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# Structure of Visits Persons with Diabetes in Croatian Family Practice – Analysis of Reasons for Encounter and Treatment Procedures using the ICPC-2

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## ABSTRACT

*The reasons for encounter and the procedures conducted during the visit persons with diabetes to family practice have been investigated. Five family practitioners located in two Croatian counties took part in this study. In this study patients with diagnoses E10–E14 according to International Classification Disease – 10 (ICD-10), were involved. There were 543 persons with diabetes (women 324) in the total population of 10,150 patients. Data were registered according to the International Classification Primary Care-2 (ICPC-2) (components 1–7 for reasons of encounter, and components 2–6 for procedures during the visit), in period October till December 2005. 871 visits of persons with diabetes (average age  $65.7 \pm 12.5$ ) were registered. Patients presented in total 1921 reasons for encounter or  $2.1 \pm 1.1$  per visit. Family practitioner made in total 2,341 procedures or  $2.6 \pm 1.5$  procedures per visit. 85.0% of patients had 1 to 3 reasons for encounter, 78.4% of patients had 1 to 3 procedures per visit. 64.4% of patients with diabetes presented at least one reason for encounter connected to diabetes. The most common reasons for encounter were prescriptions of medication 46.4 per 100 reasons for encounter, the second was diagnostic procedure 19.9, request for analysis of findings 11.1, symptoms complaints 11, request for referrals to diagnostic procedures or specialist consultation 8.9 and administrative requests 1.6 per 100 reasons for encounter. Family practitioner performed procedure prescriptions of medication 47 per 100 procedures. The second was diagnostic procedure 32.8 per 100 procedures, referrals to diagnostic procedures or specialist consultation 14.7 and administrative procedures 1.7 per 100 procedures. From the total number of 100 referrals to specialist, 23 were to diabetologist, 15 to ophthalmologist, 13 to cardiologist. The largest proportion of procedure belong to diabetics 33.8%, followed by the circulatory system 25.4%, musculoskeletal 6.9%, symptoms 5.1%, respiratory 4.5%. The reasons for encounter and the procedures conducted during the visit have direct influence to the quality of care for persons with diabetes. It is necessary collecting the data and research in the field of reasons for encounter and procedures during the visit of person with diabetes. The results then can be compared to the results already found in literature.*

**Key words:** visits, persons with diabetes, family practice, Croatia

## Introduction

Diabetes is a prototype of chronic disease that imposes a large public health burden<sup>1</sup>.

New perceptions about the role of family practitioner in managing chronic patients came along. Care of person

with diabetes is being transferred from hospital and specialistic care to family practice<sup>2,3</sup>. A person suffering from diabetes being a chronic patient is presented in a complex comorbidity form<sup>4-6</sup>.

Changes in therapeutic approaches in diabetic patients have been noticed during the last decade. The number of their visits to family practitioner and diabetologist is constant while the number of their consultations is increasing because of diabetic complications. Duration of visits of diabetic patients in family medicine is becoming longer<sup>5</sup>. Management of chronic patient, persons with diabetes, in family medicine is an indicator of quality care in family medicine. Indicators for monitoring the quality of care were arranged, mostly connected with the procedures conducted by the fixed guidelines and the procedures' results<sup>7,8</sup>. There were not many studies investigating the type and amount of problems that general practitioner was facing during the patients' visits and reasons for their encounter. The reasons for encounter and the procedures conducted during the visit have direct influence to the quality of care, application of curing guidelines, patient's education, support in the management of the disease, record management, research<sup>4,9</sup>. It is well known that family practitioner is solving most of the problems during the visit of person with diabetes in comparison with all other chronic patients. Family practitioner, as a part of the treatment of persons with diabetes, conducts the biggest proportion of prescriptions and referrals<sup>3,9</sup>.

