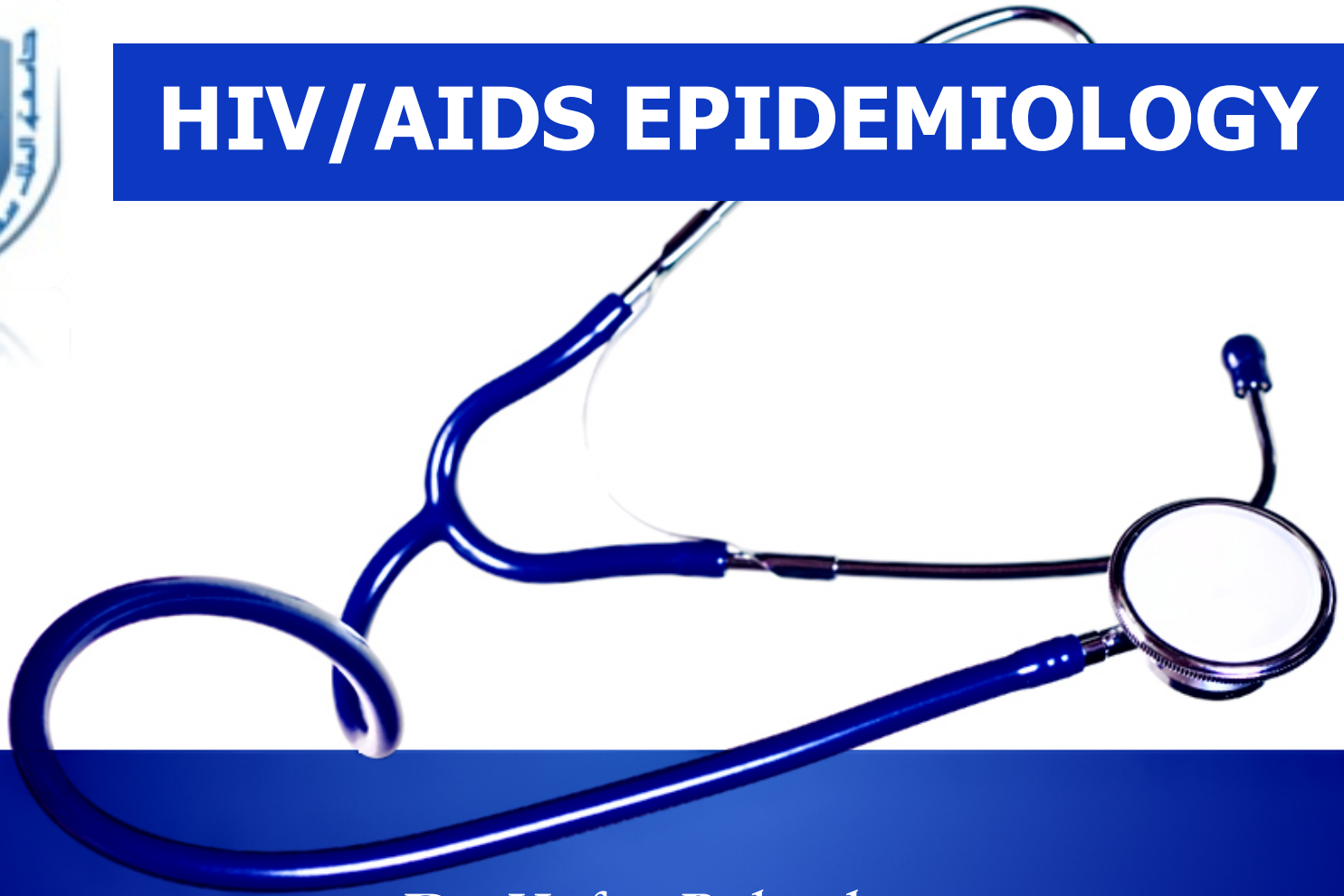




# HIV/AIDS EPIDEMIOLOGY



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# Objectives



**At the end of this lecture, the student should be able to:**

- **Describe the current estimates of HIV / AIDS infection**
- **Understand how people get infected with HIV**
- **Appreciate the features which characterize the pandemic in the Eastern Mediterranean Region**
- **Differentiate what could work best, as far as prevention & control efforts are concerned, in our Region**

# What is AIDS ?



Acquired Immuno-Deficiency Syndrome (**AIDS**) is a severe life-threatening clinical condition, first recognized as a distinct syndrome in 1981. This syndrome represents the late stage of infection with the Human Immuno-deficiency Virus (**HIV**), which often results in progressive damage of the immune and other organ systems, especially the central nervous system (CNS)

# HIV/AIDS PANDEMIC: OVERALL FEATURES



- **Pandemic**: all continents, all nations

HIV has been isolated from **ALL body fluids**

- There are only **three modes** of transmission

# HIV/AIDS PANDEMIC: OVERALL FEATURES

## (Continued)



- **Incubation & communicability:** long
- **Asymptomatic** infected (incubating carriers) are **capable of transmission** of the infection
- **Impacts of infection:** health, social, productivity, life expectancy, economic, overall development



# **HIV / AIDS Infectious Cycle**

# HIV/AIDS INFECTIOUS CYCLE -1



**Agent:** HIV retrovirus, target cell: T4 lymphocyte

**Reservoir:** humans (cases, carriers)

Communicability increases with: STI, TB, addiction, repeated contaminated injections / transfusions, sexual promiscuity (frequency, multiple partners)

**Portal(s) of outlet:** semen, vaginal secretions, blood, skin



## Modes of transmission:

- **Sexual (90 %):** hetero- , homo- , bi sexually.
- **Parenteral (5 %):** blood, IDU, skin-piercing
- **Perinatal (4 %):** during pregnancy, labor, milk
- **Portal of inlet:** according to transmission
- **Susceptibility:** general, more among high risk groups especially: TB & STI patients



# HIV Transmission by Efficiency & Global Distribution



Exposure	Transmission Efficiency %	Global Distribution
Blood Transfusion	> 90	< 1
Perinatal	20 - 45	4
Sexual	0.1 - 1.0	90
IV Drug Abuse	0.5 - 1.0	5
Needle-prick	< 0.5	< 1

# MODES OF HIV TRANSMISSION (Continued)



**There is no current evidence to suggest that HIV is transmitted by:**

- ◆ **Casual contact**
- ◆ **Respiratory route**
- ◆ **Enteric route**
- ◆ **Insects**
- ◆ **Food/water**
- ◆ **Toilets**
- ◆ **Swimming pools**
- ◆ **Seats, door-knobs**
- ◆ **Tears**
- ◆ **Sharing eating utensils**



# Epidemiology

# Summary of global HIV epidemic (2016)



## 36.7 million

people now estimated to be living with HIV

[30.8–42.9 million]

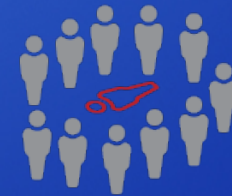
During 2016...



