumonia) and diabetes type 2. We would like to know what you think about these statements.*

<b>D. Statements on diabetes and lower respiratory infections</b>	
41. Diabetes patients have a higher risk of lower respiratory tract infections.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
42. Coughing and fever are common symptoms of a lower respiratory tract infection.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
43. As well as diabetes, I also have other risk factors (e.g. COPD and heart failure) that increase my risk of complications from a lower respiratory tract infection compared to the average diabetes patient.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
44. Bronchitis is a particular danger for me.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
45. If I contact my GP because of a cough and shortness of breath, then I feel as if I'm making a fuss about nothing.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> yes, maybe <input type="checkbox"/> probably not <input type="checkbox"/> no, none whatsoever
46. I think I will be able to contact my GP if I have a cough and am short of breath	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> yes, maybe <input type="checkbox"/> probably not <input type="checkbox"/> no, absolutely not
47. I intend to contact my GP if I have a cough and am short of breath.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> yes, maybe <input type="checkbox"/> probably not

no, absolutely not

*Below you will find a number of statements on urinary tract infections (bladder and prostate infections, pyelonephritis) and diabetes type 2.  
We would like to know what you think about these statements.*

<b>E. Statements on diabetes and urinary tract infections</b>	
48. Diabetes patients have a higher risk of urinary tract infections.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
49. Fever always occurs in an infection of the urinary tract.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
50. As well as diabetes, I also have other risk factors (such as urine incontinence or a kidney disorder) that increase my risk for complications from a urinary tract infection compared to the average diabetes patient.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
51. An infection of the bladder is a particular danger for me.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
52. If I contact my GP when I have pain passing urine and also a fever then I think I'm just making a fuss.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> yes, maybe <input type="checkbox"/> probably not <input type="checkbox"/> no, absolutely not
53. I think I will be able to contact my GP if I have pain when urinating that is accompanied by a fever.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> yes, maybe <input type="checkbox"/> probably not <input type="checkbox"/> no, absolutely not
54. I intend to contact my GP if I have pain passing urine and also a fever.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> yes, maybe <input type="checkbox"/> probably not



*The next question concerns those situations for which you think you will or will not be able to take antibiotics exactly as they have been prescribed.*

58. I think that I will be able to take the antibiotics 3 times a day for 10 days as prescribed in the following situations:

	<i>Yes, certainly</i>	<i>Probably</i>	<i>Maybe, maybe not</i>	<i>Probably not</i>	<i>No, certainly not</i>
a. In combination with other drugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. If I am at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. If I am not at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. If I am at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. If I am stressed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. If I am on holiday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. If I get side effects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. If I use a dosage box	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. If I get the antibiotics ready for taking every day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. If I am ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. If my partner gets the antibiotics ready every day for me to take	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

59. If I am prescribed antibiotics 3 times daily for 10 days, then I do intend to take them as prescribed.

- yes, most certainly  
 yes, certainly  
 yes, maybe  
 probably not  
 no, absolutely not

<b>H. Lifestyle</b>	
60. Do you smoke?	<input type="checkbox"/> yes, I smoke at present <input type="checkbox"/> No, I stopped <input type="checkbox"/> If you answered NO → please go to question 64.
61. What do you smoke and how much/many? (taken over the whole period that you have smoked) <i>(more than one answer possible)</i>	Approximately <input type="text"/> cigarettes each day Approximately <input type="text"/> cigars each day Approximately <input type="text"/> packets of pipe tobacco (50 gram) per day
62. Have you definitely stopped smoking for good? If so, when did you stop?	<input type="checkbox"/> Yes, <input type="text"/> years ago <input type="checkbox"/> No
63. How many years in total did you smoke?  <i>For example: Mr Pietersen is 79 years and he smoked from the ages of 15 to 35 years. Then he stopped for 10 years and started again smoking from the age of 45 to 65 years. In total Mr Pietersen smoked for <math>20+20 = 40</math> years</i>	<input type="text"/> years
64. How many glasses of alcohol do you drink on average each week?	<input type="text"/> glasses each day
65. How many hours on average do you spend on physical activity each week. (for example, gardening, cycling, sports, leisure walking or walking the dog)	<input type="checkbox"/> 0-2 hours <input type="checkbox"/> 3-5 hours <input type="checkbox"/> more than 5 hours
66. Do you ever take dietary supplements (with extra vitamins or minerals or vitamin pills)?	<input type="checkbox"/> nearly every day <input type="checkbox"/> a few times a month <input type="checkbox"/> a few times a year <input type="checkbox"/> never

<b>I. General questions</b>	
67.	What gender are you? <input type="checkbox"/> Male <input type="checkbox"/> Female
68.	What is your date of birth? (day/month/year) .....
69.	What is your body weight (kilograms)? <input type="text"/> kilograms
70.	What is your height measured without shoes on (in centimetres)? <input type="text"/> centimeters
71.	To which population group do you belong? <input type="checkbox"/> the Netherlands <input type="checkbox"/> Dutch Antilles <input type="checkbox"/> Morocco <input type="checkbox"/> Aruba <input type="checkbox"/> Turkey <input type="checkbox"/> ..... <input type="checkbox"/> Suriname .....
72.	What is the highest level of educational training you have completed with a certificate? a. <input type="checkbox"/> no training completed b. <input type="checkbox"/> Primary education c. <input type="checkbox"/> Lower or preparatory vocational education (lower technical, agricultural school etc.) d. <input type="checkbox"/> junior general secondary education (lavo, ulo/mulo/mavo, etc.) e. <input type="checkbox"/> Senior secondary vocational education (mts, meao, inas, kvjv, vhbo etc.) f. <input type="checkbox"/> Senior general secondary education/pre-university education (havo, mms, hbs, vwo, gymnasium) g. <input type="checkbox"/> Higher vocational education and higher education (hts, heao, pa/pabo, teacher training college, university etc. ) h. <input type="checkbox"/> Other, namely

73. What is your marital/living status?	<input type="checkbox"/> Single <input type="checkbox"/> Living together with partner and children <input type="checkbox"/> Living with children but without partner <input type="checkbox"/> Living together with partner and no children at home <input type="checkbox"/> Other living situation, please specify: .....
74. Do you work in the health care services? (e.g. doctor, nurse, carer, physiotherapist)	<input type="checkbox"/> Yes <input type="checkbox"/> No
75. What kind of health insurance do you have?	<input type="checkbox"/> National health insurance <input type="checkbox"/> Private health insurance

**J. Finally**

76. *We would like to remind you once more that this questionnaire does not contain your name and address. The data you have completed will be treated and further processed in confidence and anonymously.*

Do you give your permission for the data in this questionnaire to be passed on to your general practitioner?

Yes                       No

**Thank you very much for your cooperation in this project!**

**Please return the completed questionnaire before September 15 to us in the postage-free envelope provided.**

UMC Utrecht / Julius Centrum  
 Huispostnummer Str. 6.131  
 L. Muller, DELPHI, K. 6.118  
 Antwoordnummer 8858  
 3500 ZK Utrecht

**Questionnaire effect intervention group**

**Number:**

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# Diabetes type 2 and infections



**Julius Center for Health Sciences and Primary Care**

## **Patient questionnaire, diabetes type 2 and infections**

### **Objective:**

To gain insight into behavioural determinants for infections in diabetes type 2 patients.

### **Participants:**

People of 45 years and older with diabetes mellitus.

### **Time required:**

Filling out the questionnaire will take approximately 30 minutes.

### **Significance:**

This study will provide answers to questions on how diabetes patients behave regarding frequently occurring infections and which factors play a role in this matter. More information in this area could result in improved treatment and the prevention of infections in diabetes patients.

### **Confidentiality:**

The questionnaire will be identified by a patient number and a practice number and not by your name and address. All data will be treated with confidentiality and processed anonymously and will not be passed on to your general practitioner without your permission.

### **Research team:**

Drs L.M.A.J. Muller, health sciences  
Dr DR. K.J. Gorter, general practitioner, project manager  
Dr E. Hak, clinical epidemiologist  
G.E.H.M. Rutten, professor for diabetes in primary care

### **Questions:**

If you have any questions on this study, please contact Meg Smit, research assistant DELPHI on Friday mornings, tel: 030 - 2503016 or 06-46683946, e-mail: [m.smit@umcutrecht.nl](mailto:m.smit@umcutrecht.nl).

**General instructions:**

Please mark your answer clearly in the appropriate box with a cross and keep within the box borders; use a blue or black ballpoint. There is only one possible answer for each question unless otherwise indicated. When you complete your answers, take the situation as it is at the time of answering.

<b>A General questions</b>	<i>Mark with a cross or enter your answer</i>
1. What type of diabetes do you have?	<div style="text-align: center;">↓</div> <input type="checkbox"/> Type 1 diabetes <input type="checkbox"/> Type 2 diabetes
2. How often have you been admitted to hospital since October 2005?	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <span>times</span> </div>
3. How often have you consulted your GP for your diabetes since October 2005?	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <span>times</span> </div>
4. Have you taken any antibiotics during the last month?	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. How often has there been a deterioration in your COPD, bronchitis or asthma since October 2005?	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <span>times</span> </div>
6. How often have you had a respiratory infection since October 2005?	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <span>times</span> </div>
7. How often have you had a bladder infection since October 2005?	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <span>times</span> </div>
8. How often have you had a prostate infection since October 2005?	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <span>times</span> </div>
9. How often have you had pyelonephritis (infection of the kidney pelvis) since October 2005?	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-right: 5px;"></div> <span>times</span> </div>
10. Do you have any problems when performing normal daily activities due to bad physical or mental health?	<input type="checkbox"/> yes, an awful lot <input type="checkbox"/> yes, quite a lot <input type="checkbox"/> sometimes <input type="checkbox"/> no, hardly ever <input type="checkbox"/> no, absolutely not

*Below you will find a number of statements about infections and diabetes type 2. This will just be referred to as diabetes for short. We would like to know what you think about these statements.*

<b>C: Statements on diabetes and infections</b>	
11. I have more risk of getting infections than people who don't have diabetes.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
12. I have more risk of complications from an infection* than the average diabetes patient.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
13. I am good at estimating whether or not I am at high or low risk for complications from an infection compared to other diabetes patients.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
14. If my blood sugar is not stable when I have an infection then it is very important to adjust my diabetes medication accordingly.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know <input type="checkbox"/> not applicable, I do not take any medication
15. I have every confidence in the way that my GP will treat me when I contact him/her because I have symptoms that could indicate an infection.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree

\* Complications from an infection include the following:

- Hospital admission as a result of an infection;
- An infection that is more serious than usual;
- An infection that lasts longer;

- An infection that recurs often.

