

Nursing's Role in Tuberculosis Control: a Discussion from the Perspective of Equity

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This paper aims to analyze nurses' role in tuberculosis control from the perspective of equity in the context of Latin American countries. Tuberculosis is frequently associated with poverty, but many other determinants play an important role in its prevalence. Latin American countries fight against the presence of this illness and nursing professionals play a protagonist role in TB control, proposing comprehensive interventions in different spheres – individuals, families and society. The focus of nursing intervention ranges from public policy proposals, based on epidemiological research, through the establishment of multi-sector programs, to direct care and client education at the operative level. Different professional nursing institutions can play a decisive role in this problem's integral approach, both in national and international scopes. This requires the establishment of educative, social, technical and politically integrated support networks.

Descriptors: Tuberculosis; Social Inequity; Nursing.

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O papel da enfermagem no controle da tuberculose: uma discussão sob a perspectiva da equidade

O objetivo do presente artigo foi analisar o papel do profissional da enfermagem no controle da tuberculose, sob a perspectiva da equidade, no âmbito dos países da América Latina. A tuberculose está frequentemente associada à pobreza, mas muitos outros determinantes contribuem de modo importante para sua prevalência. Os países sul-americanos lutam contra essa enfermidade e a enfermagem possui papel de protagonista no controle desse problema, reivindicando intervenções integrais, voltadas para as diferentes esferas: individual, familiar e social. A intervenção da enfermagem é enfocada desde o desenho das políticas públicas, com base em estudos epidemiológicos, mediante a implementação de programas multissetoriais, até a assistência direta e a educação dos usuários no plano operativo. Diferentes instituições profissionais da enfermagem podem desenvolver atuação decisiva para a abordagem integral do problema, no âmbito nacional e internacional, devendo, para isso, estabelecer redes de apoio integradas às dimensões educativas, social, técnica e política.

Descritores: Tuberculose; Inequidade Social; Enfermagem.

El rol de la enfermería em el control de la tuberculosis: una discusión desde la perspectiva de la equidad

El objetivo del presente artículo es analizar el rol de la enfermera en el control de la tuberculosis desde la perspectiva de la equidad, en el ámbito de los países latinoamericanos. La tuberculosis está asociada frecuentemente con la pobreza, pero muchos otros determinantes juegan un rol importante en su prevalencia. Los países latinoamericanos luchan contra la presencia de esta enfermedad y la enfermería juega un rol protagónico en el control de este problema planteando intervenciones integrales en diferentes esferas del individuo, de la familia y de la sociedad. La intervención de enfermería se extiende desde el planteamiento de políticas públicas, basadas en estudios de base epidemiológica, mediante la implementación de programas multisectoriales, hasta la atención directa y la educación de los usuarios en el plan operativo. Las diferentes instituciones profesionales de enfermería pueden desarrollar un papel decisivo en el abordaje integral del problema, no sólo en el ámbito nacional sino también en el internacional, para esto se requiere establecer redes de apoyo con integración educativa, social, técnica y política.

Descriptores: Tuberculosis; Inequidad Social; Enfermería.

Introduction

Anyone is entitled to the best possible level of physical and mental health, especially regarding: food, clothing, housing, medical care and the necessary social services; these aspects are clearly highlighted in the International Council of Nurses' Ethics Code and mark the nursing profession's global agenda⁽¹⁾. This right should be assumed as a social commitment since nursing education, proposing themes like human rights, equity, justice and solidarity in the course curriculum, which would constitute the base for fair access to health⁽²⁾.

In South America, health problems affecting the population are connected with poverty and discrimination. "Who lives in poverty has less access to basic services like: clean water, sanitation or health care"⁽³⁾.

According to calculations by the Economic Commission for Latin America (CEPAL), in the last 20 years, poverty on the continent has not dropped below 40% of its population; with an upward trend⁽⁴⁾. Approximately 1,000 million people live in poor neighborhoods nowadays, and this figure is expected to

double in the poorest countries within the next 30 years; about 80% of the urban population lives in miserable neighborhoods⁽⁵⁾.

