

Assessment of offline teleconsultations carried out at primary care units in Belo Horizonte in 2008



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Abstract

In 2004, the City Health Department of Belo Horizonte together with the School of Medicine of the Federal University of Minas Gerais implemented the BHTelehealth Program with the aim of improving the quality and the resolution capability of Primary Care. BHTelehealth allowed healthcare professionals at Primary Healthcare Units (UBS) to have access and to interact with specialists through one of its activities: teleconsultation. The goal of this study is to evaluate the use and the result of offline teleconsultations carried out in 2008. The qualitative-quantitative methodology was used to verify the frequency of use of the service available and its distribution around Healthcare Districts and the specialties consulted. In addition, the action taken by the requiring physician after the teleconsultation was also assessed. A total of 257 offline teleconsultations were carried out, with the South Center District accounting for 45.7% of them. Cardiology was the specialty with more consultations (18.4%), followed by endocrinology (11.6%), and neurology (10.1%). In 47 offline teleconsultations, information from the databank was enough for analyzing its result on the action taken by the requiring physician in terms of propedeutics, therapeutics and referrals to secondary care. In 51.1%, referral was not necessary; in 21.3%, there was referral but with drug therapy indication, general care and medical exams taken at the Primary Healthcare Unit; in 10.6% patients were referred because they needed high cost medical exams or secondary level therapeutic procedures. In 17% a new consultation was necessary. The conclusion reached was that telehealth has contributed to improve the resolution capability of Primary Healthcare, although there is still the need to further improve and to extend its use. In this regard, some proposals were made to adjust the program, even with the aim of qualifying the information within the BHTelehealth System.

Key-Words: *Telemedicine; Primary Health Care; Diagnostic Services; Referral and Consultation; Remote Consultation; Program Evaluation.*

Resumen

Evaluación de las teleconsultorías asíncronas realizadas en las unidades básicas de salud de Belo Horizonte en 2008

La Secretaría Municipal de Salud de Belo Horizonte junto con la Facultad de Medicina de la Universidad Federal de Minas Gerais implantó en 2004 el Programa BHTelesalud con el objetivo de mejorar la calidad y la capacidad de resolución de la Atención Primaria. El BHTelesalud permitió que los profesionales de las Unidades Básicas de Salud (UBS) tuvieran acceso y pudieran interactuar con especialistas mediante una de sus modalidades: la teleconsultoría. Este trabajo tuvo como objetivo evaluar la utilización y el resultado de las teleconsultorías asíncronas realizadas en 2008. Se utilizó una metodología cualitativa-cuantitativa para constatar la frecuencia de utilización del servicio brindado, su distribución por Distrito Sanitario y por especialidad consultada, así como la conducta del médico solicitante después de la teleconsultoría. Se realizaron 257 teleconsultorías asíncronas, de las cuales el Distrito Centro Sur fue responsable por 45,7% del total. La especialidad más consultada fue cardiología (18,4%), seguida por endocrinología (11,6%), y neurología (10,1%). En 47 teleconsultorías asíncronas las informaciones del banco de datos fueron suficientes para el análisis de su resultado en la conducta del solicitante en términos de propéutica, terapéutica y derivación para la atención secundaria. En 51,1% la derivación no fue necesaria; en 21,3% hubo derivación, pero con adecuación de terapia con medicamentos, cuidados generales y la realización de pruebas en la UBS; en 10,6% el paciente fue derivado, por necesitar pruebas de alto costo o terapéutica en nivel secundario. En 17% fue necesaria hacer una nueva consultoría. Concluimos que la telesalud ha contribuido para mejorar la capacidad de resolución de la Atención Básica, aunque todavía es necesario mejorar y ampliar su uso. En este sentido se elaboraron algunas propuestas de adecuación del programa, incluso para cualificar las informaciones del Sistema BHTelesalud.