16.	I know which symptoms should alert me to a possible infection.	<input type="checkbox"/> totally agree
		<input type="checkbox"/> agree
		<input type="checkbox"/> do not agree / do not disagree
		<input type="checkbox"/> disagree
		<input type="checkbox"/> totally disagree
17.	I would like to have more information on the symptoms that accompany an infection.	<input type="checkbox"/> totally agree
		<input type="checkbox"/> agree
		<input type="checkbox"/> do not agree / do not disagree
		<input type="checkbox"/> disagree
		<input type="checkbox"/> totally disagree
18.	I feel better (more sure of things) after contacting my GP when I have symptoms that could indicate an infection.	<input type="checkbox"/> totally agree
		<input type="checkbox"/> agree
		<input type="checkbox"/> do not agree / do not disagree
		<input type="checkbox"/> disagree
		<input type="checkbox"/> totally disagree
19.	I worry that if I contact my GP when I have symptoms that could indicate an infection, I might have to start using insulin.	<input type="checkbox"/> totally agree
		<input type="checkbox"/> agree
		<input type="checkbox"/> do not agree / do not disagree
		<input type="checkbox"/> totally disagree
		<input type="checkbox"/> disagree
		<input type="checkbox"/> not applicable, I already use insulin

*The following question applies to the influence that people in your environment have on whether or not you contact your GP when you have symptoms.*

20.	If I have symptoms that could indicate an infection, the following people support me in my decision to contact the GP:					
		<i>a lot of support</i>	<i>support</i>	<i>some support</i>	<i>no support</i>	<i>not applicable</i>
a.	Partner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*The next questions are concerned with those situations for which you think it will or will not be possible for you to contact your GP.*

21. If I have symptoms that could indicate an infection, then I think it will be possible for me to contact the GP in the following situations:

		<i>yes, certainly</i>	<i>probably</i>	<i>maybe I will, maybe not</i>	<i>probably not</i>	<i>no, certainly not</i>
a.	If the GP has a telephone with a choice menu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	If the GP has a telephone consultation service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	If the GP practice is a long way away	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d.	If the GP is not available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e.	If the practice assistant indicates that I should 'wait and see for a bit'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f.	If I am not at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g.	If it is during the weekend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h.	If I am too busy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i.	If I don't have any means of transport	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Below you will find a number of statements on lower respiratory tract infections (bronchitis and pneumonia) and diabetes type 2. We would like to know what you think about these statements.*

<b>D. Statements on diabetes and lower respiratory tract infections</b>	
22. Diabetes patients have a higher risk of lower respiratory tract infections.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
23. Coughing and fever are common symptoms of a lower respiratory tract infection.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
24. As well as diabetes, I also have other risk factors (e.g. COPD and heart failure) that increase my risk of complications from a lower respiratory tract infection compared to the average diabetes patient.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
25. Bronchitis is extra dangerous for me.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
26. If I contact my GP because of a cough and difficulty breathing, then I feel as if I'm making a fuss about nothing.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
27. I think I will be able to contact my GP if I have a cough and difficulty breathing	<input type="checkbox"/> yes, certainly <input type="checkbox"/> probably I will <input type="checkbox"/> maybe I will, maybe not <input type="checkbox"/> probably not <input type="checkbox"/> no, certainly not
28. I intend to contact my GP if I have a cough and difficulty breathing.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> maybe <input type="checkbox"/> no, certainly not

no, absolutely not

*Below you will find a number of statements on urinary tract infections (bladder and prostate infections, pyelonephritis) and diabetes type 2.  
We would like to know what you think about these statements.*

<b>E. Statements on diabetes and urinary tract infections</b>	
29. Diabetes patients have a higher risk of urinary tract infections.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
30. Fever always occurs in an infection of the urinary tract.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
31. As well as diabetes, I also have other risk factors (such as urine incontinence or a kidney disorder) that increase my risk for complications from a urinary tract infection compared to the average diabetes patient.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
32. An infection of the bladder is extra dangerous for me.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
33. If I contact my GP when I have pain passing urine and also a fever then I think I'm just making a fuss about nothing.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
34. I think I will be able to contact my GP if I have pain when urinating that is accompanied by a fever.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> probably I will <input type="checkbox"/> maybe I will, maybe not <input type="checkbox"/> probably not <input type="checkbox"/> no, certainly not
35. I intend to contact my GP if I have pain passing urine and also a fever.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> maybe <input type="checkbox"/> no, certainly not

no, absolutely not

*Below you will find a number of statements on the use of antibiotics. We would like to know what you think about these statements.*

**F. Statements on the use of antibiotics**

36. If I am on a course of antibiotics, I can stop taking them as soon as my symptoms have disappeared.

true  
 not true  
 don't know

37. If I take the antibiotics as instructed, then that makes me feel better, more sure of things.

totally agree  
 agree  
 do not agree / do not disagree  
 disagree  
 totally disagree

*The following question applies to the influence that people in your environment have on your taking antibiotics.*

38. Who provides you with a lot or too little support when you have to take antibiotics.

	<i>a lot of support</i>	<i>support</i>	<i>some support</i>	<i>no support</i>	<i>not applicable</i>
a. Partner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*The next question concerns those situations for which you think you will or will not be able to take antibiotics exactly as they have been prescribed.*

39. I think that I will be able to take the antibiotics 3 times a day for 10 days as prescribed in the following situations:

	<i>yes, certainly</i>	<i>probably</i>	<i>maybe I will, maybe not</i>	<i>probably not</i>	<i>no, certainly not</i>
a. In combination with other drugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. If I am at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. If I am not at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. If I am at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. If I am stressed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. If I am on holiday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. If I get side effects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. If I use a dosage box	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. If I get the antibiotics ready for taking every day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. If I am ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. If my partner gets the antibiotics ready every day for me to take	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

40. If I am prescribed antibiotics 3 times daily for 10 days, then I do intend to take them as prescribed.

- yes, most certainly  
 yes, certainly  
 maybe  
 no, certainly not  
 no, absolutely not

## Euroquol comes in here. See baseline questionnaire

<b>G. General questions</b>	
47.	<p>Did you attend an educational informative meeting on diabetes and infections in October?</p> <p><input type="checkbox"/> yes → go to question 51</p> <p><input type="checkbox"/> no</p>
48.	<p>Why could you not attend that meeting?</p> <p><input type="checkbox"/> ill</p> <p><input type="checkbox"/> forgot</p> <p><input type="checkbox"/> no transport</p> <p><input type="checkbox"/> too far away</p> <p><input type="checkbox"/> I didn't think the meeting would cover any new information for me</p> <p><input type="checkbox"/> other, please specify:</p> <p>.....</p> <p>.....</p>
49.	<p>Did you read the information material on infections that we sent you?</p> <p><input type="checkbox"/> yes → go to question 51</p> <p><input type="checkbox"/> no</p>
50.	<p>Why did you not read the written material we sent you?</p> <p><b>→ After answering this question, please go to question 54</b></p> <p><input type="checkbox"/> forgot</p> <p><input type="checkbox"/> I didn't receive it</p> <p><input type="checkbox"/> I didn't think the material would cover any new information for me</p> <p><input type="checkbox"/> other, please specify:</p> <p>.....</p> <p>.....</p>
51.	<p>On a 0 – 10 scale, what number would you give for the informative meeting or the written information?</p> <div style="text-align: right; margin-right: 50px;"> <input style="width: 40px; height: 30px; border: 1px solid black;" type="text"/> </div>
52.	<p>The meeting or the written information material contained for me:</p> <p><input type="checkbox"/> a lot of new information</p> <p><input type="checkbox"/> new information</p> <p><input type="checkbox"/> not very much new information</p> <p><input type="checkbox"/> no new information</p>

53.	I found the meeting or the written information material:	<input type="checkbox"/> extremely clear <input type="checkbox"/> clear <input type="checkbox"/> not very clear, not unclear <input type="checkbox"/> unclear <input type="checkbox"/> extremely unclear
54.	Was the patient letter discussed with you during a recent diabetes check up with your treating professional?	<input type="checkbox"/> yes <input type="checkbox"/> no
55.	Was your risk for complications from infections discussed with you during a recent diabetes check up with your treating professional?	<input type="checkbox"/> yes <input type="checkbox"/> no
56.	Do you have access to internet?	<input type="checkbox"/> yes <input type="checkbox"/> no
57.	Have you looked at the website on diabetes and infections?	<input type="checkbox"/> yes <input type="checkbox"/> no
58.	Have you read the DELPHI New Year letter?	<input type="checkbox"/> yes <input type="checkbox"/> no

## Finally

We would like to remind you once more that this questionnaire does not contain your name and address. The data you have completed will be treated and further processed in confidence and anonymously.

