
International Journal of Advanced Multidisciplinary Research (IJAMR)

ISSN: 2393-8870

www.ijarm.com

Research Article

Biohazard for the prevention of the HIV/AIDS in the technical personnel of laboratory. Pediatric hospital.

Dr. Yanet Alarcón Martínez¹, Dr. Ela Moreno Téllez², MCs. Dalya Alonso Rodríguez^{3*} and Dr. Idalia Morell Amarales⁴

¹Specialist of first degree in Clinical Laboratory. Master in infection diseases

²Specialist of second degree in Clinical Laboratory. Master in infection diseases

³Master in infection diseases

⁴Specialist of first degree in Cardiology.

*Corresponding Author :

Keywords

biohazard,
AIDS,
blood,
infections agents

Abstract

The AIDS is one of the principal trouble for the people, and it is very important that the persons who works in laboratory have the knowledge about this theme. We made an study in 56 laboratory workers of the Paediatric Hospital Eduardo Agramonte Piña from Camagüey since June 2013 to June 2014 in order to modified the knowledgement about biohazard to prevent the AIDS and the results are shown in tables.

Introduction

The technicians that work in centers of health are exposed to multiple risks caused by the contact or manipulation of biological samples as well as instruments, teams and objects related with this personnel's works, which cannot only suffer accidents, but they run the risk of contracting infections for microorganisms. The accidents suffered in these circumstances have a great transcendancy and they require of an analysis and pursuit detailed in each case, that which has been specified¹

The Biohazard represents a vital component of the system of guarantee of the quality, and he/she should understand each other like a doctrine guided to achieve attitudes and behaviors that diminish the worker's risk of acquiring infections in the labor means.^{1,2}

The most important element in the biohazard the strict execution of the practices and appropriate procedures and the efficient use of materials and teams, those which they constitute the first barrier at contention level for the personnel and the means.

To guarantee the biohazard in a hospital center cannot be an individual, spontaneous or anarchical work; it is necessary that an organization of security that evaluates the risks, exists control and guarantee the execution of the measures.³

The two more important aspects to guarantee the security are: the strict observation of the norms and the appropriate training of all the workers.^{4,5}

To achieve this training it should be kept in mind the perception of the person⁶.

The importance that we should offer to this aspect is that who doesn't perceive the risk, it doesn't assume a constructive position of confrontation; therefore, the training is indispensable to reduce it or to eliminate it. Constituting the knowledge the most important element that an individual possesses to be able to develop the necessary perception of risk to protect his health and to contribute to protect that of the patient.

In this investigation the technical personnel's knowledge were evaluated on biohazard for the prevention of the infection for the human immunodeficiency virus (HIV) / Syndrome of Acquired Immunodeficiency (AIDS). the above-mentioned allowed to identify elements that served as base to formulate an educational intervention.

The HIV/AIDS is considered at the present time like one of the biggest problems that whip the humanity for the growing number of cases in the world. One of the most terrible illnesses in the present has become century, the exact number is ignored of having infected, because not all know that he are, since not necessarily they present symptoms, and because the declaration of infection HIV is not forced neither an official registration exists. This tragedy has been known in its real dimension by its appearance frequency, its predominant attack to young people or of medium age, its dissemination form for sexual contact or for the blood, the infection risk in seemingly healthy people that are payee of the infection and the implacable evolution to the illness of the AIDS in many patients that conclude with the death.

Carried out studies reveal that every minute ten people are infected with the HIV in the world, what supposes that a year they are contagious five million people, of which 700 000 are children.

Whole regions are about to disappear due to this pandemia.⁷

For the importance of the biohazard in the prevention of the HIV / AIDS and to elevate the level of knowledge on this thematic one in the technical personnel of the laboratories we decide to carry out this study.

Objectives.

1 - characterize the personnel study object according to groups of ages, sex and department.

2 - evaluate the knowledge has more than enough biohazard in the prevention of the HIV been before and after the intervention

Methods

We was carried out a project of educational intervention in the technical people of the Area of Laboratory of the Educational Provincial Pediatric Hospital "Eduardo Agramonte Piña" in the period understood among June of 2013 until June of 2014, with the objective of modifying the behavior toward the prevention of the HIV / AIDS, incorporating activities in the departments that achieved a decrease of the number of Incidents related with the handling of the blood.

The Area of Laboratories of the Educational Provincial Pediatric Hospital "Eduardo Agramonte Piña" we understands the departments of:

1.Clinical laboratory: Central, Emergency and Therapy.