Palabras-clave: *Telemedicina; Atención Primaria de Salud; Servicios de Diagnóstico; Remisión y Consulta; Consulta Remota; Evaluación de Programas y Proyectos de Salud.*

Avaliação das teleconsultorias offline realizadas nas unidades básicas de saúde de Belo Horizonte em 2008

A Secretaria Municipal de Saúde de Belo Horizonte em parceria com a Faculdade de Medicina da Universidade Federal de Minas Gerais implantou em 2004 o Programa BHTelessaúde visando melhorar a qualidade e a resolubilidade da Atenção Primária. O BHTelessaúde permitiu aos profissionais das unidades básicas de saúde (UBS) ter acesso e interagir com especialistas através de uma das suas modalidades: a teleconsultoria. Este trabalho teve como objetivo utilizar o banco de dados deste sistema para avaliar a utilização e o resultado das teleconsultorias offline realizadas em 2008. Foi utilizada metodologia quali-quantitativa para aferir a frequência de utilização do serviço disponibilizado, a sua distribuição por Distrito Sanitário e por especialidade consultada, assim como a conduta do médico solicitante após a teleconsultoria. Foram realizadas 257 teleconsultorias offline, sendo o Distrito Centro Sul responsável por 45.7% delas. A cardiologia foi a especialidade mais consultada (18.4%), seguida pela endocrinologia (11,6%), e neurologia (10,1%). Em 47 teleconsultorias offline as informações do banco de dados foram suficientes para a análise do seu resultado na conduta do solicitante em termos de propedêutica, terapêutica e encaminhamento para a atenção secundária. Em 51,1% não foi necessário encaminhamento; em 21,3%, houve encaminhamento, mas com adequação de terapia medicamentosa, cuidados gerais e a realização de exames na Unidade Básica de Saúde; em 10,6% o paciente foi encaminhado, por necessitar de exames de alto custo ou terapêutica em nível secundário. Em 17% foi necessária nova consultoria. Concluímos que a telessaúde tem contribuído para melhorar a resolubilidade da Atenção Básica, mas é necessário melhorar e ampliar o seu uso. Neste sentido foram elaboradas algumas propostas de adequação do programa, inclusive para qualificar as informações do Sistema BHTelessaúde.

Palavras-chave: Telemedicina; Atenção Primária à Saúde; Serviços de Diagnóstico; Referência e Consulta; Consulta Remota; Avaliação de Programas e Projetos de Saúde.

INTRODUCTION AND JUSTIFICATION

Telehealth is currently a well disseminated practice around the world and there is also an increasing consensus on the need to invest more in primary care in order to improve both access and quality of healthcare.¹ In 2003, the city of Belo Horizonte, known for its innovation and success in the organization of the National Health System (SUS), prepared a project to incorporate Information and Communication Technology (ICT) – BHTelehealth Project – with the aim of establishing a network for assistance support and continuous education for Primary Care. This initiative was possible thanks to the partnership established between the Government of the City of Belo Horizonte, the Federal University of Minas Gerais (UFMG), the Ministry of Health and the European Union (EU) – through the @lis Project.

The BHTelehealth Project includes several telehealth activities: offline teleconsultations, online teleconsultations, videoconferences, teleurgencies, digital ECG and distance learning courses. These different activities had been implemented in separate moments. Videoconferences were the first ones to be implemented, since at this stage of the project all the Primary Care Units received the required equipments and training.

The technology used for telehealth activities is considered to be of low cost and it includes¹: a microcomputer, a webcam and a multimedia kit at Primary Care Units; two communication networks Municipal Computing Network (RMI) that connects the Primary Healthcare Units and the Network to which the Federal University of Minas Gerais is connected, two softwares (Lótus Sametime, purchased in the market, and the BHTelehealth System developed by PRODABEL and by the Scientific Computing Lab of the

Federal University of Minas Gerais), the programming language is PHP and the database server is MYSQL.¹

Teleconsultation activities were implemented in 18 pilot units in 2006 and it was later extended to more than 70 units in the nine Healthcare Districts in 2008. That was the year of its effective use, reaching a total of 257 offline teleconsultations.

Teleconsultation is the interaction between two physicians, one physically present with or without a patient and the other one known for being very competent in a specific medical problem. They discuss a clinical case through instantaneous (online) or offline communication. Therefore, it is the introduction of a new healthcare practice and not only the incorporation of technology, requiring assessment and planning for its success.

Thus, this study was carried out supporting its justification in two reasons: one has a technological nature and the other one has an assistance feature. Through the analysis of the database information of the BHTelehealth System it was possible to evaluate the frequency and distribution of its use, the result of this new healthcare practice in the action taken by the requiring physician regarding the cases discussed. It was also possible to identify possible factors related to the incorporation of this activity.