The new role of the family practitioner in the management of the chronic diabetic patient raised the number of concerns whether the visit of diabetic patient is »a traditional visit« of a chronic patient and how much time is there for preventive procedures concerning complications, early detection of other diseases, education, for patient support, and for the further studies as well<sup>4,10–12</sup>.

Such analyses were not conducted in Croatia so far, within its transitional health care system.

It is a complex task to code the verbal content of the patients' requests along with practitioner's care description. The structure of International Classification Primary Care-2 (ICPC-2) has the possibility of transcription and coding the reasons for encounter and procedures conducted on the patient during the visit<sup>13,14</sup>.

The objective of this study is a prospective analysis of reasons for encounter and the procedures conducted during the persons with diabetes visits to family practitioner in Croatia using ICPC-2.

## Subjects and methods

### Study population

Five family practitioners located in two Croatian counties (Zagreb county and Brodsko-posavska county) took part in this study. This investigation involved patients with diagnoses, E10–E14 according to International Classification Disease – 10 (ICD-10) out of the total population in care of those practices. The data were collected prospectively for each patient with diabetes for every visit during the follow-up period from October till December 2005. Visits of person with diabetes in Croatia to family practitioners are unlimited and are defined as

meetings of patients and practitioners in practice. This study analysed visits during the regular practices working day.

### Instrument for measures

Data were registered according to the ICPC-2 components (components 1–7 for reasons of encounter, and components 2–6 for procedures during the visit). Reasons for encounter of person with diabetes were registered according to the statements and requests of the patients. Procedures done during the visits were registered independently by each other member of the team (nurse): diagnostic procedures, therapeutic and prescribed medications, preventive procedures, referrals to diagnostic procedures outside the practice, referrals to specialists by diagnoses, administrative procedures. Data were registered in electronic form other than the regular practice program.

### Statistical analysis.

Data of reasons for encounter, procedures during the visits were analysed by descriptive statistical analysis.

## Results

There were 543 persons with diabetes (women 324) in the total population of 10,150 patients. During the three month follow up period 871 visits of persons with diabetes were registered in range of 1–11 visits, average  $4.2 \pm 12.5$  visits per day. Average age of diabetic patients who visited family practitioner in the follow-up period was  $65.7 \pm 12.5$ . Women did made 583 visits or 66.9% of all visits (Table 1).

Persons with diabetes presented in total 1921 reasons for encounter or  $2.1 \pm 1.1$  per visit. Family practitioner made in total 2341 procedures or  $2.6 \pm 1.5$  procedures per visit according to ICPC-2. 85.0% of patients had 1 to 3 reasons for encounter, and 78.4% of patients had 1 to 3 procedures per visit. 64.4% of patients with diabetes presented at least one reason for encounter connected to diabetes.

The most common reasons for encounter of person with diabetes were prescriptions of medication or other therapies 46.4 per 100 reasons for encounter. The second was diagnostic procedure and prevention 19.9 per 100 reasons for encounter, request for analysis of findings 11.1, symptoms complaints 11, request for referrals to diagnostic procedures or specialist consultation 8.9 and administrative requests 1.6 per 100 reasons for encounter.

Family practitioner performed procedure prescriptions of medication or other therapies 47 per 100 procedures. The second was diagnostic procedure and prevention 32.8 per 100 procedures, referrals to diagnostic procedures or specialist consultation 14.7 and administrative procedures 1.7 per 100 procedures performed during visits of persons with diabetes (Table 1).

The largest proportion of procedure belong to endocrine metabolic (diabetics) 33.8%, followed by the circu-

latory system 25.4%, musculoskeletal 6.9%, symptoms 5.1%, respiratory 4.5% (Table 2).

Diabetic patients mentioned component 6 as a reason for the encounter in 171 cases. The physician made 357 procedures included in the componet 6. 197 referrals for consultation to specialists were given to the patients. In

total, the number of 100 referrals, 23 were to diabetologist, 15 to ophthalmologist, 13 to cardiologist.