**Thank you very much for your cooperation in this project!**

**Please return the completed questionnaire within 7 days to us in the postage-free envelope provided.**

UMC Utrecht / Julius Centrum  
Huispostnummer Str. 6.131  
L. Muller, DELPHI, K. 6.118  
Antwoordnummer 8858  
3500 ZK Utrecht

**Questionnaire effect control group**

**Number:**

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# Diabetes type 2 and infections



**Universitair Medisch Centrum**  
Utrecht

**Julius Center for Health Sciences and Primary Care**

## **Patient questionnaire, diabetes type 2 and infections**

### **Objective:**

To gain insight into behavioural determinants for infections in diabetes type 2 patients.

### **Participants:**

People of 45 years and older with diabetes mellitus.

### **Time required:**

Filling out the questionnaire will take approximately 30 minutes.

### **Significance:**

This study will provide answers to questions on how diabetes patients behave regarding frequently occurring infections and which factors play a role in this matter. More information in this area could result in improved treatment and the prevention of infections in diabetes patients.

### **Confidentiality:**

The questionnaire will be identified by a patient number and a practice number and not by your name and address. All data will be treated with confidentiality and processed anonymously and will not be passed on to your general practitioner without your permission.

### **Research team:**

Drs L.M.A.J. Muller, health sciences  
DR. K.J. Gorter, general practitioner, project manager  
Dr E. Hak, clinical epidemiologist  
G.E.H.M. Rutten, professor for diabetes in primary care

### **Questions:**

If you have any questions on this study, please contact Meg Smit, research assistant DELPHI on Friday mornings, tel: 030 - 2503016 or 06-46683946, e-mail: [m.smit@umcutrecht.nl](mailto:m.smit@umcutrecht.nl).

**General instructions:**

Please mark your answer clearly in the appropriate box with a cross and keep within the box borders; use a blue or black ballpoint. There is only one possible answer for each question unless otherwise indicated. When you complete your answers, take the situation as it is at the time of answering.

<b>A. General questions</b>	<i>Mark with a cross or enter your answer</i>
1. What type of diabetes do you have?	<div style="text-align: center;">↓</div> <input type="checkbox"/> Type 1 diabetes <input type="checkbox"/> Type 2 diabetes
2. How often have you been admitted to hospital since October 2005?	<input type="text"/> <input type="text"/> times
3. How often have you consulted your GP for your diabetes since October 2005?	<input type="text"/> <input type="text"/> times
4. Have you taken any antibiotics during the last month?	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. How often has there been a deterioration in your COPD, bronchitis or asthma since October 2005?	<input type="text"/> <input type="text"/> times
6. How often have you had a respiratory infection since October 2005?	<input type="text"/> <input type="text"/> times
7. How often have you had a bladder infection since October 2005?	<input type="text"/> <input type="text"/> times
8. How often have you had a prostate infection since October 2005?	<input type="text"/> <input type="text"/> times
9. How often have you had pyelonephritis (infection of the kidney pelvis) since October 2005?	<input type="text"/> <input type="text"/> times
10. Do you have any problems when performing normal daily activities due to bad physical or mental health?	<input type="checkbox"/> yes, an awful lot <input type="checkbox"/> yes, quite a lot <input type="checkbox"/> sometimes <input type="checkbox"/> no, hardly ever <input type="checkbox"/> no, absolutely not

*Below you will find a number of statements about infections and diabetes type 2. This will just be referred to as diabetes for short. We would like to know what you think about these statements.*

**C. Statements on diabetes and infections**

11. I have more risk of getting infections than people who don't have diabetes.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
12. I have more risk of complications from an infection* than the average diabetes patient.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
13. I am good at estimating whether or not I am at high or low risk for complications from an infection compared to other diabetes patients.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
14. If my blood sugar is not stable when I have an infection then it is very important to adjust my diabetes medication accordingly.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know <input type="checkbox"/> not applicable, I do not take any medication
15. I have every confidence in the way that my GP will treat me when I contact him/her because I have symptoms that could indicate an infection.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree

\* Complications from an infection include the following:

- Hospital admission as a result of an infection;
- An infection that is more serious than usual;
- An infection that lasts longer;
- An infection that recurs often.

16.	I know which symptoms should alert me to a possible infection.	<input type="checkbox"/> totally agree
		<input type="checkbox"/> agree
		<input type="checkbox"/> do not agree / do not disagree
		<input type="checkbox"/> disagree
		<input type="checkbox"/> totally disagree
17.	I would like to have more information on the symptoms that accompany an infection.	<input type="checkbox"/> totally agree
		<input type="checkbox"/> agree
		<input type="checkbox"/> do not agree / do not disagree
		<input type="checkbox"/> disagree
		<input type="checkbox"/> totally disagree
18.	I feel better (more sure of things) after contacting my GP when I have symptoms that could indicate an infection.	<input type="checkbox"/> totally agree
		<input type="checkbox"/> agree
		<input type="checkbox"/> do not agree / do not disagree
		<input type="checkbox"/> disagree
		<input type="checkbox"/> totally disagree
19.	I worry that if I contact my GP when I have symptoms that could indicate an infection, I might have to start using insulin.	<input type="checkbox"/> totally agree
		<input type="checkbox"/> agree
		<input type="checkbox"/> do not agree / do not disagree
		<input type="checkbox"/> disagree
		<input type="checkbox"/> totally disagree
		<input type="checkbox"/> not applicable, I already use insulin

*The following question applies to the influence that people in your environment have on whether or not you contact your GP when you have symptoms.*

20.	If I have symptoms that could indicate an infection, the following people support me in my decision to contact the GP:					
		a lot of support	support	some support	no support	not applicable
a.	Partner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*The next questions are concerned with those situations for which you think it will or will not be possible for you to contact your GP.*

21. If I have symptoms that could indicate an infection, then I think it will be possible for me to contact the GP in the following situations:

		yes, certainly	probably	maybe, maybe not	probably not	no, certainly not
a.	If the GP has a telephone with a choice menu	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	If the GP has a telephone consultation service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	If the GP practice is a long way away	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d.	If the GP is not available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e.	If the practice assistant indicates that I should 'wait and see for a bit'	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f.	If I am not at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g.	If it is during the weekend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h.	If I am too busy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i.	If I don't have any means of transport	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Below you will find a number of statements on lower respiratory tract infections (bronchitis and pneumonia) and diabetes type 2. We would like to know what you think about these statements.*

<b>D. Statements on diabetes and lower respiratory tract infections</b>	
22. Diabetes patients have a higher risk of lower respiratory tract infections.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
23. Coughing and fever are common symptoms of a lower respiratory tract infection.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
24. As well as diabetes, I also have other risk factors (e.g. COPD and heart failure) that increase my risk of complications from a lower respiratory tract infection compared to the average diabetes patient.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
25. Bronchitis is extra dangerous for me.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
26. If I contact my GP because of a cough and difficulty breathing, then I feel as if I'm making a fuss about nothing.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
27. I think I will be able to contact my GP if I have a cough and difficulty breathing.	<input type="checkbox"/> yes, certainly <input type="checkbox"/> probably <input type="checkbox"/> maybe, maybe not <input type="checkbox"/> probably not <input type="checkbox"/> no, certainly not
28. I intend to contact my GP if I have a cough and difficulty breathing.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> maybe <input type="checkbox"/> no, certainly not

no, absolutely not

*Below you will find a number of statements on urinary tract infections (bladder and prostate infections, pyelonephritis) and diabetes type 2.  
We would like to know what you think about these statements.*

<b>E. Statements on diabetes and urinary tract infections</b>	
29. Diabetes patients have a higher risk of urinary tract infections.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
30. Fever always occurs in an infection of the urinary tract.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
31. As well as diabetes, I also have other risk factors (such as urine incontinence or a kidney disorder) that increase my risk for complications from a urinary tract infection compared to the average diabetes patient.	<input type="checkbox"/> true <input type="checkbox"/> not true <input type="checkbox"/> don't know
32. An infection of the bladder is extra dangerous for me.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> totally disagree <input type="checkbox"/> totally disagree
33. If I contact my GP when I have pain passing urine and also a fever then I think I'm just making a fuss about nothing.	<input type="checkbox"/> totally agree <input type="checkbox"/> agree <input type="checkbox"/> do not agree / do not disagree <input type="checkbox"/> disagree <input type="checkbox"/> totally disagree
34. I think I will be able to contact my GP if I have pain when urinating that is accompanied by a fever.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> probably I will <input type="checkbox"/> maybe I will, maybe not <input type="checkbox"/> probably not <input type="checkbox"/> no, certainly not
35. I intend to contact my GP if I have pain passing urine and also a fever.	<input type="checkbox"/> yes, most certainly <input type="checkbox"/> yes, certainly <input type="checkbox"/> maybe <input type="checkbox"/> no, certainly not

no, absolutely not

*Below you will find a number of statements on the use of antibiotics. We would like to know what you think about these statements.*

**F. Statements on the use of antibiotics**

36. If I am on a course of antibiotics, I can stop taking them as soon as my symptoms have disappeared.
- true  
 not true  
 don't know

37. If I take the antibiotics as instructed, then that makes me feel better, more sure of things.
- totally agree  
 agree  
 do not agree / do not disagree  
 disagree  
 totally disagree

*The following question applies to the influence that people in your environment have on your taking antibiotics.*

38. Who provides you with a lot or too little support when you have to take antibiotics?

	a lot of support	support	some support	no support	not applicable
a. Partner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. GP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*The next question concerns those situations for which you think you will or will not be able to take antibiotics exactly as they have been prescribed.*

		yes, certainly	probably	maybe I will, maybe not	probably not	no, certainly not
39.	I think that I will be able to take the antibiotics 3 times a day for 10 days as prescribed in the following situations:					
a.	In combination with other drugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b.	If I am at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c.	If I am not at home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d.	If I am at work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e.	If I am stressed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f.	If I am on holiday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g.	If I get side effects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h.	If I use a dosage box	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i.	If I get the antibiotics ready for taking every day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j.	If I am ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k.	If my partner gets the antibiotics ready every day for me to take	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

40.	If I am prescribed antibiotics 3 times daily for 10 days, then I do intend to take them as prescribed.	<input type="checkbox"/> yes, most certainly
		<input type="checkbox"/> yes, certainly
		<input type="checkbox"/> maybe
		<input type="checkbox"/> no, certainly not
		<input type="checkbox"/> no, absolutely not

## **Finally**

We would like to remind you once more that this questionnaire does not contain your name and address. The data you have completed will be treated and further processed in confidence and anonymously.