METHODOLOGY

It was used a qualitative-quantitative methodology² and the database source of the BHTelehealth System to analyze the frequency and distribution of offline teleconsultations among the Healthcare Districts, the specialties that had more consultations and the result on the action taken by the requiring physician.

The field “suggestions” was used to assess the result of offline teleconsultations, where the specialist writes his/her opinion on the case, and the field “action taken”, where the assistant physician records his/her action after receiving the reply from the specialist. These fields are open (free text field) and are not compulsory.

A file with all offline teleconsultations done in 2008 was produced, without identifying patients and with the following fields: name of the requiring physician, district of the requiring physician, specialty of the consultant, dates of the request, date of the reply, consultant’s guidance and the action taken by the requiring physician.

All due care was taken regarding ethical issues and only the authors of this study had access to the file.

The file produced had 267 records and the first reading identified some records which were excluded due to the following criteria: one of them was a test, three were repeated records and six of them were teleconsultations sent to the wrong specialty. In these cases, the guidance of the specialist was to send the case to another consultant. Therefore, the total number of offline teleconsultations to be analyzed was 257.

After a second general reading of all the fields of the file, four description categories were established in order to consider all the situations found. Then, after a new reading the classification of offline teleconsultations was done according to the description below:

- The fields “guidance” and “action taken” were filled out in a clear manner, making possible the analysis of the result (guidance and action taken clearly informed);
- “Action taken” filled out in a non specific manner, making impossible the analysis of the result (information on action taken was not enough for the analysis);
- Field of “action taken” without information;
- Field of “suggestions” without information.

Then, a general reading of teleconsultations gathered in category one was done and four subcategories of classification were prepared:

- The requiring physician conducted the case without needing to forward the patient to Secondary Care Units (Resolution of the case at the Basic Healthcare Unit);
- Propedeutic and therapeutic proposals of the specialists were not within primary care, and it was necessary to forward the patient to secondary Reference Units;
- Proposals made by the specialists were partially adopted by the requiring physician, but in order to guarantee the integrity of care, it was necessary to for-

ward patient to Secondary Care Units (forward and intervention at Basic Healthcare Units);

- New medical exams were needed as well as more data to close the case (Unfinished case).

GOALS

The general goal of this piece of work was to see the results of the interaction between primary care physicians and specialists for the users of the National Health System (SUS).

The specific goals were:

- Verifying the frequency with which offline teleconsultations are carried out;
- Verifying which are the specialties with more consultations;
- Verifying the result of offline teleconsultation in the action taken by the requiring physician regarding propedeutics, therapeutics and referrals to Specialized Care according to the specialist’s guidance for the cases discussed.

RESULTS

Data from BHTelehealth System showed that 257 offline teleconsultations were done in 2008. There was a heterogeneous use among the Districts. The South Center District had most of them (Figure 2).

Cardiology was the specialty with more consultations (18.41%), followed by endocrinology (11.6%), neurology (10.1%) and internal medicine (7.9%) – (Figure 2).

In 72.3% of the 257 offline teleconsultations the action taken was not informed, in 6.0% information was not specific making impossible its analysis, one teleconsultation was not answered, and therefore, it was only possible to analyze 17.6 % of them. Among those where analysis was possible, results show that in 51.1% of them, the requiring physician did not forward the patient to secondary Care, in 21.3% there were referrals but there was some intervention done: adjustment of drug therapy, general care and some exams were done at the Primary Care Unit (Table 1 and 2).

The reading of the actions taken enable to notice that some healthcare professionals of primary care show satisfaction for keeping contact with teaching institutions, suggesting that the activities may also contribute to value themselves: “...I was quite satisfied with your explanation since this case causes great anxiety for me and for my patient...” (record nº 239 of the file analyzed).