2 - bank of Blood and Service of Transfusions.

3 – Microbiology laboratory.

4 - (System Ultra Analytic Micro). laboratory

5 - Immunology laboratory.

The study was designed in two stages: an initial or diagnostic to identify the level of the technicians' knowledge on biohazard for the prevention of the HIV. A second stage, to elaborate an educational program for the design of the identified learning necessities.

First stage: To the participants they were applied a structured survey and standardized with 8 questions closed and several parentheses that we investigated about the general data (sex, age and Department), infection causes and suitable roads for the acquisition of information on the HIV / AIDS, effectiveness in the transmission of the virus and activities that are carried out to avoid the incidents in the workspaces.

It was distributed the technical people according to these variables, adding the number of incidents happened in the last 6 months. The variables were applied to 100% of the technicians.

They were organized 4 groups of people, the first one with 15 people, the second with 13, the third with 18 and the room with 10 technicians for a total of 56 technicians.

Second stage. An educational program was elaborated, with the objective of increasing the level of knowledge has more than enough biohazard for the prevention of the HIV / AIDS, including as data to measure the identified learning necessities in the initial survey. The thematic ones were programmed using different educational strategies: you confer and practical activities of work in group, elaborating presentations of materials in Power Point with varied educational messages, with a total of 16 hours of educational activities.

Universe and it Shows

The work universe was constituted by 56 technicians of the Area of Laboratories of the Pediatric Hospital that expressed the desire to participate in the investigation, bony, entirety of individuals that you/they gathered an or several characteristics that we wanted to study voluntarily. All the technicians were informed on the objectives of the work and their right to decide their participation freely.

Approaches of Inclusion:

The technicians of the laboratories that subscribed the informed consent.

Approaches of Exclusion:

" Technical personnel that not outside of the laboratories of the hospital.

" Technical personnel that didn't admit the consent of participating in the investigation.

Methods:

study according to the objectives proposed by our investigators, in the period of study mentioned.

Empiric method:

The survey: It was used as technique for the obtaining of the given information their characteristics of search of quick and economic information, which was applied to the 4 groups of organized technicians as he/she explains to himself in design of the investigation in the investigators' who made the pertinent instructions presence and they stayed far away. The same one was validated before in a pilotage of 10 individuals that you/they intervene in the

Statistical methods:

The statistical prosecution was used to compare the data obtained as a result of the applied instrument. The instrument used to validate or to reject the hypotheses of modelación probabilista was the Test of Mc Nemar. A level of significance of 95% was used, that is to say with probability $p < 0.05$.

Results and Discussion

Isquare 1. Characterization of the Technical Personnel according to Department and Sex.

| Departament/Sex | Technical Personnel | | | | | |
|--------------------------------|---------------------|-------|------|-------|-------|--------|
| | Female | | Male | | Total | |
| | N | % | N | % | N | % |
| Clinical laboratory | 25 | 44.64 | 3 | 5.36 | 28 | 50.00 |
| Microbiology Laboratory | 5 | 8.93 | 1 | 1.78 | 6 | 10.71 |
| Bank of Blood and Transfusions | 10 | 17.86 | - | - | 10 | 17.86 |
| Inmunology Laboratory | 6 | 10.71 | 1 | 1.78 | 7 | 12.50 |
| ADDS Laboratory | 4 | 7.14 | 1 | 1.78 | 5 | 8.93 |
| Total | 50 | 89.28 | 6 | 10.70 | 56 | 100.00 |

Source: It interviews.

When analyzing the square 1 we can observe that the technical personnel's bigger percent (50.00%) it corresponded to the Department of Clinical Laboratory and that of Bank of Blood and Transfusions (17.86%). Prevailing the female sex with 89.28%. Coinciding with

studies carried out by the Dr. Vázquez and collaborators in our country and in different hospital institutions camagueyans 58. We believe that this constitutes a strength since the female psychology for general rule it is characterized by the calm, the order and the organization.

I square 2. Distribution of the Technical Personnel according to Group of Ages and Sex.

| Group of Ages and Sex. | Female | | Male | | Total | |
|------------------------|--------|-------|--------|-------|--------|--------|
| | Number | % | Number | % | Number | % |
| < 18 years | 3 | 5.36 | - | - | 3 | 5.36 |
| 19 – 55 years | 38 | 67.86 | 5 | 8.93 | 43 | 76.78 |
| > 55 years | 9 | 16.07 | 1 | 1.78 | 10 | 17.86 |
| Total | 50 | 89.29 | 6 | 10.71 | 56 | 100.00 |

Source: It interviews.

