

# An Estimation of HIV/AIDS's Cost in the Voluntary Counseling and Testing Center of Imam Khomeini Hospital in 2010-2011

Seyyed Mossa Zeynolabedin<sup>1</sup>, Hossein Jabbari<sup>1,2</sup>, Zahra Bayat Jozani<sup>3,4</sup>, Mahboubeh Haji Abdolbaghi<sup>3,\*</sup>, Minoo Mohraz<sup>3</sup>, Arefe Arabzade<sup>3</sup>, Molloud Farrokhi<sup>3</sup> and Seyed Ahmad SeyedAlinaghi<sup>3</sup>

<sup>1</sup>Department of Disaster Public Health, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

<sup>2</sup>Department of Infectious Diseases and Tropical Medicine, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

<sup>3</sup>Iranian Research Center for HIV/AIDS, Iranian Institute for Reduction of High-Risk Behaviors, Tehran University of Medical Sciences, Tehran, Iran

<sup>4</sup>Midwifery and Reproductive Health Department, Alborz University of Medical Sciences, Karaj, Iran

**Abstract:** *Introduction:* Undoubtedly, HIV/AIDS is one of the most important emerging infectious disease in the late twentieth century; and its control is possible only with proper and organized program. To attain this goal, one of the most serious issues is the budget planning and distribution. The present study calculated the total costs of AIDS in Voluntary Counseling and Testing center of Imam Khomeini Hospital in 2010-2011.

**Methods:** The total cost of AIDS at this center was divided into four categories: health care, training and educating, research and services. All costs for 2010-2011 were extracted and classified based on documents and bills which were found in the center.

**Results:** According to the calculations, the center had a total of 6,603,479,058 IRR in 2010-2011, of which 49.5% (3,271,089,796 IRR) was allocated for health care expenditure, 20.3% (1,335,186,000 IRR) for research, 12.6% (834,000,000 IRR) for training and 17.6% (1,163,203,262 IRR) for services. The average expense for each person living with HIV was 2276 US dollars. The cost of treatment by drugs for each person eligible for treatment was 782 US dollars.

**Conclusion:** The percentage of budget distribution in the center is equal to the same percentage in low and middle income countries; although, more percentage is allocated for research than the mentioned countries. Also, the expenditure spent for treatment by drugs is more than the average of the same found in low and middle income countries. Overall, the budget distribution in this center is almost in accordance with the international standards.

**Keywords:** HIV, AIDS, Cost.

## INTRODUCTION

AIDS is characterized by the progressive destruction of a person's immune system and is the late and most serious stage of HIV infection [1]. Globally, an estimated 35.3 (32.2–38.8) million people were living with HIV in 2012. An increase from previous years as more people are receiving the life-saving antiretroviral therapy. There were 2.3 (1.9–2.7) million new HIV infections globally, showing a 33% decline in the number of new infections from 3.4 (3.1–3.7) million in 2001. At the same time the number of AIDS deaths is also declining with 1.6 (1.4–1.9) million AIDS deaths in 2012, down from 2.3 (2.1–2.6) million in 2005 [2].

The medical cost and economic burden to society of the HIV/AIDS epidemic have attracted some but

substantially less attention. Early costing studies in the pre-ART (antiretroviral therapy) era examined the direct medical costs associated with the morbidity and mortality of AIDS focusing mainly on the costs of hospitalization [3]. The economic burden measured by direct medical costs has shifted from inpatient costs (i.e., hospitalization) to outpatient costs primarily reflected as the cost of the antiretroviral drugs, outpatient visits, and laboratory tests [3-5]. Furthermore, HIV prevalence is increasing in western countries as a consequence of falling death rates [1].

