Funded by the European Union

2017 MEDIPIET ANNUAL SCIENTIFIC CONFERENCE

MediPIET
Mediterranean Programme for Intervention Epidemiology Training

CBRN Centres of Excellence
An initiative of the European Union

Regional contributions and synergies for Global Health Security

Abstracts Book

ecdc
EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL

isc Instituto de Salud Carlos III

FIIAPP
COOPERACIÓN ESPAÑOLA

27th Nov – 1st Dec 2017
Brussels, Belgium

Funded by the European Union

MediPIET

2017 MEDIPIET ANNUAL SCIENTIFIC CONFERENCE

Regional contributions and synergies for **Global Health Security**

The MediPIET Project ("Further Development and Consolidation of the Mediterranean Programme for Intervention Epidemiology Training") is funded by the European Union under the Instrument for Peace and Stability (IFS/2013/329-859), as part of the CBRN Centres of Excellence Initiative.

ECDC (European Centre for Prevention and Disease Control), scientific leader of the MediPIET project, chairs the Scientific Committee of the MediPIET ASC 2017.

The MediPIET Project is implemented by the Consortium composed by FIIAPP (the International and Ibero-American Foundation for Administration and Public Policies) and ISCIII (Institute of Public Health Carlos III).

ecdc EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL

FIIAPP COOPERACIÓN ESPAÑOLA

Instituto de Salud Carlos III

CBRN Centres of Excellence *An initiative of the European Union*

Table of Contents

Abstract **170**

Intelligent multiagent simulation of HIV incidence and prevalence

Dmytro Chumachenko (1), T. O. Chumachenko (2)

1. Department of Informatics, National Aerospace University "Kharkiv Aviation Institute", Kharkiv, Ukraine
2. Department of Epidemiology, Kharkiv National Medical University, Kharkiv, Ukraine

Background

The task of studying the process of incidence spreading is important and the problem of predicting the dynamics of spreading of diseases, the consequences of their uncontrolled growth and the effectiveness of protective measures to prevent a high incidence rate is of particular importance. The aim of the study is to create an optimal algorithm for predicting the dynamics of the spread of HIV infection for a short time, based on the multiagent simulation method.

Method

To simulate the dynamics of HIV spreading, an algorithm based on the principles of agent modeling has been developed. The main idea of the method is the principle of decentralization. The behavior of agents is set at local level, and the dynamics of the system is defined as the result of the interaction of multiple agents.

Results

The simulation model of HIV spreading has been developed. The model consists of the following assumptions: there is a possibility of interaction between any agents in the system; unit of time is one iteration; countdown starts from zero; the time step is equal to one; all agents are divided into types; system of rules is determined for each type of objects. The software implementation is performed using C# programming language. The result of the program allows building the predicted incidence of HIV infection based on real statistics.

Conclusions

The results of simulation show that the spreading of HIV infection is periodic. If the simulation continues for a longer period, we can observe a tendency to decrease the number of new cases in each epidemic period, however, the HIV prevalence tends to increase.

KEYWORDS: HIV infection, epidemics, incidence, models, software

Abstract **184**

Surveillance data analysis of HIV/AIDS in Tunisia from 1985 to 2015

Hamdouni Hayet (1), N. Bouafif (2), S. Mrad (1), Z. Ben Mansour (1), S. Boukhris (1), H. Trabelsi (1)

1. Primary health care directorate
2. National Observatory of New and Emergent diseases

Background

Acquired Immunodeficiency Syndrome (AIDS) remains a problem of public health. HIV / AIDS surveillance data analysis in Tunisia was made in order to determine the dynamics and determinants of the epidemic.

Method

Most recent epidemiological data were analyzed with cross-reference of the different sources of information (triangulation) as data of notifications, other NAP resources, blood donors data, Bio-behavioral surveys and estimates of UNAIDS.

Results

Since the first case in 1985 and until 31 December 2015, a cumulative number of 2193 cases of HIV / AIDS. The prevalence was 0.014%. Despite the overall trend in stabilizing the incidence of HIV / AIDS, there have been three periods of change:

- 1986 - 1994: trend to increase to a first peak of 1.05 / 100,000 Inhabitants.
- 1995 - 2008: downward trend with an incidence of 0.51 / 100,000 Inhabitants in 2008.
- 2009 - 2015: tendency to increase to 1.4 / 100,000 inhabitants in 2015.

The proportion of AIDS cases decreased since 2004, sex ratio has been declining. 34% of new infections occurred among people under 30years. The main transmission mode for men was intravenous drug use before 1995 and heterosexual transmission from 1996 to 2015. However, for women, heterosexual transmission was usually the main mode. The epidemic was characterized as concentrated, based on three bio-behavioral studies showing an HIV prevalence among MSM greater than 5%.

Conclusions

The HIV epidemic in Tunisia is similar to that in Maghreb region and Middle East. It is with low prevalence in general population, concentrated among key populations. Interventions should target the most affected populations and sittings to reach the end of the epidemic as foreseen by OSD.

KEYWORDS: HIV/AIDS, Epidemic, Analysis, Tunisia

Funded by the European Union

CBRN Centres of Excellence
An initiative of the European Union

MediPIET
Mediterranean Programme for Intervention Epidemiology Training

Instituto de Salud Carlos III
Centro Nacional de Epidemiología
Monforte de Lemos, 5
28029 Madrid
Tel. (+34) 91 822 23 74/10
info@medipiet.eu

www.medipiet.eu

ecdc EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL

Instituto de Salud Carlos III

FIIAPP COOPERACIÓN ESPAÑOLA

CBRN CoE Project 36 - IfS/2013/329856.
Further Development and Consolidation of the Mediterranean Programme for Internvention Epidemiology Training.