



HYPERDIA SYSTEM: LONGITUDINAL STUDY IN A SANITARY DISTRICT

SISTEMA HIPERDIA: ESTUDO LONGITUDINAL EM UM DISTRITO SANITÁRIO

SISTEMA HIPERDIA: ESTUDIO LONGITUDINAL EN UN DISTRITO SANITARIO

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ABSTRACT

Objective: to describe a historical series of the coverage HYPERDIA system. **Method:** a descriptive study with a quantitative approach, using the system HYPERDIA for a historical series analysis of the coverage of this system in a Health District of João Pessoa / PB / Northeastern Brazil in the period 2006-2012. Data analysis was performed with the aid of descriptive statistics. The study was based on secondary data, of public access, not constrained population groups and / or individuals. **Results:** the prevalence of hypertension from 2006 to 2012 ranged from 21 and 24.9% and diabetes between 4.6 and 5.7%. The proportion of hypertensive patients registered ranged between 43.89 and 82.91%, as a diabetic, between 83.56 and 135.02%. **Conclusion:** hypertension is a disease more prevalent than diabetes, but it was observed a lower proportion of hypertensive registered related to diabetics, requiring investment in strategies of diagnosis and registration of hypertensive patients to provide them with assistance. **Descriptors:** Information System; Hypertension, Diabetes Mellitus.

RESUMO

Objetivo: descrever uma série histórica da cobertura do sistema HIPERDIA. **Método:** estudo descritivo, com abordagem quantitativa, utilizando o sistema HIPERDIA para análise da série histórica da cobertura deste sistema em um Distrito Sanitário de João Pessoa/PB/Nordeste do Brasil, no período de 2006 a 2012. A análise dos dados foi realizada com o auxílio da estatística descritiva. O estudo foi fundamentado em dados secundários, de acesso público, que não constrangeram grupos de populações e/ou indivíduos. **Resultados:** a prevalência de hipertensão de 2006 a 2012 variou entre 21 e 24,9% e diabetes entre 4,6 e 5,7%. A proporção de hipertensos cadastrados variou entre 43,89 e 82,91%, já a de diabéticos, entre 83,56 e 135,02%. **Conclusão:** a hipertensão é uma doença mais prevalente que o diabetes, porém se observou menor proporção de hipertensos cadastrados relacionado aos diabéticos, sendo necessário investimento em estratégias de diagnóstico e cadastramento de hipertensos, para lhes garantir assistência. **Descritores:** Sistema de Informação; Hipertensão; Diabetes Mellitus.

RESUMEN

Objetivo: describir una serie histórica de la cobertura del sistema HIPERDIA. **Método:** Se realizó un estudio descriptivo, con abordaje cuantitativo, mediante el sistema HIPERDIA para el análisis de series de la cobertura de este sistema en un área de salud de João Pessoa / PB / Noreste de Brasil, en el período 2006-2012. El análisis de los datos se realizó con la ayuda de la estadística descriptiva. El estudio se basó en datos secundarios, de acceso público, que no restringirán grupos de población y / o individuos. **Resultados:** la prevalencia de la hipertensión de 2006-2012 osciló desde 21 hasta 24,9% y diabetes entre el 4,6 y el 5,7%. La proporción de pacientes hipertensos inscritos osciló entre 43,89 y 82,91%, como de diabéticos, entre 83,56 y 135,02%. **Conclusión:** la hipertensión arterial es una enfermedad más frecuente que la diabetes, pero se observó baja proporción de hipertensos registrados en relación con los diabéticos, requiriendo investimento en estrategias de diagnóstico y registro de los pacientes hipertensos para prestarles asistencia. **Descriptor:** Sistema de Información; Hipertensión; Diabetes Mellitus.

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INTRODUCTION

Hypertension and diabetes mellitus are major public health problems in Brazil. Have high prevalence, give rise to acute and chronic complications, and represent risk factors associated with cardiovascular disease. Are responsible for high rates of morbidity and mortality, increased social and economic costs arising from the use of health care services, absenteeism, early retirement and incapacity for work.¹

To reduce morbidity and mortality and reorganize attention to these grievances, the federal government implemented from the year 2000, the Plan of Reorganization of Care for Hypertension and Diabetes Mellitus. The plan aims to reorganize services to provide continued attention and qualified to patients with diabetes and hypertension. This plan prioritized the confirmation of suspected cases, the development of clinical protocols and training of health professionals, ensuring the free distribution of medicines and the creation of a computerized system for registration and tracking system known hypertensive and diabetic HYPERDIA.²

Developed in 2002, this system allows the registration of patients diagnosed with hypertension and / or diabetes in the system as well as the inclusion of systematic clinical follow-up data of these users, enables one to generate enough information for the planning and execution of actions aimed at preventing control and complications in individuals diagnosed with hypertension and / or diabetes, and may subsidize in prevention of these diseases in the general population.³ Therefore, diagnosing the system and register these users, aiming to enable monitoring in health services, is a real challenge for managers and employees of the Health System, in view of the high prevalence of these diseases, and to monitor the performance of services in this process, it is essential to monitor the coverage system in the territories.

