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## AN INSIGHT TO PREVENTION OF CHRONIC COMPLICATIONS OF DIABETES IN THE LIGHT OF COMPLEXITY<sup>1</sup>

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### ABSTRACT

**Objective:** to evaluate how primary healthcare professionals develop preventive activities to avoid chronic complications in people with diabetes mellitus.

**Methods:** complex Thought and evaluation research were used as the theoretical and methodological frameworks, respectively. The study was carried out in a medium-sized city in the South region of Brazil. Thirty-five healthcare professionals and three managers participated in the investigation. Data were collected through interviews, observation and analysis of medical records. The software ATLAS.ti and data triangulation were used to analyze the data.

**Results:** prevention was construed as an activity dissociated from the care practice; the attributed concept was neither clear nor distinct from other definitions in the healthcare field; care prioritized healing actions to the detriment of preventive ones; and the mentioned prevention was oriented to meeting goals and organizing campaigns established by regulatory agencies.

**Conclusion:** prevention in the care to people with Diabetes Mellitus in primary health care was fragmented and disconnected from a type of care that would consider the comprehensiveness needed in this process and enable preventive actions.

**DESCRIPTORS:** Diabetes mellitus. Diabetes complications. Primary health care. Evaluation of healthcare services.

## UM OLHAR PARA A PREVENÇÃO DAS COMPLICAÇÕES CRÔNICAS DO DIABETES SOB AS LENTES DA COMPLEXIDADE

### RESUMO

**Objetivo:** avaliar como os profissionais da Atenção Primária à Saúde desenvolvem atividades preventivas para evitar as complicações crônicas nas pessoas com Diabetes *Mellitus* atendidas nesse nível da atenção.

**Método:** foi utilizado como referencial teórico o Pensamento Complexo e como referencial metodológico a pesquisa avaliativa. O estudo foi realizado em um município de médio porte localizado no sul do Brasil. Participaram da pesquisa 35 profissionais de saúde e três gestores. Como técnicas de coleta de dados adotou-se: entrevista, observação e análise de prontuários. Para a análise dos dados obteve-se auxílio do *software* ATLAS.ti e empregou-se a triangulação de dados.

**Resultados:** a prevenção foi compreendida como uma atividade dissociada da prática assistencial; o conceito atribuído não era claro e nem diferenciado de outros conceitos da área da saúde; a assistência priorizava ações curativas em detrimento das preventivas; e a prevenção mencionada era mais voltada para o cumprimento de metas e de campanhas estabelecidas pelas instâncias reguladoras.

**Conclusão:** a prevenção na atenção às pessoas com Diabetes *Mellitus* na Atenção Primária à Saúde encontrava-se fragmentada e disjuntiva de uma assistência que contemplasse a integralidade e a totalidade necessária nesse processo e que fosse capaz de trabalhar nos níveis de prevenção em saúde.

**DESCRIPTORIOS:** Diabetes mellitus. Complicações do diabetes. Atenção primária à saúde. Avaliação de serviços de saúde.

# UNA MIRADA PARA LA PREVENCIÓN DE LAS COMPLICACIONES CRÓNICAS DE LA DIABETES BAJO LOS LENTES DE LA COMPLEJIDAD

## RESUMEN

**Objetivo:** evaluar cómo los profesionales de la Atención Primaria en Salud desarrollan actividades preventivas para evitar las complicaciones crónicas en las personas con diabetes mellitus atendidas en ese nivel de atención.

**Método:** se utilizó como referencial teórico el Pensamiento Complejo y como referencial metodológico la investigación evaluativa. El estudio se realizó en un municipio de mediano tamaño ubicado en el sur del país. Participaron en la investigación, 35 profesionales de salud y tres gestores. Como técnica de recolección de datos se adoptó: entrevista, observación y análisis de prontuarios. Para el análisis de los datos, se obtuvo ayuda del software ATLAS.ti, y se empleó la triangulación de datos.

**Resultados:** la prevención fue comprendida como una actividad disociada de la práctica asistencial; el concepto atribuido no estaba claro ni diferenciado de otros conceptos del área de la salud; la asistencia priorizaba acciones curativas en detrimento de las preventivas; y la prevención mencionada era más orientada hacia el cumplimiento de metas y de campañas establecidas por las instancias reguladoras.