State reforms all over Latin America have taken place in the framework of the crisis in production capital and the restructuring of production, which are still ongoing. Criticism against the model adopted in most Latin American countries is particularly directed at its characteristics that privilege an economic, technical, pragmatic and restrictive perspective⁽⁶⁾. In the health sector, the equity concept also starts to include the dimension of public policies' efficacy and focus.

The economic growth Latin American countries experienced in the 1970's did not manage to bring about sufficient changes in order to achieve sustainable and independent development in those countries. On the other hand, changes in the economic globalization process, which include new industrialized countries into the international scenario, such as the "Asean tigers", did not influence the decrease in poverty rates in Latin America. Despite the economic growth, poverty hits most of the population that does not benefit from positive macroeconomic results. In Peru, 44.5% of the population lives in poverty and 16.1% in extreme poverty; in Bolivia, official data for 2001 show the same data, with 63.8% and 39.5%⁽⁶⁻⁷⁾. In Argentina, incidence levels of poverty grew by 24% between 1983 and 1998, with more than 37% of the population being considered poor in that last year⁽⁶⁾.

This situation of poverty and extreme poverty is not homogeneous; great inequalities exist among regions on the continent and inside each countries, as well as distinct epidemiological standards among different social layers.

Tuberculosis develops in a context of poverty and social disadvantage. Every year, there are 8,800,000 new cases and 5,500 deaths per day around the world⁽⁸⁻⁹⁾. All Latin American countries fight and direct their health efforts against the presence of this disease; a multisectorial and interdisciplinary intervention is needed, however, to manage and control the problem, starting with its determinants.

The current morbidity rate caused by tuberculosis in Peru corresponds to 129 for every 100,000 inhabitants, 58.3% of whom are concentrated in Lima and Callao⁽¹⁰⁾. Rates for other Latin American countries strongly vary, although TB continues as a severe public health problem. In 2007, in Venezuela, the prevalence rate for every 100,000 inhabitants was 39, against 198 in Bolivia, 12 in Chile and 140 in Ecuador. While prevalence in countries like Brazil dropped from 84 to 48 for every

100,000 inhabitants between the 1990's and 2007, rates continue at the same height in Paraguay, with 60 and 58 in the same period⁽⁹⁾.

The economic influence tuberculosis exerts on the patient and family is important, due to the expenses incurred in before knowing the diagnosis and, afterwards, to follow treatment. In addition, there is absence from work, the number of work hours lost and decreased productivity, as patients cannot work at their full human potential.

The risk of occupational tuberculosis should be considered for health professionals too, and mainly for nurses. Through the expansion of the DOTS (Directly Observed Treatment Short Course) strategy, nurses are frequently the first professionals to have contact with infected people⁽¹¹⁾, so that they are exposed to this disease. Risk increases when the following conditions are insufficient: individual and collective protection; efficient work policies; disorganization of health workers; and low technical qualification of health staff.

Equity in health implies that, ideally, everyone should have a fair opportunity to develop one's potential and nobody should be at a disadvantage to achieve it if this can be avoided. Hence, equity is concerned with creating equal health opportunities, with health differentials at the lowest possible level⁽¹²⁻¹³⁾.

The United Nations has incorporated equity as a value in its Millennium Declaration⁽¹⁴⁾ and Latin American states like Peru⁽¹⁵⁾, Chile⁽¹⁶⁾ and others have adopted this principle in public policy outlines in the 1990's. In this sense, the search for global health and equity is a relevant target that should be encouraged and, moreover, that should serve as the center of interest for the nursing area⁽¹⁷⁾.

The Millennium Goals aim to achieve global health in the 21st century. More specifically, the goal is to reduce the 1990 poverty (defined as having less than one dollar per person per day) rate by half until 2015. To contribute to the achievement of these goals, one should reflect on what population segments are most exposed to poverty and exclusion, with a view to directing efforts adequately⁽¹³⁾. In that sense, the population with TB is exposed to social stigma and frequently excluded from the system's economic advantages.

The contradiction between these goals and the current development model in Latin America and its effects on endemic-epidemic processes can be verified in other countries, like in Brazil. Although the country is now considered one of the four economically emerging countries (together with India, China and Russia – the

so-called BRIC), it ranks 16th in terms of global TB prevalence, reflecting inequality in income distribution and health resource application⁽¹⁸⁾.