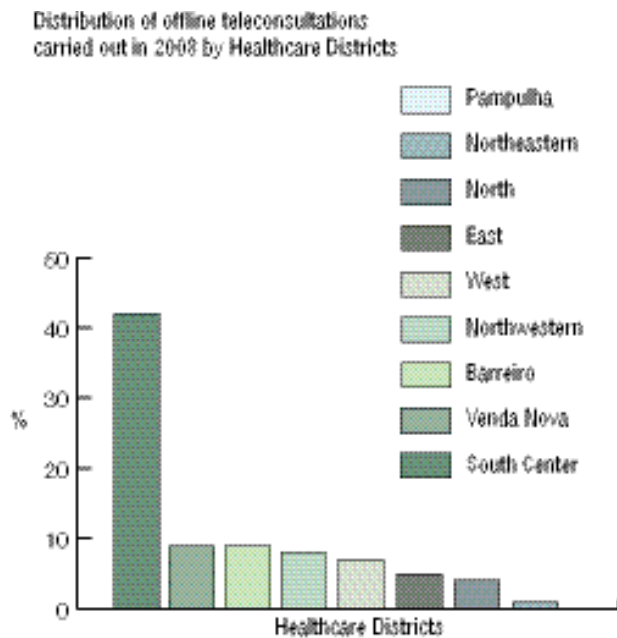


Figure 01 - Percentage distribution of offline teleconsultations by Healthcare District

DISCUSSION

Results show that the service available is being used by the Primary Care Units, since 257 offline teleconsultations were done in 2008. This use happened in a heterogeneous way among the different Healthcare Districts. Most consultations were done in the South Center District (45.7%). This can be explained by the management process used there based on continuous monitoring of the activities and with greater clarification on the potential resources with professionals, according to the results shown by another study done on the experience of this particular district.³ Northeastern and Pampulha Districts did not have computers during the period of the study and this is a factor that may explain the lower use rate when comparing with other districts that had more computers available and with a higher transmission speed. These conditions were established to meet the needs of the Electronic Medical Records. This finding is corroborated by a usability study carried out in 2008.⁴

Cardiology was the specialty with more consultations (18.41%) what may be related to the high prevalence of cardiovascular disorders among the population. However, the