**Conclusión:** la prevención en la atención a las personas con diabetes mellitus en la Atención Primaria en Salud se encontraba fragmentada y disyuntiva de una asistencia que contemplara la integralidad y la totalidad necesaria en ese proceso y que fuera capaz de trabajar en los niveles de prevención en salud.

**DESCRIPTORES:** Diabetes Mellitus. Complicaciones de la diabetes. Atención primaria a la salud. Evaluación de servicios de salud.

## INTRODUCTION

Care to people with Diabetes Mellitus (DM) has become an issue for health systems worldwide. Direct costs associated with this disease can be significant, depending on the local prevalence of the condition and the complexity of the treatment, especially when patients present chronic complications.<sup>1-2</sup> Estimates point to an increase in the number of people with DM and complications resulting from it.<sup>3-4</sup>

Chronic complications represent a worsening in the DM scenario. They have to be analyzed in their complexity, taking into account several events that must be considered in their plurality. To prevent complications, it is essential to control the disease, which is complex and difficult to achieve, because care and treatment involve changes in lifestyle, such as the regular practice of physical activities, a rigorous dietary control and the systematic monitoring of the patient's health through medical appointments and laboratory tests.<sup>1</sup>

Prevention is a topic that pervades several health policies, especially the ones that focus on chronic diseases, and is considered an action inherent to the care context. This agrees with the Brazilian Ministry of Health's (MH) definition of primary health care (PHC), which establishes prevention as one of the crucial elements of this branch of health care.<sup>5</sup>

Prevention is understood as a set of anticipatory actions, both in early stages of care, such as in early diagnosis, and late phases, to prevent chronic complications of DM. The classical proposal of prevention in health care by Leavell and Clark<sup>6</sup> involves three levels: primary, secondary and tertiary. Taking them as a reference, other authors added to the discussion and theoretically designed

the primordial level, which precedes the primary, and the quaternary level, which is a further step to what is stated in the tertiary.<sup>7-8</sup>

Prevention of chronic complications caused by DM is part of a complex system and involves multiple players and a plurality of situations that influence it. Because Complex Thought encompasses a systemic view, in which men and society are seen as systems that interact continuously, receiving influences and influencing other systems, it allowed an insight to the parts that integrate this context.<sup>9</sup>

Several studies describe investigations on DM in PHC,<sup>10-13</sup> nevertheless, there is a gap regarding the practice of professionals that work in this level of care; it refers to the evaluation of such practice in the prevention of chronic complications of DM and the factors that influence this process. Thus, the objective of the present study was to determine how PHC professionals develop preventive activities to avoid chronic complications in people with DM.

## METHOD

The present study is qualitative and adopted the Complex Thought and the evaluation research as the theoretical and methodological frameworks, respectively. The research was carried out in a medium-sized city in the South region of Brazil that has 31 basic health units (BHUs) and 66 family health teams (FHTs); together, they offer services to around 70% of the city's population. Each BHU has a specific number of employees and team composition. The number of FHTs in each BHU varies from one to seven, depending on the enrolled population.

The research included 38 PHC professionals, who were classified into three sample groups (SGs):

SG-1 had 29 members from FHTs (five physicians, five nurses, four nursing aides and 15 community health agents (CHAs)); SG-2 presented six professionals from the Family Health Support Center (FHSC) (two pharmacists, one physical educator, one psychologist, one social worker and one nutritionist); and SG-3 consisted of three managers (two BHU directors and one affiliated with the city government).

These participants were selected through theoretical sampling. The Primary Care Information System was consulted to find the FHTs with the highest number of patients with DM enrolled in the specified area. The members of SG-2 and SG-3 were recruited according to the references from SG-1. The FHTs that had no physician and/or nurse in the period of data collection were excluded from the study.

Data collection lasted six months and took place from December 2013 to May 2014. Three techniques were used to gather information: interviews, observation and analysis of medical records. The interviews were intensive and scheduled for dates and places predetermined by researcher and participant. All of them were conducted and recorded by one of the authors of the study, lasting from 30 minutes to 2 hours and 30 minutes.

The observation technique was used in group sessions offered by FHTs to people with DM and at some individual appointments and were recorded in the researcher's field diary. Twenty-five medical records of patients diagnosed with DM and appointed by nurses (five in each FHT) were analyzed. The authors searched the records for data on chronic complications of the disease, which were registered in individual forms designed by the researchers.