To contribute to the achievement of the millennium development goals, nursing professionals play an important role that has not been fully seized yet⁽¹⁹⁾. Nursing's participation can range from political to operational aspects, playing a protagonist role in the achievement of that goal. This paper aims to discuss nursing's potential role in coping with the problem of tuberculosis in a context of inequity and poverty, considering the political and operational dimensions of nursing work.

Methods

For the present review, research about nurses' role in regional tuberculosis control was searched, selected and read, using databases like: LILACS, BIREME, SciELO and PUBMED, as well as political-normative documents and reports published on websites of international intergovernmental agencies like the United Nations Organization (UN), the World Health Organization (WHO), the Panamerican Health Organization (PAHO) and governmental institutions in Peru, Brazil and Mexico.

The search was carried out in Spanish and Portuguese, using the following descriptors: tuberculosis, tuberculosis control, nursing and nurses. When searching documents electronically, however, one should keep in mind that "grey bibliography" or unexplored printed documents may exist.

In total, 16 articles were selected, which complied with the following criteria: scientific articles published in indexed journals as from the year 2000, in the regional context, addressing the variables tuberculosis + nursing, tuberculosis + inequity, and tuberculosis + poverty. Political-normative documents by the International Council of Nurses were also included. No dissertations were included.

Information analysis started with the title, followed by the abstract and, finally, the complete report.

The Protagonist Role of Nurses

It is beyond doubt that TB preponderantly affects populations that are vulnerable, due to poverty and inequity. It is important to know, however, not only if these people are poor, but how poor they are and what the characteristics of their poverty are, with a view to adequate budget and treatment service allocation.

Although effective TB treatment is one of the most costly interventions (the cost of curing a tuberculosis case is only 90 dollar cents for each year of life added to the patient⁽²⁰⁾), this intervention does not guarantee equity among patients.

Equity is a multidimensional concept that covers equal opportunities and access, as well as equal resource distribution. It should not be mixed up with equality, a concept that more specifically refers to what is fair. In this sense, it constitutes a "social value"⁽²¹⁾, as it implies giving each person his/her corresponding share. With regard to TB, health workers need a better understanding of gender and social aspects involved in tuberculosis control, particularly aspects influencing the probability to achieve equity in diagnosis and cure⁽²²⁾. Among these social aspects, analyzing poverty is undoubtedly fundamental to intervene in this disease. Co-responsibility with other social actors underlines the need for intersectorial and interdisciplinary work.

The nursing profession is not strange to this intent, as its philosophy includes contributing to enable care subjects to achieve an adequate level and quality of life. More specifically with regard to TB, however, nurses play a crucial role in control programs⁽²³⁾. It is not in vain that the regional tuberculosis plan 2006 – 2015 considers nursing as a historical partner in work against TB, but with greater performance demands this time⁽²⁴⁾.

