Telenursing: supporting tool for the distance continuing education process

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Abstract

This papers reports the experience at the Telenursing Project, developed by the Nursing School of the Federal University of Minas Gerais (UFMG) as integrating part of the BHTelehealth Project, in partnership with Belo Horizonte City Department of Health and with the National Telehealth Project, promoted by the Ministry of Health. It aims to develop distance training activities for nursing teams working at primary health care units in Belo Horizonte and in the state of Minas Gerais and for the teaching staff and students at the Nursing School of UFMG. It has a twofold purpose because it works on theme teleconsultation and videoconference. Videoconferences deal with the topics chosen by the community from the daily practice doubts. Teleconsultations can be done online or offline, through the site of Minas Gerais Telehealth Center, where professionals of the service units send a consultation for the teleconsultant, who registers his/her opinion on the system itself and sends it back to the professional who asked the question. Results show that the goal of the project was achieved due to the relevant participation of professionals in videoconferences, the impact of teleconsultations on the assistance process and even a closer interaction between the academic world and health care services, enabling the exchange of knowledge in a proposal that integrates professional training and practice.

Key words: *Nursing; Education, Nursing, Continuing; Telenursing; Videoconference; Telecommunications*

Resumen

Teleenfermería: herramienta de soporte al proceso de educación permanente a distancia

Se trata del relato de la experiencia vivida en el Proyecto Teleenfermería, elaborado por la Escuela de Enfermería de la Universidad Federal de Minas Gerais (UFMG) como parte integrante del Proyecto BHtelessaúde (BHTelesalud), en alianza con la Secretaría Municipal de Salud de Belo Horizonte y con el Proyecto Nacional de Telesalud, promovido por el Ministerio de Salud. Tiene por objetivo llevar a cabo actividades de capacitación a distancia de los equipos de enfermería que trabajan en las unidades de Salud de Belo Horizonte y del estado de Minas Gerais, así como de los docentes y discentes de la Escuela de Enfermería de la UFMG. Actúa en dos líneas de trabajo: teleconsultas y videoconferencias temáticas. Las videoconferencias abordan los temas indicados por la comunidad a partir de dudas de la práctica diaria. Las teleconsultas se realizan online o en diferido, mediante el sitio del Núcleo de Telesalud de Minas Gerais, donde los profesionales de las unidades de servicio envían la consulta para el teleconsultor, que registra su opinión en el sistema y la envía de vuelta al profesional solicitante. Los resultados muestran que el objetivo del proyecto fue alcanzado, considerando la participación relevante de los profesionales en las videoconferencias, el impacto de las teleconsultas sobre el proceso asistencial e incluso, un mayor acercamiento de la academia con los servicios de salud, propiciando el intercambio de saberes en una propuesta que integra la formación profesional y la práctica.

Palabras clave: *Enfermería; Educación Continua en Enfermería; Teleenfermería; Videoconferencia; Telecomunicaciónes.*

Resumo

Telenfermagem: ferramenta de suporte ao processo de educação permanente à distância

Trata-se do relato de experiência vivenciada no Projeto Telenfermagem, desenvolvido pela Escola de Enfermagem da Universidade Federal de Minas Gerais (UFMG) como parte integrante do Projeto BHTelessaúde, em parceria com a Secretaria Municipal de Saúde de Belo Horizonte e com o Projeto Nacional de Telessaúde, promovido pelo Ministério da Saúde. Objetiva a realização de atividades de capacitação a distância das equipes de enfermagem inseridas nas Unidades Básicas de Saúde de Belo Horizonte e do estado de Minas Gerais, bem como dos docentes e discentes da Escola de Enfermagem/UFMG. Atua em duas linhas de trabalho: teleconsultoria e videoconferência temática. As videoconferências abordam os temas indicados pela comunidade a partir de dúvidas da prática diária. As teleconsultorias são realizadas online ou offline, por meio do site do Núcleo de Telessaúde de Minas Gerais, onde os profissionais das unidades de serviço enviam a consulta para o teleconsultor, que registra sua opinião no próprio sistema e reenvia ao profissional solicitante. Os resultados apontam para o alcance do objetivo do projeto considerando a participação relevante dos profissionais nas videoconferências, o impacto das teleconsultorias sobre o processo assistencial e, ainda, maior aproximação da academia com os serviços de saúde, propiciando a troca de saberes, numa proposta que integra a formação profissional e a práxis.