In this scenario, the present study aims:

Formula:

Proportion of hypertensive patients:

$$\frac{\text{N}^{\circ} \text{ hypertensive registered in location and time (HIPERDIA)}}{\text{N}^{\circ} \text{ hypertensive estimated in the same place and time}} \times 100$$

The proportion of diabetic patients enrolled in the system HIPERDIA was calculated using the ratio between the number of diabetic patients enrolled in the system, during the period each year in the time series and the estimated number of

- Describe a time series of system coverage HYPERDIA.

METHOD

This is a descriptive study with a quantitative approach, using the system HYPERDIA series analysis of the coverage of this system at the Health District V, belonging to the municipality of João Pessoa / Paraíba, Brazil. The information related to the number of users registered in the system was obtained in the database system HYPERDIA. The data relating to the population over 18 years of that district was obtained SIAB Information System (Primary Care), in the period 2006-2012.

The information corresponding to the frequency of hypertensive and diabetic population for each year of the time series were obtained from the Surveillance System of Risk and Protective Factors for Chronic Non-communicable Diseases through telephone interviews (VIGITEL)⁴⁻⁹, implemented in 2006 by the Ministry of Health This system monitors the frequency and distribution of these factors in Brazilian state capitals and the Federal District through telephone interviews and online questionnaire, based on probability samples of adults living in households with fixed telephone lines.

The proportion of registrations in hypertensive HYPERDIA system was calculated based on the ratio between the number of hypertensive patients registered in the system, in the corresponding period and the estimated number of hypertensive patients. The estimated number of hypertensive patients was calculated from the frequency of individuals with hypertension in the same period, according to the database VIGITEL and the population of said Sanitary District in the corresponding year, according to data from the SIAB.

diabetic patients, which was calculated from the frequency of individuals with diabetes in the same period, according to information VIGITEL, based on the registered population SIAB.

Formula:

Proportion of diabetics:

$$\frac{\text{N}^{\circ} \text{ of diabetic patients enrolled in a particular place and time (HIPERDIA)} \times 100}{\text{N}^{\circ} \text{ of patients with diabetes estimated in the same place and time}}$$

The quantitative analysis was performed with the aid of descriptive statistics and the results interpreted with the support of literature and illustrated through graphs and tables. This study was based on secondary data, public access, not constrained population groups and / or individuals, the confidentiality of information gathered.

RESULTS

As the survey data VIGITEL regarding the prevalence of hypertension and diabetes for the year 2012 were not available during the period that included the study to calculate the system's coverage HIPERDIA for that year used the prevalence of the previous year.

It can be observed in Table 1, the prevalence of hypertension in the period 2006-2012 ranged between 21% and 24.9%

with fluctuations over the years. The number of hypertensive patients registered in the system was expanded from 3,396 in 2006 to 6,461 in 2012. The proportion of hypertensive patients registered in the system ranged between 43.89% and 82.91%, representing an increase of approximately 91% coverage of this system throughout the series studied, demonstrating a significant expansion of the monitoring of patients with this disease. This period was also expanded coverage of the Family Health Program in this Health District, as shown by the increase in population greater than or equal to 18 years enrolled in the SIAB, which was 32,371 in 2006 and was expanded to 37,110 in 2012.

Table 1. Proportion of hypertensive patients registered in the system HIPERDIA Sanitary District V of Joao Pessoa, Paraiba - Brazil in the period 2006-2012.

Year	Population ≥ 18 years registered in the SIAB	Number of registers of hypertensives (HIPERDIA)	Prevalence of hypertension (VIGITEL)
2006	32.371	3.396	23,9
2007	33.748	3.997	24,0
2008	35.293	4.136	24,9
2009	28.464	4.609	24,8
2010	30.041	4.991	25,4
2011	31.075	5.481	21,0
2012	37.110	6.461	21,0

Source: SIAB, SISHIPERDIA, VIGITEL.

In Figure 1 one can see the increase in the coverage of the information system, represented by the proportion of hypertensive patients registered in HIPERDIA over the years. It is observed that in 2006 only 43.89% of hypertensive estimates were registered in

the territory. This percentage was enlarged over the years, with the exception of 2008, which obtained a decrease of 4.64% compared to the previous year to reach 82.91% coverage in 2012.