The square 2 sample the technical personnel's distribution in group of ages and sex. It is observed that of the total of 56 technicians, 8.93% (Male) and 67.86% (Female) they correspond to the group from 19 to 55 years. Cuban authors in studies carried out in our country in the 2006 obtained similar results, being the female sex and the ages between

21 and 50 years the most frequent. The author considers that this is due to that is in this age group where the graduate technicians are and the person is in full physical and psicologic capacity⁵⁹.

The square 3. Distribution of the Technical Personnel according to Knowledge on Causes of Infection of the VIH/SIDA for the Blood. n = 56

| Infection causes | after | | before | |
|---|-------|-------|--------|-------|
| | N | % | N | % |
| - To share the sanitary service | 37 | 66.07 | 14 | 25.00 |
| - To be punctured with an object punctures sharp | 14 | 25.00 | 49 | 87.50 |
| - Spill of blood in the healthy skin. | 48 | 85.71 | 33 | 58.93 |
| - When carrying out an interrogation to a patient infected with a transferable illness. | 47 | 83.93 | 31 | 55.36 |
| - When transferring contaminated samples of blood, in covered flasks. | 41 | 73.21 | 27 | 48.21 |
| -- For ingestion of blood, in an accidental way with the mucous one buccal healthy. | 42 | 75.00 | 22 | 39.29 |

Source: interviews p= 0,00

To reduce the risk of contracting HIV, it is necessary among other things to possess knowledge on the illness. The distribution of the technicians interviewed according to knowledge on causes of Infection for HIV/AIDS for the Blood before and after the intervention it is appreciated in square 3; we can observe that the spills have more than enough healthy skin and the act from the contact when carrying out the interrogation to a sick person they were the most grateful factors before applying the intervention, represented by a (85.71%) and a (83.93%) respectively. These values diminished to 58.93% and 55.36% after the intervention. However, in spite of not being significant the results, the jabs with objects puncture sharp they were

recognized by 14 technicians for 25.00% before the intervention, later 49 technicians identified for 87.50%. Among the most frequent causes in infections in the laboratory personnel are the jabs and wounded with material that can be or not polluted. Pérez M and collaborators in work published in Magazine Cuban Doctor of Integral General Medicine in the 2007 coincide with the results of our study, where the jabs with objects puncture sharp they were recognized by 90.00% of the technicians after the intervention. The author considers that the causes respond to the negligence and neglect of the regulations and counting improperly with training personal⁶⁰.

square 4. Distribution of the Technical Personnel according to knowledge has more than enough suitable roads for the acquisition of the information HIV/AIDS it has more than enough.

n = 56

| Suitable roads for the Acquisition | After | | before | |
|---|-------|-------|--------|-------|
| | N | % | N | % |
| - Diffusion means | 36 | 64.29 | 21 | 37.50 |
| - Pregrado program | 49 | 87.50 | 52 | 92.86 |
| - Courses of post grade and Conferences | 12 | 21.43 | 54 | 96.43 |
| - For doctors in an individual way | 43 | 76.79 | 14 | 25.00 |
| - For co-workers | 39 | 79.64 | 18 | 32.14 |

Source: interviews p:0.00

According to the suitable roads for the acquisition of the information before and after the intervention in the interviewed technical personnel (Square 4), we can appreciate that 49 (87.50%) they referred before that the school was the main road of acquisition and after the intervention we can appreciate that 52 (92.86%) they recognized that this era an important road of learning. Only 12 (21.43%) they recognized that the courses of post grade and conferences on the topic (alone or included inside the courses) they were a road to keep in mind to acquire the knowledge, after the intervention 54 (96.43%) they manifested that next to the school the courses and the conferences were the main roads for where they incorporated the knowledge. The results indicate that the workers acquire the basic knowledge during the study of

their professional career. The increment of the knowledge on this topic is achieved by means of superación courses, where the technician has a knowledge and one practices of the work and it can associate better theory and practice; as approach of the truth. Other studies demonstrate that outlined previously. Estrada TO and other Cuban authors in a study carried out in Cuba in the county of Granma have more than enough perception of the biological risk for the personal exposed it reports that 97.00% of the technicians acquired the fundamental knowledge through its formation in the school together to the courses and imparted conferences. The author considers that the educational formation that the technicians receive during its career constitutes an important and significant pillar to elevate the knowledge and to reduce the risk of contracting the HIV⁶¹

square 5. the technical personnel's Distribution according to knowledge about the effectiveness for the transmission of the VIH/SIDA.

