Chapter 53

Clinical management by telemonitoring for people with chronic disease in a Health Plan Operator

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ABSTRACT
Objective: to report and analyze the implementation of clinical management by telemonitoring for people with chronic noncommunicable disease in a health insurance provider. Method: an evaluative, single-case study conducted in 2019, based on the models of description and reapplication of interventions and attention to chronic conditions. Clinical management by telemonitoring was the studied intervention. Results: adoption or maintenance of a healthy lifestyle was the goal of this intervention that assisted, on a monthly basis, up to 200 beneficiaries with non-communicable chronic disease, with low and medium clinical risk, from a medium-sized supplementary health operator located in the Center-south of Paraná-PR. Professionals from the multidisciplinary health team, trained in counseling for behavior change, carried out actions of health education and self-management supported by monthly, synchronous and previously scheduled telecontact, during 12 months. The phone calls were recorded and stored by the operator, and the activities and self-referred clinical data were recorded in electronic medical records. Conclusion: the clinical management by telemonitoring described was implemented in a favorable context, met the proposed objective and most elements of clinical management, innovated the care for beneficiaries with chronic noncommunicable diseases, and can be reproduced.

Keywords: Disease management, Telemonitoring, Chronic disease, Health education, Self-management, Supplemental health.

1 INTRODUCTION

Chronic noncommunicable diseases (NCDs) are incurable and have slow progression, long duration, increasing prevalence, and high rates of disability, death, health care spending, and economic loss. They require continuous surveillance and innovative health interventions because prevention and self-management of the chronic condition are limited, especially in the health systems of undeveloped countries [1,2].

Self-management of the chronic condition is a systematic process of engagement, support, and learning through which affected people become proactive, make informed choices, adhere to treatment,

modify health behaviors, and develop skills such as emotion and symptom control, decision making, action planning, problem solving, adaptation, and resource utilization[1,3] .

Supported self-management can employ educational materials, social support, face-to-face training sessions, medical devices, and telemonitoring[2] , which is the use of telecommunications technology, such as telephone contacts, short message service (SMS), and video conferencing, by health care professionals in providing clinical information and services to patients at a distance[4] .

Supported self-management, health education, control of biopsychological risk factors, and the scheduling of care by generalists and specialists, constitute the clinical management[5] , implemented by health systems worldwide, especially those oriented by Primary Health Care (PHC), to innovate the care of people with low and medium risk NCDs, prevent complications, optimize the use of health services, and improve clinical outcomes[6] .

Further research on the implementation of clinical management for people with NCDs is needed because, health interventions with detailed description have a higher level of fidelity in implementation, their development in low- and middle-income countries is sparse, and their critical components and outcomes are heterogeneous in developed countries[7,2,6] .

Considering that records of similar experiences in the national health system are scarce, despite the National Agency for Supplementary Health (ANS) recommending the implementation of clinical management to health insurance companies (HMOs)[8] , this study aimed to report and analyze the implementation of clinical management by telemonitoring for beneficiaries with NCDs in HMOs.

2 METHOD

This was an evaluative and single-case study[9] , based on the models of description and reapplication of non-pharmacological health interventions[10] and of attention to chronic conditions[5] , which favors the knowledge, evaluation, and reliable reproduction of a health intervention developed for a certain group of people with the purpose of assessing, promoting, maintaining, and enhancing their health[10] .

The intervention described and analyzed was clinical management by telemonitoring for beneficiaries with NCDs, implemented in a medium-sized medical cooperative, i.e., responsible for approximately 30 thousand beneficiaries of health care plans, located in the center-south of Paraná-PR, with operations in 28 municipalities[11] .

In 2019, data was collected on the participants of the telemonitoring clinical management program (PGCT), the characteristics of the intervention, the factors that favored and hindered the implementation of the intervention activities, such as infrastructure, funding, monthly number of beneficiaries with NCDs followed up, composition and training of the health team, by documentary analysis and meetings with the managers of the SPO[7] .

The documentary analysis included ANS publications and norms on health promotion[12-15] , two international systematic reviews on telemedicine self-management studies for people with NCDs[16,17] , indexed in the database of the Online Medical Literature Analysis and Search System (MEDLINE) and resulting from the combination of the search terms "telehealth" AND "self-management" AND "chronic diseases" AND "systematic review".

Also used was OPS's management report from 2015 to 2018, which is publicly available and consists of objectives, goals, investments, performance and risks of the actions it implemented in this period[11] .

