



REVIEW ARTICLE

Biosafety standards for the management of patients with HIV/AIDS in dentistry

Normas de bioseguridad para el manejo de pacientes con VIH/SIDA en odontología

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ABSTRACT

Introduction: lesions occurring in the oral cavity in patients with HIV/AIDS can be very inconsistent and range from mild changes to severe lesions.

Objective: to argue for the importance of taking care of biosafety standards in the dental care of patients with HIV/AIDS.

Methods: narrative bibliographic review of scientific articles and publications reviewed. Recognized sources and databases were consulted, such as: PubMed, Google Scholar and Scielo, with the purpose of obtaining relevant and updated information on biosafety protocols in patients with HIV. Twenty-one articles were selected for their relevance, taking into account the exclusion and inclusion criteria and published in English and Spanish.

Results: biosafety procedures in the provision of dental care to patients with HIV/AIDS, stigma and discrimination still persist in the provision of dental services. In part this is due to the specialists' lack of knowledge about the symptoms that patients may present during oral care, i.e., the professional is not trained to provide effective support in these cases or for fear of becoming infected. To avoid cross-contamination, it is vital to follow biosafety standards, which are all the procedures and precautions that should be followed when caring for patients and/or handling contaminated instruments to reduce the risk of infection.

Conclusions: when providing oral care to patients with HIV, the potential for transmission will always be latent, so strict precautions should be taken to avoid transmission.

Keywords: Knowledge; Containment of Biohazards; HIV; Dentists.

RESUMEN

Introducción: Las lesiones que se presentan en la cavidad bucal en los pacientes con VIH/SIDA pueden ser muy inconstantes y comprenden cambios leves hasta lesiones graves.

Objetivo: argumentar la importancia del cuidado de las normas de bioseguridad en la atención odontológica a pacientes con VIH/SIDA.

Métodos: revisión bibliográfica narrativa de artículos científicos y publicaciones revisadas. Se consultaron fuentes y bases de datos reconocidas, tales como: *PubMed*, *Google Scholar* y *Scielo*, con el propósito de obtener información relevante y actualizada sobre los protocolos de bioseguridad en pacientes con VIH. Se seleccionaron 21 artículos por su relevancia, tomando en cuenta los criterios de exclusión e inclusión y publicados en idioma inglés y español.

Resultados: los procedimientos de bioseguridad en la prestación de atención odontológica a pacientes con VIH/SIDA, aún persiste el estigma y la discriminación en la prestación de los servicios odontológicos. En parte esto se debe al desconocimiento de los especialistas sobre los síntomas que pueden presentar los pacientes durante la atención bucal, es decir, el profesional no está capacitado para brindar un apoyo efectivo en estos casos o por temor a contagiarse. Para evitar la contaminación cruzada, es vital seguir las normas de bioseguridad, que son todos los procedimientos y precauciones que se deben seguir al cuidar a los pacientes y/o manipular instrumentos contaminados para reducir el riesgo de infección.

Conclusiones: al brindar cuidado bucal a pacientes con VIH, el potencial de transmisión siempre estará latente, por lo que se deben tomar precauciones estrictas para evitar la transmisión.

Palabras clave: Conocimiento; Bioseguridad; VIH; Odontólogos.

INTRODUCTION

Acquired immunodeficiency syndrome (AIDS) is characterized by producing an acquired infection originating from the human immunodeficiency virus (HIV), which involves the patient presenting a state of immunodeficiency in all of his systems, therefore making him vulnerable to severe infections.⁽¹⁾

HIV infection and its progression to AIDS are recognized as a global public health problem. HIV is transmitted through various fluids such as: blood, semen, vaginal fluids and breast milk. Many carriers of this virus are asymptomatic, which makes the situation and condition of the patient difficult, since it represents a risk for oral hygiene workers if the correct biosecurity measures are not taken. Dentists must provide appropriate treatments to such patients depending on their condition, in order to immediately recognize the risk of infection and associated complications.⁽²⁾

Oral lesions in patients with HIV/AIDS can be very variable and range from mild changes to severe lesions. Despite biosafety procedures in the provision of dental care to patients with HIV/AIDS, stigma and discrimination in the provision of dental services still persist. This is partly due to the lack of knowledge of specialists about the symptoms that patients may present during oral care, that is, the professional is not trained to provide effective support in these cases or for fear of becoming infected.⁽¹⁾

The HIV virus belongs to the family of human retroviruses, from which two types of HIV are derived (HIV1-HIV2), this variation comes from the monkey immunodeficiency virus (SIV), the only reservoir of both types of HIV is human infection. The incubation period, defined as the time from infection to the appearance of acute HIV symptoms, is three to six weeks and the median time from initial infection to the onset of AIDS without treatment is approximately 10 years, but this is a very different period of time.⁽³⁾

The routes of HIV transmission are:⁽⁴⁾

Sexual contact: Through semen and vaginal secretions.