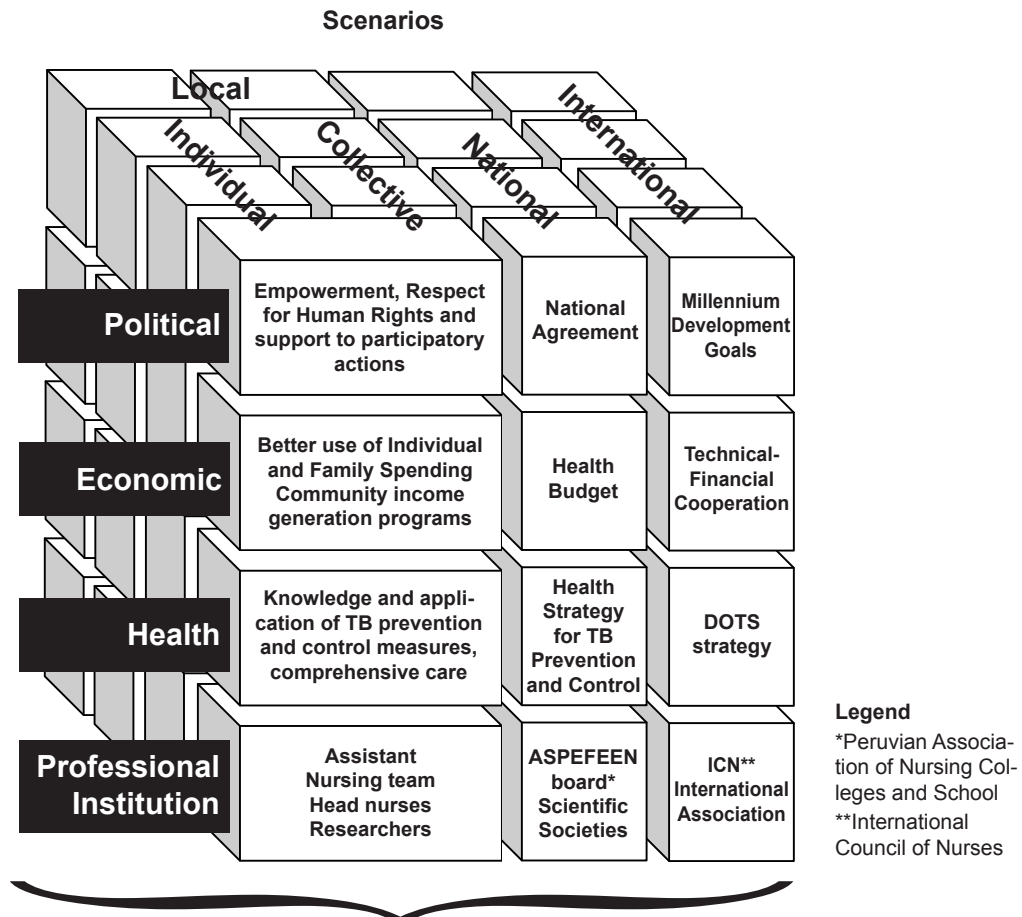
In that sense, existing actions should be comprehensive in order to radically reduce tuberculosis, departing from poverty control. Moreover, professionals involved up to the operational level should understand and execute these interventions from this perspective. In Brazil, for example, the DOTS strategy is taken to patients' homes with a view to attending to social, cultural and economic needs and facilitating patients' and families' access to different health system levels and services⁽²⁵⁾. A similar experience is put in practice in El Salvador, where nurses give patients their medication almost every day of the week⁽²⁶⁾. In Peru, nurses periodically visit patients' homes to follow up treatment adherence, mainly at the primary health care level.

In many countries, nurses' work is considered almost exclusively related to the care aspect; much of the responsibility for this evaluation is actually due to nurses themselves, but this reality can be modified. Corrective measures need to be adopted, as administrative bureaucracy perceives this profession as a financial burden; also, forms of cost reduction need to be explored, representing professional nursing work⁽²³⁾.

One of the basic issues for nursing at local level is to value and promote community participation in health care quality control programs, especially in nursing programs. Information is a fundamental tool to train users, to allow them to participate as active elements in social control of the health sector. As an action strategy, the following information needs to be provided: who is the nurse, what is his/her activity, leadership skills and value within society⁽²⁷⁾.

Figure 1 shows the intervention levels nurses can participate in, ranging from political to operational proposals, from the local to the international sphere and also in all organizations involved.

Reading the figure from bottom to top explains the different scenarios professional nursing work is performed in, from the local (direct care) to the international sphere, where goals related to health policies and health problem management can be achieved.



Direct Care

- Health promotion TB prevention (vaccines, biosafety measures, etc.)
- Comprehensive valuation of patients and families (physical, psychological, nutritional, socio-economic, cultural etc.)
- Comprehensive care to patients and families with TB, TB-MDR, VIH-TB, pregnant women, vulnerable or disadvantaged populations Health education for patients, families and communities
- Social reinsertion
- Empowerment
- Critical education for popular participation

Management

- Participation in policy making
- Participation in fair budget allocation
- Participation in care standards and protocols adapted according to inequality
- Nursing resource distribution
- Direct care management considering existing inequities
- Advocacy

Research

- Analysis of TB Situation
- Risk factors, prevention models
- Inequity research
- Contribution to pharmacological treatment (adherence, side effects, prevention of complications and resistance)
- Nursing care
- Policy Follow-up
- Individual and collective empowerment strategy systemization

Teaching

- Human resource training in TB nursing – inequity, social disadvantages, solidarity, citizenship, human rights, participatory budget, etc.
- Training collaborators or nursing staff – understanding inequities
- Critical health education
- Self-learning

Figure 1 – Nurses' Political, Economic and Health Roles for Tuberculosis Prevention and Control According to Scenarios

In this respect, if work is one of the aspects associated with poverty, due to its influence on family income, nurses' role should start with the technical-political promotion or proposition, before the Ministry of Labor or local governments, of a parallel job program for tuberculosis patients. That is, the strategy could include a work grant for the neediest TB patients, as not all of them experience this phenomenon.