The content of the selected documents was analyzed through successive readings and organized according to the context, objectives, resources, activities, and effects of health interventions for people with chronic disease. This analysis was complemented by the authors' perceptions of the implementation of telemonitoring clinical management from discussions with PHB managers.

This study is part of a larger research, which evaluated the clinical management by telemonitoring for people with hypertension (AH) and diabetes mellitus (DM) in PHBs, approved by the Ethics Committee on Human Research of the State University of Londrina-PR, opinion number 3.107.455 of 07/01/2019, being respected the confidentiality and secrecy about unauthorized information.

3 RESULTS

The PGCT studied comprised an intervention of health education and self-management support, with an individual approach, free of charge, complementary to the usual medical care, performed by a multidisciplinary health team. In supplementary health, its offer is optional and the studied health insurance company defined that up to 200 beneficiaries with some NCD (DM, cardiovascular disease, kidney disease, and chronic respiratory disease) would be followed at home, by a synchronous telephone call, scheduled and recorded.

Between 2015 and 2018, the number of beneficiaries of this PPO increased by 16%, of which 5.6% had some NCD and represented 22.64% of its total care cost. In this period, the PPO offered to the beneficiaries medical consultations, care from other health professionals, exams, procedures, hospitalizations, and the ANS encouraged the PPOs to modify the care model with health promotion and disease prevention practices.

To manage this cost, a multidisciplinary team from the PAHO's preventive medicine sector started to hold lectures on illness prevention, bicycle rides, oriented dispensing of supplies for people with ostomies, and physical activities for the elderly.

Such actions encouraged the adoption of healthy habits, but did not characterize a program to promote health and prevent risks and diseases for beneficiaries with NCDs, which would change the healthcare

model in the supplementary sector and the quality of life of beneficiaries, and this prevented the bonus of the OPS by ANS in the annual evaluation of its performance.

Given the above, and to promote changes in the lifestyle of beneficiaries with NCDs, the PGCT was implemented in the investigated PPO. Its purpose was to inform and train beneficiaries about self-monitoring of health and rational use of services, encourage loyalty to the PPO and the preferred physician, stabilize the disease, prevent complications and multimorbidities, as well as promote satisfaction and quality of life of beneficiaries.

For the execution of the PGCT, the following materials and equipment were needed: tables, chairs, telephone lines, *headphones*, call recorder, *internet-connected* computers, in a sufficient number for the health team's use, as well as the electronic medical record, integrated to the PAHO's management information system, printed information materials about the PGCT, and copies of the informed consent and disconnection terms.

Access to the electronic medical records was restricted to the health team, and the information system allowed them to schedule activities to be performed and generated alerts about activities not completed and about hospitalizations and emergency room visits by the beneficiaries.

The PGCT participants received SMS on the day before the scheduled telecontacts, and the PPO should also offer them a 24-hour orientation center, daily, for the clarification of doubts and orientation about unscheduled demands and NCD exacerbations, with this service being performed by a specific health team.

The main actions of the telemonitoring clinical management were to identify NCD beneficiaries, validate the eligibility of NCD beneficiaries for clinical management, define the actions and procedures of the telemonitoring clinical management protocol for NCD beneficiaries, and train the team to produce information related to the monitoring and evaluation of the intervention, which were developed in four steps.

The first stage included the identification of beneficiaries with NCDs that could be included in the intervention, through an active search of the nurse coordinator of the PGCT in the health care records of the PPO. Inclusion criteria were: beneficiaries who presented monthly health care costs between R$5,000.00 and R$10,000.00, or who had three or more elective consultations, one or more emergency consultations, two or more glycated hemoglobin tests, and some ambulatory blood pressure monitoring, hospitalization, or invasive surgical procedure in the cardiocirculatory system in the last 12 months.

In the second step, the eligibility of the NCD beneficiaries of the OPS for clinical management was validated, when the nurse navigator analyzed the clinical complexity in the electronic medical records of the probable candidates and selected those with low and medium clinical risk, 18 years of age or older, residents in one of the 28 municipalities of the OPS coverage area, independent for basic daily activities,