The software ATLAS.ti 7.1.7, license number 58118222, was used as a tool to help organize and analyze the data from the interviews, in which open coding was adopted, having as a reference the concept and the identification of how professionals act in the prevention of chronic complications and the axial codification resulting from the union of similar codes in two axes that corresponded to the categories presented in this study, entitled "Dissociation of prevention of chronic complications caused by DM from the care practice" and "Absence of preventive practices for people with DM in PHC".

Both data from observations and analyses of medical records were submitted to the same conceptions for analysis. In addition, they were used for support and clarification purposes in the examination of the data from the interviews and, hence, the

evaluation of the investigated context, enabling data triangulation.

The references for analysis were the protocols established by the MH for care to people with DM, mainly the Booklets on Basic Care – Diabetes Mellitus<sup>14</sup> and the Booklets on Basic Care – Strategies for the Care to People with Chronic Disease – Diabetes Mellitus.<sup>15</sup>

This research observed all the ethical aspects advocated by the National Health Council. The project was evaluated and approved (report 466855) by the Human Research Ethics Committee of the Federal University of Santa Catarina. All participants signed two copies of the free and informed consent form. To keep the anonymity of the participants, they received an identification corresponding to their profession and/or function followed by the letter P and a number referring to the inclusion of their interview in the ATLAS.ti software.

## RESULTS

The findings of the present study showed how the participants understood, conceptualized and executed prevention in their care practices to people with DM in PHC. Prevention was construed as an activity dissociated from the care practice, the attributed concept was neither clear nor distinct from other concepts in the healthcare field, and the mentioned prevention was oriented to meeting goals and organizing campaigns established by regulatory agencies.

### **Dissociation of prevention of chronic complications caused by Diabetes Mellitus from the care practice**

The participants mentioned that the Family Health Strategy (FHS) model is successful in promoting health and preventing complications. However, the healthcare professionals understood that executing preventive actions was dissociated from their care practices.

*Not prevention! I don't think so. Because more often we deal with the disease. But it (prevention) should (be a concern). Actually, it's the FHS's role to work on prevention and not when the problem is here (community health agent – P12).*

*[...] here there is a lack of preventive actions but not of treatment when the person is unwell, get it? The population should have more formal education [...]. It's impossible, if I have to work on prevention... I'm not going to see the patient, I'm going to work on prevention!*

*But I'm not going to prescribe medication, because it's impossible to do it all (physician – P11).*

The healthcare professionals stressed that the care practice prioritized healing actions in detriment of preventive ones. Prevention was an activity considered impassable and distant from the context of FHS. It was considered an extra, impossible to carry out duty, before all the existing demands.

The consulted professionals did not distinguish the terms “prevention” and “health promotion”; these expressions were referred to as activities present in events and actions separated from the daily care practice. The testimonials showed that the professionals attributed a more linear perspective to prevention, from which activities were programmed to meet the goals established by PHC regulatory institutions.

*[...] the flu campaign will be launched and we decided to organize a health promotion day and we will see many patients, there will be guiding on diabetes and odontological issues, lectures, a nutritionist from the FHSC is coming; we try to offer this preventive service (Local Manager – P32).*

*Thus, men's health, women's health, preventive exams for women between 25 and 49, which must be done every year. So this is working fine, we organize the campaigns (community health agent – P17).*

However, specific preventive activities to avoid, control and/or slow chronic complications in people with DM, who were followed by PHC professionals, were not mentioned by the interviewed participants.

### **Absence of preventive practices for people with Diabetes Mellitus in Primary Healthcare**

There were several justifications for the absence or limitation of preventive practices for people with DM in the PHC context. The main ones were difficulties experienced by the health service staff and the professionals who deliver care.

Examples of the former were lack of teaching materials to perform special prevention activities with the population, aggravated by a delayed answer by the Health Secretariat to the request for these materials, which discouraged the professionals; lack of comprehension of the local managers about prevention, which led to a valorization of healing actions, with an effort by these managers to increase the offer of medical appointments with a healing nature, answering to the population's demands unilaterally; difficulties of the municipal government to follow the daily care given by FHTs.