A patient's inclusion into this strategic level should include a nurse-led comprehensive assessment, including a strict socioeconomic assessment by competent professionals, so as to establish two or three variants of the strategy, one for patients in chronic poverty situations or who are unemployed, another for recently poor people with a job and probably yet another one for socially integrated patients⁽²⁸⁾. This evaluation is not considered nowadays in comprehensive assessments. Usually, nursing professionals' evaluations concentrate on physical, biological or medical problems⁽²⁹⁾.

At the level of relations between civil society and the state, with a view to public policy making with converging intentions to face inequity, nurses' political activities should work towards strengthening accountability processes, that is, all social segments, including the poorest ones, should control and verify the state's actions⁽²²⁾. Transparent health, economic and political information is the first step, as well as support to different political representation and participation mechanisms, such as community councils, unions and professional associations.

In a way, nurses who play this role in the care environment establish a first contact with newborns when they administer the BCG vaccine; this act offers the opportunity, through the parents, to identify whether any contact with TB exists within the family; in case of a positive primary assessment (positive if any pulmonary TB patient exists in the family), the assessment and identification of this family should be completed with the following information: nutritional state, eating habits, lifestyles, socioeconomic situation, etc. These data, among other, could help to identify and even categorize the socioeconomic status these families with at least one TB case are in, which could influence the health determinants of other family members. This timely identification could permit the development of poverty assessment indicators, which in turn would serve to better manage the economic and political situation, as this could lead to the redistribution and redirection of human, logistic and economic resources according to needs.

In another context, again with regard to comprehensive patient assessment, it is frequently observed that an important part of mothers are "particularly concerned with their children. This finding is highlighted because, even if the mother has a health problem, she demonstrates great interest in her children's recovery. This attitude is frequent among people in different geographic areas, independently of instruction level and even language. This fact could be used to promote health education and even replicate it through these mothers, in the community. Peer counseling work offers significant results; it has been observed, for example, that when an adolescent who received training on responsible sexuality and contraceptive methods offers advice to another adolescents, better results are achieved in terms of acceptance and even behavioral changes, than when this advice comes from a health professional.

Due to the above, this study proposed the involvement of patients' mothers in counseling, in those cases when treatment has been completed and also in cases of treatment abandonment; thus, suspicious cases could be detected, offering education and potential cases of abandonment could be recovered; this measure can also be extended to the community.

Hence, it is confirmed that the positive experience achieved when training people with some kind of disease can influence the repetition of these results among other subjects.

Likewise, the help network that exist related to certain chronic health problems permit recovering not only patients' physical, but also their emotional health.

On the other hand, to give an example, a socially integrated patient could have the resources to buy food needed to maintain adequate nutrition, but does not really know which these food items are. This means (s)he would only need nutritional advice, probably without any food support. Besides solely offering information, nurses need to lead a critical education process, stimulating the development of broader health awareness, attempting to break with hegemonic cultural standards that value habits like smoking, alcohol consumption and eating fast food and do not permit the development of self-conscience about one's own health. From an equity perspective, the macrodeterminants of social class should also be taken into account, which influence and limit the educative approach and raise challenges for nursing, not only from their viewpoint, but also as a workforce that plays an important social role.

Finally, these variants should include a complete assessment of the patient's nutritional status and give exact recommendations about the type of nutrients (s) he needs and in what foods they can be found so as to recover the lost balance. Many patients experience gastrointestinal reactions due to the pharmacological overload they face. Pertinent education in this case should advise them about selecting foods, to allow the patient to endure the respective treatment and avoid those foods that could aggravate adverse manifestations. This would contribute not only to strengthen that person's nutrition, but also to decrease the possibilities of abandonment due to treatment rejection.