Figure 1. Proportion of hypertensive patients registered in the system HIPERDIA Sanitary District V of Joao Pessoa, Paraiba - Brazil in the period 2006-2012.

Although the proportion of hypertensive patients registered in HIPERDIA has been dropped in 2008, there was no reduction in the number of registrations of hypertensive throughout the series. What contributed to the reduction in the proportion of hypertensive patients registered in 2008 was the expansion of the population older than 18, enrolled in the SIAB, as well as the increased prevalence of hypertension in this year.

According to Table 2, it can be observed that the proportion of diabetic patients

registered in the period 2006-2012 varied between 83.56% and 135.02%, and the year 2008 had the lowest proportion of diabetic patients registered. In this period, the prevalence of diabetes varied over the years between 4.6 and 5.7%. The number of diabetic patients enrolled in HIPERDIA System was expanded from 1,739 in 2006 to 2,355 in 2012, hovering over the years.

Table 2. Proportion of diabetic patients enrolled in the system HIPERDIA Sanitary District V of Joao Pessoa, Paraiba - Brazil in the period 2006-2012.

Year	Population ≥18 years registered in the SIAB	Number of registers of diabetics (HIPERDIA)	Prevalence of Diabetes (VIGITEL)
2006	32.371	1.739	5,3
2007	33.748	1.456	5,0
2008	35.293	1.504	5,1
2009	28.464	1.654	5,7
2010	30.041	1.756	4,6
2011	31.075	1.930	4,7
2012	37.110	2.355	4,7

Source: SIAB, SISHIPERDIA, VIGITEL.

In Figure 2, we can see the decline in the proportion of diabetic patients registered between 2007 and 2008, growing again in 2009. The highest percentage of diabetic patients enrolled was reached in the year 2012, representing an increase of 65.58%, showing a significant increase monitoring of diabetics in this Health District.

Unlike expanding the proportion of hypertensive patients, as shown in Figure 1, was constant throughout the period, the proportion of diabetic patients enrolled suffered reductions in 2007 and 2008, increasing sharply in the following years.



Figure 2. Proportion of diabetic patients enrolled in the system HIPERDIA Sanitary District V of Joao Pessoa, Paraiba - Brazil in the period 2006-2012

In figure 3, one can observe a significant decline - 14.86% in the proportion of diabetic patients enrolled in 2008 compared to 2007. This was the largest percentage reduction in the proportion of diabetic patients enrolled presented over the period analyzed. In 2010,

the largest increase occurred in the proportion of diabetic patients enrolled, which this year was increased by 24.65% over the previous year.

Regarding the proportion of hypertensive registered the largest percentage increase of

38.73% was obtained in 2009 when compared to 2008. Already the largest reduction

occurred in 2008, which fell by -4.64% over the previous year.