According to morbidity reasons for all referal the diseases were ranked as follows: metabolic diseases, cardiovascular diseases, musculoskeletal,eye diseases,urinary diseases (Table 3).

**TABLE 1**  
REASONS FOR ENCOUNTER AND PROCEDURES OF PERSONS WITH DIABETES BY ICPC-2 CHAPTERS AND COMPONENTS

All visits N = 871	Reasons for encounter	Procedures	Per 100 visits Per 100 reason/procedure
Total number of reasons/procedures	1921	2431	
Reasons/procedures per visit (X±SD)	2.1±1.1	2.6±1.5	
Visits with 1 to3 reasons/procedures	740	683	*85 / 78.4
Visits with 4 and > reasons/procedures	131	188	*15 / 21.6
Visits with diabetes as reasons/procedures	561	598	*64.4 / 68.8
Symptoms, complaints	212		**11
Diagnostic, screening,prevention	384	799	**19.9 / 32.8
Treatment,procedures, medication	892	1143	**46.4 / 47
Test results	214		**11.1
Administrative	30	42	**1.6 / 1.7
Referral and other	171	357	**8.9 /14.7

N – number of visits, \* per 100 visits, \*\* per 100 reason/procedure

**TABLE 2**  
PROCEDURES AND DISTRIBUTION OF CHRONIC CONDITIONS OF PERSONS WITH DIABETES BY ICPC-2 CHAPTERS AND COMPONENTS

Components	A	B	D	F	H	K	L	N	P	R	S	T	U	W	X	Y	Z	
Symptoms, complaints																		
Diagnostic, screening prevention	112	1	13	6	10	242	31	16	3	53	20	214	17		7	5	49	799
Treatmant, procedures, medication	7	2	25	26	12	304	88	14	78	36	50	462	25		6	8		1,143
Test results																		
Administrative	1		2	3		1	2	3				21	2		2		5	42
Other		1	17	37	10	48	41	20	9	16	12	96	30		12	8		357
Diagnoses,disease																		
Total number of procedures	120	4	57	72	32	595	162	53	90	105	82	793	74		27	21	54	2,341

A – general, B – blood, D – digestive, F – eye, H – ear, K – circulatory, L – musculoskeletal, N – neurological, P – psychological, R – respiratory, S – skin, T – metabolic, endocrine, U – urinary, W – pregnancy, family planning, X – female genital, Y – male genital, Z – social

**TABLE 3**  
ANALYSIS OF COMPONENT 6 OF ICPC-2. ANALYSIS REFERRALS TO DIAGNOSTIC PROCEDURES OR SPECIALIST CONSULTATION

	A	B	D	F	H	K	L	N	P	R	S	T	U	W	X	Y	Z
*67		1	9	30	9	25	18	13	9	10	10	46	8		4	5	197
**68			8	7	1	23	19	5		6	2	50	21		8	3	153
***66							4	2									6
69													1				1
	0	1	17	37	10	48	41	20	9	16	12	96	30	0	12	8	357

\* – referral to consultant, \*\* – other referral (laboratory findings, x-ray, ultrasound, physiotherapy), \*\*\* – home care, help at home, dietitian, A – general, B – blood, D – digestive, F – eye, H – ear, K – circulatory, L – musculoskeletal, N – neurological, P – psychological, R – respiratory, S – skin, T – metabolic, endocrine, U – urinary, W – pregnancy, family planning, X – female genital, Y – male genital, Z – social

## Discussion

According to our study there were 4 to 5 visits per day to the family practitioner by persons with diabetes.

Diabetic patient presented 2.1 reason for encounter per visit according to components I–VII, ICPC – 2. Family practitioner made 2.6 procedures according to components II–VI, ICPC-2.

