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Original

Achievement of Patient Care Standards established by the Agreement on Management for Diabetic Patients in the Alajuelita Health Center from January to July, 2007.

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Abstract

Aim: This study evaluates the level of compliance with quality of care standards for patients with diabetes who attend the Alajuelita Health Center and the determinant factors for non compliance, to propose suggestions aimed at improving it.

Materials and methods: This is an analytical observational cross-sectional study based on the data in the medical records of the diabetic patients. Consecutive sampling was used to analyze the medical records of 500 diabetic patients of the Alajuelita Health Center, in order to establish the level of compliance with quality standards of care for diabetic patients, between January and July 2007. The data collection was performed by a precoded sheet, whose design was based on the one used for the control of diabetic patients under the national management commitments. Forty health workers from the Area, directly related to the fulfillment of the rules of Management Commitment, were interviewed.

Results: The study identified that blood sugar level was not indicated to a total of 14 patients (2.8%). From the total of patients studied, 197(39.4%) had a blood glucose level between 101-150mg/dl; only 50 patients (10%) had a blood glucose level <100. In addition, 14 patients (2.8%) had a fasting level between 201-300 mg / dl. 63 of these 500 patients had a fasting glucose level >300, which represents a 12.6% of inadequately controlled patients. Only 25% of the patients had the HbA1c at or below 7%. A 26.3% of diabetic patients maintained this indicator between 7 and 9.9% and 7.8% above 10%. In regard to the physical plant, 32.5% of staff thinks that the physical plant of ASA is good, 22.55 think it is very good and 20% believes it is regular.

Conclusion: Only 25% of diabetic patients assessed as adequate the attention received at the Alajuelita Health Area, according to the parameters of the management commitment.

Key words: Management commitment, Diabetes Mellitus, quality standards, quality of care, HbA1c, fasting glucose level.

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Alajuelita Health Area, CCSS.
Abbreviations: AHA, Alajuelita Health Area; CRSS, Costa Rican Social Security; CG, management commitment; DM, diabetes mellitus; MR, medical records; HbA1c, glycosylated hemoglobin.
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The Costa Rican Social Security (CRSS) operates under the principles of solidarity and universal coverage in the country, without discrimination, regardless of origin, race or nationality. However, internal factors, such as failure in the fund raising system, increased spending and structural problems, have created a tendency to under-funding and non-sustainability of the institution, since the early nineties.[1,2]

Because of this, the international agencies began to question the investment projects of the CRSS, therefore, it was determined to establish a process of modernization in terms of the structure and institutional functions and resource allocation based on efficiency, which stimulate user satisfaction and improve the quality of care.[1,2]

As a regulatory tool, "management commitment" (MC) was created, which sets the standards, rules, incentives, penalties and assessments and adjustments in the implementation period, according to the planning and management control to detect deviations in meeting the goals and targets, and the redirection of resources, seeking to fit the needs of a given population. From underfunding, international financial organizations have recommended the public sector to work more efficiently and effectively in organizational management.

In the early nineties, the state begins to speak of social sector reform, and within this, the health sector, with a new direction: strengthening primary care. In turn, the Ministry of Health becomes a nationwide health vigilante governing body. The CRSS assumes the role of primary care, the preventative part; three levels of health care are established, according to the level of complexity; the reference and counter reference system between levels are promoted, to reduce service duplications and the vision of reducing the high hospital cost, by continuing the specialty services at various levels, is reinforced.[3]

A new institutional expense control mechanism is implemented, by introducing the new MC instrument, which marks the quality of service standards to users by age group, type of disease, and by the group according to the clinical characteristics– what becomes a model of health spending control-, and the CCSS quality of care (information obtained from Cerdas Angulo, Manuel, *"Effects caused by management commitment assessment in the first six months, in the Monsignor Sanabria Hospital"*, Puntarenas; MBA thesis on Sustainable Health Administration, SEP, UNED, Costa Rica, 1997).

One way to determine compliance with the quality of care at the primary level, is to study directly the compliance of the quality of care in an age group or a group of the same disease. In this case a cross-sectional study of diabetic patients in a health area was developed, as their high national prevalence and the high cost of care is an important issue.