With regard to teaching, nursing students' education and active participation in the proposed comprehensive management will allow them to graduate with an open and proactive mind in this context, thus eradicating cases of discrimination. A Brazilian study recommends introducing a human and social focus in nursing education with regard to TB⁽³⁰⁾. In Mexico, on the other hand, it is suggested that nurses receive training on diagnostic procedures, such as Mantoux' technique⁽³¹⁾. This could improve service access, reduce health inequity and improve care coverage.

The occupational risks nurses are exposed to in their detection and care work with TB patients are an important theme in future professional education, pointing towards the need to defend good practices and adapt them to health work conditions, particularly in Primary Health Care. It should mainly be considered that some nursing professionals learn to work in the program not because they learned this practice in their education, but in daily care work⁽³²⁾.

Vulnerability conditions for nurses working in this area were identified in literature. That knowledge as well as exposure time at work play an important role⁽³³⁻³⁴⁾. A study at a university hospital in Brazil identified that 12% of cases occur among nurses and 32% among nursing technicians⁽³⁵⁾.

During commemorations of the 2006 world day against tuberculosis in Mexico, the achievements of the strategic alliance between the Health Secretary and the *Universidad Nacional Autónoma de México*, through its *Escuela Nacional de Enfermería y Obstetricia* (ENEO) were disseminated. The commitment assumed "guarantees human treatment on an ethical basis and covers health as a fundamental human right through our DOTS Tuberculosis Nursing Network. The inclusion of tuberculosis control into the curriculum of health schools and colleges is highlighted, besides the alliance for care delivery to people co-infected with tuberculosis and HIV-AIDS, and the active search for cases outside health centers"⁽³⁶⁾.

With the support of governmental institutions, colleges' participation in health promotion can also be stimulated, either by training college teachers or working directly with students at different prevention levels, including specific attitudes.

Conclusion

Tuberculosis demands not only clinical and pharmacological care, i.e. care should not be limited to the biological perspective. Instead, a comprehensive, social and cultural focus is needed. The analysis of social inequities is an important issue in this complex situation. It was demonstrated that, although TB patients definitely live in a scenario of poverty and social disadvantage, it is important to get to know the characteristics of this situation with a view to correct and pertinent interventions. Moreover, nursing professionals should play a protagonist role in the prevention and control of this disease, by proposing truly comprehensive (political, economic and health) interventions, ranging from the local to the international context. Nursing opinion-making institutions can face this challenge to a greater extent, and can count on the true commitment of nurses around the world.

References

1. Consejo Internacional de Enfermeras, editors. Código Deontológico del CIE para la Profesión de Enfermería [monograph on the Internet]. Ginebra: Fornara; 2006 [cited 2006 July 20]. Available from: <http://www.icn.ch/icncodesp.pdf#search=%22%22codigo%20del%20cie%22%2>
2. Consejo Internacional del Enfermeras.org [homepage on the Internet]. Ginebra: CIE: Pobreza y salud: romper el vínculo. [updated 2006 May 15; cited 2006 July 20]. Available from: http://icn.ch/matters_povertysp.htm
3. Foro Salud, editors. Informe presentado por el Sr. Paúl Hunt, Relator Especial sobre el derecho de toda persona al disfrute del más alto nivel posible de salud física y mental [monograph on the Internet]. Lima: Foro Salud; 2005 [cited 2006 July 20]. Available from: <http://www.forosalud.org.pe/Informe%20Paul%20Hunt%20CHR2005Peru%20-%20versin%20espa%F10la.pdf>.
4. Tortosa JM, editor. Desigualdad y pobreza: entre el simplismo y la complejidad [monograph on the Internet]. Alicante: Fundación Carolina Alicante; 2007. [cited 2006 Jul 20]. Available from: <http://www.fundacioncarolina.es/NR/rdonlyres/3D251955-00A9-434D-BBB3-238B32A669C7/1407/>