By using other methods, there were 2.5 problems solved during the visit of person with diabetes in comparison to 2.1 problem of other chronic patients without diabetes<sup>9</sup>. The »defensive« relation between a number of reasons for encounter and performed procedures was seen in our study. The analysis of reasons for encounter to family practitioner showed that it is a complex item. Patients perception of reasons for encounter is multifactorial, frequently considering biological, social, cultural, as well as psychological influences. There is a difference in perception of patients and practitioners in content of procedures during the visit. Patients usually expected less procedures than the practitioner performed<sup>10–12</sup>. Chronic patients does not talk about his expectations but he trusts the physicians who is treating him for a long time<sup>15</sup>.

Patient requested 1921 procedures in comparison to 2341 that were actually performed. This study didn't investigate whether all the requested procedures were really performed. The factor related to health care system could have the influence to the number of reasons for encounter and procedures conducted in this investigation<sup>16</sup>. There is a big proportion of frequent attenders in Croatia and it is well known that chronic patients make 50% of frequent attenders<sup>17</sup>. Chronic patient with diabetes is frequent visitor in family practice in Croatia in comparison to other European countries<sup>18</sup>.

Prescription is the most common reason for the encounter in our study. Literature shows that reason for encounter of chronic patients who are older than 65 are mostly request for prescription. Chronic patients and their physician mostly agreed on the prescription<sup>11,12</sup>. In the last decade the biggest changes happened especially in therapeutic approach to person with diabetes. The number of persons with diabetes that use 5 medications and more is raising. Studies shows the constant number of prescribed antidiabetic drugs, but the number of prescribed antihypertensive and hypolipemic drugs is raising<sup>4,19</sup>. It influenced the reasons for encounter and content of procedures during the visit.

There are dilemmas in some studies which find »danger« in the fact that education, support and early detection of other diseases can suffer because of the prescription especially because of the time limit of the visit. The other opinion is in the fact that new prescription needs individual coordination and adaptation because it motivates the patient for compliance and strengthen the trust between the physician and the patient. New investigations need to be targeted in that direction<sup>3–5,15</sup>.

According to literature and this study physician is oriented more towards diagnostic and therapeutic proce-

dures and results control than towards the patient's requests. On the other hand, patients are expecting more explanations and advices about their illness, ways of its curing, possibilities of care and future health<sup>10–12</sup>. This does not exclude one another but on the contrary the evaluation of the patient's condition gives the basis for further recommendations.

In the last decade there is a constant number of diagnostic procedures performed during the person with diabetes visit such as blood pressure measurement, blood sugar measurement, lipids, body weight<sup>4</sup>.

The limitation factor for our results was that we didn't know if diagnostic procedures were connected with unexplained symptoms of the new episode of the disease or with the acute exacerbation of chronic disease. There were 212 symptoms and complains recorded according to ICPC 2 or 11.0% reason for encounter. The onset of the new episode of the disease, should be separated from the reasons for the encounter and procedures.

197 referrals were issued for specialist consultations. From the total number of 100 referrals, 23 were for diabetologist, 15 for ophthalmologist, 13 for cardiologist. The literature showed the constant number of visits to diabetologist and increase in the number of visits to specialists – consultants for diabetes complications in the last decade<sup>4</sup>.

Patient with diabetes in our study is presented in a more complex comorbidity form. Most frequent comorbidity diseases in the selected group of patients with diabetes were cardiovascular diseases and locomotor diseases. Nowadays the most dynamic changes in the management of chronic diseases especially in their therapy are happening in diabetes and cardiovascular diseases<sup>4,5,19</sup>.

## Conclusion

Is the person with diabetes visit in Croatia a traditional visit of a chronic patient older than 65 to family physician? During one visit of such patient the physician is in fact managing several chronic diseases. He prescribes several different drugs and gives referrals to various consultants. The largest part among those procedures is prescription and other therapeutic procedures followed by diagnostic procedures in practice and referrals where physician takes the active part. Every visit of diabetic patient should be elaborated with its duration. This study was performed on the the selected group of chronic patients. Data should be compared with chronic patients in total population in the care of Croatian health care system, Croatia being a transitional country<sup>14</sup>.