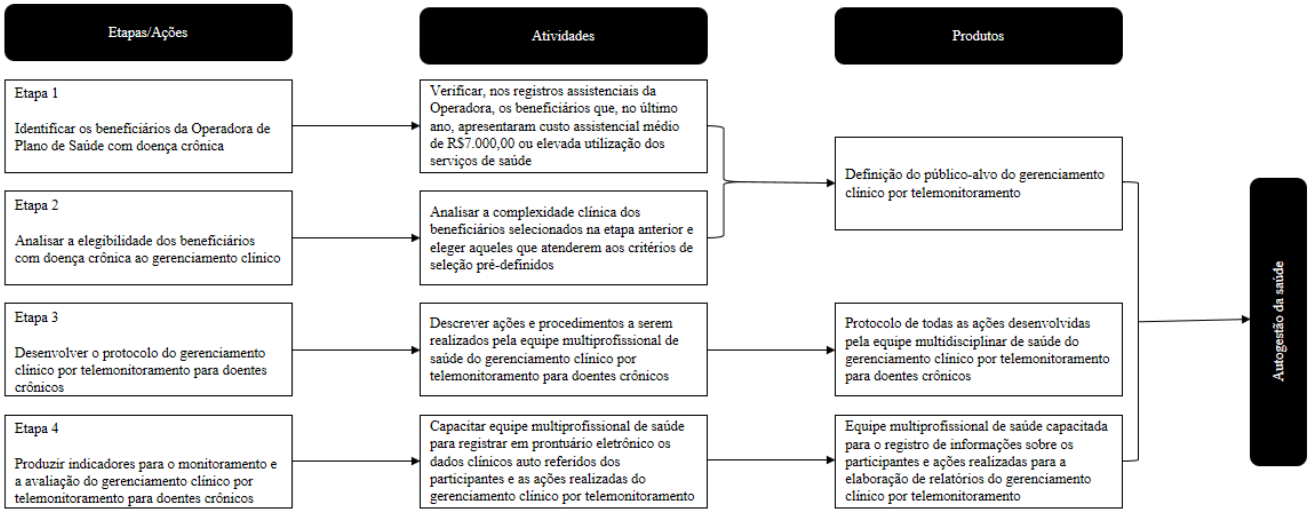
and who were not undergoing renal replacement or dialysis treatment, oncology treatment, or treatment for wounds and stomas.

The third stage consisted of developing the actions and procedures described in the telemonitoring clinical management protocol, in which the multiprofessional health team should train and monitor the participants, as well as define the support strategies to be implemented in the individualized care plan, based on scientific evidence and best practices in the care of people with NCDs.

And, in the fourth stage, the team was trained to identify the clinical data self-reported by the participants and record in electronic medical records the clinical management actions performed. The registration was facilitated because the medical record contained structured questionnaires with closed and open questions regarding the current clinical status and lifestyle habits. Such data generated information for the bimonthly monitoring and annual evaluation of this intervention.

The summary of these steps is shown in Figure 1.

Figure 1 - Summary of the steps of clinical management by telemonitoring for beneficiaries with NCDs of a medium-sized health plan operator, Centro-Sul-PR, 2020.



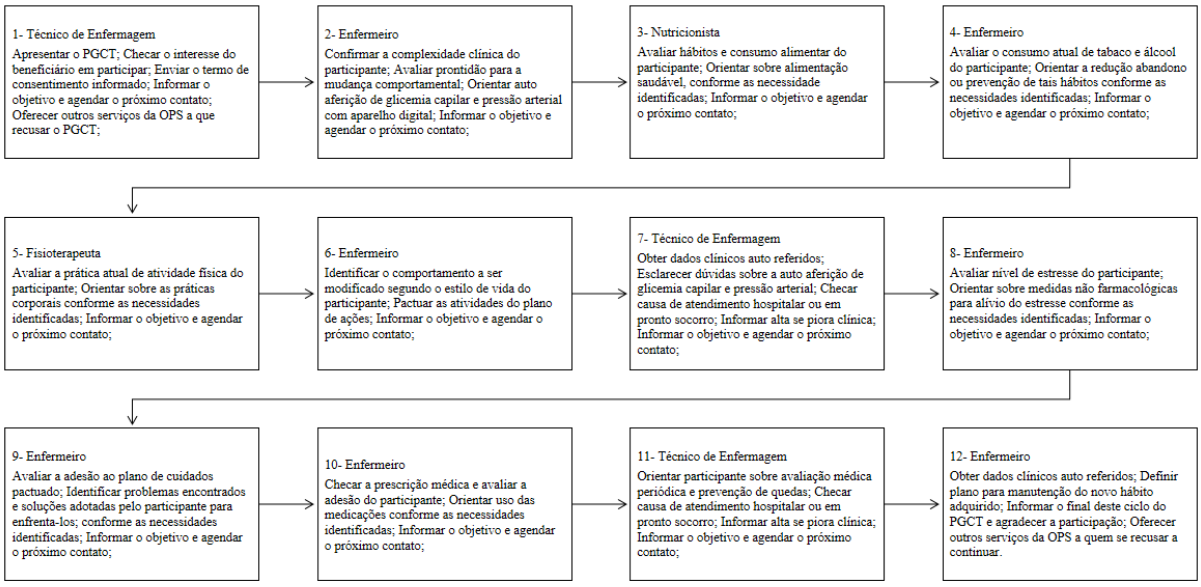
After the second step of the PGCT, performed by the nurse navigator, the beneficiaries with NCDs enrolled in the program would receive by mail the consent/membership form and the explanatory material with detailed information about it, as well as an introductory phone call from the nursing technician assigned to their follow-up.