Parenteral route: It occurs through blood transfusions and blood derivatives, as well as through sharing needles and syringes among intravenous drug addicts, contaminated needles and ink for tattoos, and through accidents with sharp instruments.

Vertical: It is given from mother to child through the placenta, during childbirth or during breastfeeding.

Accidental: Aimed at health professionals who are exposed to the virus through punctures or traumatic maneuvers with instruments contaminated with the blood of infected people.

Transmission lasts as long as the patient is infectious, i.e. for life. Infectivity depends on factors such as the amount of virus in the inoculum (high viral load) and the excretion of the virus in different fluids.

Dentists and healthcare professionals are now in daily contact with patients who may be carriers of infectious diseases such as the human immunodeficiency virus (HIV).⁽⁵⁾ For these patients, several treatments have been modified and new knowledge is being developed on good infection control and biosecurity management.

To avoid cross-contamination, follow biosafety standards, which are all the procedures and precautions that must be followed when caring for patients and/or handling contaminated instruments to reduce the risk of infection in the work environment. When providing oral care to patients with HIV, the potential for transmission will always be present, so strict precautions must be taken to prevent transmission.

Preventive health measures for health personnel when dealing with a patient with HIV/AIDS are:⁽⁶⁾

Keep your vaccination schedule up to date.

Use protective barriers to avoid contact with blood and other contaminating fluids.

Effective sterilization and disinfection procedures

Waste management and disposal

Biosafety protocol ^(7, 8)

Handwashing: Hands are the main vector for the transmission of pathogens. Hands should be washed with soap, water and a brush before and after caring for each patient or when contact with blood has occurred.

Clothing: Used to protect the skin and prevent contamination of everyday clothing. This clothing will only be used during the consultation. It is necessary to use caps and long-sleeved surgical clothing. Contaminated clothing must be removed in the same work area and placed in waterproof bags and transported to the washing area.

Overalls: Provides healthcare personnel with complete 360-degree coverage; a gown must be worn over the coveralls.

Gloves: When handling an HIV patient, it is advisable to wear double gloves, as this is an effective measure to prevent contact of the hands with blood. Although it does not prevent inoculation from the puncture, it does reduce the risk of infection by 25 %.

Gown: Must be long-sleeved, with reinforced cuffs and a high collar (the overalls must not be directly exposed, they must cover the disposable gown).

Mask: For the care of patients with HIV, the most recommended is the use of KN95 or FFP2, as they provide greater protection, filtering almost 94 % of particles.

Cap: Hair is an area of contamination, so a protective cap should be used.

Eye protection: Dental professionals must use eye protection, since it is the way to avoid eye infections caused by aerosols and splashes.

Face shield: To provide broader and safer protection, it is necessary to use a face shield, which must extend at least 8 cm below the chin.

Shoes: They must be for single use, that is, only for use inside the dental work facilities, and they must be closed.

Disinfection

Disinfection is a process that eliminates pathogenic microorganisms, viruses, bacteria, but not spores. There is a classification that determines the equipment and instruments that can be sterilized in an autoclave (water vapor) and those that can only be disinfected, this depends on the risk of transmission of the infection:^(8,9)

Critical: Surgical instruments and others used to penetrate soft tissue or bone must be sterilized after each use and at a high level of disinfection.

Semi-critical: Instruments that do not penetrate soft tissue or bone, but come into contact with oral tissues, must be sterilized; if this is not possible, high-level disinfection must be performed.

Non-critical: Instruments that do not come into contact or only touch intact skin must undergo a low-level disinfection process.

Dental staff must sterilize critical and semi-critical instruments that have had contact with fluids such as blood and/or saliva:⁽⁹⁾

In case of probable exposure to HIV.