*Actually, that's how it works... the ones that really follow the patients are the doctor and the nurses. My job is administrative, that's what I do: I check if everything is OK, what the frequency of the group has been, if there is a space issue. It's about to know how it's going and if there's a problem, if the appointments are enough. I usually work in the backstage (Manager/BHU – P32).*

*We don't do health promotion and prevention, not at all, we're far from it. Because we don't have support for it, we don't have support from the Health Secretariat if we need materials to do something, we have to solve it all by ourselves. So, you just can't and end up giving up prevention and health promotion (Nurse – P27).*

*Prevention... I don't think so! The demand is too high, the nurse has to see the patients, sometimes there are no doctors and the other employees get overloaded with work (Nursing Aide – P6).*

Regarding their own work as people in charge of the delivery of care, the consulted professionals mentioned that lack of time was one of the main obstacles for not including preventive actions in their daily routine; this was caused by the high demand for care by the population. There was a great effort by the healthcare professionals to solve the users' most urgent problems. This effort consisted in discharging the patients in BHUs as quickly as possible, as an evidence that their issues had been solved.

The lack of time was also related to the requirements of bureaucratic activities, such as the writing of several regular reports that are used as sources of ministerial programs in several regulatory instances. Other mentioned aspect was the fact that the professionals do not show the same willingness and patience to guide people during appointments. This perception reveals that the professionals had some comprehension about their capability to develop preventive actions, but that these activities depended on their initiative, time and willingness.

*[...] we can't cover everything. The correct orientation, trying to clear up all the doubts of the person, sometimes, we can't... we don't have time, we don't have patience... it leaves something to be desired (Physician – P10).*

The participants that have been working longer in FHTs identified losses in the interactions in the care context, pointing that the current care provided cannot cover and act effectively in terms of prevention and concluded that this problem is a result of changes in individual conducts of the professionals, who started not to value health education activities oriented to prevention. They also recognized the need to change these individual conducts regarding the process of assisting PHC users. These

alterations were not indicated as something that can be started by the participants' initiative though.

*I think that if every professional played their role as it should be, things would be a lot better [...] Things have changed because of the professionals, their minds changed, they don't accept to say that it can be improved (Community Health Agent - P13).*

The city government cannot follow the actions developed by PHC professionals to people with DM closely. The result is a list of absences related to multiple deficiencies in this care level to prevent chronic complications in people with DM that use this service.

*What we are trying to do now is to get a person to visit these groups and see what they are like, who participates, how often they meet, how people react, what people say. I would like to know them and know their potential [...]. But we couldn't do it yet (City Manager - P34).*

## DISCUSSION

Preventive actions were mentioned by healthcare professionals as a fragmented activity, disconnected from their daily functions. Care and prevention were referred to as disparate duties. There was not an understanding that preventive activities should be implicit in every action carried out by them and that such activities should take place through an open and interactive dialogue with people under their care, in every appointment.

The professionals' comprehension of prevention was restricted to the primary level; they showed difficulty to associate their work with other levels of prevention, which aimed to prevent complications, even when the disease was already established. This behavior revealed an absence of commitment to secondary, tertiary and quaternary prevention levels.<sup>16</sup>

According to the Complex Thought, human beings need to develop the capacity to think about local and global problems concurrently, which implies a way to think that takes into account the parts in their connection with the whole and the other way around; thus, the theory does not accept a reductionist thinking, incapable to see the context and the global scale. Simplifying the thinking may lead to the separation of different aspects of reality, isolation of objects or phenomena of their environment and incapacity to integrate knowledge to its context and the global system. This results in the production of mutilated and fragmented knowledge, which cannot encompass the contextual realism.<sup>9</sup>

It can be noticed that the disconnection and the fragmentation of preventive actions in the care

context were present in the healthcare professionals' care to people with DM. Taking into consideration the prevention levels in health care, conducts like this might not contribute to prevent chronic complications caused by DM in people that use PHC services. Other studies focused on this level of care identified a fragmented and contradictory practice by healthcare professionals, mainly regarding the valorization of bureaucratic and procedure-centered activities.<sup>17-18</sup>

The concept of prevention was not taken as a reference to care to people with DM. Despite the fact that it is recognized by professionals as an important aspect in their practice, it was executed in comprehensive actions, such as campaigns oriented to women's or men's health and endemic diseases, e. g., dengue and flu. Thus, the definition of prevention was not clear and was mistook for the concept of health promotion.

A study carried out with FHS professionals also identified that many of them did not distinguish between the terms "health promotion" and "prevention".<sup>19</sup> Nevertheless, the former requires a collective/intersectoral effort, while the latter demands a greater commitment by the professional in the individual context and the integration with the interdisciplinary team in the care network.