n = 56

| Effectiveness in the transmission of the virus | After | | before | |
|--|-------|-------|--------|-------|
| | N | % | N | % |
| - contact through solution of continuity | 10 | 17.86 | 55 | 98.21 |
| - Coming from a healthy individual | 7 | 12.50 | - | - |
| - That the virus is viable | 7 | 12.50 | 53 | 94.64 |
| - Through healthy natural barriers | 35 | 62.50 | 2 | 3.57 |

Source: interviews p= 0,00

In the square 5 the distribution of the technicians is observed according to the knowledge about the effectiveness for the transmission of the HIV / AIDS. Of the total of having interviewed 10 (17.86%) and 7 (12.50%), they referred to have knowledge about the necessary conditions so that the transmission of the virus is effective, as the contact through solution of continuity of the skin and that the virus is viable. After the Intervention there was an

increment at 55 (98.21%) and 53 (94.64%). what agrees with the results obtained in the work carried out had Given L and collaborators about surveillance from the personnel of exposed laboratory to the HIV and other virus of sanguine transmission where an increment of the knowledge is appreciated respectively in 97.00% and 93.00% after having applied the intervention. This evidences the scarce knowledge that is possessed of transferable agents.⁶²

I square 6. Distribution of the Technical Personnel according to Knowledge of the Procedures in front of an Incident.

n = 56

| Procedure front incidents | After | | before | |
|---------------------------------------|-------|-------|--------|-------|
| | N | % | N | % |
| - Area of the spill | 13 | 23.21 | 53 | 94.64 |
| - Registration of Incidences | 11 | 19.64 | 49 | 87.50 |
| - Report the Immediate Boss | 12 | 21.43 | 53 | 94.64 |
| - Initial exam and sample Gathering. | 49 | 87.50 | 6 | 10.71 |
| - Discussion in Departmental Meeting. | 36 | 64.29 | 6 | 10.71 |

Source: interviews p= 0,00

The square 6 sample the technical personnel's distribution interviewed before and after the intervention according to knowledge on the procedures in front of an incident. Of the total of having interviewed 13 (23.21%) they referred before the intervention the procedure in the spill area, 11 (19.64%) the annotation in the registration of incidences and 12 (21.43%) the immediate report to the boss of Department. After the Intervention 53 (94.64%), 49 (87.50%) and 53 (94.64%) they outlined these aspects. Results that they were not significant but they demonstrated the importance of the

educational intervention. In study carried out by Hernández AND and collaborators are reported that the technicians after the intervention recognized the procedure in the area of the spill, the annotation in the registration of incidence and the immediate report to the department boss in 93.00%, 90.00% and 97.00% respectively as points key when it happens an incident. The author considers that of these they are derived the other ones and the one that to make and the report to the administrative authorities so much technical as doctors they are principles.⁶³

I square 7. Distribution of the Technical Personnel according to Knowledge on the Realization of Activities in the Departments to diminish the incidents related with blood.

n = 56

| Activities in the department | After | | before | |
|------------------------------|-------|-------|--------|-------|
| | N | % | N | % |
| Satisfactory | 19 | 33.93 | 50 | 89.29 |
| Not Satisfactory | 37 | 66.07 | 6 | 10.71 |

Source: interviews p= 0,00

In the square 7 the technicians were distributed according to knowledge in the realization of activities in the Departments to diminish the incidents related with blood these they were: Exhibition of biohazard measures in their workspace, Procedures upgraded in the work positions, Discussion of

the topic in the Meetings of Department (as a point of supreme importance), Programming of continuous specific courses on risks, cares and protection measures in the laboratories where it is manipulated blood and Exhibition

of the Plan of Handling of Solid Waste and Liquids in the areas of trabajo.64 33.93% (19 technicians) he/she obtained a satisfactory level before the Intervention, after this the percent was of 89.29 (50 technicians). All were considered as important and indispensable to maintain an appropriate atmosphere of protection. In the revised literature similar investigative works exist, I study carried out by Aguilar I it

shows results similar with 92.50% of level of satisfactory knowledge after the intervención⁵⁹, other authors don't take here into account all the aspects mentioned⁶⁵⁻⁶⁷. The author considers that in our means the topic should be discussed as one of the most important aspects in the meetings of Department, since the infection risk for illnesses always transmitted by the blood this present in the laboratories.