Post-Exposure Prophylaxis (PEP) can be a secondary measure for the prevention of human immunodeficiency virus (HIV) infection, following the failure of primary prevention by health personnel.

Regarding the factors related to the accident, this will depend on the depth of the puncture:⁽¹⁰⁾

1. Accidental surface inoculation: erosion.
2. Intermediate depth: appearance of blood.
3. Deep accidental inoculation.

Post-Exposure Prophylaxis (PEP) Steps:⁽¹⁰⁾

1. Squeeze your finger.
2. Wash the affected area with plenty of soap and water.
3. Use a topical antiseptic on the wound.
4. In the case of mucous membranes, use only water or physiological saline solution.
5. Determine whether post-exposure prophylaxis for HIV is necessary.
6. Notify a family member of the situation, if you are not accompanied by them.
7. In case of suspicion, act according to the corresponding protocol.
8. Performance of baseline serological and analytical studies.
9. Evaluate the vaccination schedule and update if appropriate, including prophylaxis if indicated.
10. If the first healthcare visit takes place in primary care, refer to the emergency room of the reference hospital.
11. If the first care is provided in a hospital setting, do not discharge the patient without carrying out all the previous studies and without starting treatment when indicated, as well as scheduling the necessary follow-up.
12. Start drug treatment if indicated.
13. Establish the schedule for monitoring and analytical controls as appropriate.
14. Follow-up will refer the patient to the Preventive Medicine and Epidemiology Service, where he/she will be informed of the results of the baseline serologies, and there will be a check-up at 45 days, three and six months.

By carrying out the Elisa test together with the sampling for HIV screening, it will be detected whether or not the infection was contracted, since if the antibodies against HIV are present it will be positive and the test will be repeated to confirm the diagnosis.

METHODS

Narrative bibliographic review of scientific articles and peer-reviewed publications. Recognized sources and databases were consulted, such as: PubMed, Google Scholar and Scielo, in order to obtain relevant and updated information on the Biosafety protocols for patients with HIV. 21 articles were selected for their relevance, taking into account the exclusion and inclusion criteria and published in English and Spanish.

The inclusion criteria for choosing the articles to be reviewed were as follows:

1. That the article includes people with HIV.
2. Articles about diseases that are related to HIV.
3. Research on knowledge of biosafety protocols in patients with HIV.
4. Research on the causes that influence oral manifestations in patients with HIV.

Exclusion criteria:

1. Articles from 2015 and earlier.

RESULTS

Following the development of research, The results obtained are made known, for its preparation it was taken into account Scientific articles extracted from sources and databases of Pubmed, Google Scholar and Scielo from which we have obtained references, taking into account the inclusion and exclusion criteria.

REFERENCE	METHODS	CONCLUSION
(11)Rodríguez R. Universidad de Carabobo Faculty of Educational Sciences Postgraduate Direction Master's Degree in Educational Research Level of knowledge on the care of people with HIV/AIDS in fifth-year students of the Faculty of Dentistry of the University of Carabobo. edu.ve. [cited June 3, 2023]. Available at: https://acortar.link/OjE0hv	He selected a sample of population subgroups at random, and from this sample he collected data from all the elements, which were fifty-one (51) students and twenty-seven (27) teachers.	65.10% have no cognitive mastery of HIV/AIDS, which could be related to the clinical area teachers surveyed, in which only 51.85% of them have basic knowledge about HIV protocols.
(12) Carrasco Delgado, YM (2016). Relationship between the level of knowledge and attitude of dental interns at the Señor de Sipán University, Faculty of Health Sciences, towards patients with HIV.	The study population consisted of a total of 70 dental interns, who were given a questionnaire after accepting informed consent and reading the information sheet. The questionnaire consisted of twenty questions, the first 10 of which were based on attitude, and the next 10 corresponded to the level of knowledge about HIV. The level of knowledge and attitude was also determined according to age and gender.	The highest percentage of 52.9 % had a regular level of knowledge, 32.4 % had a good level of knowledge, and 14.7 % had a poor level of knowledge.
(13)MSP. Attitude of dental professionals towards the care of patients with HIV-AIDS (2019). [cited June 11, 2023] https://www.salud.gob.ec/wpcontent/uploads/2019/06/gpc_VIH_atrabajo_ministerial05-07-2019.pdf	In a study in Ecuador to analyze the situation regarding the level of knowledge and attitude of dentists towards HIV/AIDS carriers, 48 professionals participated	60.4 % showed a good level of knowledge and 43.8 % had a negative attitude towards HIV/AIDS carriers
(14)Herrera, M., Vela, J., & Zuñiga, F. Knowledge level and attitudes of dental students regarding the care of patients with HIV/AIDS in the province of Chiclayo, Lambayque, Peru (2015). [Cited June 11, 2023] http://www.sidastudi.org/es/registro/ff8081814d0726fd014dd23e8f8d0236	106 students from the V, VII, IX and XI cycles participated, answering a 35-item questionnaire, whose content validity was given by expert judgment and reliability by a pilot test, the results were integrated into a database and processed with a confidence level of 0.05	50.0% have regular knowledge, 47.1 % have an indifferent attitude, and therefore they conclude that the majority of dentistry students (24.5 %) have regular knowledge with an indifferent attitude.