Art%C3%ADculoTortosa107.pdf

5. Programa de las Naciones Unidas para los Asentamientos Humanos (UN-Hábitat). Alianza Alto a la Tuberculosis y Organización Mundial de la Salud. Plan Mundial para Detener la Tuberculosis 2006-2015. Ginebra: Organización Mundial de la Salud; 2006.
6. Almeida C. Equity and health sector reform in Latin America: a necessary debate. *Cad Saúde Pública* [serial on the Internet]. 2002 [cited 2008 June 22];(18 Suppl):[14 p.]. Available from: URL: http://www.scielo.org/scielo.php?script=sci_arttext&pid=S0102-311X2002000700004&lng=en&nrm=iso. doi: 10.1590/S0102-311X2002000700004
7. Instituto Nacional de Estadística e Informática [homepage on the Internet]. Lima: Nota de Prensa. N° 135. INEI 2007 July. [actualizado 2007 Jul 20; cited 2007 Ago 14]. INEI; [about 2 screens]. Available from: <http://www.inei.gob.pe/web/NotaPrensa/Attach/7007.pdf>
8. Villa TCS. Nursing knowledge production in tuberculosis control in Brazil. *Rev Latino-am Enfermagem* [periódico na Internet]. 2008 Ago [Acesso 09 Julho 2009]; 16(4):655-6. Disponível em: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692008000400001&lng=pt. doi: 10.1590/S0104-11692008000400001.
9. World Health Organization [homepage on the Internet]. Ginebra: WHO. [updated 2008; cited 2006 July 28]. Available from: <http://www.who.int/mdg/goals/goal6/en/index.html>
10. Ministerio de Salud, editor. Informe de Gestión. ESN Prevención y Control de Tuberculosis 2001 – 2006 [monograph on the Internet]. Lima: Ministerio de Salud; 2001. [cited 2007 March 8]. Available from: <http://www.minsa.gob.pe/portal/03Estrategias-Nacionales/04ESN-Tuberculosis/Archivos/Documentos%20Relevantes/InformedeGestionESNPCT2001-2006.pdf>
11. International Council of Nurses.org [homepage on the Internet]. Ginebra: ICN: Tuberculosis exposure in the health care setting: prevention of occupational transmissions. [updated 2007; cited 2008 Jun 18] Available from: http://www.icn.ch/matters_tb_workplace.htm
12. World Health Organization. Social justice and equity in health: report on a WHO meeting. Copenhagen: Regional Office for Europe; 1986.
13. World Health Organization. Social justice and equity in health: report on a WHO meeting. En Whitehead, M. The concepts and principles of equity and health. Washington: Organización Panamericana de la Salud; 2000.
14. United Nation Organization. Fifty-fifth session Agenda item 60 (b). Resolution adopted by the General Assembly [without reference to a Main Committee]. United Nations Millennium Declaration. 2000 Sep. 8th plenary meeting.
15. Ministerio de Salud (PE). Lineamientos de Política Sectorial para el Período 2002 - 2012. Lima: Ministerio de Salud; 2002.
16. Arteaga Ó, Thollaug S, Nogueira AC, Darras C. Información para la equidad en salud en Chile. *Rev Panam Salud Publica* [serial on the Internet]. 2002 June [cited 2009 July 09]; 11(5-6): 374-385. Available from: http://www.scielo.org/scielo.php?script=sci_arttext&pid=S1020-49892002000500012&lng=en. doi: 10.1590/S1020-49892002000500012.
17. Mill J, Astle B, Ogilvie L, Opare M. Global health and equity. Part 1: setting the context. *Can Nurse*. 2005 May; 101(5):22-4.
18. Santos MSLG, Vendramini SHF, Gazetta CE, Oliveira SAC, Villa TCS. Pobreza, caracterização socioeconômica da tuberculose. *Rev Latino-am Enfermagem* 2007 setembro-outubro; 15(número especial):762-7.
19. Ogilvie L, Astle B, Mill J, Opare M. Global health and equity: part 2: exploring solutions. *Can Nurse*. 2005 June; 101(6):25-8.
20. Banco Mundial. Informe sobre el Desarrollo Mundial 1993. *Invertir en Salud*. Washington: Banco Mundial; 1993.
21. Instituto Nacional de Estadística e Informática, editors. Determinantes del Acceso a los Servicios de Salud en el Perú [monograph on the Internet]. Lima: INEI; 2002 [cited 2003 May 02]. Available from: <http://www.inei.gob.pe/biblioineipub/bancopub/Est/Lib0387/CAP-021.HTM>
22. Johansson E, Long NH, Diwan VK, Winkvist A. Gender and Tuberculosis control: perspectives on health seeking behaviour among men and women in Vietnam. *Health Policy* 2000; 52(1):33-51
23. Durán M. Dimensiones sociales, políticas y económicas del cuidado de enfermería. En Duran M, Gutiérrez E, Pinto N, Sánchez B, Vásquez E, Villarraga L, editores. Dimensiones del cuidado. Medellín: Universidad de Colombia; 1998. p. 92-7.
24. Organización Panamericana de la Salud. Plan Regional de Tuberculosis 2006-2015. Washington, D.C: OPS; 2006.
25. Cardozo Gonzales RI, Monroe AA, Arcêncio RA, Oliveira MF, Ruffino A Netto, Villa TCS. Performance indicators of DOT at home for tuberculosis control in a large city, SP, Brazil. *Rev Latino-am Enfermagem* 2008; 16(1):95-100.
26. Organización Panamericana de la Salud [homepage on the Internet]. Washington: OPS; [actualizado 2009; citado 10 July 2009] Disponible en: http://www.paho.org/Spanish/DD/PIN/dmtb2006_domicilio.htm
27. Organización Panamericana de la Salud (OPS), Federación Panamericana de Profesionales de Enfermería (FEPPEN). Calidad de los Servicios de Salud en América Latina y el Caribe: Desafíos para la Enfermería. Brasil: OPS/OMS; 2001.
28. Musayón OY, Loncharich VN, Castillo RR, Saravia PA. Inequidad en personas que padecen de Tuberculosis: Estudio piloto en tres Centros de Salud de Lima (Perú). *Index Enferm* [revista en la Internet]. 2008 Jun [citado 2009 July 16]; 17(2):111-5. Disponible en: http://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1132-12962008000200007&lng=es.
29. Williams G, Arrascue EA, Jittimane S, Walusinbi M, Sebek M, Berga E, et al. Guindance for the implementation of best practice for the care of best practice for the care of patients with tuberculosis. *Int J Tuberc Lung Dis* 2008; 12(3):236-40.
30. Villa TCS, Ruffino A Netto, Andrade RLP, Arrascue EA, Montero CV, Firmino DR. Survey on tuberculosis teaching in Brazilian nursing schools, 2004. *Int J Tuberc Lung Dis* 2006; 10(3):323-7.
31. Hernández ZNM, Sánchez CL, Olivera CR, García CA. La técnica de mantoux en población indígena. caso de estudio. *Rev Inst Nal Enf Resp Mex*. 2004; 17(2):73-9.