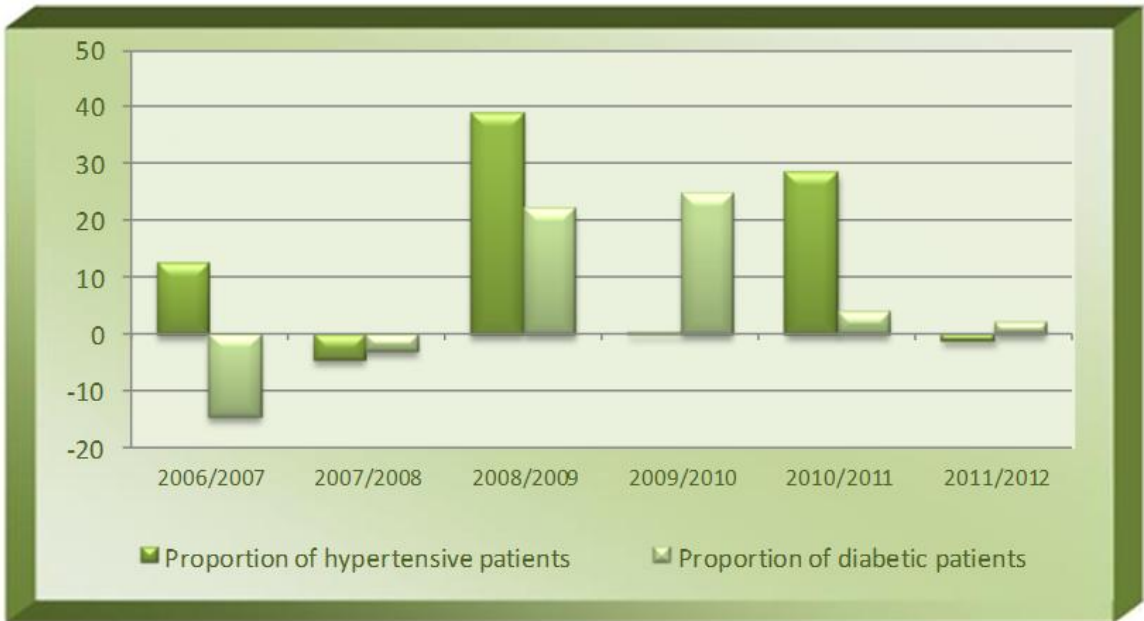


Figure 3. Percentage of enlargement and reduction of coverage hypertensive and diabetic patients enrolled in the Health District V HIPERDIA Joao Pessoa, Paraiba - Brazil in the period 2006-2012.

DISCUSSION

Based on prevalence data provided by the Ministry of Health, it was estimated that the Sanitary District V presents approximately 6,461 individuals with hypertension and 2,355 with diabetes mellitus. The coverage of the system at V DS is 82.91% to 135.02% for hypertensive and diabetic.

Regarding people with diabetes, there is a percentage of people registered more than 100%, this is related to the fact that Family Health Teams register in the system not only those users in their coverage area, but also those who are part areas that are not covered by the Family Health Strategy, surpassing the estimated value for the Sanitary District.

Despite the increase over the years in the number of hypertensive and diabetic patients enrolled in HIPERDIA there is a lower proportion of people with hypertension enrolled in the system, which shows a weakness in the health of users, making it necessary to prioritize strategies for early detection of cases of hypertension in this Health District.

Hypertension is one of the most common chronic diseases and severe clinical repercussions. It is estimated that worldwide 7.1 million people die each year because of high blood pressure and that 4.5% of the worldwide burden of disease is caused by hypertension.¹⁰

Based on the data presented in the number of registrations of hypertension and diabetes in HIPERDIA System, in Tables 1 and 2, respectively, can be observed that there is a number greater than the registered hypertensive diabetics, corroborating with

current studies demonstrating that Hypertension is a disease more common than diabetes. Possibly these findings are due to the fact that the diagnosis of diabetes requires a blood test, such as fasting or preferably glucose tolerance test, which hinders its realization in surveys.¹¹

Diabetes mellitus is one of the most common chronic diseases in almost all countries. It is estimated that in 1995 reached 4% of the adult population worldwide and that by 2025 the figure will reach 5.4%. Most of this increase will occur in developing countries, with a peak in these countries, the current standard concentration of cases in the age group 45-64 years.³ This increase is mainly due to changes in lifestyle, such as reduced physical activity and increased obesity. Estimate the current and future burden of diabetes is important in order to allocate investments to combat the spread of this disease.¹²

The health information systems aim to identify individual and collective problems, as the demographic and epidemiological situation of a population, the omission of information could interfere with the final processing of entries, negatively influencing potential studies in the epidemiological profile and disabling the monitoring and implementation of strategies that could transform the current condition of these subjects.¹³ However, it is necessary that the information available and presents good coverage quality¹⁴ and be available in due course to drive decision making appropriate.¹⁵

Among the actions that have been developed and adopted strategies for managing the city of João Pessoa with the goal of making the proportion of diabetic and

hypertensive patients registered in the system HIPERDIA increasing over the years analyzed, there is the inclusion of these indicators in Pecuniary Advantage Individual (VPI) linked to the performance of the teams of the Family Health in 2011, VPI is to transfer financial incentives to health professionals, linked to the achievement of goals.¹⁶

Continuous feeding System HIPERDIA constitutes a positive attitude, but it cannot be confused with the proper care of patients with hypertension and diabetes. The registration integrates this care; it is therefore an organizational strategy and logistics training database on health and clinical epidemiology of children assisted.¹⁷

The local information systems are then an essential tool to support the activities of health facilities, assisting in the acquisition of knowledge and contributing to the management of care, interventions aiming to approximate the frame needs of each locality.¹⁸

CONCLUSION

According to the data obtained, it was observed that the proportion of diabetes and hypertension registered in the system HIPERDIA District Health V has been expanded over the years, reflecting an advance in the care of these patients, given that the diagnosis is an essential step.

The study showed that hypertension is a disease more prevalent than diabetes, a fact that reflects the national scene. In parallel, we observed a higher number of registrations of hypertension in the system, but with a lower proportion of hypertensive patients registered in the proportion of diabetics, and therefore need to invest in strategies for diagnosis and registration of hypertensive patients, so that we can ensure care and assistance to patients with this disease.

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Submission: 2013/03/25

Accepted: 2013/05/30

Publishing: 2013/10/01

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