**Thank you very much for your cooperation in this project!**

**Please return the completed questionnaire within 7 days to us in the postage-free envelope provided.**

UMC Utrecht / Julius Centrum  
Huispostnummer Str. 6.131  
L. Muller, DELPHI, K. 6.118  
Antwoordnummer 8858  
3500 ZK Utrecht

*Diary*

## Instructions for notes in the diary

Put these pages somewhere where you won't forget them.

1. Start every Monday with a new page. Enter the date of that Monday in the space provided at the left upper side of the page. For example, 6 November:

0	6	-	1	1
---	---	---	---	---

2. **If you have one or more of the symptoms described, put a cross in the appropriate box (yes, continue)** Then continue with the questions.
3. **If you do not have any of the symptoms described, put a cross (x) in the appropriate box (No, ready).** If you do not have any symptoms for a whole week, all you need to do is answer with "No" each day and you are then ready.
4. Please return the completed sheets to us after 10 weeks in the envelope provided. Please do not tear off the front page but send this together with the completed sheets. We need the patient number on the cover sheet for further processing.



	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday					
<b>Do you have any of the symptoms described below?</b>	No (READY)	No (READY)	No (READY)	No (READY)	No (READY)	No (READY)	No (READY)					
	Yes (continue)	Yes (continue)	Yes (continue)	Yes (continue)	Yes (continue)	Yes (continue)	Yes (continue)					
<b>Severity of the symptoms:</b>	<b>0 = no discomfort</b>			<b>1 = slight discomfort</b>			<b>2 = moderate discomfort</b>			<b>3 = great discomfort</b>		
	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3					
1. Shivering or aching muscles	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				
3. Difficulty breathing or shortness of breath	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				
4. Coughing	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				
5. Urinating frequently with a burning sensation	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				
6. Pain in the lower abdomen (tummy)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				
7. Pain in the side(s)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				
Did you phone your GP or the assistant?	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No					
Visit your GP?	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No					
Taken antibiotics?	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No	<input type="checkbox"/> Yes / No					
Did you have a high temperature today?	<input type="checkbox"/> Yes, temperature taken <input type="checkbox"/> Yes not taken <input type="checkbox"/> No	<input type="checkbox"/> Yes, temperature taken <input type="checkbox"/> Yes not taken <input type="checkbox"/> No	<input type="checkbox"/> Yes, temperature taken <input type="checkbox"/> Yes not taken <input type="checkbox"/> No	<input type="checkbox"/> Yes, temperature taken <input type="checkbox"/> Yes not taken <input type="checkbox"/> No	<input type="checkbox"/> Yes, temperature taken <input type="checkbox"/> Yes not taken <input type="checkbox"/> No	<input type="checkbox"/> Yes, temperature taken <input type="checkbox"/> Yes not taken <input type="checkbox"/> No	<input type="checkbox"/> Yes, temperature taken <input type="checkbox"/> Yes not taken <input type="checkbox"/> No	<input type="checkbox"/> Yes, temperature taken <input type="checkbox"/> Yes not taken <input type="checkbox"/> No				
* Body temperature 38 degrees or higher												

# End of diary Part 1

We have a few last questions:

1. Please send the whole package of completed diary sheets back to us in the envelope provided.
2. Make sure that you send us the whole package including the cover sheet. Contains the patient number that we need for further processing.
3. 030 - 2503016 of 06-46683946 (bij voorkeur vrijdagmorgen) of e-mail: [m.smit@umcutrecht.nl](mailto:m.smit@umcutrecht.nl).

## **END OF DIARY PART 2**

We have a few last questions:

1. Please send the whole package of completed diary sheets back to us in the envelope provided.
2. Make sure that you send us the whole package including the cover sheet. Contains the patient number that we need for further processing.

Thank you very much for your cooperation in this project!

## **Invitational letter**

[Klik **hier** en typ adresgegevens]

**Julius Center for  
Health Sciences and**

### **Primary Care**

Dept General practice  
medicine

**L. Muller, DELPHI researcher**

Telephone : 030-2538620

(tue/wed/thu)

fax : 030-2539028

Mail : Stratenum, room 6.118

email : l.m.a.muller@umcutrecht.nl

Website : [www.juliuscenter.nl](http://www.juliuscenter.nl)

**Re.:** LM/7-4

#### **Date**

September 3, 2007

#### **Subject**

Invitation informative meeting, diabetes and infections (DELPHI trial)

Dear Sir/Madam,

We would like to invite you to the informative meeting that is part of the DELPHI trial. The aim of the DELPHI research is to prevent serious infections in diabetes type 2 patients.

#### **What will be discussed**

You are at increased risk of infections because you have diabetes. During the meeting we will talk about those infections that occur frequently in the urinary tract (bladder, prostate and renal pelvis) and those of the lower respiratory tract (bronchitis, pneumonia). You will receive information on how to recognise these infections and what you can do to help yourself.

Another subject of discussion will be which diabetes type 2 patients are at increased risk of complications from these infections. By complications we mean, serious infections, infections that are long lasting, those that recur more often or those that may even require hospital admission.

In preparation for the meeting, we would like you to think about the questions below:

1. Do you think you have an increased risk of complications from a urinary tract infection and/or a lower respiratory tract infection? Why do you think this is so?
2. With which complaints that could indicate an infection do you think you should see your GP? Is it easy for you to get in touch with your GP without delay? If not, what is the reason for this?
3. If you are prescribed antibiotics, do you always take them as prescribed and complete the course? If not, what is the reason for this?

#### **Location, date, time**

The meeting will take place in..... on .. October, from ... -.... You are allowed to bring one guest (i.e. your partner).

#### **Travelling costs**

Your travelling expenses will be refunded (mileage or public transport ticket). Much to our regret we cannot reimburse taxi fares.

We are counting on your presence. If you are unable to attend the meeting for whatever reason, please phone or email Ms Smit, DELPHI trial research assistant, as soon as possible (telephone 030-2503016; email [m.smit@umcutrecht.nl](mailto:m.smit@umcutrecht.nl)).

On behalf of the DELPHI research group, the Dutch Diabetes Association of patients with diabetes and the Municipal Health Services involved, we would like to thank you for your participation.

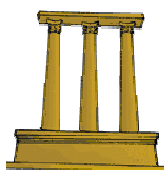
Leonie M.A.J. Muller,  
DELPHI trial researcher

*DELPHI trial research group:* Kees J. Gorter, general practitioner and project leader; Eelko Hak, clinical epidemiologist; Guy E.H.M. Rutten, general practitioner, professor; Municipal Health Services Districts Fryslan, Hart voor Brabant, West Brabant, Gelre-Ijssel.

**Content leaflet, meeting and visit to GP**

**Health education programme**

**diabetes and infections**



DELPHI study



**Universitair Medisch Centrum**  
Utrecht

**GGD Fryslân  
GGD Gelre-IJssel  
GGD Hart voor Brabant  
GGD West-Brabant  
Dutch Diabetes Patient Association (DVN)  
Julius Centre, University Medical Centre of Utrecht\***

\*Research group DELPHI: Guy Rutten, general practitioner and professor, Kees J. Gorter, general practitioner and project leader, Eelko Hak, clinical epidemiologist, Meg Smit, research assistant, Leonie Muller, researcher

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## Introduction

The diabetes health education programme of October 2005 consists of three parts: part 1, the letter of invitation for the meeting; part 2, the informative meeting for diabetes patients on diabetes and infections including the patient letter; part 3: general practitioner intervention. The texts of the patient letter, informative meeting and the intervention for general practitioners are set out in this document. The patient letter is given on the next page.

*Infections of the lower respiratory tract and urinary tract occur frequently in people with diabetes type 2. This letter provides more information on the signs and symptoms of these infections and their treatment.*

### **Infections of the lower respiratory tract**

The lower respiratory tract or airways is made up of the following parts: the windpipe (trachea), branches of the windpipe (bronchia) and the lungs. Infections of the lower respiratory tract are caused by viruses or bacteria. An infection usually starts with a cold, sore throat or flu-like symptoms followed by coughing, fever, shortness of breath, wheezing or pain when breathing. Examples of lower respiratory infections are bronchitis and pneumonia.

### **Infections of the urinary tract**

Urinary tract infections are infections of the bladder, urethra, prostate or kidneys. These infections are usually caused by bacteria. Bacteria enter the bladder through the urethra where they can then cause an infection. The bacteria can also move further up the urinary tract towards the kidneys and cause an infection there. A urinary tract infection is characterised by the need to urinate more frequently than usual but only passing smaller amounts. Urinating is either painful or produces a burning sensation. You may also feel pain in the lower abdomen (tummy) or in your side. The urine that you pass may smell strongly, be cloudy or even have blood in it. Sometimes you may also have a fever.

### **Some diabetes patients are also at increased risk of complications**

Not everyone with diabetes type 2 has an equally high risk of developing complications from an infection. By *complications from an infection*, we mean the following: a severe infection, an infection that lasts longer than usual or recurs more often or even requires admission to hospital. You are at more risk of such complications from a lower respiratory tract infection or a urinary tract infection in the following instances.