## 1.8 million

people newly infected

[1.6–2.1 million]



## 1.0 million

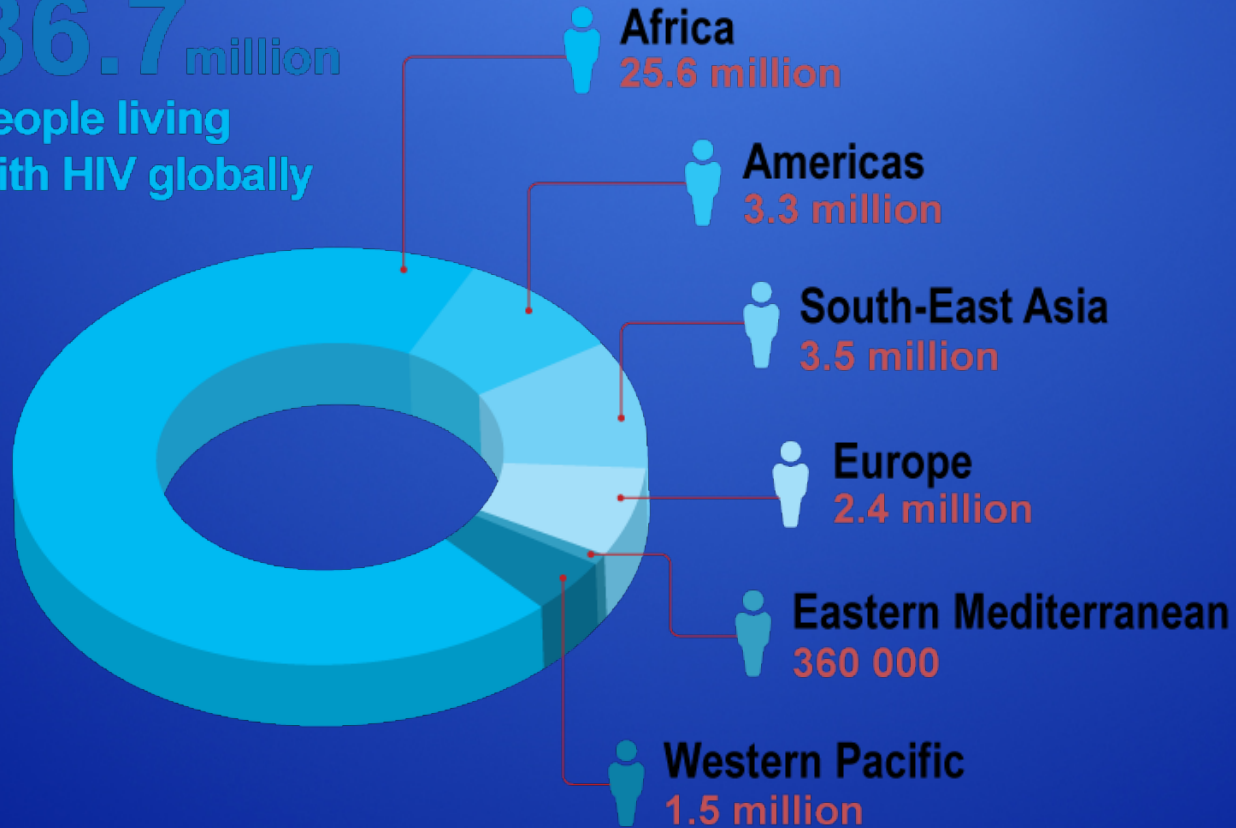
HIV-related deaths

[830 000–1.2 million]

# People living with HIV by WHO region (2016)



**36.7 million**  
people living  
with HIV globally



# Summary of global HIV epidemic (2016)



Number of people living  
with HIV in 2016

Total	<b>36.7 million</b>	[30.8 million – 42.9 million]
Adults	34.5 million	[28.8 million – 40.2 million]
Women	17.8 million	[15.4 million – 20.3 million]
Men	16.7 million	[14.0 million – 19.5 million]
Children (<15 years)	2.1 million	[1.7 million – 2.6 million]

People newly infected  
with HIV in 2016

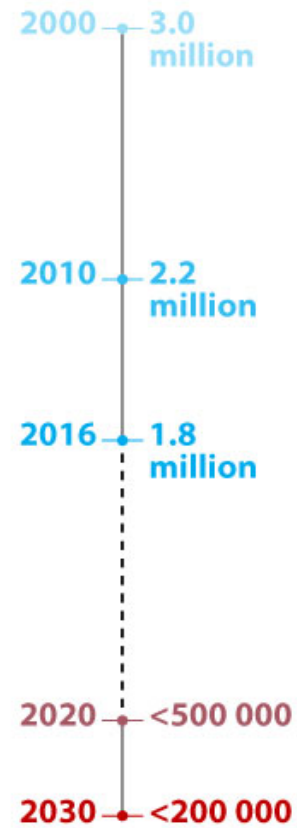
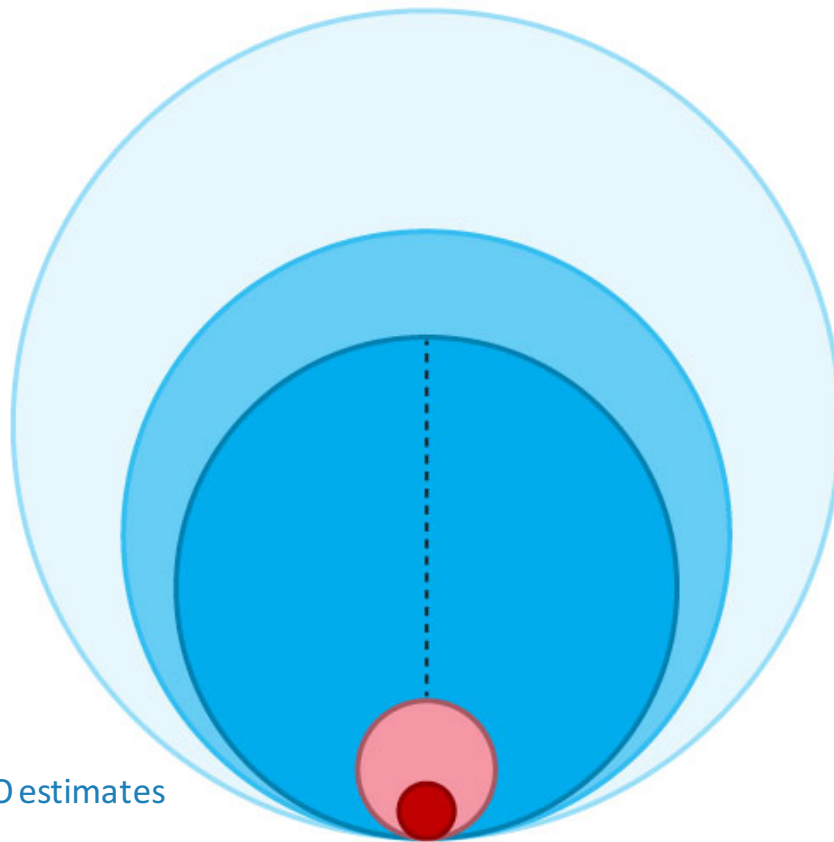
Total	<b>1.8 million</b>	[1.6 million – 2.1 million]
Adults	1.7 million	[1.4 million – 1.9 million]
Children (<15 years)	160 000	[100 000 – 220 000]