This work aimed to study the compliance of the quality of care for diabetic users of the Alajuelita Health Area (AHA), and the determining factors in the failure to propose suggestions to improve it. It tried to show how the physical structure, the lack of training and health staff equipment contribute to flout the rules established in the MC, for the care of diabetic patients in the Alajuelita Health Area, from January to July 2007.

Materials and methods

A cross-sectional observational analytic descriptive study was conducted, based on data from the records of diabetic patients of the AHA,4 in the Alajuelita community, located south of San Jose, which is a marginal urban area.

The universe of analysis is the population of diabetics who have their medical checkups in the AHA. The target population consisted of diabetic patients with medical records in the AHA, a total of: 3088. Using a consecutive sample of the Area, 500 diabetic patient clinical files were analyzed to examine level compliance of the quality of their care, between January and July 2007. The sample included diabetic patients with associated diagnosis of hypertension and ischemic heart disease. Data collection was performed using a precoded sheet design based on that used for the control of diabetic patients, as part of MC nationwide.

To complement this, 40 Health Area workers directly related to the compliance of MC standards were interviewed. 40 employees were distributed (technicians, doctors, nurses and primary care technicians), the questionnaire about the physical plant, ventilation and lighting, space and distribution services in the Alajuelita Health Area.

The variables that were included on diabetic patient were age, sex, co morbidities, BMI, fasting glucose control, HbA1c, cholesterol and triglyceride levels, diabetic foot, -which was evaluated with PATONA- and education. Information was collected from medical consultations during the period of January to July 2007.

Results

The sample distribution of the diabetics evaluated by age and sex are shown in Figure 1. 29,6% of diabetics are men and 79,4% women. Diabetic women are most prevalent in the age group between 61-70 years old (21%), while in men prevails the group of >70 years old, which is 9,2%.

Regarding the behavior of the blood sugar levels in diabetics in the AHA, it was revealed that 2,8% of the sample were not given the test; 14,4% were given, but the result was

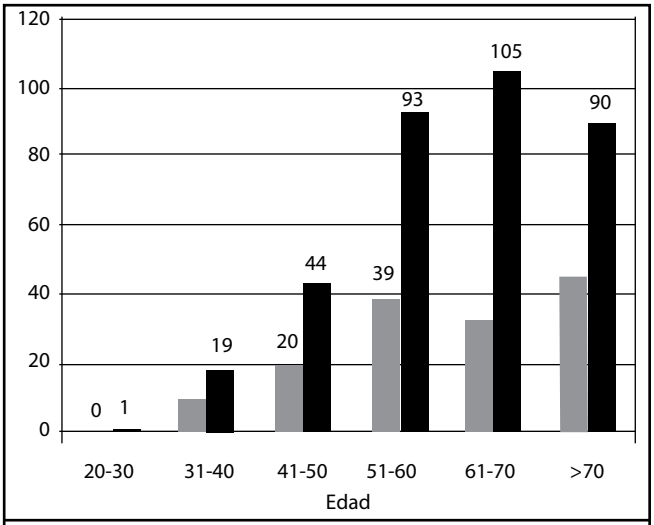

Figure 1. Distribution by age and sex of of diabetic patients from Alajuelita Health Area, studied between January and June 2007. It appears that the DM major prevalence in both sexes is between 50 and 70 years, and increases by age, more frequently in females.

not found in the file; 39,4% had blood glucose level between 101-150mg/dl; only 50 patients had blood glucose < de 100, which is 10%. In addition, 14 patients (2,8%) had a fasting blood glucose level between 201-300 mg/dl. Of these 500 patients, 63 had a fasting blood glucose >300, which is 12,6% of people poorly controlled (Table 1).

Table 1. Distribution of fasting glucose levels in a sample of diabetics of the Alajuelita Health Area, January – June 2007

Glucose mg/dl	Total	Percentage
Not indicated	14	2.8
Indicated	72	14.4
< 100	50	10
101-150	197	39.4
151-200	90	18
201-300	14	2.8
>300	63	12.6
Total	500	100%

Source: MR, Alajuelita Health Area, 2007

Table 2. Distribution of total cholesterol levels found in the records of diabetic patients studied, Alajuelita Health Area, January - June, 2007

Levels mg/dl	Total	Percentage
Not indicated	149	29.8
Indicated	60	12
< 150	38	7.6
151-200	119	23.8
201-300	119	23.8
> 300	15	3
Total	500	100

Source: MR, Alajuelita Health Area, 2007

The distribution of total cholesterol levels in diabetics that were studied shows that 29,8% of patients were not at all given the test (Table 2). 47,6% of theses diabetics maintain the level of total cholesterol between 151-300mg/dl. Only 123 patients maintain a cholesterol <150 mg/dl, which is 24,6%. The study found that 60 diabetics (12%) did not have the total triglyceride levels indicated.