#### ***Increased risk of complications from a lower respiratory tract infection if you***

- are 80 years or older;
- have been admitted to hospital during the last year;
- have had antibiotics within the last month;
- have used prednisone or have chronic bronchitis / emphysema;
- are in heart failure.

#### ***Increased risk of complications from a urinary tract infection if you:***

- are 65 years or older;
- are male;
- have urine incontinence;
- have disorders for which you often have to consult your GP (more than 6 times per year);
- have early dementia;
- have had a stroke (brain infarct or bleed);
- have a kidney disorder.

## Advice

### ***What measures can you take to help yourself?***

- Try to prevent an infection from occurring by exercising enough, eating a healthy diet, not smoking and drinking enough liquids (at least 2 litres every day);
- If your blood sugar levels are deregulated then you may feel more ill. Therefore, it is wise to test your blood sugar levels at the first sign of an infection. If you are using insulin, then you can adjust the dosage after consultation with your doctor or diabetes nurse.
- Make sure you have the flu jab every year;
- If you feel a need to urinate then do so straight away and empty your bladder completely. Women who suffer from frequent bladder infections are advised to urinate after lovemaking.

### ***When should I go to my GP?***

Because you have an increased risk for an infection of the lower respiratory tract or urinary tract, we advise you to go to your GP if one of the following situations arises:

- You are coughing and also have some difficulty breathing;
- You are coughing and have also had a fever\* for more than 2 days;
- You are a woman and have had complaints of the urinary tract for more than 2 days;
- You are a woman and have had complaints of the urinary tract and also fever for more than 1 day;
- You are a man and have symptoms that could indicate a urinary tract infection.

*When you see your GP, always mention the fact that you are a diabetes patient.*

\* Fever is a body temperature of 38 degrees or higher.

\* U heeft koorts als u een lichaamstemperatuur heeft van 38 graden of hoger.

## **Medication**

In the Netherlands, general practitioners work according to national guidelines for the recognition, diagnosis and treatment of respiratory and urinary tract infections. If the infection is caused by bacteria then your GP may prescribe a course of antibiotics. It is essential that people with diabetes to take the antibiotics exactly as instructed by the doctor. If you do so your symptoms will disappear quicker and you will be at less risk for complications resulting from an infection. *Always complete the course even if the symptoms have disappeared.* If you don't do this then the bacteria will stay in your body and could cause another infection. If you need to take something for the pain or fever, use paracetamol. If the symptoms have not improved within 2 days (with or without antibiotics) then the best thing for you to do is contact your GP again.

## **Do you have any questions?**

If you still have questions after reading this letter, you can discuss these with your doctor next time you see him or her. Information brochures on respiratory or urinary tract infections, diabetes type 2, flu and the flu jab are available from your GP surgery. More information on diabetes is available from the Dutch Diabetes Patient Association (DVN, 033 - 463 05 66) or through the website [www.juliuscenter.nl/diabetes/infecties](http://www.juliuscenter.nl/diabetes/infecties).

## **Part 2: Informative meeting for patients, diabetes and infections**

**On entry:** Hand out the information folders to people as they come in, including the patient letter and statement card (see appendix 1) and ask them to fill out the statement card straight away.

Programme

1. **Introduction (5 minutes)**
2. **Patient letter – roleplay game on infections A (25 minutes)**
3. **Patient letter – roleplay game on infections B (20 minutes)**
4. **Break (10 minutes)**
5. **Video – roleplay game on infections C (25 minutes)**
6. **Conclusion and further points (5 minutes)**

(Total: 90 minutes)

### **Text informative meeting**

#### **1 Introduction (5 minutes)**

Good afternoon and welcome to all of you at this informative meeting. As representatives of the Municipal Health Services and on behalf of the University Medical Center Utrecht we have invited you here today. This afternoon we would like to talk to you about and then discuss with you the subject of your risk as diabetes patient for infections. Also we will talk about what you can do to prevent complications from developing as a result of infections. By complications we mean for example, a severe infection, an infection that lasts longer than usual or one that recurs more often. In this meeting we will concentrate on those infections that occur the most often: these are infections of the urinary tract and the airways. You should have received a questionnaire from the UMC a couple of weeks ago in which you were asked what knowledge and thoughts and opinions you have on this subject. We would like to send you a further questionnaire in March 2006 in order to see whether your thoughts on diabetes and infections have changed.

Now I will explain to you what we are going to do today. This meeting will revolve around a roleplay game on infections. In this game you will receive several pieces of information followed by questions; after this you can discuss your own knowledge and experiences with each other.

First we will briefly discuss the content of a patient letter that you have already received. Then we will go on to the roleplay game on infections parts A and B. At the end of each part of the game, we will discuss the answers with each other. Then we will have a short break of ten minutes. After that you will see a short video film about a diabetes patient who has suffered from infections. After the film you will be able to share your own knowledge and experience on this point by playing the roleplay game part C. We will also discuss these answers with each other. We will finish off the afternoon by asking you what you thought about this informative meeting. At the end you will be able to ask questions and I will explain what happens next.

**I would like to emphasize the following:** This afternoon is about how to prevent you, as a diabetes patient, from developing complications from infections. I can imagine that you may have a lot of other questions on how to cope with diabetes in general, but this afternoon we will only concentrate on diabetes and infections.

## **Patient letter – roleplay game on infections A (total: 25 minutes)**

### **❖ Presentation (5 minutes)**

Please look at the patient letter in front of you that we would like you to take home with you afterwards. I would like to concentrate on the two main points in this letter.

The first point is: As a diabetes patient you are at increased risk for infections and especially those that occur in the lower respiratory tract and urinary tract.

*What are infections of the lower respiratory tract?*

The lower respiratory tract is made up of the following parts: the windpipe (trachea), branches of the windpipe (bronchia) and the lungs [see picture in PowerPoint]. An infection usually starts with a cold, sore throat or flu-like symptoms followed by coughing, fever, shortness of breath, wheezing or pain when breathing. Examples of lower respiratory infections are bronchitis and pneumonia.

*What are infections of the urinary tract?*

Urinary tract infections are infections of the bladder, urethra, prostate or kidneys [see picture in PowerPoint]. These infections are usually caused by bacteria. Bacteria enter the bladder through the urethra where they can then cause an infection. The bacteria can also move further up the urinary tract towards the kidneys and cause an infection there. A urinary tract infection is characterised by the need to urinate more frequently than usual but only passing smaller amounts. Urinating is either painful or produces a burning sensation. You may also feel pain in the lower abdomen (tummy) or in your side. The urine that you pass may smell strongly, be cloudy or even have blood in it. Sometimes you may also have a fever.

The second point is: In spite of preventative measures that you may already take such as living a healthy lifestyle, infections can still occur. This is why it is important that you stay alert for the signs and symptoms of a possible infection and consult your GP when you notice these signs. Together with your GP, you can prevent an infection from developing. If, however, an infection does occur, you will be able to help prevent complications from developing.

What do you think about this statement? Is it true or not true? Please put your hand up. [see PowerPoint].

- Coughing and fever are common symptoms of a lower respiratory infection [answer: true]
- Fever always occurs in an infection of the urinary tract [answer: not true].
- If you have the following symptoms, you should see your GP [see PowerPoint]:
  - You are coughing and also have some difficulty breathing;
  - You are coughing and have also had a fever for more than 2 days (fever is defined as a body temperature of 38 degrees or higher);
  - You are a woman and have had complaints of the urinary tract for more than 2 days;
  - You are a woman and have had urinary tract complaints accompanied by fever for more than 1 day;
  - You are a man and have symptoms that could indicate a urinary tract infection.
- If the GP prescribes antibiotics, then you should take these and always complete the course.

### **❖ Role play game on infections A (15 minutes)**

1. Before the meeting started you were given a card with statements on it (appendix 1). What did you answer for statements 1, 2, 3, etc? Is there anybody here who would like to explain their answers? Discuss the correct answers.

I would like to ask you to get together with the person next to you, introduce yourselves and answer a few questions together. You can find the questions on the tables.

2. When we were preparing for this meeting, we had some group discussions with diabetes patients and asked them whether or not they see their GP when they think they might have an infection.

One of the participants, Mr De Vries said:

"I don't go to my GP, I don't want to burden him unnecessarily. If I did, I would just feel as if I'm making a fuss about nothing.

- What do you think about this?
- What should we say to Mr De Vries to convince him that he should see his GP?

*The answer:*

You are not burdening the GP unnecessarily. If you have diabetes then you are at increased risk for infections and it is very important to go to your doctor as soon as you notice signs of an infection. Your doctor will then advise you on how to prevent a complication from an infection occurring and prescribe drugs to help in this.

*3 Ms Van der Hoek said that she had no confidence in her GP.*

*Do you recognise yourself in that statement? Can you explain why you do or do not recognise yourself?*

The answer: Your GP adheres to the national guidelines for diabetes type 2 and infections. There is therefore no reason to doubt the way in which your GP will treat you.

*4 Ms Bos would rather not go to the GP. She is afraid that her GP will prescribe insulin for her and that she will then have to start injecting herself.*

*Is Ms Bos justified in having these fears?*

The answer: .....(What do you think the answer is here?)

❖ **Plenary session (5 minutes)**

**Messages 1 and 2:**

1. Diabetes patients are at increased risk for lower respiratory and urinary tract infections
2. Be alert for signs of infections in the lower respiratory and urinary tracts and see your doctor as soon as you notice any signs. Do this even if your family and/or friends say you don't need to. It is better to phone the doctor too often than not often enough.