square 8. the technical personnel's Distribution according to the Level of Knowledge has more than enough biohazard for the prevention of the HIV / been interviewed before and after the Educational Intervention.

n = 56

| Level of Knowledge | After | | before | |
|--------------------|-------|-------|--------|-------|
| | N | % | N | % |
| Satisfactory | 5 | 8.93 | 49 | 87.50 |
| Not Satisfactory | 50 | 89.29 | 7 | 12.50 |

Source: interviews p= 0,00

In the square 8 can appreciate the evaluation of the level of knowledge on the illnesses transmitted before by the blood and after the educational intervention, ⁵ (8.93%) of those interviewed they had a level of satisfactory knowledge, after having applied the intervention ⁴⁹ (87.50%) they passed at

satisfactory and alone level ⁷ (12.50%) they remained with a non satisfactory level. These results coincide with those of the study carried out by Cuban authors who report 86.00% of having interviewed with level of satisfactory knowledge after having applied the intervention.⁶⁷

square 9. Distribution of the Number of Incidents related with blood.

n = 56

| Incidents / Technician | After | | before | |
|------------------------------|-------|-------|--------|-------|
| | N | % | N | % |
| - They made Incidents | 17 | 30.36 | 9 | 16.07 |
| - They didn't make Incidents | 38 | 67.86 | 47 | 83.93 |

p = 0,00

Secondary source: Registration of incidences of the Departments of the Area of Laboratories of the Pediatric Hospital.

As one observes in the square 9. Of the personnel's total, 17 (30.36%) they were related directly in incidents with blood. After the intervention they were related 9 (16.07%). Diminishing in 8 the number of technicians that you/they made incidents. In the course of the investigation it was demonstrated that before the intervention all the incidents happened in the period were not in the Registrations of Incidences, that is to say a source of these existed, this because of the non existence in 2 Departments of the document and in 4 local of 3 Departments. Some investigators coincide with this position and they report 32.50% of incidents related with blood and a decrease to 18.00% of the same ones after the intervención⁵⁹. The author coincides with the results of studies carried out by the Dra. Rush in that in spite of the so much efforts of international organisms as national has not been achieved that all the incidents are reported.⁶⁸

Conclusion

Most of the workers belonged to the feminine sex with 19-55 year-old prevalence. Before the educational intervention a level of non satisfactory knowledge existed about the biohazard for the prevention of the HIV / AIDS. after having applied this intervention it was possible to increase the knowledge on this topic and to diminish the incidents in the laboratories. For that that once again the incomparable value of the educational work was demonstrated, this bears to responsible behaviors before the HIV/AIDS.

Recommendations

We consider that this thematic one should be included in the educational programs of the Degrees in Technologies of the Health related with the laboratories and to grant him an important space.