166 patients were not at all given the HDL cholesterol test, which is 33,2%. Similarly, 188 were not noted in the study of the LDL levels (37,6%). Only 165 diabetic patients (33%) have an adequate level of HDL, which is > 40 mg/dl; 169 maintain the level of HDL cholesterol <40 mg/ dl (Table 3).

In table 4, the BMI behavior of the sample of diabetic patients from the Area can be seen; 3,8% of the data cannot be obtained, corresponding to patients for whom their BMI did not appear in the file. The BMI was calculated and interpreted for 96,25%. Of the total sample analyzed, 183 patients (36,6%) had a BMI between 26-30. For 119 a BMI between 31-35 (23,8%) was registered.

Measurement of glycosylated hemoglobin was not indicated at all for 110 patients (22%). It was noted that many times the AHA clinical laboratory did not meet the medical indication for an unknown reason. The glycosylated hemoglobin level was obtained for 43,6% of the sample; of these, 125 patients (25% of the total) maintain an adequate level of HbA1c. 54 patients (10,8%) had a HbA1c level

Table 3. Distribution levels of HDL and LDL cholesterol, found in the files of diabetic patients analyzed, Alajuelita Health Area, January - June, 2007

HDL mg/dl	Total	Percentage	LDL mg/dl	Total	Percentage
Not indicated	166	33.2	No indicated	188	37.6
<40	169	33.8	< 100	109	21.8
> 40	165	33	> 100	203	40.6
Total	500	100%	Total	500	100%

Source: Author's elaboration, Alajuelita Health Area, 2007

Table 4. Distribution of body mass index in diabetic patients analyzed, Alajuelita Health Area, January - June, 2007

IMC Kg/m2	Total	Percentage %
Not indicated	19	3.8
Indicated	13	2.6
< 25	82	16.4
26-30	183	36.6
31.35	119	23.8
36-40	32	6.4
41-45	45	9
> 46	7	1.4
Total	500	100%

Source: Author's elaboration, Alajuelita Health Area, 2007

between 7,[1-8.] And 39 diabetic patients maintain a level > 8 in this indicator, which is 7,8% (Table 5).

By interviewing technical personnel, it was discovered that 32,5% of the staff felt that the physical plant of the AHA is good; 22,5% said it was very good, and 20% said it was normal. 30% of the staff felt that the ventilation of the doctors and nurses offices is normal; 25% said it was good, and 17,5%, that is very good (Table 6).

Discussion

In Costa Rica, DM is one of the non-transmittable diseases whose prevalence is increasing and represents high costs for social security.[5,6] The lifestyle changes of the population, specifically in dietary habits and physical activity, have conditioned an increased incidence of chronic metabolic diseases and their complications. These changes affect the young population, which is experiencing an impact on some specific morbities, such as DM.[7-9]

The two techniques available for assessing management effectiveness of glycemic control are the measurement of glucose and the HbA1c. The latter reflects blood glucose levels in ten weeks before, and has a strong predictive value for diabetic complications. Furthermore, it allows to corroborate the accuracy of the results reported by patient self-monitoring.

Glycosylated hemoglobin (HbA1c) is useful for evaluating long-term control of DM; it is a complementary test to the fasting and postprandial glycemia.[10] Its assessment can make the necessary adjustments of the treatment in order to achieve the international goal proposals for adequate control of diabetic patients and preventing complications.[11]

Table 5. Distribution of glycosylated hemoglobin levels found in files of the diabetic patients analyzed, Alajuelita Health Area, January - June, 2007

Level %	Total	Percentage
Not indicated	101	20.2
Indicated	104	20.8
< 7	125	25
7.1-8	54	10.8
8.1-9	46	9.2
9.1-10	31	6.2
> 10	39	7.8
Total	500	100%

Source: Author's elaboration, Alajuelita Health Area, 2007.