Palavras-chave: *Enfermagem; Educação Continuada em Enfermagem; Telenfermagem; Videoconferência; Telecomunicações.*

INTRODUCTION

The Telenursing project is an extension Project from the Nursing School developed as an integrating part of the Telehealth Network in Belo Horizonte – BHTelehealth, that coordinates health care units in Belo Horizonte, the Nursing School and the School of Medicine at the Federal University of Minas Gerais (FM/UFMG) and the University Hospital, the City Department of Health, the Computing and Information Company from Belo Horizonte City Administration S.A. (PRODABEL), the @Lis Project and the Ministry of Health.

The project offers a structure that contributes to the training of nurses and nursing staff who work at primary health care units and at the units where human resources are trained, using new Information and Telecommunication Technologies (ICTs), especially those based on Internet. The purpose of the project is to look into new ways of providing assistance, considering local needs and collaborating to transform practical realities offering the possibility of Distance Education (EAD) for the health care team.

EAD is a teaching-learning strategy that allows a large number of people to access educational programs, without the limitations of time or place. It is carried out in an interactive setting with the support of educational resources. This type of education prioritize the teaching work organization with different methodological procedures that allows the student's autonomy and accountability regarding their educational process, in the moments where students and teachers are together are valued and the process is constantly evaluated by the subjects involved.[1]

Distance Education does not differ from traditional education in essence because, despite the physical distance between students and teachers, the relationship based on construction and dialogue between the involved actors on the educational process will be guaranteed. Therefore, instruments, materials and means become significantly relevant on the teaching-learning process. The access to information sources by all participants, their active performance on the educational process, exchanging information and experiences, enables them to integrate knowledge and relate them with the working setting. Currently, with the incorporation of new Information and Communication Technologies, mainly through the Internet, time and space relationships are being overcome, offering opportunities for building and accessing large knowledge bases and making possible individual and group interaction in an integrated manner.[2]

In Distance Education, technology must always be subordinated to the educational proposal. Internet is only an additional working tool in which EAD is regarded as an educational process where physical separation between teachers and students is overcome by the use of communication technical means.[3]

EAD dissemination on several industrialized countries and on some developing countries implied a strategy for quick and updating professionalization, satisfying a need of the working market and helping the worker to access professional training.

The encouragement for developing Distance Education programs in a country with continental dimensions such as Brazil required a special attention by the government. As a result, legal aspects guaranteeing the acknowledgement of distance education in professional training programs were included. An example of this is law nº 9.394/96 that establishes the Guidelines and Basis for National Education and in its article eight determines that it is the Public Authorities responsibility to encourage the development and broadcast of Distance Education programs at all teaching and continuous education levels and models.[4]

In nursing, staff preparation for providing services has been seen as a strategy for the improvement of nursing care specifically and of health care as a whole. Although the registered experiences on distance education in nursing are few, it is clear that it is an important alternative for overcoming difficulties found in training and permanent education of nursing staff, established by the scenario of the profession in the country.[5]

In this context, it is important to highlight the workforce composition, which is mainly made up of high school level professionals, as data from 2009 by the Nursing Regional Board of Minas Gerais showed[6]: 23.713 registered nurses, 57.677 Licensed Practical nurses and 42.074 nursing assistants, a total of 123.464 professional active registrations in the state. There is also the large diversity of actions performed by professionals which range from lower complexity activities to higher complexity and risk for the patient, carried out according to their training level. With these figures the need for more professional training activities is clear as this responsibility is defined as the nurse's task in the exercise of assistance coordination. Furthermore, another important issue is the geographical distribution of professionals over the differents regions of the country and the training opportunities offered by training organisms on undergraduate,

graduate and specialization levels, mostly concentrated on large urban centers, mainly in the southeastern and southern regions. There is also the use of methodologies that demand the presence of the professional in the training sessions when they have to miss working days to travel at their own expenses.