DISCUSSION

Types of Test according to the marking it detects :⁽¹⁵⁾ Serological tests: detection of antibodies directed against HIV viral proteins of types 1 and 2 and the detection of the viral protein p 24, of third and fourth generation.

Molecular assays: based on the detection of a fragment of viral genomic RNA, which are qualitative and quantitative.

Enzyme-linked immunosorbent assays (EIA) are characterized by using enzyme-linked antigen and antibody reactions, which in contact with the specific substrate allow the presence of human antibodies against HIV and/or the viral protein p24 to be demonstrated.

Rapid tests (RT): These allow for the analysis of individual samples in an average time of 10 to 20 minutes. Due to the "simplicity" of their assembly, the most commonly used format is immunochromatography.

ELISA: These are assays that allow the simultaneous processing of several samples. The enzymatic reaction allows a color change, which is read by determining the absorbance of the sample compared to a reagent blank.

Types of ELISA:⁽¹⁵⁾

➤Direct ELISA (single two-layer ELISA assay).

They are incubated with labeled antibodies. They indicate the presence of antigen in the analyzed solution.

➤Indirect ELISA

The detection system uses two 30 antibodies: a primary one against the antigen and a secondary one labeled against the primary.

Immunoblot: These are techniques used to confirm that the antibodies detected in serological tests are directed against specific HIV proteins.

The most used are:⁽¹⁶⁾

1. Western blot (WB): viral proteins are obtained through cultures, which are transferred according to their molecular weight onto a nitrocellulose strip, allowing the individual detection of antibodies against each of the HIV proteins.
2. LIA (Online immunoassay): has the same purpose as WB with the difference that the viral proteins are recombinant type.

Treatment

Antiretroviral therapy (ART) is the treatment of people infected with the human immunodeficiency virus (HIV) with anti-HIV drugs. WHO recommends the initiation of ART in all people living with HIV, regardless of clinical stage and with any CD4 cell count, the use of preferential regimens with dolutegravir (DTG) for first-line treatment, and the use of prophylaxis as an additional prevention option.⁽¹⁷⁾

First-line ART for adults should consist of two nucleoside reverse transcriptase inhibitors (NRTIs) plus a non-nucleoside reverse transcriptase inhibitor (NNRTI) or an integrase inhibitor.⁽¹⁷⁾

Name of retroviral drugs ⁽¹⁷⁾

AZT + 3TC + EFV = Zidovudine+ Lamivudine+ Efavirenz.

AZT + 3TC + NVP = Zidovudine + Lamivudine + Nevirapine.

TDF + 3TC (or FTC) + NVP=: Tenofovir disoproxil fumarate + Lamivudine (Emtricitabine) + Nevirapine.

Pathologies caused by HIV at the oral level include: ⁽¹⁸⁾

Oral candidiasis: This is an opportunistic infection in patients infected with HIV/AIDS. In early stages, candidiasis mainly affects the oral mucosa. Hairy leukoplakia: This is a benign, whitish hyperplastic lesion that does not come off when scraped and is located on the lateral edges of the tongue, bilaterally or unilaterally.

Kaposi's sarcoma: It is a disease that begins with a reactive hyperplastic anti-inflammatory reaction and an angiogenic process that evolves into a sarcoma. ⁽¹⁸⁾

In addition, prior to dental care, the use of certain mouthwashes is recommended in order to reduce the viral load of an HIV patient, these may be: ⁽¹⁹⁾

Chlorhexidine: This is a long-lasting antiseptic agent due to its high substantivity. It is an effective inactivator against enveloped viruses such as HIV. The effectiveness of 0.12 % chlorhexidine mouthwash applied for 30 seconds twice a day has been proven, showing a reduction in viral load.