Table 6. Results of the survey of AHA officials on the physical plant. Answers to the question if the physical plant is suitable to serve diabetic users with quality criteria, and if the ventilation of the medical offices is adequate, Alajuelita Health Area, January - June, 2007

Answer	Physical plant		Ventilation	
	No	%	No	%
Excellent	5	12,5	6	15
Very good	9	22,5	8	20
Good	13	32,5	10	25
Regular	8	20,0	11	27,5
Bad	5	12,5	5	12,5
Total	40	100	40	100

Clinical indicators for monitoring diabetes mellitus found in the cases studied in the AHA, provide an overview of the level of compliance with quality standards. It was found that the indication of the fasting glucose for patients is almost 100%, since the employees are aware of their importance for proper control in diabetic patients. Despite this, the indication for lipid profile percentage is relatively low (30%). It also emerged that the percentage of non-indication for HbA1c and other parameters required by MC by the AHA medical staff is low (22%).

It is known by many that medical personnel in health areas are very limited in time (15 minutes/ patient), and the MC evaluates more the filling of records than direct care and quality. An adjustment is necessary to relieve the medical staff of pressure from factors outside the MC.

This is the first AHA study in its 10 years of performance in the field of MC and care quality. The contribution made in staff perception of the Area, about the level of compliance with the quality of care provided to users, is important to verify treatment adherence, user satisfaction and promotion of healthy lifestyles through the prevention education program.

The education program intended for users not only promotes healthy lifestyle, it is also vital to prevent neurological and nefrological complications (white organ damage), the suffering of patients and their close relatives, and to decrease the health service costs, since the complications involve high investment for health services and, consequently, a great social cost.

Alarmingly more than one third part of the diabetic sample had a BMI between 26 and 30 Kg/m^2, indicating that most patients keep a range in between being overweight and having grade I obesity. This alludes to carelessness on the users' part, in their ideal weight, probably reflecting the socioeconomic status and lower levels of education characteristic in the investigated community.

One limitation of the study was not being able to transcribe the perceptions regarding the received care, values and expectations of Health Area users, since their participation was excluded by the lack of knowledge regarding the disease, and low levels of education, as the urban area is marginal, and these perceptions not only depend on the medical team, but also the values and feeling of user and other external factors. It was considered appropriate involve in the study the technical staff of the Health Area, since the information derived from the interview tends to be more objective from their level of training with respect to the study, making it possible to access the actual services doctors in the area.

References

1. Sojo Ana. Reformas de gestión en salud en América Latina. Revista de CEPAL 2001,27:1-35
2. Sojo Ana. Hacia unas nuevas reglas de juego: los compromisos de gestión en salud de Costa Rica, desde una perspectiva comparativa. NUCEPAL 1998; 27: 118-140.
3. Miranda Gutiérrez, Guido. La seguridad social y desarrollo en Costa Rica. Segunda edición, San José: Editorial Nacional de Salud y Seguridad Social, 1994.
4. Barrantes E., Rodrigo. Un camino al conocimiento, un enfoque cuantitativo y cualitativo. II edición. San José, EUNED. 2006.
5. Calzada L.D. Diabetes mellitus tipo 1. En: Diabetes mellitus en Costa Rica. Primera ed. Laboratorios Stein, San José 2006; 89-99.
6. Morice A, Achio M. Tendencias, costos y desafíos para la atención de las enfermedades crónicas en Costa Rica. Rev Cien Adm Financ Seg Soc 2003; 11:18-34.
7. American Diabetes Association ADA. Standards of medical care in diabetes. Diabetes Care. 2010; 33: S 13-S61.
8. Copeland k, Becker D, Gottschalk m, Hale D. Type 2 Diabetes in Children and Adolescents: Risk Factors, Diagnosis, and Clinical Diabetes 2005, 23:181-185.
9. American Diabetes Association. Type 2 Diabetes in Children and Adolescents. Pediatrics 2000:105:671-680.
10. Declaración de las Américas sobre la Diabetes. Revista Panam Health Organization 2006, 30: 261-5
11. Sacks D, Burns D, Goldstein D, Maclaren N, Mc Donald J, Parrot M. Guidelines and recommendations for laboratory analysis in the diagnosis and management of diabetes mellitus. Clinical Chemistry 2002; 48:436-472.