AIDS deaths in 2016

Total	<b>1.0 million</b>	[830 000 – 1.2 million]
Adults	890 000	[740 000 – 1.1 million]
Children (<15 years)	120 000	[79 000 – 160 000]

Source: UNAIDS/WHO estimates.

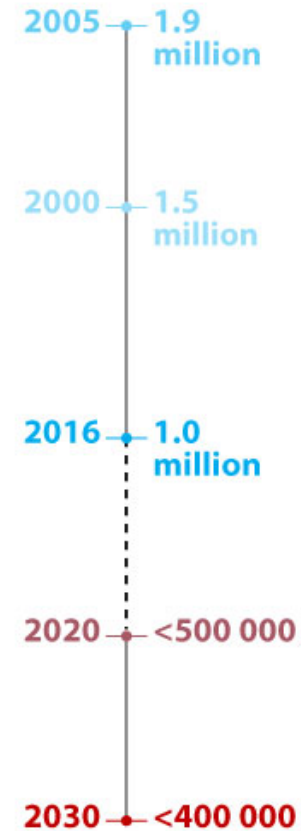
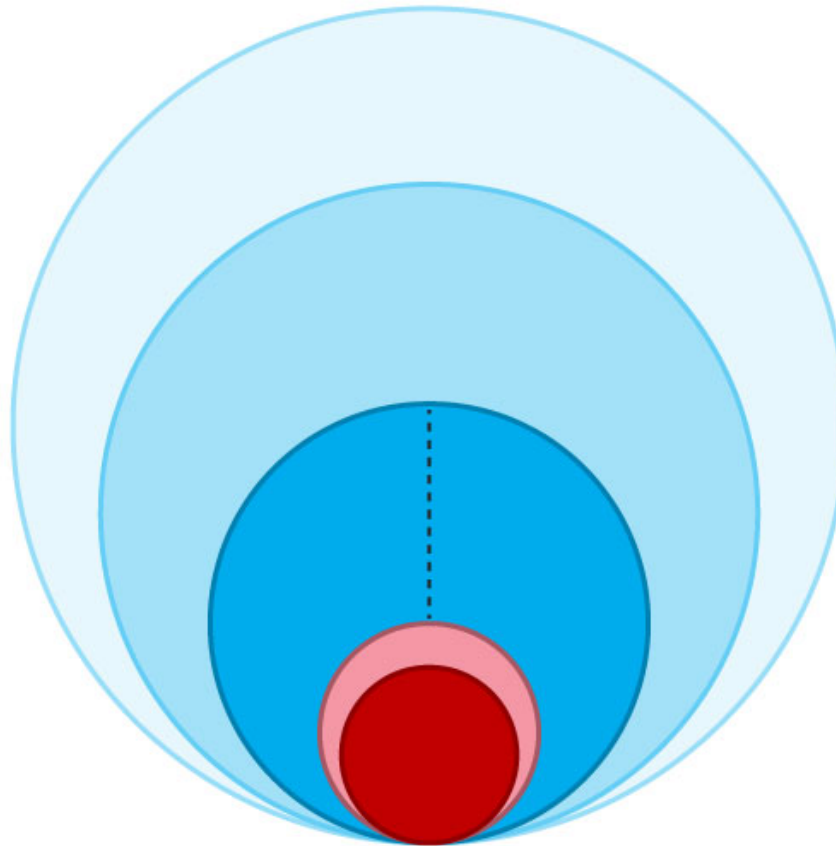
# Number of people newly infected with HIV