Cetylpyridinium chloride: It is a bactericide against Gram-positive pathogens, as well as a virucide and fungicide used in dental practice at concentrations of 0.02 % to 0.07 %. It is related to preventive effects for HIV, interfering in the ability of the virus to penetrate cells and multiply, as well as being an alternative in cases of patients who do not tolerate chlorhexidine due to irritation of mucous membranes and stains.

Povidone-iodine: It has a germicidal range, acting on a wide variety of bacteria and viruses, which is why it is used as a topical antiseptic, and as a mouthwash on the oral mucosa, with the purpose of reducing the amount of microorganisms.

In order to reduce or eliminate the risk of contamination with infections such as HIV, among others, it has been stipulated that the risk of infection is reduced if universal precautions are used and direct treatment of the patient is avoided when the operator has exudative skin lesions or suppurative dermatitis.

Pollution is significantly reduced by using barriers such as:

Disinfect spittoons and surfaces with bactericides.

Cover surfaces with plastic or aluminum (pre and post cleaning).

Disinfect gowns, aprons or disposables.

Wear a face mask, glasses or a face covering.

Wear gloves, remembering to wash your hands with soap and water before and after providing care.

Sterilize or disinfect critical (sterilize), semi-critical (sterilize or disinfect) or non-critical (disinfect) instruments.

CONCLUSIONS

Socializing dentists about the use of biosecurity measures in patients with HIV is essential, since it must be taken into consideration that the mouth is colonized by numerous microorganisms and that any treatment, routine or not, provides an access door to the vascular system and normally sterile areas, so establishing the routine of strict biosecurity measures in dental practice guarantees better care and quality of life, not only for people with HIV/AIDS, but also for health personnel, in this case dentists.

Declaration of conflict of interest

The authors declare that there are no conflicts of interest.

Authors' contributions

All authors participated in conceptualization, data curation, formal analysis, investigation, methodology, supervision, writing-original draft, writing-review, and editing.

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BIBLIOGRAPHICAL REFERENCES

1. Santillán B, Alejandra V. Asistencia Odontológica en pacientes con VIH/SIDA. Repositorio Universidad de Guayaquil[Internet]; 2020 [citado el 20/06/2023]. Disponible en: https://rraae.cedia.edu.ec/Record/UG_3cec4881dbb91bda9b4c2450c86e15b8
2. LEY PARA LA PREVENCIÓN Y ASISTENCIA INTEGRAL DE VIH/SIDA [Internet]; 2012 [citado 20/06/2023]. Disponible en: <https://www.cndh.org.mx/doctr/2016/jur/a70/01/jur-20170331-1114.pdf>
3. Bennett J, Dolin R, Blaser M. Mandell, Douglas y Bennett. Enfermedades infecciosas principios y práctica. 8va ed. Elsevier; España [Internet]; 2016 [citado el 20/06/2023]. Disponible en: <https://www.clinicalkey.es/#!/browse/book/3-s2.0-C20140042335>
4. Negroni M. Microbiología Estomatológica. Fundamentos y Guía Práctica. Editorial Médica Panamericana S.A. 3era Edición[Internet]; 2018 [citado el 20/06/2023]. Disponible en: <https://www.edicionesjournal.com/Papel/9789500695572/Microbiolog%C3%ADa+Estomatol%C3%B3gica>
5. Del Castillo Salazar D, Abrahantes TNR. La ética de la investigación científica y su inclusión en las ciencias de la salud. Acta Médica del Centro [Internet]. 2018 [citado 19/06/2023]; 12(2):213–27. Disponible en: <https://revactamedicacentro.sld.cu/index.php/amc/article/view/880/1157>
6. MINISTERIO DE SALUD PÚBLICA. Protocolo para Atención Estomatológica durante la Emergencia sanitaria por Covid-19, Quito. Ecuador; 2020 [citado 11/06/2023]. Disponible en: <https://acortar.link/ktDUe7>