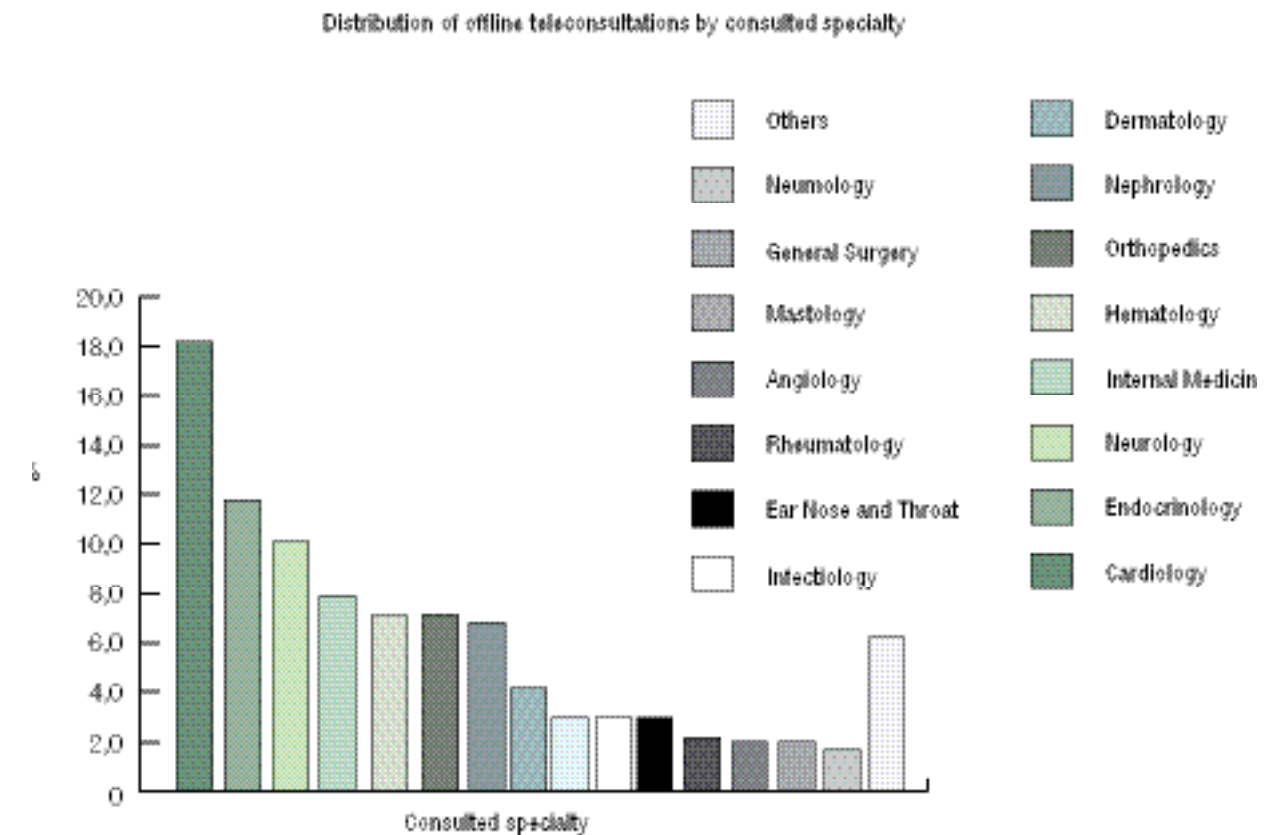


Figure 02 - Percentage distribution of offline teleconsultations by consulted specialty

lower use rate of other specialties may have other determining factors different from disease prevalence. For example, the use of imaging in dermatology is especially useful, but there is not a digital photographic camera available in each Primary Care Unit. Therefore, its use is not very practical and it may have been the cause for discouraging consultations on this specialty.

Of the 257 offline teleconsultation, 72.3% did not have information on the action taken and in 6.0% information did not enable its analysis indicating the need to qualify the recording process of the information gathered.

In the 47 offline teleconsultations where analysis was possible, results show that 51.1% of them did not forward the patient to secondary care; in 21.3% , although referral was necessary, drug therapy adjustment, general care and some exams were done at the Basic Unit; in 10.6% patients were referred for specialized assessment since they needed high cost exams or secondary care level therapeutics; and finally, 17.0% of the cases needed to obtain more information and to carry out a new consultation. These findings indicate that the discussion of the clinical case had contributed to solve the case within primary care and for the qualification of the service provided to users, however more comprehensive assessments are required due to the high percentage (72.3%) of uninformed actions taken at the used source.

According to the remarks above, the following interventions were proposed in order to offer better and greater use of offline teleconsultations:

- Codifying the field of action taken to avoid non specific information;
- Using the current electronic messages, sent to the requiring physician at the time the specialist sends his/her reply, in order to raise his/her awareness regarding the field "action taken" to avoid blank fields;
- Altering the System in order to allow as many message exchanges as necessary until the conclusion of the case, because until the study was done, only two messages could be exchanged: sending the case to the specialist and suggestions sent back to the requiring physician. This measure is expected to reduce the percentage of non-concluded cases;
- Authorizations for high cost exams have to be effective under the guidance of teleconsultation in order to contribute with the resolution at Primary Healthcare Units;
- Recording telehealth activities in the production system aiming to institutionalizing it as an activity inherent in Primary Care Units.
- Raising awareness of all managerial levels about the

need for a better organization of activities at Primary Care Units, considering offline teleconsultations in the routine scheduled by the professionals. This is considered to be a strategy of the institution to improve the resolution capability of the service provided through continuous education. This measure is supported by the successful experienced at the South Center District;

- Regular dissemination of monitoring reports of telehealth activities for all people involved, as well as the Instruction Manual of the System, specially reaching the Districts that used the resource less;
- Updating the Manual incorporating also the goals of the Telehealth Program, besides the technical instructions.

Table 2 - Action taken by the requiring physician according to the classification subcategories

Categories	N	%
Case solved at Primary Care Unit	24	51.1
Forward to secondary Care	5	10.6
Referral and intervention	10	21.3
Unfinished case	8	17.0
Total	47	

Table 1 - Description of offline teleconsultations

Description	N	%
Guidance and action clearly informed	47	17.6
Information on action were insufficient for analysis	16	6.0
Field "action taken" without information	193	72.3
Field "suggestions" without information	1	0.4
Total	257	

CONCLUDING REMARKS

This study made possible to conclude that offline teleconsultations had been used and had contributed to the resolutions of cases within Primary Care, however some adjustments are required in order to extend its use and to qualify the necessary information for its monitoring.



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