Information on the direct costs of treatment is important since it provides a basis for health planners to allocate budgets or reimburse specific categories of expenditures. It also enables policymakers, when faced with changes in prevalence, that currently occurring with the spread of HIV infection among injection drug users to make more informed choices between programmes. To optimally allocate scarce economic resources to prevention and treatment programmes, planners require accurate, up-to-date estimates of the

\*Address correspondence to this author at the Iranian Research Center for HIV/AIDS, Iranian Institute for Reduction of High-Risk Behaviors, Tehran University of Medical Sciences, Tehran, Iran; Tel/Fax: +98-21 66947984; E-mail: mahboubeh\_hajabdo@yahoo.com

direct costs of treatment [1, 6]. Although economic evaluation is an important approach for establishing priorities for health interventions [1, 7, 8], in practice this type of evaluation has been of limited value in HIV/AIDS because of the paucity of accurate cost data [1, 9].

According to statistics collected from medical schools and health services In Islamic Republic of Iran, till October of 2013, the total contracting HIV/AIDS was reported 26125 that 89.8% were male and 10.2% were female [10].

Whereas the death and disease of HIV/AIDS is common in countries with low/middle income, good investments are more important than ever. With estimation of HIV/AIDS cost, the programme managers and planners dealing with HIV/AIDS to make informed decisions about resource allocation and also in responding to the HIV/AIDS epidemic the costs and consequences of the initiatives proposed in an AIDS programme must be known to the decision-makers to make best use of scarce resources.

The estimation cost of HIV/AIDS is studied in many countries and many articles described it, for example Dodds.C et.al studied the cost of HIV/AIDS in Canada in 1999. According to their study, total direct costs of HIV/AIDS was \$600 million a year, the shift to expensive highly active antiretroviral therapy (HAART) treatments in 1996, that delay the onset of AIDS and prolong the lives of HIV patients, has increased direct patient costs. Average monthly health care costs per person for the four HIV/AIDS stages increased by 120% for the CD4 count >500 cells/ $\mu$ L, by 85% for the 499-200 cells/ $\mu$ L, by 51% for the 199-75 cells/ $\mu$ L, and by 21% for AIDS victims (CD4 count <75 cells/ $\mu$ L) following the introduction of HAART [11, 12]. The aim of this study was to calculate the cost of HIV/AIDS in the Voluntary Counseling and Testing (VCT) Center of Imam Khomeini Hospital between 2010-2011.

## MATERIALS AND METHODS

All clients of AIDS counseling center receive counseling and visiting services of this center. But from clients of AIDS counseling center, there are cases that refer to this center just for fear of HIV infection or for gain information about AIDS and the ways of HIV transmission, these cases are guided by the counseling center without enrolling in the center. Only cases with risky behavior, are enrolled and taken the initial testing. After HIV infection is confirmed by testing, to accept the

current situation, consultation is done by the center's aware counselor.

After this, if the infected person be married, with consent of the person, to accept in the family, disease process, the way of transmission, particularly of sexually, prevention ways of infection and how to use condom, consultation will be given to the spouse. If the person be single, just with consent of the person and in the necessity to emotionally and clinical support, family counseling will be done and the acceptance of an infected person in the family is emphasized. This is assured that despite living with an infected person, the HIV is not transmitted and also disease process, the way of transmission will explain and testing for the presence of HIV for family if they had a risky behavior is emphasized. Then, the practitioner examines the patient carefully and record diagnostic findings in the form of clinical assessment of HIV/AIDS. To confirm and finalize the diagnosis from people who have a positive ELISA test, ELISA test is done again and also a Western Blot test is done for these patients. By definition, we say that a person is HIV positive and suffering from AIDS when CD4 count is declined under 200 cells per microliter or the person suffering from one of the cellular immunity disease, so medication for these patients begins. This study was cross-sectional and descriptive and was based on all patients that referred to the counseling center in 2010 and received one of the services that this center provides. The information gathered through study the documents, questionnaires and interviews with staff of center. To calculate the cost in the VCT Center of Imam Khomeini Hospital in 2010-2011, these costs were classified into four sections and the cost of every section was calculated and these costs were summed.