On the other hand, it is known that technological incorporation does not only mean the use of a resource as a "*mean to do differently what it is already being done",* but more like an opportunity to *"re-think what we are already doing"*. The professional has to invest constantly on updating and he/she has to assess if the technologies are suitable for the reality lived at work, developing a critical look and reflecting on his/her professional experience in order to reach health care quality.[7]

Regarding knowledge production from real situations, we first have data within a context, that is to say, the information itself. Then from this information and through principles and guidelines for work, the comprehension of the scenario will be studied in a critical and analized manner. The second step of the process is to go deeper in the contact with technology through a reflection process that will make technology suitable and it will lead to building new alternative options for training the team. This is a constant, dynamic and complex movement, revealing at the same time, the non technological suitability in a lineal way and countless possibilities of the learning process.[8,9]

METHODOLOGY

The methodological option of the Telenursing Project prioritizes the use of Communication and Information Technologies of easy access and use, besides having a low cost. The project developed in partnership with Belo Horizonte Departmento of Health used the computerized network of the Department through the interconnection with the High Speed Metropolitan Network Project (REMAVE), developed by the Scientific Computing Laboratory of the Federal University of Minas Gerais and PRODABEL. The National Telehealth Program used the information network created by the integrating municipalities of the program in each state and the interconnection among the telehealth centers at the nine states that together constitute the National Telehealth Network. The necessary hardware equipments are of simple technology and they include a personal computer with multimedia and a webcam. The software Sametime was chosen for multipoint videoconferences because it allows communication through sound, image and data transmission. With this technology available, the schedule of videoconference themes was prepared to meet local demands by nursing professionals who work at primary health care units both at the city and at the state level, with lecturers and students from the Nursing School, having the social responsibility of the university with professional training and knowledge production and dissemination as a reference. The nursing staff at the UFMG University Hospital was also included into this process, considering the continuity of the assistance process in health and the needs for updating hospital practices.

It is important to say that due to the high number of topics suggested by the team and the period of time available, it was necessary to use a strategy for defining priorities. A voting system was used during the videoconferences to select topics and determine the schedule for the semester.

Videoconferences take place every fortnight on Tuesdays and Wednesdays. The days of the week and the time (03:00pm to 04:00pm) are previously defined with health care staff of the municipalities and of Minas Gerais state. Depending on the topic proposed, professors from the Nursing School at the Federal University of Minas Gerais and well known professionals from the assistance area are invited to lecture on the topics. Videoconferences last about one hour on average with the first thirty minutes for introduction and the remaining time for real time discussion. Discussion can be done using the chat tool or upon requesting the microphone, when the participant has the opportunity to interact directly with the professors and other participants can listen to them.

From the education point of view, it was decided to consider three aspects. The first one is mainly technical because it has to do with opening up the theoretical contribution done by the teams, having the participation of professors and professionals of the health units. Then there is a discussion of the topic from the experiences developed at the services that may potentially shed a light on the work done by other teams, considering the richness of assistance alternative options and innovations used to overcome institutional limitations, with positive results in facing problems. Finally, the same topic is dealt with from the nursing operational knowledge point of view, that is to say, the working process, emphasizing organizational and assistance aspects belonging to nursing.

For assessing the activity, at the end of each videoconference an evaluation form is made available online for the participants to fill in. In this form participants enter their names and professional category, the health unit or school from which they are accessing the activity. They can also evaluate the quality of sound and image and the way the professor presented the topic and any other remark they wish to make. These forms mean one of the sources of data for evaluating the impact of the project.

Besides theme videoconferences, the project started the nursing teleconsultations aiming to keep a direct contact between the nursing professional who provides assistance at primary care units of healt and a "bank of consultants/ad hoc professionals". This system enables online and offline consultations for which nurses are selected to answer both the questions asked by professionals in real time or after the questions are answered. In the second option, these professionals send their answers by email using the project website.

RESULTS AND DISCUSSION

Until September 2009 one hundred and twenty-one videoconferences occured, including those for selecting topics and evaluating activities. Eighty-five out of the total number were carried out together with the Belo Horizonte City Department of Health and the remaining thirty six within the National Telehealth Program/Minas Gerais Center, as showed in figures 1 and 2.