Another study that sought to know the health promotion actions developed by nurses in PHC collective care revealed that these activities are seen as a wide concept and that their implementation depends on intersectoral, individual and collective efforts, which means they are not a health sector's concern only.<sup>20</sup>

As for the limitations in preventive practices directed to people with DM in PHC, the professionals focused on care oriented to acute problems and not to chronic issues. There was no participation in preventive interventions that aimed to avoid the development of late complications as recommended in the quaternary level of health prevention.<sup>8,16</sup> There was no anticipation of the possible problems resulting from this lack of prevention to people, their families, the community, and the health services and system. As the people responsible for these actions, the healthcare professionals neither adopted preventive conceptions in their care practice nor understood their duties in this context.

Preventive practices were surpassed by care actions with a healing nature, as an implicit need of the healthcare service to establish priorities for this type of care, and of the professionals to carry out actions that satisfied the daily demands in the

service linearly. However, the execution of preventive practices in the PHC context is part of a complex phenomenon marked by care, which requires multiple interactions between the people involved in the process, environment and health practices.<sup>21</sup> The healthcare professional is supposed to be the mediator of these interactions so that care is properly given.

In addition, problems were perceived and solved superficially only, and patients were not considered comprehensively before the complexity of their health/illness processes. In this context, health education, considered a basic strategy to promote health and prevention of diseases and complications,<sup>1,22</sup> was not included in the daily care practice. This situation impacts the lives of people with DM, because it affects prevention of chronic complications.

Taking into account these perceptions, care must involve the complexity of health/illness processes in patients, providing a space for an open and resolute dialogue before the particular needs of each user in a given moment. It must also help families to be inserted in the care process of people with DM, seeking to integrate their social network and the healthcare service to achieve more effective responses. Health education must be redeemed and valued as a fundamental instrument in the work of assisting people with chronic diseases, especially DM. This education must consider the specificity of the disease and the needs it creates to promote an effective and comprehensive control that can achieve prevention of chronic complications.

Prevention in the PHC context encompasses a complex dynamics involving the system, politics, management, teams and professionals in a movement of meetings and disagreements, which influences and is influenced by other intervening contexts. Among others, it is possible to mention the influence of the Unified Health System, whose implementation is unfinished; it is still pervaded by practices that did not value humanized care and the technical excellence of professionals. In addition, management is little professionalized and changes with public administration; and family and community health care is uncommon in Brazil.<sup>23</sup> Nevertheless, a study shows that access to PHC has improved with the implementation of FHS, but fragmentation and disconnection in the public health system persist.<sup>17</sup>

Taking into account the Complex Thought's network concept,<sup>24</sup> the health system, its multiple dimensions and all the involved contradictions are

capable of influencing the systems surrounding it and their multiple interconnected systems and being influenced by all of them. In this sense, the professionals' actions can be understood as a reflection of the limitations in the operationalization of this system before the multiple demands. The consequence is that some proposals are left behind.

It is necessary to change the thinking of professionals, which requires paradigmatical alterations, given that it is related to thinking structures that rule speeches and theories unconsciously.<sup>24</sup> It is important to produce a rupture in the simplifying thought whose principles are disconnection and reduction and that dominates human culture in the present days, to pave the way to insert a complex paradigm resulting from the set of new conceptions, views, findings and reflections.<sup>24</sup>

Thus, the efforts to make healthcare professionals work in the several levels of prevention must be summed when it is considered that some of the intervening factors that lead to a chronic complication of DM can be worked on in PHC services. The chronic conditions caused by DM bring suffering to patients and their families, difficulties and limitations for society and state and an increase of the demands in tertiary health services, which do not have conditions to provide long-term follow-up for people to deal with their health/illness processes.

The present study demonstrates that healthcare professionals must move forward, having the principles of health prevention levels as a theoretical framework. This includes the care related to chronic diseases, aiming to avoid their complications and the progression of the condition and consequently act effectively in the prevention chain, running through all health prevention levels.

It is important to emphasize that the present study was carried out in only one city, with healthcare professionals from five FHTs. Despite these limitations, it reveals the need for developing more research in this area and for a higher commitment from people who work in this environment to connect the care practice with the health prevention levels.

## CONCLUSION

The care provided by members of FHTs and managers to people with DM showed the existence of problems in every level of health prevention. The existing actions in the primary level were incipient and the other levels were not valued. Health care was characterized by actions focused on the imme-

diate problem and uncabable of identifying potential complications to try to prevent them.