UNAIDS/WHO estimates

Future targets

# Number of people dying from HIV

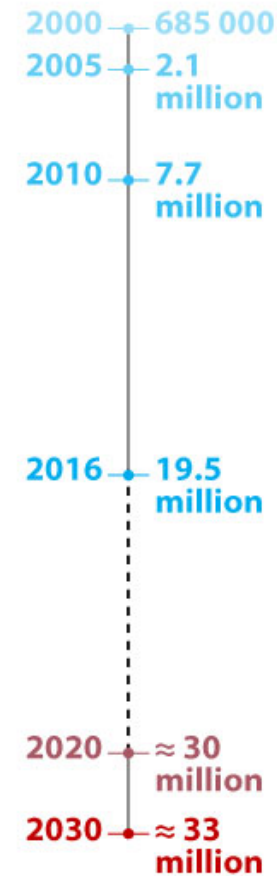
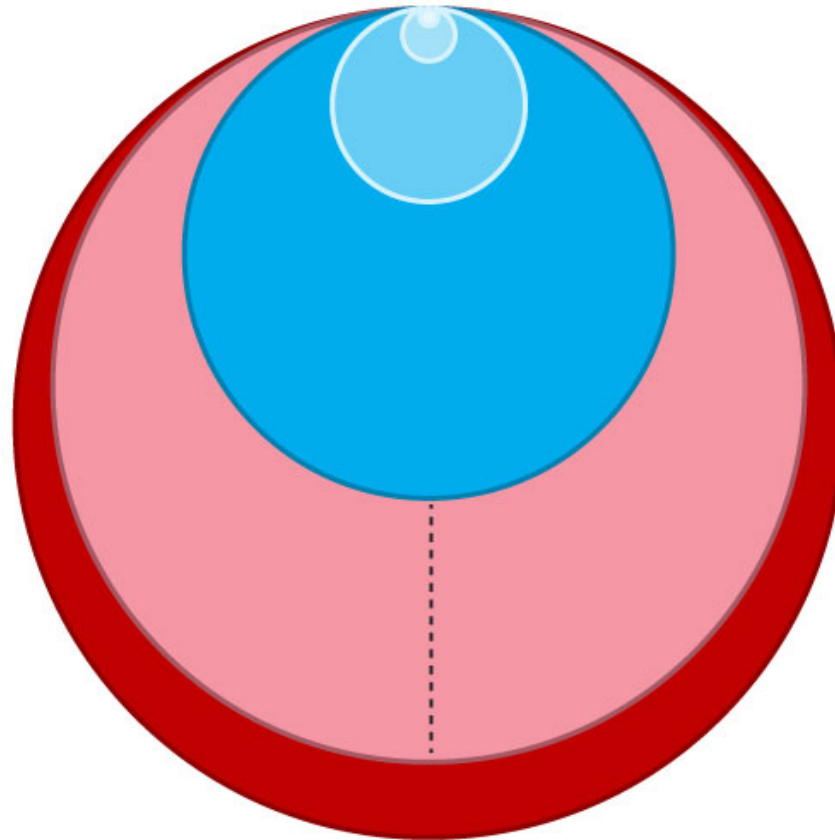


Future targets

UNAIDS/WHO estimates



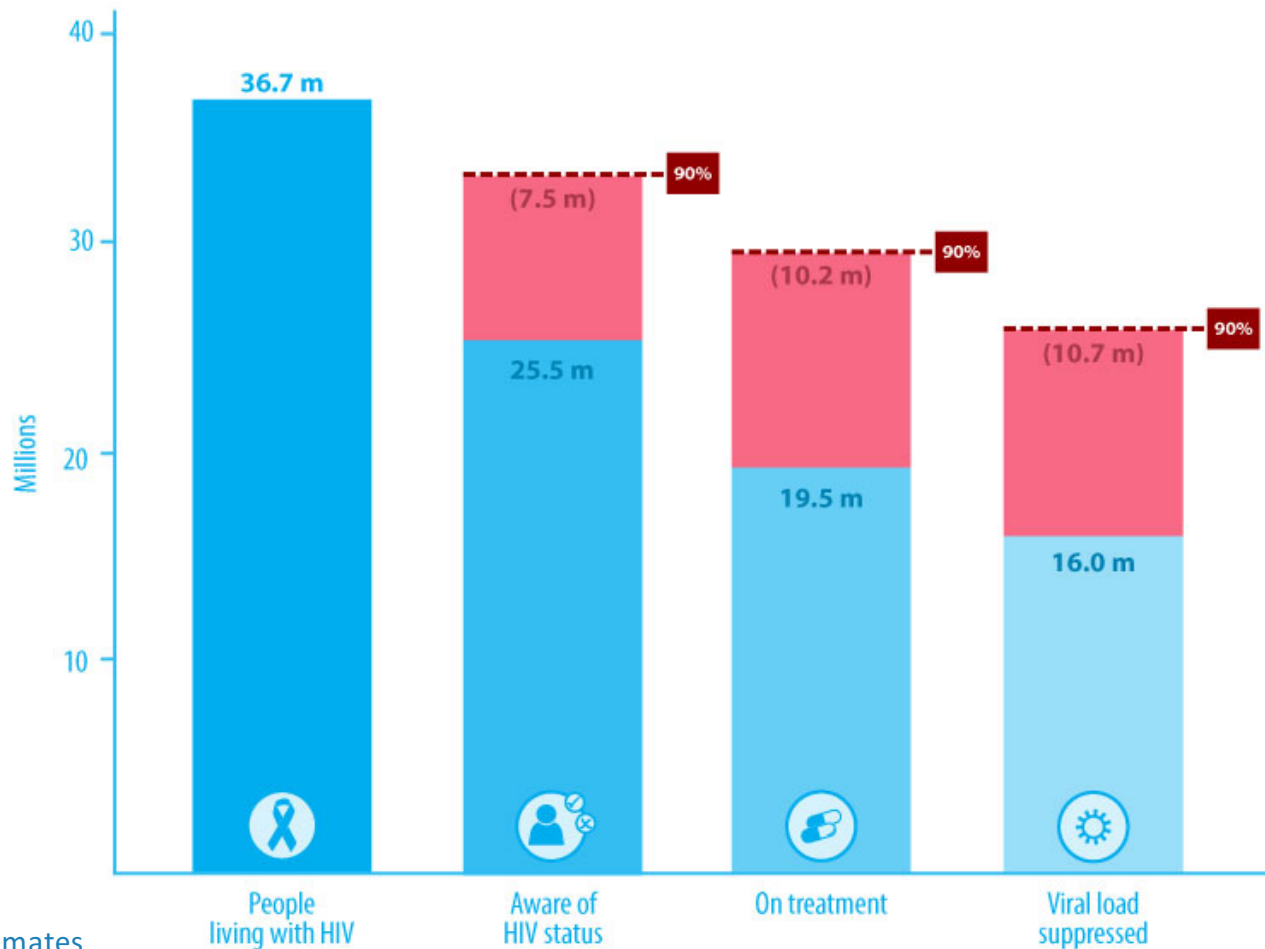
# Number of people receiving antiretroviral treatment