The telemonitoring clinical management protocol would be developed in the 12 months following the introductory telephone contact, when the PGCT participants would be followed by the nurse navigator and other professionals from the multidisciplinary health team through monthly telephone calls, previously scheduled and made from 8:00 am to 8:00 pm, synchronously, recorded and stored by the PCMO, respecting the secrecy and confidentiality of the information.

The PGCT actions were carried out by nurse navigators who managed up to 100 cases, two nursing technicians, a nutritionist, and a physiotherapist, who had previous experience in managing people with NCDs and who were trained in motivational interviewing and the transtheoretical, cognitive-behavioral, and chronic condition care models.

The protocol of actions developed by the management team for beneficiaries with NCDs was described in figure 2, and none of them have changed since the implementation of the PGCT.

Figure 2 - Actions developed by the telemonitoring clinical management team for beneficiaries with chronic disease in a medium-sized health plan operator, South-Central Brazil, 2020.



It was defined that beneficiaries with NCDs who refused to participate in the program would be reapproved in the semester following the initial contact. Those who did not adhere to the therapeutic plan, had a change in clinical complexity, adopted inappropriate behavior toward the health team, or did not respond to the three telephone contact attempts would be disconnected from the telemonitoring clinical management.

Bimonthly, the nurse coordinator prepared the PGCT monitoring report with the following productivity indicators: proportion between tasks performed and those scheduled (target: over 75%), number of active participants in this program (target: at least 185 active participants), proportion between the NCD beneficiaries enrolled and those approached (target: more than 20% of those approached), number of excluded participants and the reason for their exclusion, bimonthly rate of participants who presented emergency room attendance or hospitalization (target: less than10% of participants).

The monthly costs of the PGCT, borne by the OPS, with the multidisciplinary health team, materials, and resources totaled R$49.00 for each participant. According to the nurse coordinator, from its implementation in February 2017 to the same month in 2019, the multidisciplinary health team had approached 862 beneficiaries with NCDs and 378 participated in the PGCT (average of 242 beneficiaries

assisted by the PGCT in 2019), when the adherence rate was 66.6% (number of beneficiaries participating in the PGCT/number of beneficiaries with eligible NCDs).

4 DISCUSSION

The description of the characteristics of the PGCT, activities, tasks, resources, and factors that favored and hindered its implementation allowed the analysis of its operation and expected results, and can support future and correct evaluations on the same[10] . It was verified the alignment between the objective, target audience, resources, actions, and products of the PGCT, which correspond both to the actions proposed to clinical management and to those of health promotion that can improve the national health system[5,12] .

Clinical management is formed by the management of health care risks, changes in the behavior of health professionals and users, care plan, and health care programming[5] and the PGCT verified only did not carry out systematic actions to reduce clinical risks and surveillance of incidents, errors, damages, and adverse events, because it was not articulated to medical consultations and other procedures offered by the PHC, which suggests fragmented health care.

It can be inferred that the lack of integration between the PCGT and the health services network of the studied PPO impaired the sharing of clinical information between health professionals and beneficiaries, which is fundamental to comprehensive and continuous care. On the other hand, the provision of shared, continuous care, supporting the empowerment of beneficiaries in self-management of their health, by telephone and by the multidisciplinary team coordinated by the nurse, innovated the attention to chronic conditions.

In the largest system of medical cooperative services, of the national supplementary health, the lack of storage, transmission and integration of information about the care provided in the network of health services of the PHBs persists[18] , whose disjointed performance hinders the implementation, organization and dissemination of clinical procedures and protocols, the coordination of flows and counterflows of people and products, as well as the knowledge of the health needs of the beneficiaries, essential to the promotion of health and continued and safe care[5] .