[show the signs on the powerPoint slide]

**Patient letter – roleplay on infections B (total 20 minutes)**

❖ **Presentation (5 minutes)**

So: Everyone who has diabetes is at increased risk of infections [point 1 in PowerPoint]

But: Not everyone with diabetes type 2 has an equally high risk of complications resulting from an infection. Therefore: some diabetes patients also have an increased risk of complications from infections [point 2 in PowerPoint]. What we mean by complications are an infection that last longer than usual, recurs more often, is more serious in nature or even requires hospital admission. In severe infections we mean pneumonia or a bladder infection that develops into pyelonephritis (infection of the kidney pelvis).

You have more risk of developing complications from a lower respiratory infection if:

- you are 80 years or older;
- you have been admitted to hospital within the past year;
- you have taken antibiotics during the last month;
- you are on prednisone;
- you have an exacerbation of asthma or COPD (chronic bronchitis/emphysema);
- you have heart failure.

You have more risk of developing complications from urinary tract infections if:

- you are 65 years or older;
- you are male;
- you have urine incontinence;
- you have disorders for which you have to consult your GP frequently (more than 6 times per year);
- you have early dementia;
- you have had a stroke (brain infarct or bleed);
- You have a kidney disorder.

[back up with PowerPoint]

One or more of these signs could apply to you either now or in the near future.

❖ **Role play game on infections B (10 minutes)**

Let's practice with this. In the folder you have been given you will see a case study on Mr van der Hoek, see appendix 2 [show picture of Mr van der Hoek in PowerPoint and in the appendix]. We would like you to judge whether or not you think he has an increased risk for complications from lower respiratory infections and/or urinary tract infections than the average diabetes patient. The signs that I showed you just now are also on the sheet that you have. Please then take another look at them and see whether any of them apply to you.

If one or more of the signs apply to lower respiratory infections, then Mr van der Hoek has a higher risk of complications from lower respiratory infections than average. If one or more of the signs apply to urinary tract infections, then Mr van der Hoek has a higher risk of complications from urinary tract infections than average.

Let the participants answer the questions and discuss the answers.

**Question 1: Does Mr van der Hoek have an increased risk for complications from lower respiratory infections than the average diabetes patient?**

**The answer:** No, Mr van der Hoek does not have any of the signs that have been named in connection with lower respiratory infections. However, he must stay alert to the signs of possible infections and if he has any doubt, then he should see his GP. In addition, Mr van der Hoek should discuss these signs and any symptoms with his GP at his next visit.

**Question 2: Does Mr Van der Hoek have an increased risk for complications from urinary tract infections than the average diabetes patient?**

**The answer:** Yes, Mr van der Hoek has at least 1 sign that has been named in connection with this. There are 4 signs in total: male, 65 years or older, has urine incontinence and early dementia). Therefore, Mr Van der Hoek does have an increased risk for complications from urinary tract infections than the average diabetes patient. This means that Mr van der Hoek has to be extra alert for signs of infections.

**Question 3: Do you have an increased risk for complications developing from respiratory and urinary tract infections?**

**Message 3:**

Discuss with your general practitioner which signs may apply to you.

**Practical tip:** show the patient letter to your partner, family and/or friends. This will enable them to gain more insight into your disease and help you with recognising the signs we have indicated.

**Questions:** Do you have any questions? For more information, please take a look at the Julius Center website!

Website: [www.juliuscenter.nl/diabetes/infecties](http://www.juliuscenter.nl/diabetes/infecties) (the internet address is also noted on the bottom of the patient letter and will be available from mid October 2005).

❖ **Plenary discussion (15 minutes)**

Discuss the roleplay game in the group. Ask some of the pairs to tell what their answers were and whether or not these corresponded with the answers we gave. How do they react?

**4. Break (10 minutes)**

**5. Video film - roleplay game on infections (total: 25 minutes)**

❖ ***introduction to film (5 minutes)***

Now we would like to show you a short video about a diabetes patient. She has suffered from infections and talks about this in the film. After the film we will carry on with the roleplay game as we consider the film further...

*Film: Story of the diabetes patient*

*“normal” woman, approximately 65 years preferably an actor*

*Otherwise a suitable diabetes patient*

*Diabetes patient tells her story:*

..I have had diabetes now for 5 years. I did find it a nuisance but I always stuck to the recommended glucose levels and that kept me healthy. I also always had the flu jab, people say you have to have the flu jab if you have diabetes. But last year in the autumn I felt as if I was getting flu, just a bit of a dry cough, had a slight fever, 38 degrees and this went on for a couple of days. I'm not someone who goes to the doctor for every small thing, I don't like to make a fuss and up until now it always got better on its own. Moreover, I always think that the doctor is busy enough without me making a fuss about nothing. So I waited, but very slowly it seemed to get worse and then I also had some difficulty breathing and before I knew where I was, I had been ill for four days. So then I did phone the doctor in the end. She said that I should come to the surgery as soon as possible. So I went the next day and after she had examined me, the doctor prescribed a course of antibiotics before sending me home. I took the antibiotics for a few days and the symptoms disappeared. I was really pleased that the symptoms had cleared up so I stopped taking the medicine. But after one week the symptoms came back again and this time they were much worse. I had real trouble breathing and then developed a high fever. I thought to myself, this is not good. So I phoned the doctor again and she said that I must come to the surgery immediately, the same day. So that's what I did. When the doctor examined me again, it turned out that I had quite serious pneumonia. In the end it lasted for a few weeks and was quite worrying.

❖ **Roleplay game on infections C (15 minutes)**

1. What were the symptoms that this woman had that pointed to an infection?

The answer:

- *She was coughing*
- *She had a fever*

2. What did she do about this?

The answer:

- *She kept to her recommended glucose levels.*
- *She had the flu jab.*
- *When the GP asked her to visit the surgery she did exactly that.*

3. What else should she have done?

The answer:

- *She had a fever after only two days of being ill, even with only a slight fever you should call the doctor.*
- *She should have finished the course of antibiotics completely, even though she felt better. Always finish a course of antibiotics, if you don't do this then the bacteria will stay in your body and could cause another infection that is far more serious than the first one.*

4. This woman should have gone to her GP earlier. Can you think of any examples of situations where you may not be able to contact your doctor?

Give each other tips, see appendix 3.

5. Would you manage to take antibiotics three times a day for ten days?

What do you think is difficult about this? Give each other tips, see appendix 3.

❖ **Plenary discussion (5 minutes)**

**Message 4:**

- Always take antibiotics as prescribed and always finish the course

**10. Conclusion and further points (5 minutes)**

In this meeting we have talked about the fact that as a diabetes patient you are at increased risk for infections, especially urine and lower respiratory tract infections. We have also talked about why it is that some diabetes patients are also at increased risk for complications resulting from infections. We have looked at the signs and symptoms that point to possible infections and what you can do yourself when you notice them.

[PowerPoint – Once again the signs are listed here].

In the next diabetes check up you have with your doctor, he/she will discuss with you how you handle infections, what your risk is for complications from infections and also discuss the content of the patient letter that you have been given today. We would advise you to take a

family member, your partner, or a friend to this check up. The person you take with you can help you to note down the advice that your GP gives you and support you when you need to follow it through at home.

On behalf of the University Medical Center Utrecht, you will shortly receive a patient diary as well as a questionnaire that will be sent in March 2006. This questionnaire addresses what you think about diabetes and infections. The information you provide us with in the questionnaire will enable us to gain insight into the effect of the information you have received today.

**Appendices:**

1. Statements
2. Answers to statements
3. Case study Mr van der Hoek
4. Answers to case study Mr van der Hoek
5. Tips on how to reach your GP
6. Tips on how to take antibiotics

### **Part 3: General practitioner intervention**

A representative of the Municipal Health Services (GGD) who will explain the DELPHI study and the interventions and prediction chart will visit all general practitioners involved in this programme. The practice assistants and practice nurses will also be visited. We also intend to give surgery receptionists a copy of the patient letter so that they know what the signs and symptoms of possible infections are when speaking to patients. The meeting between the general practitioner and the GGD representative will be divided as follows:

**Time:** 10-15 minutes (Practice assistants and practice nurses also 10-15 minutes)

#### **1. Explanation of the DELPHI study**

##### **a) Background**

The Julius Center for Health Sciences and Primary Care has recently been informed that there is a relation between diabetes and infections.\* A study has shown that people with diabetes are at increased risk for urinary tract and lower respiratory tract infections. In addition, some diabetes patients are also at higher risk for developing complications from infections, such as: an infection that requires hospital admission, an infection that is more serious than usual or an infection that recurs often. Both patients and general practitioners are often not aware of this or they handle infections differently. This was the reason behind the motivation for the Julius Center to develop a health educational programme on this subject. The health educational programme focuses on diabetes type 2 (DM2) because this type is the most commonly occurring type of diabetes. Further, infections of the lower respiratory tract and urinary tract are those that occur most commonly. The educational information is aimed at both general practitioners (including practice assistants and practice nurses) as well as diabetes patients in those particular practices.

\*Source: 'Increased risk of common infections in patients with type 1 and type diabetes mellitus', see the summary in the appendix. You can request a copy of this article from the research assistant for the DELPHI study, Meg Smit: [m.smit@umcutrecht.nl](mailto:m.smit@umcutrecht.nl) or 030 2503016 / 06 46683946.

##### **b) Scale and regions**

This health educational programme will be implemented in the regions of the various GGD Municipal Health Services for the provinces of Brabant, West-Brabant, Gelre-Ijssel and Fryslân. Approximately 100 general practitioners and 1,000 patients will take part in the study divided into an intervention and a control group.

#### **2. Interventions**

As a representative of the GGD and also on behalf of the Julius Center, I am visiting you because you have been placed as general practitioner in the intervention group. First I will briefly explain the intervention that diabetes patients will receive, and then I will explain the intervention expected from the general practitioners.

##### **a) Explanation of the intervention for diabetes patients**

Those patients in the intervention group will receive three information moments. The *first moment* is that of a letter of invitation that contains a few questions on diabetes and infections.