References

1. Bello L, Alfonso M. Normas de bioseguridad relacionadas al SIDA y la Hepatitis [monografía en Internet]. Infomed: Cuba; 2003 [citado 2007 jul 14]. Disponible en: [http://www.fcmfajardo.sld.cu/cev2002/trabajos estomatología/](http://www.fcmfajardo.sld.cu/cev2002/trabajos_estomatología/).
2. Rodríguez J. Riesgos en los laboratorios. En: Temas de seguridad biológica. CNSB. La Habana: Editorial Félix Varela; 2002.
3. Fernández R, de la Cruz F. Riesgo biológico ocupacional y medidas de seguridad en los laboratorios Médicos. La Habana: Instituto de Medicina Tropical “Pedro Kouri”; 2007.
4. Rodríguez O, Argote E. Curso de capacitación en bioseguridad. Asunción: CDFAO; 2008.
5. CDC/NIH, editores. Bioseguridad en laboratorios de Microbiología y Biomedicina. 4ª ed. Cincinnati: CDC/NIH; 1999.
6. Arteaga E, editor. La Autopsia clínica. Acta de la conferencia un procedimiento científico de gran beneficio social; 2007 Mar 1-3; La Habana, Cuba. Ciudad de La Habana: Editorial Científico-Técnica; 2007.
7. MINSAP. Programa de Control y Prevención del VIH/SIDA. Cuba, 2008.
8. Sistema de Regulación Municipal. Basura hospitalaria sin cuidado. La Prensa –Editores Asociados S.A. 2007 Septiembre 20; Sec K:1 (col.1). Dis [serial online] 2007 [citado 19 Octubre 2008]; [3 pantallas]. Disponible en URL: http://www.laprensa.com.bo/noticias/20-09-07/20_09_07_socd1.php
9. Trujillo LP, Gorbea R. Actualidades epidemiológicas acerca de la infección por VIH en el mundo. Rev Mex Pediatr 2008; 75 (4): 181-184.
10. Cuba; Ministerio de Salud Pública. Programa Nacional de Seguridad Biológica para instituciones de salud pública, 1999. Ciudad de La Habana: Editorial Científico-Técnica; 1999.
11. Junco R. Manual para el manejo de los desechos sólidos peligrosos procedente de Hospitales. 5ta ed. Ciudad de La Habana: Editorial Científico-Técnica; 2008.
12. Ortunio M, Sánchez K. Programa de Bioseguridad para el manejo de Residuos Hospitalarios. 1 ed. Valencia (Venezuela): T. B. PRINT, C. A; 2007.
13. Junco Díaz R. Riesgo ocupacional por exposición a objetos corto punzantes en trabajadores de la salud. Rev Cubana Hig Epidemiol. 2008; 41(2).
14. Méndez M. Algunos aspectos relacionados con los riesgos en una central de esterilización. Rev Cubana Enfermer [Seriada en línea]. 2005 [Consultado 2007 Oct 12]; 20 (1). Disponible en: http://scielo.sld.cu/scielo.php?pid=S0864-03192004000100003&script=sci_arttext/.
15. Higa J. La bioseguridad en ambientes hospitalarios. Salud, Trabajo y Ambiente. 2008 Nov; 9 (33): 1-4.
16. 16 Martí Solé, María del C: NTP 372: Tratamiento de residuos sanitarios. Disponible en www.mtas.es/insht/principal/mapa.htm. 2008.
17. MINSAP. Dirección Nacional de Epidemiología. Reunión VIH/SIDA/ITS. Municipios más afectados en Cuba. La Habana 24 Mayo del 2008.
18. Amelia, M. Nueva Era en la Bioseguridad. España. 2005; 10(30):250-53.
19. Gala González A. Nuevos orígenes de las infecciones del SIDA BOLIPK. La Habana Julio 2003; 9(26):204-205.
20. Roses M. Diez países de America Latina Logran rebajar en medicamentos contra el SIDA. OPS. Washington, 12 junio del 2003 (reuters) En: INFOMED Red telefónica de Salud en Cuba. Junio 2003; 10(162): 3-4.
21. Tovar, Vilma. Trabajo de Ascenso para optar a la Categoría de Profesor Asociado en el escalafón Universitario. Facultad de Odontología. Universidad Central de Venezuela. Abril 2006.
22. Manual de Controle das Doenças Sexualmente Transmissíveis. Ministério da Saúde, Coordenação Nacional DST e AIDS. 1999.
23. CDC: Guidelines for Treatment of Sexually Transmitted Diseases. Morbidity and Mortality Weekly Report, Vol.47/Nº. RR-1, 1998.
24. Escalona, E. (2006). Relación salud-trabajo y desarrollo social: visión particular en los trabajadores de la educación. Revista Cubana de Salud Pública, 30(1). Disponible: <http://cielo.sld.cu/cielo.php?script>.
25. Guías sobre la Vigilancia del VIH de Segunda Generación. ONUSIDA/OMS. 2006.
26. Ortiz González LM. Infecciones por virus de la inmunodeficiencia humana. Afecciones infecciosas más frecuentes. En: Álvarez Sintés R. Principales afecciones del individuo en el contexto familiar y social. Temas de Medicina General Integral. La Habana 2001; volumen II: 417-421.
27. Petracci M, Muraro H. Circuitos Comunicacionales de información sobre los modos de contagio y de prevención del VIH/SIDA; 2007 [citado 2007 jul 14]. Disponible en: <http://www.ctv.es/USERS/fpardo/vih1.htm>.
28. Kornblit A, Jiménez L, Méndez Díaz A, Petracci M y Vujosevich J. El SIDA está entre nosotros. Editorial Corregidor; Buenos Aires 2008: 55-56.
29. Gogna M, Pantelides E y Ramos S. Las enfermedades de transmisión sexual: Género, salud y sexualidad. Panamá 2008. Cuaderno Cenep. 52: 55-56.