The implementation of all elements of care for chronic conditions must be prioritized and is a complex process and depends on innovative ideas, the will to change and the implementation of change by managers[5,19] . Its partial development compromises the reorganization of the health system towards health promotion and has also occurred internationally, and satisfaction with the quality of care and improvement in clinical outcomes and quality of life has been observed . [20]

The implementation of care plans in the PGCT characterized the change in behavior, both of the participants, proactive and engaged, and of the nurses, care coordinators, based on scientific evidence and supporters of self-management. Surely the training of these health professionals was adequate and their

performance would be enhanced with feedback, incentives, and continuing education actions anchored in adult education[5] .

The joint elaboration of individualized care plans is the main component of clinical management, which effectively promotes health promotion and person-centered care, satisfies health needs, provides their autonomy[5,12] and was properly implemented in the PGCT. Research indicates the success of interventions that promote the empowerment and capacity building of people with NCDs in defining goals, care plans, and overcoming barriers .[20]

By addressing the attitudes and beliefs of people with NCDs and offering them psychosocial support and evidence-based information that activates confidence and self-care skills, nursing care fosters lifestyle changes, self-management of health status, and qualification of care in health care organizations[5,21] .

In HCOs, where medical practices predominate, the role of the nurse navigator in the management of people with NCDs is promising, particularly in accessing, supporting, monitoring by telephone, and producing individualized and coordinated care. This professional guides and supports patients, family members, and caregivers on the management of the chronic condition and health care and supervises their development[22,23] .

The concept of chronic conditions care has been taught and adapted in hundreds of health services worldwide[19] and nurses, who are the majority among health professionals, when trained, develop innovative and qualified interventions for the prevention and management of NCDs, and the success of nursing care is evidenced by user satisfaction, change in risk factors, and quality of life[24,25] .

In the investigated PPO, the programming of actions for people with NCDs was represented by guidelines on preventive exams and periodic consultations with specialists and by the proactive care plan, supported, developed by the multidisciplinary health team and disarticulated from the care of the PPO's health service provider network, ratifying the fragmented health care.

In the main system of medical cooperative services, of the national supplementary health system, the use of health services is still determined by the illness of beneficiaries and the absence of orientation, control, and prioritization, which results in excessively repeated procedures, increase in health care costs, and risk to the sustainability of the PPO, which could be overcome with the coordination of care[18,5] .

Among the actions taken by the PGCT multidisciplinary health team, the assessment of the beneficiaries' health status would be enhanced by identifying their self-care capacity, self-efficacy, health literacy, readiness for change and treatment, and the severity of their chronic condition[5] .

PGCT process and outcome indicators are required by the ANS[12-15] and lack of information on improvements in participants' clinical data may prevent predicting changes in service utilization, health care costs, and quality of life.

Because it is the adoption of a new care practice for beneficiaries with NCDs, the studied PPO chose to start the PGCT for 200 participants, which explains its low coverage and reveals the limited access of supplementary health care beneficiaries to health promotion interventions[9] .

The reduction in emergency room visits and hospitalizations are indicators of the NCD stabilization of the PGCT participants[12-15] , but one cannot affirm that they are effects of this intervention, nor the desired reduction in the cost of care, because the adoption of healthy habits is the main result of educational technologies to support self-management, and the other care practices of attention to chronic conditions should also be considered[16,17] .

Although the single case study produced relevant information about an innovative intervention in supplementary health care, the generalizability of the results obtained is limited due to the uniqueness of the environment, context, and telemonitoring clinical management analyzed, as well as the interdependence among them.

From this, new research can be developed on the effects of the studied intervention, such as changes in the health status of chronically ill patients from clinical management by telemonitoring, as well as the implementation of similar interventions in other contexts, favoring their *benchmarking*.

5 CONCLUSION

The epidemic of NCDs requires changes in the long-term care of people affected by them and clinical management by telemonitoring proved to be a viable, innovative, and qualified strategy for this purpose. This intervention converged with national and international recommendations on health promotion and person-centered care, with the potential to modify the knowledge, skills, attitudes, and behaviors of beneficiaries with NCDs, despite the fragmented and discontinued care in the investigated PPO.

The telemonitoring clinical management was implemented as planned, reached the intended target population and was adequate in the support of people with NCDs, being a clinical management model that can be reproduced by other PAHOs and public health system services, including during and after the pandemic of COVID-19. Furthermore, the standardized description of this intervention will favor the subsequent analysis of its effectiveness, the decision-making process, the precise implementation of this intervention in other contexts, and the qualification of new evaluative research.

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