Future targets

UNAIDS/WHO estimates

# HIV testing and care continuum (2016)

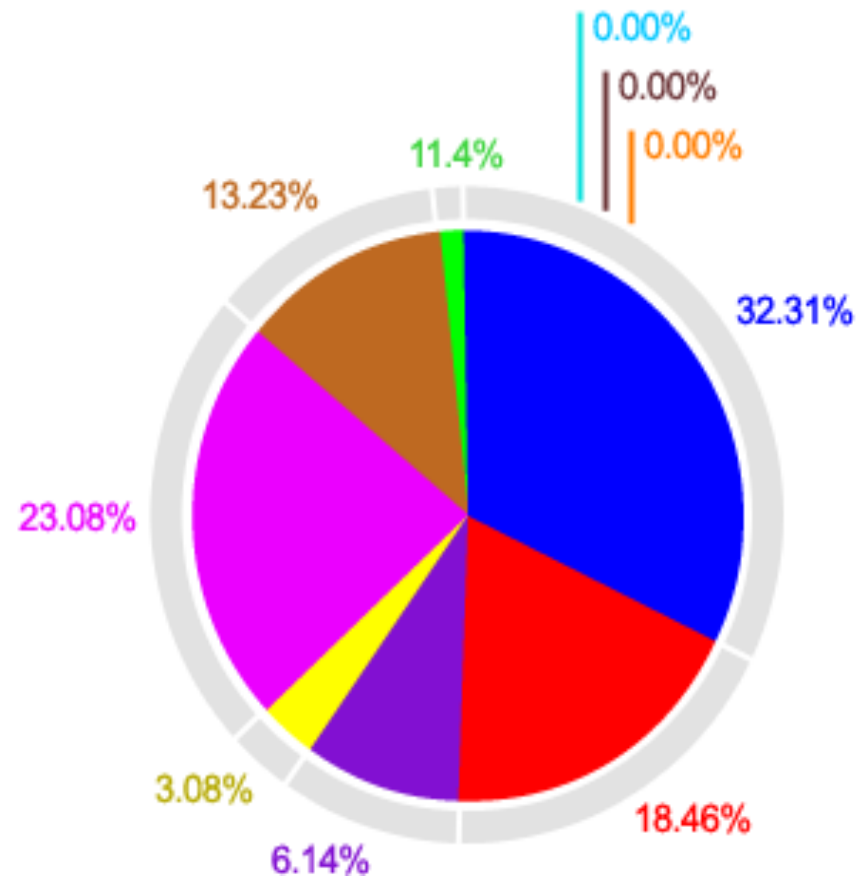


UNAIDS/WHO estimates



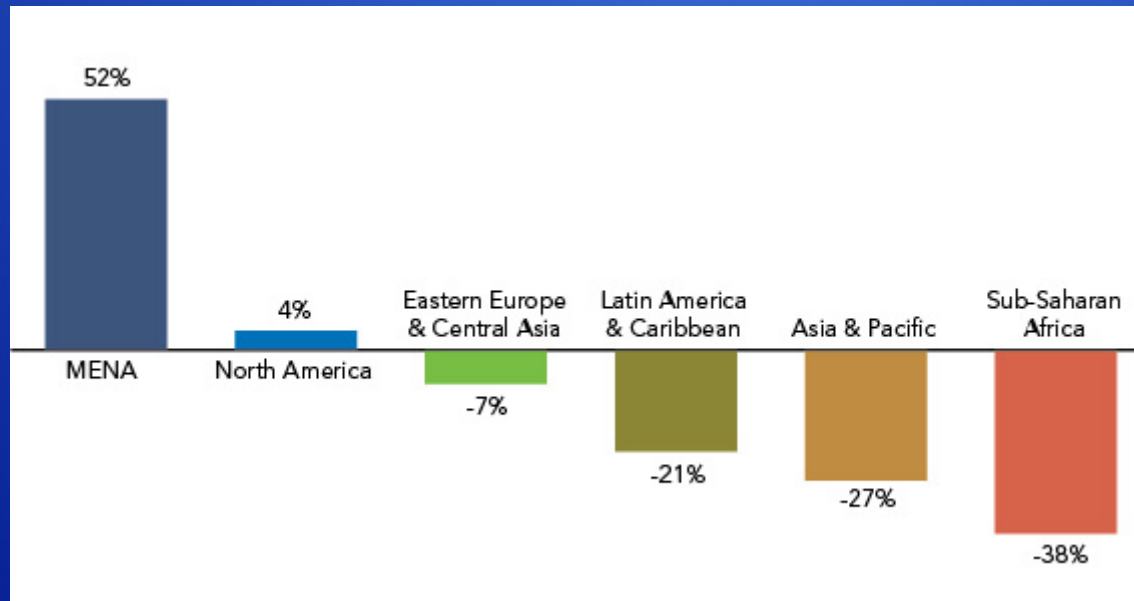
# KNOWN ADULT TRANSMISSION ROUTES OF AIDS 2011

- MSM
- MSM/IDU
- IDU male
- IDU female
- Blood products male
- Blood products female
- Heterosexual contact male
- Heterosexual contact female
- Other male
- Other female