The absences and weaknesses pointed in the present study revealed that the care to people with DM in PHC was fragmented and disconnected from a type of care that would consider the comprehensiveness needed in this process and enable preventive actions by healthcare professionals.

## REFERENCES

- American Diabetes Association. Diabetes advocacy. *Diabetes Care* [Internet]. 2016 Jan [cited 2016 Mar 18]; 39(1 Supplement):S105-6. Available from: [http://care.diabetesjournals.org/content/39/Supplement\\_1/S105.full](http://care.diabetesjournals.org/content/39/Supplement_1/S105.full)
- American Diabetes Association. Strategies for improving care. *Diabetes Care* [Internet]. 2015 Jan [cited 2016 Jan 10]; 38(Suppl 1):S5-7. Available from: [http://care.diabetesjournals.org/content/suppl/2014/12/23/38.Supplement\\_1.DC1/January\\_Supplement\\_Combined\\_Final.6-99.pdf](http://care.diabetesjournals.org/content/suppl/2014/12/23/38.Supplement_1.DC1/January_Supplement_Combined_Final.6-99.pdf)
- Zimmet PZ, Magliano DJ, Shaw JE. Diabetes: a 21<sup>st</sup> century challenge. *Lancet* [Internet]. 2014 Jan [cited 2015 Oct 13]; 2(1):56-64. Available from: [http://www.thelancet.com/pdfs/journals/landia/PIIS2213-8587\(13\)70112-8.pdf](http://www.thelancet.com/pdfs/journals/landia/PIIS2213-8587(13)70112-8.pdf)
- Barquera S, Salinas CA, Ridaura RL, Arredondo A, Dommarco JR. Diabetes in Mexico: cost and management of diabetes and its complications and challenges for health policy. *Global Health* [Internet]. 2013 [cited 2014 Mai 15]; 9(3). Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3599194/?report=classic>
- Brasil. Portaria n. 687/GM, de 30 de março de 2006: aprova a Política de Promoção da Saúde. 2006. Disponível em: [http://189.28.128.100/dab/docs/legislacao/portaria687\\_30\\_03\\_06.pdf](http://189.28.128.100/dab/docs/legislacao/portaria687_30_03_06.pdf)
- Leavell H, Clark EG. *Medicina preventiva*. São Paulo (SP): McGrawHill do Brasil; 1976.
- Alwan, A. Noncommunicable disease: a major challenge to public health in the Region. *East. Mediterr. Health J* [Internet]. 1997 [cited 2014 Abr 10]; 3(1):6-16. Available from: [http://apps.who.int/iris/bitstream/10665/117217/1/emhj\\_1997\\_3\\_1\\_6\\_16.pdf](http://apps.who.int/iris/bitstream/10665/117217/1/emhj_1997_3_1_6_16.pdf)
- Jamouille M. Quaternary prevention: first, do not harm. In: Text prepared for the 11th Congress of the Sociedade Brasileira de Medicina de Família e Comunidade (SBMFC), Brasília, Brazil. Brasília (DF); 2011 [cited 2014 Apr 10]. Available from: [http://docpatient.net/mj/P4\\_Brasilia2011\\_en.pdf](http://docpatient.net/mj/P4_Brasilia2011_en.pdf)
- Morin E. *Ciência com consciência*. 14<sup>a</sup> ed. Rio de Janeiro (RJ): Bertrand Brasil; 2010.
- Santos AEC, Souza SLP, Santos AW, Soares OMK, Yoshie YA, Antar GM. Condiciones de salud y funcionalidad de ancianos con diabetes mellitus tipo 2 en atención primaria. *Enferm Glob* [Internet]. 2014 Apr [cited 2016 Mar 05]; 13(34):1-18. Disponível: <http://scielo.isciii.es/pdf/eg/v13n34/clinica1.pdf>
- Artilheiro MMVSA, Franco SC, Schulz VC, Coelho CC. Quem são e como são tratados os pacientes que internam por diabetes mellitus no SUS? *Saúde debate* [Internet]. 2014 Jun [cited 2016 Apr 23]; 38(101):210-24. Disponível em: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0103-11042014000200210&lng=pt](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0103-11042014000200210&lng=pt).
- Barreto MNSC, Cesse EAP, Lima RF, Marinho MGS, Specht YS, Carvalho EM, et al. Analysis of access to hypertensive and diabetic drugs in the family health strategy, state of Pernambuco, Brazil. *Rev Bras Epidemiol* [Internet]. 2015 Jun [cited 2016 Apr 23]; 18(2):413-424. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S1415-790X2015000200413](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1415-790X2015000200413)
- Avelino CCV, Goyatá SLT, Nogueira DA, Rodrigues LBB, Siqueira SMS. Quality of primary health care: an analysis of avoidable hospitalizations in a Minas Gerais county, Brazil. *Ciênc Saúde Coletiva* [Internet]. 2015 Apr [cited 2016 Jan 10]; 20(4):1285-93. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S1413-81232015000401285&lng=en&nrn=iso&tlng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-81232015000401285&lng=en&nrn=iso&tlng=en)
- Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. *Diabetes Mellitus*. Brasília (DF): Ministério da Saúde; 2006.
- Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. *Estratégias para o cuidado da pessoa com doença crônica: diabetes mellitus*. Brasília (DF): Ministério da Saúde; 2013.
- Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. *Estratégias para o cuidado da pessoa com doença crônica*. Brasília (DF): Ministério da Saúde; 2014.
- Amorim ACCL, Assis MMA, Santos AM, Jorge MSB, Servo MLS. Practices of the family health team: advisors of the access to the health services? *Texto Contexto Enferm* [Internet]. 2014 Oct/Dec [cited 2016 Jan 12]; 23(4):1077-86. Available from: <http://www.scielo.br/pdf/tce/v23n4/0104-0707-tce-23-04-01077.pdf>
- Lanzoni GMM, Meirelles BHS, Cummings G. Nurse leadership practices in primary health care: a grounded theory. *Texto Contexto Enferm* [Internet]. 2016 Out [cited 2017 Feb 14]; 25(4):e4190015. Available from: [http://www.scielo.br/pdf/tce/v25n4/pt\\_0104-0707-tce-25-04-4190015.pdf](http://www.scielo.br/pdf/tce/v25n4/pt_0104-0707-tce-25-04-4190015.pdf)
- Tesser CD, Garcia AV, Vendruscolo C, Argenta CE. Estratégia saúde da família e análise da realidade social: subsídios para políticas de promoção da saúde e educação permanente. *Ciênc Saúde Coletiva* [Internet]. 2011 Nov [citado 2016 Fev 18]; 16(11):4295-306. Available from: <http://www.scielo.br/pdf/csc/v16n11/a02v16n11.pdf>