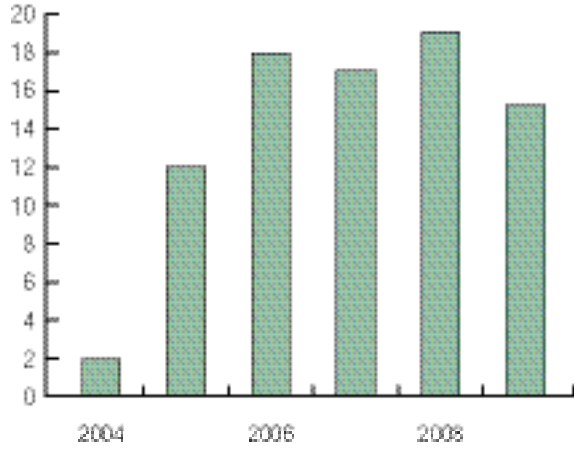

Figure 01 - Number of videoconferences done by the Telenursing Project/BHTELEHEALTH, with the year they were carried out. Belo Horizonte, 2009.

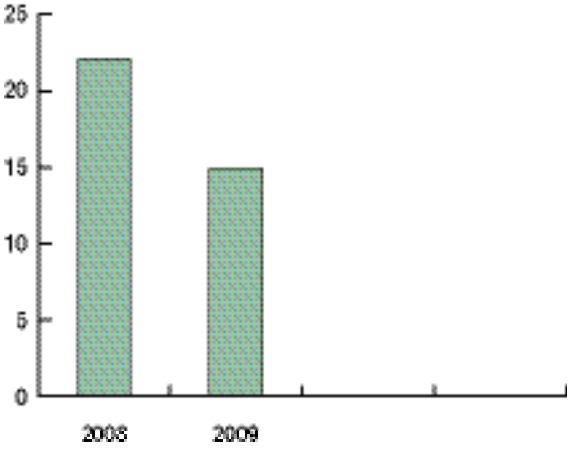

Figure 02 - Number of videoconferences done by the Telenursing Project/National Telehealth Project, with the year they were carried out. Belo Horizonte, 2009.

It is important to emphasize that the National Telehealth Program started on February 2008, that is why there are separate tables and in 2009 only videoconferences done until September are included.

The implementation of the Telenursing Project/BHTelehealth followed the proposal of the City Department of Health on gradual extension of the access centers to the system, currently including each and every health units of the city and the regional health units of the municipalities (approximately one hundred and fifty centers). For the National Telehealth Program, Minas Gerais Center has simultaneous connection with one hundred units around the state. Other units in the country such as Pernambuco, Goiás, Rio de Janeiro and Ceará have been accessing and participating in the videoconferences done at the Minas Gerais Center.

Another important aspect of the National Telehealth Program has to do with the selection of participating municipalities. Besides the criteria guided by the Ministry of Health, a priority was given to those involved with rural internship in the areas of nursing, dentistry and medicine, trying to bring teachers and students closer for field activities.

For the Telenursing Project, at the moment all twelve municipalities with Rural Internship have access possibilities to the program activities in their own municipality or in a nearby municipality. Although student participation is still low in the scheduled activities, it is already possible to see an increased participation of local level professionals, mainly on the use of the teleconsultation resource.

During the development of the project together with the City Department of Health, the participation of primary

health care units in videoconferences has showed a significant oscillation in the number of connections made, with an average of eighteen connections per videoconference. When we analyze all units the adherence rate is low, represented by approximately 13%. For the National Telehealth Program, participation rate reaches 25%. These results show the difficulties the teams are experiencing to participate in videoconferences because they are done at the same time the health units are open. There is not a specific agenda or schedule for the participation of the team. The numbers of 3.493 participants on Telenursing/BHTelehealth over the period 2004-2008 and 1.341 participants in Telenursing/National Telehealth Program confirmed this statement. It is known that participation would be higher if it was recognized as a working activity at the workplace. This situation produces discontent among professionals, expressed in the assessment forms and also when they ask to repeat topics already presented, since they do not have the chance to plan and participate in the activity. When these results were discussed with the coordinating team of the project at the Belo Horizonte City Department of health other aspects were also raised: technical difficulties for accessing the system, limited access to equipments at health units, usually in the doctor's office, during the time of the videoconference and also unexpected events and emergencies arriving at the center.

Tables 1 and 2 show the list of the topics covered on the videoconferences. It can be noticed that some topics appear frequently, making us think that these procedures have a higher incidence in assisting the population inscribed and also the need for knowledge updating due to the use of innovative process technologies. It can also be seen that professionals participate more in the discussion of these topics and they do so in a more intense way. As examples, we mention the topics related to the treatment of wounds with special dressings, immunization, group work and operative groups.