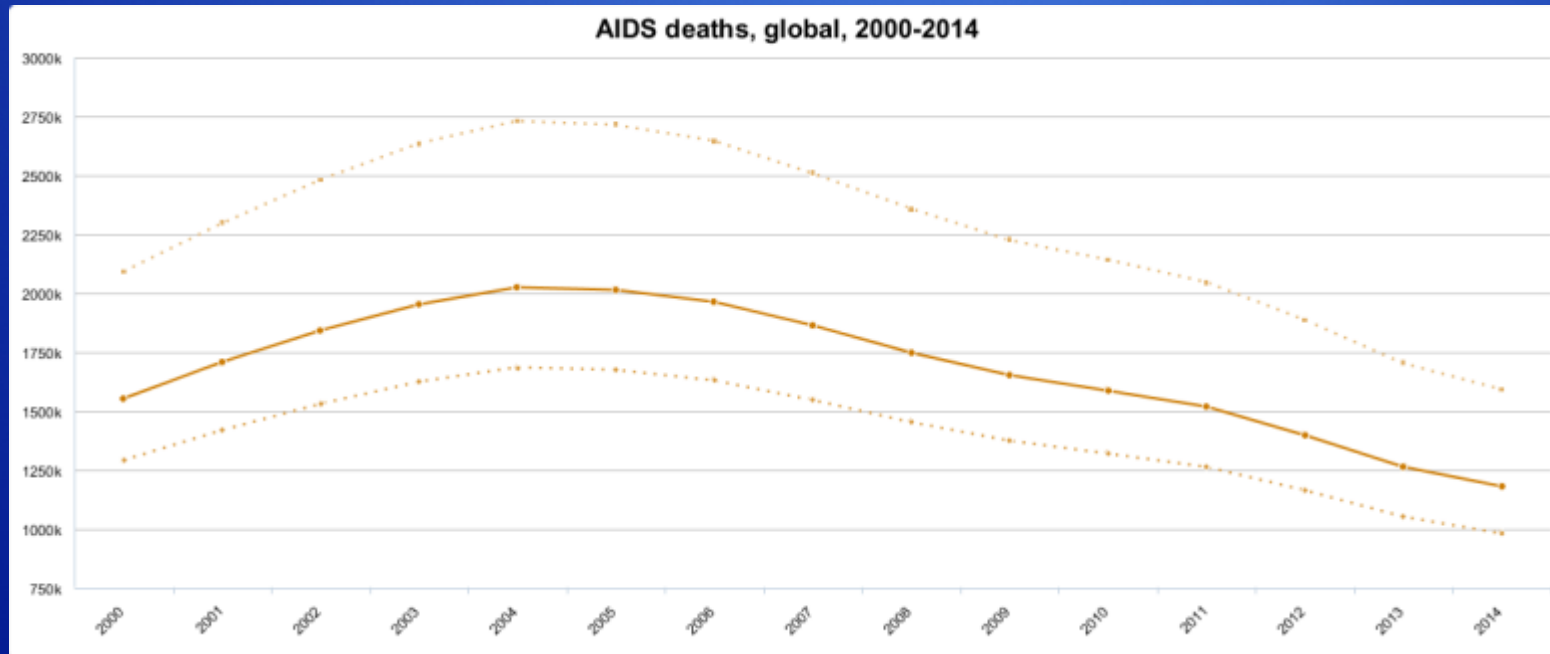




## Percentage Change in the Annual Number of New HIV Infections by World Region, 2001-2012



**Source:** UNAIDS, *Global Report: UNAIDS Report on the Global AIDS Epidemic 2013* (New York: UNAIDS, 2013): Annex: Epidemiology.



**Reasons????**



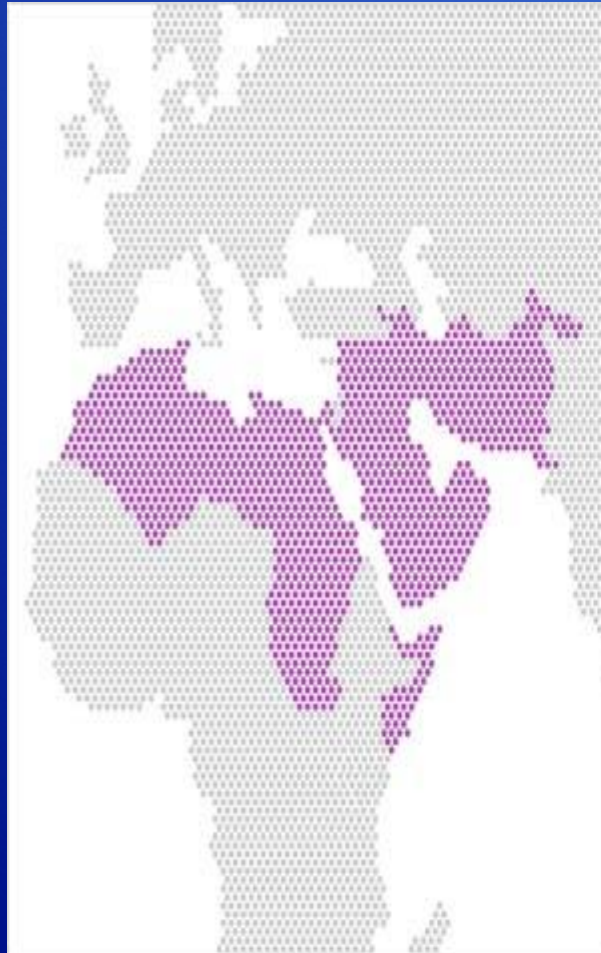
**HIV / AIDS in the EMR**

# HIV/AIDS PANDEMIC: EMR FEATURES -1



- **Late introduction** ( late 1980s), **slow progression**
- By end of 2007, reported **low overall prevalence** of 0.2 % in EMR nations
- **Generalized** epidemic (> 1 %): in Djibouti, Sudan, some parts of Somalia
- **Concentrated** epidemic (> 5 %): among IDU in Iran, Libya, Pakistan
- **Age-gender** distribution: predominantly affecting adult (91 %) **males** (71 %)
- **Modes**: mainly **heterosexual** (77 %); **IDU** (11 %); blood transfusion (5 %), mother to child (2 %)