30. Ochoa Soto R, Duque Santana I, Hernández Fernández M, Chacón Asusta L, Ricardo Puig O and et al. Manual Metodológico. Trabajo de Prevención de las ITS/VIH/SIDA. MINSAP y Centro Nacional de Prevención de las ITS/VIH/SIDA. Ciudad de La Habana; 2004: 122.
31. Ponce Garay C. El VIH pone en peligro la vida de los jóvenes africanos. Network en español. Family Health Internacional, 2006; 20(3)
32. Rodríguez F. El SIDA avanza. BOLIPK. La Habana Julio 2000; 10(30):237.
33. Ochoa Soto R, Duque Santana I, Hernández Fernández M, Chacón Asusta L, Ricardo Puig O and et al. Manual Metodológico. Trabajo de Prevención de las ITS/VIH/SIDA. MINSAP y Centro Nacional de Prevención de las ITS/VIH/SIDA. Ciudad de La Habana; 2004: 128.
34. Castellanos Oñate CM, Vera Noda CR, Gutiérrez Venegas P, Escobar Gómez R. Educación sexual en un grupo de estudiantes secundarios. Rev Cubana Med Gen Integr 2003; 16(1):31-8.
35. Gottlieb S. News roundup unprotected oral sex can transmit HIV. BMJ, April 2003; 326-730.
36. Hernández RR. Intervención educativa sobre el uso del preservativo en adolescentes del CMF # 15. Trabajo para optar por el título de Especialista de Primer Grado en Medicina General Integral. Policlínico Norte. 2007.
37. Hernández Cuesta I. Sistema de Atención Ambulatoria para las personas que viven con el VIH/SIDA. En: Jiménez Sandoval O, Álvarez González A, Alfonso Cruz MA, Vallalón Oramas M, Reyes Chacon X, Carnota del Busto R, et al. Conocimiento sobre el VIH. La Habana: Editorial Pueblo y Educación. 2006: 91-95.
38. Jiménez Sandoval O. Epidemiología. En: Jiménez Sandoval O, Álvarez González A, Alfonso Cruz MA, Vallalón Oramas M, Reyes Chacon X, Carnota del Busto R, et al. Conocimiento sobre el VIH. La Habana: Editorial Pueblo y Educación. 2006: 1-9.
39. Ortega González LM. Infecciones por virus de la inmunodeficiencia humana. En Álvarez Sintés R, Díaz Alonso G, Salas Mainegra I, Lemus Lago ER, Batista Moliner R. Temas de Medicina General Integral. Editorial de Ciencias Médicas. La Habana 2006. V-II: 417-421.
40. Kirby D. Sexuality and sex education at home and school. Adolesc. Med.2008; 10(2):195-209.
41. Finger W. La educación sexual ayuda a preparar los jóvenes. Network en Español 2006; 20(3):23-29.
42. Ferrera M. Adolescent sexuality: Contracepción and DST/AIDS. Rev. Braz. Med.; 2003; 5(3):15-25.
43. Castellanos Oñate CM, Vera Noda CR. Gutiérrez Venegas P y Escobar Gómez C. Educación sexual en un grupo de estudiantes secundarios.Rev. Cubana Med. Gen. Integral; 2003:16(1):31-8
44. Chávez Castañeda I. Intervención comunitaria para mejorar los conocimientos sobre ITS en los adolescentes del Consejo Popular Camilo Cienfuegos. [Trabajo para optar por el título de Especialista de Primer Grado en Medicina General Integral]. 2007. Facultad de Ciencias Médica. Ciego de Ávila.
45. Robinson ET. 33 millones de personas infectados por el VIH. Network en Español. Family Health Internacional, 2003; 20(1):2.
46. Underhill K, Montgomery P, Operario D. Sexual abstinence only programs to prevent HIV infection in high income countries: systematic review. BMJ. 2007; 335:217-8
47. U Santiago, M. L., Range, F., Keele, B. F., Li, Y., Bailes, E., Bibollet-Ruche, F., Fruteau, C., Noe, R., Peeters, M., Brookfield, J. F., Shaw, G. M., Sharp, P. M. & Hahn, B. H. (2005). «Simian immunodeficiency virus infection in free-ranging sooty mangabeys (*Cercocebus atys atys*) from the Tai Forest, Cote d'Ivoire: implications for the origin of epidemic human immunodeficiency virus type 2» J Virol. Vol. 79. pp. 12515-27.
48. Ortiz Maza Y, Gutiérrez Villa N, Castillo Roja L. La mujer. Vulnerabilidad y su relación con el VIH/SIDA municipio Morón. Trabajo para optar por el título de Especialista de Primer Grado en Medicina General Integral. Policlínico Sur. 2007.
49. Caída JA, Jansá JM, Sida y tuberculosis: confluencia de una nueva epidemia y una vieja endemia. Arch Bonconeumol 2007; 28:21-6.
50. Artilés E, Gutiérrez Villa N, Castillo Roja L. intervención educativa sobre ITS/VIH/SIDA en la escuela Puerto Camacho, Venezuela. Trabajo para optar por el título de Especialista de Primer Grado en Medicina General Integral. Venezuela. 2006.
51. Pedroso P. Alerta OMS sobre peligroso vínculo entre el SIDA y la Tuberculosis. BOLIPK. La Habana Marzo 2002; 11(12):90-91.
52. Gala González A. El SIDA es uno de los principales retos para el desarrollo. BOLIPK. La Habana Julio 1999; 9(26):204.
53. Orme I. Immunity to mycobacteria. Medical intelligence unit Texas, Texas: R.G. Landes Company; 2006.
54. De Cock KM, Soro B, Coulibaly MI, Lucas S B. Tuberculosis and HIV infection in sub-Saharan Africa. JAMA 2007; 268: 1581-1587.
55. Resino R. Historia de la infección VIH. Rev. Epidemiología molecular de enfermedades Infecciosas. [Seriada en línea]. 2009 [Consultado 2009 Nov 12]; 20 (1). Disponible en: <http://epidemiologiamolecular.com/historia-de-la-infeccion-vih/>
56. Javier Zepeda CA. Riesgo profesional de la infección por VIH. Medicina Clínica (Honduras) 2006; 1(2): 77-78.