Although the results showed are still insufficient for evaluating the impact of the project, there are many positive factors that consolidate the effectiveness of the proposal. First of all, there is a greater interaction between University and primary health care units, looking for a change in the practice from the theoretical discussion based on the practical reality, as it happens for example with the updating of assistance protocols. Another important aspect is the institutional support for introducing new methodologies for professional training, together with the personal interest of those involved. In terms of institutional support we emphasize the availability of technological resources and their incorporation into the daily working process. Secondly, there are the difficulties for achieving the goals established, such as lack of planning for the participation of the staff at the time of videoconferences as an activity of their working schedule, resulting in the great variation in the number of participants in each activity done; doing their own work at the health units at the same time of the videoconference; low use rate of the teleconsultation resource by professionals and students working at health units and, less frequently, technical failures of the system with the audio, video or images.

It is evident that the project appears to be a relevant initiative for training health care teams, since professionals evaluate it as a strategy that contributes for the improved performance of the team as it brings education closer to their daily life. The incorporation of Distance Education technology into the working process brought a change into the practice, enabling the transformation of daily situations into learning opportunities using a critical analysis of the problems experienced. On the other hand, it offered the opportunity to re-organize the services using Information and Communication Technology as an instrument at the working field of the staff, especially regarding the education of the team. It is important to emphasize that the evaluation of this training strategy has its value on the political field since it facilitates building supports and the implementation of human resource development policies.

FINAL CONSIDERATIONS

Technological evolution in the communication sector is radically changing the relationship between subjects and collectivities, enabling to see new ways of providing health care assistance. Thus, the networks that bring together teaching institutions and health units in a collective process through technology speed up the identification of problems and the search for solutions, optimizing the resources available and reducing operational costs. The possibility of reaching a large number of health professionals in different geographical areas, without having to leave their places and with proven low costs is a strategy for facing the challenges posed by the globalized world, where access to information is increasingly more democratized.

Therefore, the conclusion reached is that for nursing, virtual settings do support the teaching-learning process, creating new educational possibilities and keeping the

channel open for information and communication. However, it demands individual and collective dedication from the professionals involved as well as from the experts in their specific technical domain area on information technological resources and on distance education methodologies. On the other hand, professionals on the training process are expected to be motivated, interested and with initiative to get involved in a critical and analytical learning process, where they share the responsibility for the success of their training with the instructor. The improved quality of the nursing assistance for the population justifies every investment made on the educational process of the staff.

Table 1 - List of topics covered in the videoconferences of the Telenursing/BHTELEHEALTH Project – Belo Horizonte.

Nº	Topic
1	Presentation of the proposal and selection of topics
2	Wound treatment – 1st part
3	Wound treatment – 2nd part
4	Immunbiological agents
5	Techniques for vaccine application. Dealing with doubts
6	Operational knwolegde and nature of the nursing work on vaccination
7	Practices of assistance network of the Belo Horizonte City Department of Health
8	Good practices on the work with groups at the Belo Horizonte City Department of Health (Belo Horizonte Town Administration)
9	Theoretical approach on working with groups, topic organization
10	Nursing operational knowledge/working process.
11	Implementation of Rotavirus vaccine at the city health care network – BH
12	Tele-nursing evaluation and survey of topics
13	Humanization 1st part
14	Humanization 2nd part
15	Heel-stick test – 1st part
16	Heel-stick test – 2nd part
17	Team work at primary health care units
18	Team work at primary health care units
19	Acute respitarory diseases
20	Acute respiratory diseases II
21	Teenage Pregnancy
22	Teenage Pregnancy
23	Human Rabies and basic care provided to victims attacked by animals I
24	Nutritional Disorders in childhood
25	Nutritional Disorders in childhood
26	Human Rabies and basic care provided to victims attacked by animals II
27	Health Policy for the Elderly
28	Nursing Care Strategy for the Elderly
29	Survey of topics for the 2nd semester of 2006
30	Vaccination room
31	Bio safety: supporting activity/sterilization
32	Bio safety: supporting activity/laundry room
33	Care provided to the acute patient and the relationship with the Emergency Units

continues...

Table 1 - List of topics covered in the videoconferences of the Telenursing/BHTELEHEALTH Project – Belo Horizonte.