## HIV AND AIDS IN THE MIDDLE EAST & NORTH AFRICA (MENA)



### Middle East & North Africa (2016)

**230,000** people living with HIV

**0.1%** adult HIV prevalence

**21,000** new HIV infections

**12,000** AIDS-related deaths

**37%** know their status

**17%** on antiretroviral treatment

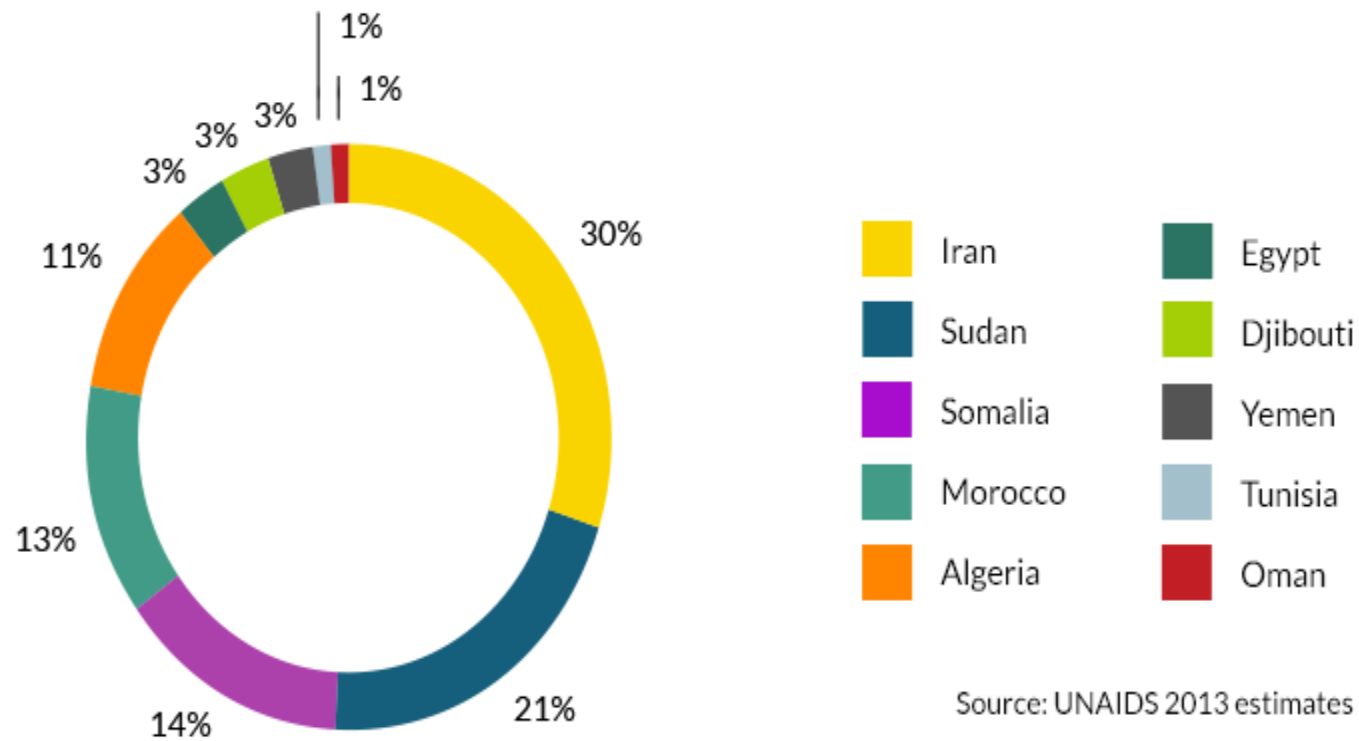
**11%** virally suppressed

Source: UNAIDS Prevention Gap Report 2016





### People living with HIV in the Middle East and North Africa, 2013



Source: UNAIDS 2013 estimates



## DISTRIBUTION OF NEW HIV INFECTIONS AMONG POPULATION GROUPS BY REGION

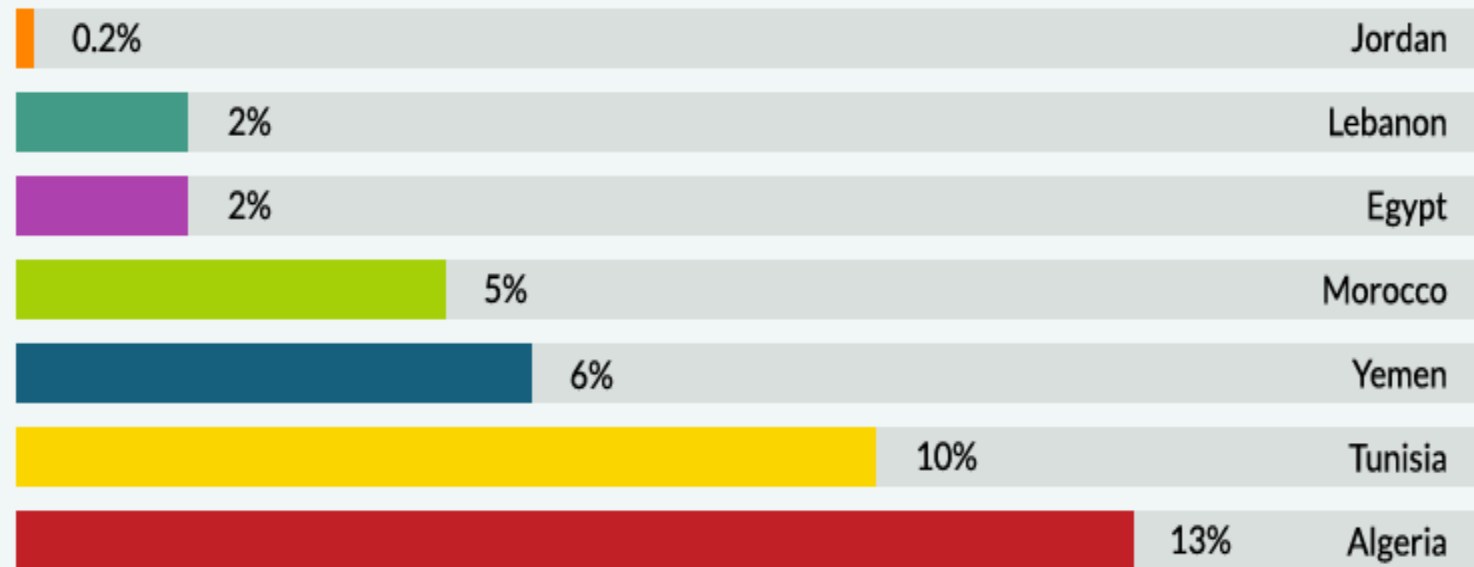
# 2014

Source: UNAIDS special analysis, 2016





## HIV prevalence among MSM from selected countries in the Middle East and North Africa, 2009–2013



Source: Global AIDS Response Progress Reporting 2014.



# **HIV / AIDS Prevention & Control**

# HIV/AIDS Control Bodies



**Globally:** UNAIDS (includes 10 UN agencies);  
IHRA (International Harm Reduction Association)

**Nationally:** MoH- National AIDS Program (NAP),  
**Multi-sectoral** National AIDS Committee (NAC)  
including: health, education, higher education,  
information, Islamic Affairs, Sports & Youth  
Welfare, planning, finance, labor, defense, interior  
**Non-governmental (civil service) organizations**

# Global initiative



**XIX INTERNATIONAL AIDS  
CONFERENCE JULY 22 - 27  
WASHINGTON DC USA**

**TURNING THE TIDE TOGETHER**

# Prevention in the EMR



- MENA, there is still very limited access to HIV testing and counselling. For example, in Sudan, only one in five people living with HIV are aware of their status
- Morocco, the integration of HTC into public health services has increased the number of people accessing testing services from 46,000 in 2010 to 222,620 people in 2012
- Lebanon, efforts to prevent the mother-to-child transmission of HIV have been undermined by a lack of testing services in combination with expensive referral systems, fears around testing, as well as a lack of awareness and stigma
- HIV testing has been offered to women attending antenatal clinics in Oman since 2010, and has an acceptance rate of 99%. Along with the United Arab Emirates and Morocco, Oman has one of the highest testing coverages for pregnant women in the region.