7. PAHO. PROTOCOLO PARA ATENCIÓN ODONTOLÓGICA VIH. Guía de atención de personas con VIH/SIDA en la práctica de la odontología en la Caja Costarricense de Seguro Social. [Internet] [citado 11/06/2023]. Disponible en: https://www3.paho.org/hq/dmdocuments/2009/OH_COR_AtencVIHPractOdontSegSoc.pdf
8. OPS. Cómo PONERSE el equipo de protección personal (EPP) [Internet]. Paho.org. 2019 [citado 11/06/2023]. Disponible en: <https://www.paho.org/sites/default/files/2020-03/equipo-proteccion-personal-1-page.pdf>
9. Sánchez Vargas LO. El Control de Infecciones en el Ámbito Odontológico. Editorial Médica Panamericana; 2017. <https://www.medicapanamericana.com/es-ES/libros/el-control-de-infecciones-en-el-ambito-odontologico>
10. PAHO [Internet]. Pan American Health Organization / World Health Organization. VIH/AIDS. Guías, Manuales y cursos; 2022 [citado 13/06/2023]. Disponible en: <https://acortar.link/qXnlCM>
11. Richard R, Rodríguez G, Rosella C, Pugliese C. Nivel de conocimiento sobre la atención de personas con el vih/sida en estudiantes del quinto año de la facultad de odontología de la universidad de Carabobo[Internet]; 2013 [citado 13/06/2023]. Disponible en: <http://mriuc.bc.uc.edu.ve/bitstream/handle/123456789/842/rrodriguez.pdf?sequence=1>
12. Carrasco Delgado YM. Relación entre el nivel de conocimiento y actitud de los internos de estomatología de la Universidad Señor de Sipán hacia el paciente con VIH[Internet]; 2016 [citado 13/06/2023]. Disponible en: <https://repositorio.uss.edu.pe/handle/20.500.12802/2951>
13. Dávila ME, Gil M. Nivel de conocimiento y actitud de los odontólogos hacia portadores de vih/sida. Acta odontol. venez [Internet]. 2007 [citado 13/06/2023]; 45(2): 234-239. Disponible en: http://ve.scielo.org/scielo.php?script=sci_arttext&pid=S0001-63652007000200020&lng=es.
14. Herrera MS, Vela J, Zuñiga, F. Nivel de conocimiento y actitudes de los estudiantes de odontología frente a a atención de pacientes con VIH/SIDA en la provincia de Chiclayo, Lambayque Perú; 2015. [Citado 11/06/2023] <http://www.sidastudi.org/es/registro/ff8081814d0726fd014dd23e8f8d0236>
15. García F, Álvarez M, Bernal C, Chueca N, Guillot V. Diagnóstico de laboratorio de la infección por el VIH, del tropismo viral y de las resistencias a los antirretrovirales. Enferm Infecc Microbiol Clin [Internet]. 2011 [citado 14/06/2023]; 29(4): 297-307. Disponible en: <https://pubmed.ncbi.nlm.nih.gov/21345534/>
16. Díaz DF, Ortiz E, Martín D, Nibot C, Rizo A, Silva E. HIV-2 antibody detection after indeterminate or negative HIV-1 Western blot in Cuba, 2005-2008. MEDICC Rev [Internet]. 2012 [citado 14/06/2023]; 14(1): 25-9. Disponible en: <http://dx.doi.org/10.37757/MR2012V14.N1.6>
17. Directrices unificadas sobre el uso de los antirretrovirales para el tratamiento y la prevención de la infección por el VIH. Recomendaciones para un enfoque de salud pública. 2a edición. PAHO [Internet]; 2015 [citado 10/06/2023]. Disponible en: <https://www.paho.org/es/documentos/directrices-unificadas-sobre-uso-antirretrovirales-para-tratamiento-prevencion-0>

18. Santos Corraliza E, Fuertes Martín A. Efectos adversos de los fármacos antirretrovirales: Fisiopatología, manifestaciones clínicas y tratamiento. An Med Interna [Internet]. 2006 [citado 14/06/2023]; 23(7): 338-44. Disponible en: <https://pubmed.ncbi.nlm.nih.gov/17067236/>
19. Campo J, Cano J, Moreno LA, Bascones A. Manejo del paciente infeccioso en la consulta dental (Parte I). Manejo odontológico del paciente infectado por el VIH/sida [Internet]. Gaceta Dental. 2004 [citado 15/06/2023]; 145: 84-98. Disponible en: <https://dialnet.unirioja.es/servlet/articulo?codigo=4542340>