Nº	Topic
34	Treating wounds with special covering
35	Treating wounds with special covering
36	Home care
37	Vaccination Room: BCG
38	Nursing Care Interface and dental health
39	Nursing Assistance with bladder tubes
40	Nursing Assistance with patients using NGT and NET
41	Assessing the activities of the semester and survey of topics for the 2nd semester of 2007
42	Emergency Care at Primary health care units: discussion and training
43	Nursing Assistance in cancer prevention: cervical, breast and prostate
44	Nursing Assistance Integration between the primary care network and hospital care for patient undergoing chemotherapeutic treatment
45	Care for the tracheostomized patient
46	Nursing situation regarding drug prescription and request for exams
47	Nursing Homecare to patients living in low risk areas: experiences and conduct
48	Progress made in treating wounds
49	Telenursing 2007 evaluation and selection of new topics for the 1st semester of 2008
50	Inter-sector care for the fragile elderly patient with the loss of family ties
51	Alcoholism, psychiatric patients and relationship with their family members
52	Welcoming: patients without a previous appointment arriving at the primary health care units
53	Family Health Program dealing with teenagers
54	Treating wounds
55	Drug prescription and request for exams by the nurse
56	Winter diseases – topic included in the schedule due to an emergency situation
57	STD flow and Nosoenteral Tube Technique
58	Pregnancy Diabetes
59	Telenursing 2007 evaluation and selection of new topics for the 2nd semester of 2008
60	Family accountability when caring for the fragile elderly patient
61	Risk classification when welcoming patients
62	Vaccination updating
63	Nursing assistance for patients with high blood pressure and diabetes
64	Urgency and Emergency in primary care
65	Nursing consultation
66	Pharmacology Updating/Pharmacy sector
67	Coordination between the Family Health Program and covering sectors in the Health Community at the same time
68	Sex and teenagers/teenage pregnancy
69	Assessment and survey of topics
70	Nursing at Death Committe: why is important to participate?
71	Sex and Pregnancy in teenagers
72	Family Health Team Follow up and Monitoring
73	Community Health Agent Supervision

continues...

Table 1 - List of topics covered in the videoconferences of the Telenursing/BHTELEHEALTH Project – Belo Horizonte.

Nº	Topic
74	Emergency Entrance at the primary health care units
75	Organization and Planning process of nursing assistance
76	Accident with dangerous biological material
77	Care on diabetic feet
78	Coordinating homecare done by Family Health Teams, the Homecare Program and the Family Health Support Unit
79	Educational Practices on Health
80	Semester evaluation and survey for new topics for the 2nd semester/2009
81	Planning and Organization Process on nursing assistance at primary care units of health
82	Educational Practices on Health
83	HAS Protocol
84	Dealing with Human Rabies
85	Updating Immunization

Table 2 - List of topics covered by the videoconferences of the Telenursing Project/National Telehealth Program Belo Horizonte.

Nº	Topic
1	Treating wounds; care protocol for wounding evolution; all the content
2	Primary care nursing protocol
3	Welcoming and screening / welcoming attributions
4	Women's Health
5	Sterilizition, desinfection, CME; chemical/biological tests on sterilization
6	Child Care
7	First aid
8	Vaccine administration technique
9	Urgency and emergency in primary care
10	Interpreting exams results
11	Pre-natal/nursing conduct
12	HAS and MD
13	Prescription protocol and request for exams by nurses
14	STD
15	Coronary Diseases
16	Accident prevention at health centers
17	Implementation of NR 32 (standard)
18	Dealing with teenage patients
19	Techniques for operative groups
20	Teenage Pregnancy
21	Administration in nursing
22	Manchester Protocol in Primary Care (Welcoming, Screening)
23	Following up patients with CA
24	Dermatitis
25	Respiratory Infections in pediatrics – program: "The child that wheezes"

continues...

Table 2 - List of topics covered by the videoconferences of the Telenursing Project/National Telehealth Program Belo Horizonte.

Nº	Topic
26	Requesting and interpreting exams
27	Team work – coordinated management
28	Injectable drugs at primary atention health centers (necessary support for emergencies)
29	Mental health in primary care: assistance and follow up
30	High risk pregnancy in teenagers
31	First aid techniques
32	Final evaluation of videoconferences and selecting topics for the 2nd semester/2009
33	High Venous Pressure
34	Risk classification in primary care
35	Dealing with the elderly in basic care
36	Clinical alterations in pregnancy

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