57. Ballester J. El Programa de Medicina Transfusional de Cuba. *Rev Panam Salud Pública*. 2003; 13 (2): 3.
58. Vázquez C, Piña J, Robles C. Accidentes relacionados con la exposición al riesgo biológico en unidades de salud. *Archivo Médico de Camagüey*. 2004; 8(4).
59. Aguilar I, Barreto M, Vázquez J, Perera L. Bioseguridad de los trabajadores del Departamento de Laboratorio Clínico. *Revista de Ciencias Médicas La Habana*. 2006; 12(1).
60. Pérez M, Cueto G. Bioseguridad en instalaciones médicas de atención primaria y secundaria. *Rev Cubana Med Gen Integr*. 2007; 23(1).
61. Estrada A, Escalona L, García D, Serrano D. Percepción del riesgo biológico por el personal ocupacionalmente expuesto en una institución de la salud pública de la provincia Granma. *Revista Granma Ciencia*. 2005; 9 (3).
62. Regalado L, Díaz H, Lubián A, Martín R. Vigilancia del personal de laboratorio expuesto al VIH y otros virus de transmisión sanguínea. *Rev Cubana Med Trop*. 2002; 54(2):158-60.
63. Hernandez E, Acosta M, Nadal B, Pituan M, Fon Y, Armas N. Intervención educativa para incrementar los conocimientos sobre bioseguridad en el personal de enfermería de una institución hospitalaria. *Rev Cubana Enfermer* 2006; 22(2).
64. Mata A, Reyes R. Normativa vigente en algunos países de América Latina sobre desechos hospitalarios. *Uct*. 2006; 10 (37): 46-49.
65. Larrain S, Vega J. Estudio de prevalencia de la violación de normas técnicas en el sistema de salud. *Publicaciones de Salud*. 1988; 5(6): 12-4.
66. Caballero A, Serrano C. Estudio de percepción al riesgo biológico en el Servicio Veterinario de la provincia Granma. 2003; II Taller Provincial de Seguridad Biológica, Granma, 2003.
67. Delfin S, Delfin S, Rodríguez D. Necesidad de la implementación de la bioseguridad en los servicios estomatológicos en Cuba. *Rev. Cubana Estomatol*. 1999; 37(3):235-9.
68. Junco R, Martínez G, Luna M. Seguridad ocupacional en el manejo de los desechos peligrosos en instituciones de salud. *Rev Cubana Hig Epidemiol*. 2003 EnJul 1; 41 (1): 1-3.