The results of our study points to the necessity of collecting the data and research in the field of reasons for encounter and procedures during the visit of person with diabetes. The results then can be compared to the results already found in literature. The results should be translated into mechanisms of treating person with diabetes their visits to achieve the best outcome.

Educational programmes for family medicine should be targeted toward chronic comorbid patient rather than to a solitary disease.

### Limitation Factors

The most serious limitation factor is dependance on physicians self-report. The physicians were aware of the

study hypothesis and its goal and they could have aggregated or exaggerated the number of problem seen at each encounter. Collection of data according to ICPC-2 is not a routine collection of data in everyday family practice in Croatia. The other limitaton factor is a period when data were collected and seasonal respiratory symptoms could influence the results especially to the reasons for encounter.

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### STRUKTURA POSJETA OSOBA OBOLJELIH OD ŠEĆERNE BOLESTI U OBITELJSKOJ MEDICINI U HRVATSKOJ. ANALIZA RAZLOGA DOLASKA I POSTUPAKA TIJEKOM POSJETA UPORABOM ICPC-2

#### SAŽETAK

Istražili smo razloge dolaska osoba oboljelih od šećerne bolesti i postupke tijekom posjeta obiteljskom liječniku. U studiji je sudjelovalo 5 obiteljskih liječnika iz 2 županije u Hrvatskoj. Prema Međunarodnoj klasifikaciji bolesti -10 (MKB-10), izdvojeni su pacijenti s E10–E14: 543 pacijenta (324 žene) od 10 150 ukupno opredijeljenih pacijenata u skrbi obiteljskog liječnika. Podatci su bilježeni prema International Classification Primary Care-2 (ICPC-2), komponente 1–7 za razloge dolaska, a komponente 2–6 za postupke tijekom posjeta. U razdoblju listopad-prosinac 2005. Zabilježen je 871 posjet bolesnika oboljelih od šećerne bolesti prosječne dobi  $65.7 \pm 12.5$ . Pacijenti su iznijeli 1,921 razlog dolaska ili  $2.1 \pm 1.1$  razloga po posjetu. Obiteljski liječnik je učinio 2,341 postupak ili  $2.6 \pm 1.5$  postupaka po posjetu. 85.0% pacijenata iznijeli su od 1 do 3 razloga dolaska. 78.4% pacijenata imali su od 1 do 3 postupka u posjetu. 64.4% bolesnika oboljelih od dijabetesa prezentirali su najmanje 1 razlog dolaska vezan uz dijabetes. Najčešći razlog za dolazak bilo je propisivanje lijekova ili druge terapije u ordinaciji, i to 46.4 na 100 razloga dolaska. Na drugom mjestu s 19.9 su dijagnostički postupci. Ostali razlozi su: nalazi na uvid 11.1; neobjašnjeni simptomi i tegobe 11; traženje uputnica za dijagnostiku i specijalističke konzultacije 8.9; administrativni postupci 1.6 na 100 razloga dolaska. Obiteljski liječnik je propisao lijekova ili druge terapije u ordinaciji 47 na ukupno 100 postupaka. Na drugom mjestu s 32.8 su dijagnostički postupci u ordinaciji. Potom slijede: slanje na dijagnostiku i konzultacije specijalistima 14.7; administrativni postupci 1.7 na 100 postupaka u ordinaciji. Od 100 slanja specijalistima 23 su dijabetologu, 15 očnom, 13 kardiologu. Najveći udio postupaka odnosi se na za dijabetes, i to 33.8%, zatim kardiovaskularne bolesti 25.4%, lokomotorne 6.9%, neobjašnjene simptome i tegobe 5.1%, za respiratorne bolesti 4.5% postupaka. Razlozi dolaska i postupci tijekom posjeta obiteljskom liječniku imaju izravan utjecaj na kvalitetu zaštite osoba oboljelih od šećerne bolesti. Potrebno je stoga podatke bilježiti, istraživati i uspoređivati s podacima iz literature.