20. Maceno PR, Heidemann ITSB. Unveiling the actions of nurses in primary health care groups. *Texto Contexto Enferm* [Internet]. 2016 Dec [cited 2017 Feb 15]; 25(4):e2140015. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0104-07072016000400326&lng=en](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-07072016000400326&lng=en)
21. Rocha AS, Spagnuolo RS, Bocchi SCM. Health care: integrative review of knowledge produced in light of complexity. *Cienc Cuid Saude* [Internet]. 2013 Jan-Mar [cited 2015 Oct 10]; 12(1):189-97. Available from: [http://periodicos.uem.br/ojs/index.php/CiencCuidSaude/article/view/10722/pdf\\_1](http://periodicos.uem.br/ojs/index.php/CiencCuidSaude/article/view/10722/pdf_1)
22. Manna JL, Bushy A, Norris A, Chase SK. Early and intermediate hospital-to-home transition outcomes of older adults diagnosed with diabetes. *Diabetes Educ* [Internet]. 2016 Jan [cited 2015 Sep 20]; 42(1):72-86. Available from: [http://etd.fcla.edu/CF/CFE0004875/Lamanna\\_Jacqueline\\_201308\\_PhD.pdf](http://etd.fcla.edu/CF/CFE0004875/Lamanna_Jacqueline_201308_PhD.pdf)
23. Tesser CD. Prevenção quaternária para a humanização da atenção primária à saúde. *Mundo Saúde* [Internet]. 2012 Jun/Sep [citado 2015 Oct 12]; 36(3):416-26. Available from: [http://www.saocamilo-sp.br/pdf/mundo\\_saude/95/3.pdf](http://www.saocamilo-sp.br/pdf/mundo_saude/95/3.pdf)
24. Morin E. *A cabeça bem-feita: repensar a reforma, reformar o pensamento*. 18ª ed. Rio de Janeiro (RJ): Bertrand Brasil; 2010.

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