The *second moment* is the informative meeting: during this meeting, the behaviour of patients regarding diabetes and infections will be addressed. For example, attention will be paid to the patients' knowledge and attitude to infections as well as how well they are able to

estimate their own risk. In addition, a patient letter containing information on diabetes and infections will be handed out and discussed. As a general practitioner, you can discuss the information in this letter with your patients at their next regular diabetes check up. I will return to this point later.

The educational information given to patients focuses on two central messages for them:

1. Be alert to the signs and symptoms of a possible infection and consult your GP as soon as you notice them.
2. If the GP prescribes antibiotics, then you should always take them as prescribed and always complete the course.

At the *third information moment* patients will be given a reminder card referring them to the Julius Center website for information.

We would like to ask you spend some time to discuss the patient letter with all your diabetes patients who are participating in the Delphi study during their next regular diabetes check up. Further, please also say something about the risk for complications as indicated by the prediction chart.

## b) Explanatory notes for the intervention by general practitioners

### Prediction chart (see appendix)

**All DM2 patients are at increased risk for urinary and lower respiratory tract infections. Some patients are also at increased risk for complications from these infections. This chart highlights which predictors point to an increased risk for complications.**

A prediction score is indicated against each predictor. The total score indicates the degree of risk. A patient who scores a total of 6 or higher for lower respiratory tract infections or 4 or higher for urinary tract infections is a high risk patient. These patients have more risk of developing complications from infections and should therefore be treated pro-actively as follows:

- Respiratory infections: earlier than usual surgery consultation;  
return surgery visit or telephone consultation more often than usual;  
chest x-ray sooner than usual;  
prescribe antibiotics earlier than usual.
- Urinary tract infections: antibiotics for a minimum of 7 days.

**For example: A female diabetes patient has the following signs and symptoms:**

- 70 years;
- has had a stroke;
- has a kidney disorder.

**Question: Does this patient have an increased risk for complications from urinary tract infections?**

**The answer: 70 years: 1 point, stroke: 1 point, kidney disorder: 3 points. Total number of points 5. This is higher than 4 (see chart) therefore this patient is a high-risk patient.**

### Patient letter (see appendix)

All patients participating have been given a patient letter during the informative meeting. This letter contains information on the nature of lower respiratory and urinary tract infections.

Moreover, the predictors for complications from infections are outlined, just as I have discussed them with you whilst referring to the prediction chart. General lifestyle advice is given in the letter as well as the signs to which a patient should be alert and subsequently

contact the GP. These signs are important for all diabetes type 2 patients. Finally, patients are advised to follow the prescribed instructions for taking antibiotics. The following important points should be discussed with the patient.

Within the text frame of “When should I go to my GP?”

- Ask the patient whether he/she has recently suffered discomfort from the signs and symptoms as summed up in the text frame.
- Ask the patient whether he/she was able to decide how to react in that situation.
- Stimulate the patient to visit your surgery in these situations.

#### **Tips for using the prediction chart and the patient letter**

- Put this material together with the NHG (Dutch College of General Practitioners) material.
- Place it in a convenient ready-to-use position (e.g. on your desk).
- Ask the receptionists to build in reminders in their system.

#### **Finally**

Discuss the content of the prediction chart and the patient letter, including signs and symptoms fitting an infection, treatment policy advice for high risk patients, and how to best use the materials with your colleagues.

#### **Most important message when informing general practitioners:**

- Apply the prediction chart to patients with diabetes type 2 (DM2)
- Discuss the risk of complications from infections with patients with DM2 (according to the prediction chart)
- Discuss the patient letter with the DM2 patients, point of emphasis – discuss symptoms that go with an infection and request them to always contact you if they occur
- Give the DM2 patients compliments when they visit the surgery because of a suspected infection. This will positively confirm their attempt to change their attitude and actions regarding infections.

Give this information, including the appendices to the general practitioner. Take an extra set of documents for the practice assistants and practice nurses. Any extra material if necessary can be requested from Meg Smit, DELPHI study research assistant, by e-mail: [m.smit@umcutrecht.nl](mailto:m.smit@umcutrecht.nl) or by telephone: 030-2503016 or 06-46683946.

#### **Appendices:**

1. Prediction chart
2. Patient letter
3. Informative meeting for patients, diabetes and infections
4. Dutch summary of article 'Increased risk of common infections in patients with type 1 and type diabetes mellitus'. Muller L. et al.

**Appendices patient information**

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**Statements**

**(please circle the correct answer)**

1 You are a woman and you have a bladder infection. You have also had a slight fever of 38° C for one day now. You do not see any reason for visiting your GP just yet

**Correct / incorrect**

2 You are a man and today you have felt some discomfort in your urinary tract. You decide to wait for a bit and see what happens.

Are you acting?

**Correctly / incorrectly**

3 You are a woman and have had urinary tract complaints for two days now. You should see your GP immediately.

**Correct / incorrect**

4 You have a cough and also have some difficulty breathing. There is no need for you to see your GP yet.

**Correct / incorrect**

5 You have a cough and fever. After three days you should see your GP.

**Correct / incorrect**

### **Answers to statements**

#### **Statement 1:**

1. You are a woman and you have a bladder infection. You have also had a slight fever of 38° C for one day now. You do not see any reason for visiting your GP just yet

#### **The answer:**

Incorrect, if you are a woman with complaints of the urinary tract accompanied by fever that has lasted for more than one day then it is important to visit the GP. A temperature of 38 degrees or higher is a fever.

#### **Statement 2:**

You are a man and today you have felt some discomfort in your urinary tract. You decide to wait for a bit and see what happens.

#### **The answer:**

You are not taking the right action. If you are a man with symptoms that go with a urinary tract infection, then you run the risk of a prostate infection and it is important that you visit your GP.

#### **Statement 3:**

You are a woman and have had urinary tract complaints for more than two days now. You should see your GP immediately.

#### **The answer:**

Correct, as a woman with urinary tract complaints, you should see your GP after two days.

#### **Statement 4:**

You have a cough and also have some difficulty breathing. There is no need for you to see your GP yet.

#### **The answer:**

Incorrect, if you have a cough and difficulty breathing then it is important for you to see your GP.

#### **Statement 5:**

You have a cough and fever. After three days you should see your GP.

#### **The answer:**

Incorrect, if you have a cough and fever (temperature of 38 degrees or higher) then you should see your GP after two days.

### **Case study Mr van der Hoek**

This is Mr van der Hoek. He is 70 years old and has diabetes type 2. Mr van der Hoek sometimes suffers from urine incontinence and also has signs of early dementia.

Answer the 3 questions below. You can use the box underneath the questions for this purpose. If there is one or more sign in the box that applies to Mr van der Hoek, then he should be extra alert for complications from an infection.

#### **Question 1:**

Does Mr van der Hoek have more risk of complications from a respiratory tract infection compared with the average diabetes patient?

**Increased risk of complications from lower respiratory tract infections if you:**

- Are 80 years or older;
- Have been admitted to hospital during the last year;
- Have had antibiotics within the last month;
- Have used prednisone;
- Have asthma or COPD (chronic bronchitis / emphysema);
- Have heart failure.

#### **Question 2:**

Does Mr van der Hoek have more risk of complications from a urinary tract infection compared with the average diabetes patient?

**Increased risk of complications from urinary tract infections if you:**

- Are 65 years or older;
- Are male;
- Have urine incontinence;  
Have disorders for which you often have to consult your GP (more than 6 times per jaar);
- Have early dementia;
- Have had a stroke (brain infarct or bleed);
- Have a kidney disorder..

#### **Question 3:**

Do you have more risk of developing complications from respiratory tract infections?

## **Answers to case study Mr van der Hoek**

### **Question 1:**

Does Mr van der Hoek have an increased risk for complications from lower respiratory tract infections than the average diabetes patient?

#### **The answer:**

No, Mr van der Hoek does not have any of the signs in the box named in connection with lower respiratory infections. However: He must stay alert to the signs of possible infections and if he has any doubt, then he should see his GP. In addition, Mr van der Hoek should discuss these signs and symptoms with his GP at his next visit.

### **Question 2:**

Does Mr van der Hoek have more risk of complications from a urinary tract infection compared with the average diabetes patient?

#### **The answer:**

Yes, Mr van der Hoek has at least 1 sign that has been named in connection with this (there are 3 signs in total): 65 years or older, urine incontinence and early dementia). Therefore Mr Van der Hoek does have an increased risk for complications from urinary tract infections than the average diabetes patient. This means that Mr van der Hoek has to be extra alert for signs of infections.

### **Question 3:**

Do you have an increased risk for complications developing from respiratory and urinary tract infections?

See each box underneath for whether 1 sign or more applies to you.

#### **Increased risk of complications from lower respiratory tract infections if you:**

- Are 80 years or older;
- Have been admitted to hospital during the last year;
- Have had antibiotics within the last month;
- Have used prednisone;
- Have asthma or COPD (chronic bronchitis / emphysema);
- Have heart failure.

#### **Increased risk of complications from urinary tract infections if you:**

- Are 65 years or older;
- Are male;
- Have urine incontinence;
- Have disorders for which you often have to consult your GP (more than 6 times per jaar);
- Have early dementia;
- Have had a stroke (brain infarct or bleed);
- Have a kidney disorder.

**Tips on how to reach your GP**

If you suspect an infection, then it is important for you to see your GP. Some patients find it difficult to reach their GP in certain situations. Below you will find a number of tips regarding each situation.

If you can't reach the GP surgery reception

- Phone your doctor during the telephone consultation service
- Cycle or drive down to the surgery and speak directly to the receptionist

If the receptionist will not make an immediate appointment for you with the doctor

- Phone during the telephone consultation service and ask the receptionist to let the doctor phone you back

If the surgery is closed / it is weekend

- First phone the practice, You will hear a choice menu that covers all the practices that cover for your GP with their appropriate telephone numbers
- Phone the doctor on call in your area.