32. Terra MF, Bertolozzi MR. Does directly observed treatment ("DOTS") contribute to tuberculosis treatment compliance? *Rev Latino-am Enfermagem* 2008; 16(4):659-64.
33. Souza JN, Bertolozzi MR. The vulnerability of nursing workers to tuberculosis in a teaching hospital. *Rev Latino-am Enfermagem* [serial on the Internet]. 2007 April [cited 2009 July 16]; 15(2):259-66. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692007000200011&lng=en. doi: 10.1590/S0104-11692007000200011.
34. Bertazone ÉC, Gir E, Hayashida M. Situações vivenciadas pelos trabalhadores de enfermagem na assistência ao portador de tuberculose pulmonar. *Rev Latino-am Enfermagem* [serial on the Internet]. 2005 June [cited 2009 July 16]; 13(3):374-81. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0104-11692005000300012&lng=en. doi: 10.1590/S0104-11692005000300012.
35. Prado TN, Galavote HS, Brioshi AP, Lacerda T, Fregona G, Detoni VV, et al. Perfil epidemiológico dos casos notificados de tuberculose entre os profissionais de saúde no Hospital Universitário em Vitória (ES) Brasil *J Bras Pneumol* [serial on the Internet]. 2008 Aug [cited 2009 July 16]; 34(8):607-13. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1806-37132008000800011&lng=en. doi: 10.1590/S1806-37132008000800011.
36. Cenavece.gob [homepage on the Internet]. México: México y el Comité "Alto a la Tuberculosis". [updated 2006 Mar; cited 2007 May 01]. Available from: <http://www.cenave.gob.mx/tuberculosis/eventos/diatb2006.htm>