# Prevention in the EMR



- Iran's harm reduction programmes have been recognised as good practice in preventing the transmission of HIV among people who inject drugs
- In the mid-2000s, the government launched a campaign distributing clean needles and syringes in pharmacies across the country
- In 2010, 5.7% and 5.9% of men who have sex with men in Cairo and Alexandria respectively were reported to be living with HIV. In these two cities, HIV prevention projects engage and enrol people belonging to key affected populations, particularly men who have sex with men. Upon enrolment, clients become part of a coding system that enables them to access subsidised HIV prevention services such as condoms and lubricants, HIV testing and counselling, medical services, psychosocial support, legal services as well as follow-up support.
- Morocco combines condom distribution, outreach work and HIV testing with a strong online presence. In Marrakesh, there is a speciality clinic for men who have sex with men addressing issues such as sexual health and substance abuse



# Prevention in the EMR



- In Morocco, in 2012, a preventing mother-to-child transmission (PMTCT) programme. It includes efforts to engage private health providers to offer HIV testing and counselling (HTC) and HIV awareness for pregnant women. basic health facilities had been established to provide HTC services for pregnant women

# Barriers to HIV prevention programmes in the Middle East and North Africa



- Cultural and social barriers
  - religious and cultural values, which discourage pre-marital sex, encourage married people to be faithful, and emphasise universal male circumcision
  - some cultural practices exacerbate the spread of HIV including child marriage, polygamy and bans on condom use
  - gender inequality and the low status of women has meant that women and girls have been disproportionately affected by the epidemic
  - high levels of stigma and discrimination drive the epidemic in the region, preventing those living with HIV, and those at high risk of HIV transmission from seeking the treatment and support they need

# Barriers to HIV prevention programs in the Middle East and North Africa



- Political barriers:
  - political uprisings, Unrest and conflict disrupts
- Legal barriers:
  - Punitive laws (homosexual acts are punishable by death, use and the possession of drugs are criminalised )
  - Restrictions on entry, stay and residence (GCC countries)



المبادرة السعودية لمكافحة الايدز بدول مجلس التعاون

Saudi initiative to combat AIDS in the GCC countries



To unify the strategy among the GCC countries that combat HIV/AIDS and motivate these countries to deal with HIV/AIDS in a way that goes in line with the global trend of HIV/AIDS prevention and control



# HIV in Saudi Arabia

# HIV in Saudi Arabia



- HIV and AIDS estimates (2015)
- Number of people living with HIV N/A
- Adults aged 15 to 49 prevalence rate N/A
- Adults aged 15 and over living with HIV N/A
- Women aged 15 and over living with HIV N/A
- Children aged 0 to 14 living with HIV N/A
- Deaths due to AIDS N/A

# Media and research reports



<http://www.arabnews.com/news/485866>

<http://saudigazette.com.sa/saudi-arabia/95-saudi-women-got-aids-from-their-hubbies/>

Sexual practices of young educated men: implications for further research and health education in Kingdom of Saudi Arabia (KSA). Hafsa Raheel, Muhammad Afzal Mahmood, Abdulaziz BinSaeed. Journal of Public Health | Vol. 35, No. 1, pp. 21 –26 | doi:10.1093/pubmed/fds055 | Advance Access Publication 1 August 2012

<http://jpubhealth.oxfordjournals.org/content/35/1/21.full.pdf+html>

# MoH - National AIDS Control Program, KSA



- Established back in 1986, in response to the emergence of HIV pandemic
- Responsible for defining and implementing strategies for preventive and control of HIV/AIDS/STI activities in KSA
- Supported by different committees of experts in related aspects
- Such program activities are integrated in existing national health system







# General recommendations for HIV/AIDS prevention

# HIV/AIDS Preventive Measures



- ◆ **Primary:** Health education, preventing transmission
- ◆ **Secondary:** health education, counseling, health care, support (avoid stigmatization, discrimination), protect society (public health measures)
- ◆ **Tertiary:** care for the terminally ill, managing complications and associated conditions

# AIDS management



- ◆ **Anti retroviral treatment (ART)**
  - ◆ zidovudine + lamivudine
  - ◆ abacavir + zidovudine + lamivudine
  - ◆ lopinavir + ritonavir
  - ◆ abacavir + lamivudine
  - ◆ tenofovir/emtricitabine
  - ◆ efavirenz + tenofovir/emtricitabine
  - ◆ rilpivirine + tenofovir/emtricitabine
  - ◆ elvitegravir + cobicistat + tenofovir/emtricitabine

# Target Groups for HIV/AIDS Preventive Measures



- ◆ **Vulnerable groups: youngsters & women (in general) but IDU, prisoners, TB & STI patients, homosexuals, prostitutes (in specific)**
- ◆ **Other groups: migrant workers, refugees and displaced persons, transport workers, & tourists**



### Global recommendations:

abstinence, condom use

### EMR Recommendations:

fostering religion, health education (curricula, information, skills, behavior) dealing with the problem as a social/health issue, use of mass media (advertisements, plays, dialogues)



- ◆ **Safety measures & screening at every stage**
- ◆ **Voluntary un-paid donors only**
- ◆ **Transfusion, only when needed**
- ◆ **Careful history-taking and physical examination**

# HIV/AIDS Preventive Measures

## PREVENTION OF PERINATAL TRANSMISSION



- ◆ **Pre-marital counseling**
- ◆ **Infected women are advised not to conceive**
- ◆ **Use of AZT ( reduces transmission risk by 2/3 )**
- ◆ **In general, breast feeding should be continued**
- ◆ **Case-management: compulsory notification**





AIDS must not be allowed to join the long list of problems, like poverty, hunger and ignorance, that the world has learnt to live with, because the **powerful** have lost interest, and the **powerless** have no choice.

# References



- **UNAIDS Report on the global AIDS epidemic. 2011.**
- **HIV and AIDS in Middle east and north Africa.**  
<http://www.avert.org/professionals/hiv-around-world/middle-east-north-africa-mena>
- **WHO EMRO: AIDS and Sexually Transmitted Diseases:**  
<http://www.emro.who.int/asd/index.htm>
- **WHO: HIV/AIDS:** <http://www.who.int/gho/hiv/en/>
- **United Nation Development Program: Kingdom of Saudi Arabia:**  
<http://www.undp.org.sa/sa/>
- **National AIDS Control Program: Saudi Arabia.** [www.unicef.org/gao/Saudi\\_1.ppt](http://www.unicef.org/gao/Saudi_1.ppt)
- **Saudi Charity Association For AIDS Patients:**  
<http://www.saca.org.sa/Action1.htm>
- **Raheel H et al. Sexual practices of young educated men: implications for further research and health education in Kingdom of Saudi Arabia (KSA). Journal of Public Health, 2012, pp. 1–6**
- **Raheel H. Stigma towards People Living with HIV/AIDS (PLWAs) among Adolescents of Riyadh, Kingdom of Saudi Arabia. J AIDS Clin Res 2016, 7:9 DOI: 10.4172/2155-**

END AIDS 2030



**WORLD  
AIDS** 1 DECEMBER  
**DAY**