If you are away from home

- Take the telephone number of your GP surgery with you so that you can phone for advice
- Take your insurance card with you and if necessary visit a GP in the area where you are staying

**If you don't have any means of transport**

- Explain your situation to the GP. The GP will then decide whether or not to visit you at home or whether you have to come to the surgery.
- If the doctor says you have to come to the surgery, then find someone, a family member, friend or neighbour to take you there
- Take public transport or order a taxi

**If you are too busy: It's not convenient for me to go the doctor today**

Try and remember that your health should always take priority. If you suspect an infection then as a diabetes patient it is very important for you to see your GP. All the other things going on in your life can wait.

**Fill your own tips in here:**

.....

### **Tips on how to take antibiotics**

Supposing that your doctor has prescribed antibiotics for you because he has diagnosed an early infection. He says that you must take the antibiotics three times daily for 10 days.

Do you think you can manage this? What do you find difficult about this?

Many patients find it difficult to take antibiotics faithfully. Below you will find a number of tips regarding each situation.

#### **If I forget to take my antibiotics**

It is often difficult to remember to take antibiotics. Tips that patients in the group discussions gave for how to avoid forgetting to take your antibiotics e.g.:

- Tie a knot in your handkerchief or make some other reminder sign
- Put the antibiotics where you can see them
- When you lay the table, place the antibiotics next to your plate
- Set your alarm clock or use the alarm on your watch
- If you are planning to go out the next day: put everything you need in your bag the night before
- Use a medication box (don't forget to take your diabetes passport or prescription for the customs)
- Stick a memo on the inside of your door
- Ask your partner or a member of your family to remind you to take the antibiotics
- Ask your partner or a member of your family to help you take the antibiotics, for instance by putting the pill in your food or by putting it beside your plate.

#### **If I am on holiday or away for a few days**

When you go on holiday, your daily routine changes. Your everyday rhythm disappears so it may be difficult to take antibiotics regularly. The following tips may help:

- Before you travel: if you are going away the following day, then put all medication in your bag the night before
- Set your alarm clock or use the alarm on your watch when you are on holiday or on a day trip
- Also use a medication box when you're on holiday or away (don't forget to take your diabetes passport or prescription for the customs)
- Try to keep to a regular routine even though you're on holiday. Eat three meals a day just as you do normally and take your antibiotics with each meal

#### **What if, besides the antibiotics, I have to take other medicines at different times of the day?**

Having to take more than one medicine at different times of the day may seem difficult. It can be difficult to remember which of your medicines you have taken and which not. The tips below may help:

- Here as well, using a medication box may be useful (don't forget to take your diabetes passport or prescription for the customs)

- Set your alarm clock or use the alarm function on your watch, set the required hour and use different ringtones

**If I am ill or get side effects**

Suppose that you feel ill or get side effects and really want to stop taking the antibiotics:

- Do not stop taking them but ask your doctor for advice. Do this urgently if necessary.

**If I am at work**

Some patients find it difficult to take antibiotics when they are at work. Think of the following tips:

- Always keep one dose of your antibiotics in the bag you use for work and put this where you can see it. Preferably near to your lunch box. After all, you only need to take the antibiotics when you are eating your lunch. The other two tablets you take at home with breakfast and dinner.

**Fill your own tips in here:**

.....

# Newsletter DELPHI study

The Dutch Diabetes Patient Association, the Municipal Health Services  
and the University Medical Center of Utrecht wish you

## A healthy 2006!

### Diabetes education programme – how it's going

From October 17 to 27, 2005, 22 informative meetings have been held with approximately 400 people taking part. It took quite some organisation to make these meetings run smoothly. Partly due to the willingness of the participants to rearrange schedules, we can now say that the informative meetings have been a success and we would like to thank you all!

### Key information issues

Go and see your GP in the following situations:

- you have a cough and difficulty breathing
- you have had a cough and a fever for more than 2 days
- you are a woman and you have had urinary tract complaints for more than 2 days
- you are a woman and you have had urinary tract complaints and fever for more than 1 day
- you are a man and have complaints that could signal a urinary tract infection.

As a diabetes patient, you have an increased risk for urinary tract infections (bladder, prostate and renal pelvis) and lower respiratory tract infections (bronchitis, pneumonia). Please look at the lists below and see whether any of the factors listed apply to you. If this is the case then you too have an increased risk for serious infections.

### Increased risk for serious urinary tract infections

- 65 years or older
- male
- urine incontinence or kidney disorder
- more than 6 visits to GP each year
- early dementia
- history of stroke

### Increased risk for serious lower respiratory tract infections

- 80 years or older
- hospital admission in past year
- taken antibiotics in past month
- prednisone use
- COPD
- heart failure.

### Behind the scenes

You may have noticed that there are other people in your neighbourhood who are also participating in the DELPHI trial but you are probably not aware that there are as many as 1,170 diabetes patients and 101 general practitioners taking part. For this purpose, 4,500 letters have been sent and about 500 phone calls made. Since the start of the trial itself in September we have sent 1,170 questionnaires, 1,170 diaries, 500 invitations for the informative meetings, 180 information kits and made a further 500 phone calls. So you can be assured that there is a lot

going on behind the scenes. We are pleased to say that nothing much has gone wrong so far. If you have not received any of the above-mentioned items or have received them twice, please call Meg Smit on: 030 - 2503016 or by e-mail: m.smit@umcutrecht.nl.

### **Planning**

You will be sent a second questionnaire towards the end of February. The diaries run up until 19 March 2006. After this date, please send your diary back to us in the envelope provided. If you can't find the envelope then please use a new one and send it to the following address:

UMC Utrecht, Julius Centrum  
Str. 6.131 For the attention of: L. Muller  
Antwoordnummer 8858  
3500 ZK Utrecht  
(no stamp needed).

### **Members of the DELPHI research group**

UMC Utrecht: Leonie Muller, researcher; Kees Gorter, general practitioner and project leader; Eelko Hak, clinical epidemiologist; Guy Rutten, general practitioner, professor; Meg Smit, research assistant; DVN;  
Municipal Health Services: GGD Fryslan, GGD Hart voor Brabant, GGD West-Brabant, GGD Gelre-IJssel

Please take a look at our recently updated website for more information:

[www.juliuscenter.nl/diabetes/infecties](http://www.juliuscenter.nl/diabetes/infecties)

## **Appendix 3**

**Questions, statements and abbreviations**

<b>Questions, statements</b>	<b>Abbreviations</b>
<i>Knowledge</i>	
Fever is always present with a UTI	Not always fever in UTI
Compared to the average patient with diabetes, my risk for complications from UTI is increased because of other risk factors (like urinary-incontinence and renal disease) besides diabetes	Increased risk complicated UTI
Patients with diabetes have an increased risk of UTI	Increased risk UTI
Coughing and fever are common complaints in LRTI	Coughing / fever in LRTI
Patients with diabetes have an increased risk of LRTI	Increased risk LRTI
If my blood glucose is disturbed because of an infection, it is important to adjust my diabetes medication	Adjust diabetes medication
Compared to the average patient with diabetes, my risk for complications from LRTI is increased because of other risk factors (like COPD and heart failure) besides diabetes	Increased risk complicated LRTI
<i>Perceived severity</i>	
Cystitis is extra dangerous for me	Cystitis is dangerous
Bronchitis is extra dangerous for me	Bronchitis is dangerous
<i>Perceived susceptibility</i>	
I have an increased risk of infections compared to people without diabetes	Increased risk infections
I have an increased risk of complication from infections compared to the average patient with diabetes	Increased risk complications

**Questions, statements and abbreviations**

<b>Questions, statements</b>	<b>Abbreviations</b>
<i>Perceived benefits</i>	
If I contact the GP because of complaints indicating an infection, I feel more secure	Feeling secure contacting the GP
<i>Perceived barriers</i>	
If I contact the GP because of complaints indicating an infection, I am afraid I may have to use insulin	Not afraid insulin
If I contact the GP because of pain while emptying my bladder and a fever, I think that I am a whiner	Not feeling like a whiner UTI
If I contact the GP because of coughing and shortness of breath, I think that I am a whiner	Not feeling like a whiner LRTI
<i>Social support (cue to action)</i>	
How much support to contact the GP do you receive from your partner?	Support from partner
<i>Self-efficacy</i>	
I am confident to contact the GP if I have fever and pain while emptying my bladder	Confident symptoms UTI
I am confident to contact the GP if I am coughing and have shortness of breath	Confident symptoms LRTI

## Questions, statements and abbreviations

Questions, statements	Abbreviations
<i>Self-efficacy</i>	
If I have complaints indicating an infection, I feel confident to contact the GP	Confident if:
in the following situations:	
- The GP has a dial-direct system	- Dial-direct system
- The GP has a telephone consultation service	- Telephonic consultation
- The GP practice GP is far away	- Practice far away
- The GP is difficult to reach	- Practice difficult to reach
- The doctor's receptionist wants to wait and see	- Wait and see receptionist
- Not being at home	- Not being at home
- In the weekend	- In the weekend
- Being busy	- Being busy
- Having no transport	- No transport
<i>Need for information</i>	
I know which symptoms should alert me to infections	Knowledge about symptoms
I need more information about symptoms indicating an infection	Need more information
<i>Intention</i>	
I intend to contact the GP if I have fever and pain while emptying my bladder	Seeking medical attention UTI Seeking medical attention LRTI
I intend to contact the GP if I am coughing and have shortness of breath	
UTI=urinary tract infection; LRTI=lower respiratory tract infection; GP=general practitioner	