These sections were:

- a. Health-therapeutic that contains test and imaging, drug and vaccine
- b. Training that contains publish of AIDS book and publish leaflet and posters, seminar, congress, nutrition workshops and educational workshops of positive club
- c. Research that contains first three months, second three months, third three months and fourth three months.
- d. Services that contains personnel of VCT, equipment of VCT, setting up new sexually transmitted infections (STIs) unit, telephone of

**Table 1: Number of Patients that Referred to the Center and Number of Patients with Positive HIV and AIDS and Number of Patients that Received Treatment**

	First quarter	Second quarter	Third quarter	Fourth quarter	Total	Gender	
						male	female
<b>Referred</b>	2007	2294	2583	2387	9271		
<b>New counseling</b>	292	304	324	272	1192		
<b>Number of HIV<sup>+</sup></b>	65	71	66	37	239	75%	25%
<b>Number of AIDS patients</b>	43	34	35	37	149	73%	27%
<b>Total new cases treated</b>	79	92	87	72	330	64%	36%

VCT, water, electricity and fuel consumption and positive club.

Profile of clients to the center was confidential. For data analysis, SPSS (19) software was used.

## RESULTS

In this study, 9271 people were referred to the counseling center. Number of patients that referred to the center and number of patients with positive HIV and AIDS and number of patients that catch treatment are displayed in Table 1.

As it was mentioned, the total cost includes Health-therapeutic, training, research and services cost. Table 2 displays the cost of these sections separately.

**Table 2: The Cost of Health-Therapeutic, Training, Research and Services in the VCT Center of Imam Khomeini Hospital in 2010-2011**

	Cost (IRR)	percent
<b>Health-therapeutic</b>		
Test and imaging	539,772,296	
Drug	2,657,542,500	
Vaccination	73,775,000	
Total	3,271,089,796	49.5%
<b>Training</b>		
Publish of AIDS book	50,000,000	
Publish leaflet and posters	15,000,000	
Seminar	103,000,000	
Congress	600,000,000	
Nutrition workshops	16,000,000	
Education workshops of positive club	50,000,000	
Total	834,000,000	12.6%

(Table 2). Continued.

Research		
First three months	368,000,000	
Second three months	568,500,000	
Third three months	226,900,000	
Fourth three months	171,786,000	
Total	1,335,186,000	20.3%
Services		
Personnel of VCT	792,000,000	
Equipment of VCT	12,000,000	
Setting up new STIs unit	66,000,000	
Telephone of VCT	7,127,700	
Water, electricity and fuel consumption	2,775,562	
Positive club	283,300,000	
Total	1,163,203,262	17.6%

And Table 3 displays the summary of the Table 2.

**Table 3: Summary of Total Costs**

	Cost (IRR)	percent
Health-therapeutic	3,271,089,796	49.5%
Training	834,000,000	12.6%
Research	1,335,186,000	20.3%
Services	1,163,203,262	17.6%
Total costs	6,603,479,058	100%

## DISCUSSION

According to the results of this study, the distribution of money spent on HIV/AIDS in the Imam Khomeini VCT center in 2010-2011 is relatively similar to low and middle income countries. In both cases most of the cost is for health therapeutic, while the cost for research in low and middle income countries was

relatively low (8% in 2008) but this cost is more in the Imam Khomeini VCT center (20.3% in 2010-2011). This issue shows that the research in this center is important. The VCT center of Imam Khomeini Hospital has spent on average 2276\$ for each person with HIV/AIDS in 2010-2011, compared to the corresponding figure in low and middle income countries, more funding for each person is allocated. According to the results, in comparison with other countries, the price of drugs in Iran is high. The cost of training was 12.6% of total cost and this offered that more cost must be allocated for training. Also, this center is one of the most important center in Iran in the field of HIV/AIDS control, the cost that is allocated for patients and drugs' research and training and services are more than the country's average, so similar centers in various province must be consider and the existence of a proper reference for the number of patients and mortality of AIDS to future studies is important.

## CONFLICT OF INTEREST

The authors have no conflict of interest.

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