

HIV is the world's leading infectious killer

- An estimated 36 million people have died so far
 - 1.6 million people died of HIV/AIDS in 2012
- Women represent about half (52%) of all people living with HIV worldwide
 - Leading cause of death in women of reproductive age
- Globally, there were 3.3 million children living with HIV in 2012
 - 260,000 new infections among children
 - 210,000 AIDS deaths
- Approximately 17.3 million AIDS orphans (children who have lost one or both parents to HIV)

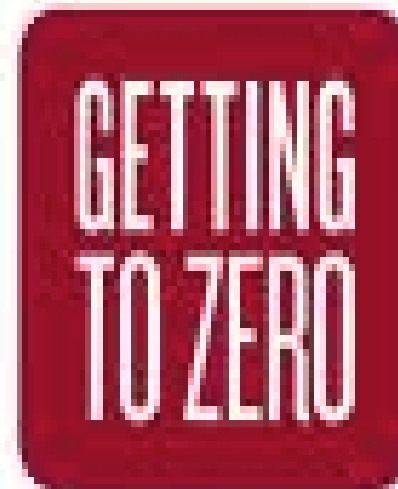
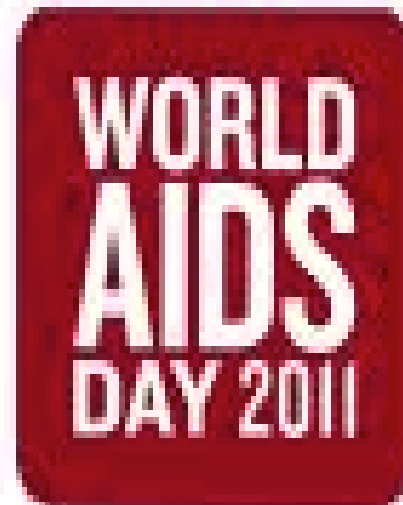
Three Zeros

- Achieving these "zero targets" and "turning the tide" on AIDS.
- To explore strategies to achieve "zero new HIV infections, zero discrimination and zero AIDS-related deaths",
- Reaching the "Three Zeros" Through Raising Domestic Resources, Strengthening Institutional Capacity and Addressing AIDS Induced Exclusion

A FREE EVENT

GETTING TO ZERO:

A MIDWINTER NIGHT OF MUSIC, POETRY, AND CANDLES



TUESDAY, DECEMBER 20, 2011 6:00 PM – 9:00 PM

THE CAMP HOUSE

www.gettingtozero.com

or find us at

World AIDS Day

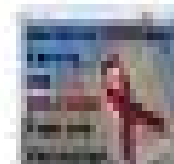


1427 WILLIAMS STREET, CHATTANOOGA, TN 37408

DOORS OPEN AT 5:30 PM

REFRESHMENTS WILL BE SERVED

PRESENTED BY





GOVT. OF INDIA
MINISTRY OF HEALTH & FAMILY WELFARE



LET'S COME TOGETHER IN
**GETTING TO
ZERO**

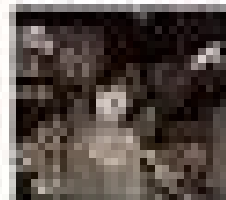


11th ANNUAL
**WORLD
AIDS DAY**
DEC 1 2011
10 am - 3 pm
**RINK MALL
PARVATELINS**

ZERO DISCRIMINATION ZERO AIDS RELATED DEATH ZERO WASTE

POSITIVE SPEAKERS & PERFORMANCES BY

BARAKA



LADBACK



HEAD MOTIF



NIEMAN



**RAISMAVI
PRODUCTIONS**





HISTORY

- 1981 – sudden increase in *Pneumocystis carinii* pneumonia and Kaposi's sarcoma cases reported to CDC
- All the affected patients were male homosexuals
- Severe cellular immunodeficiency noted
- The name, AIDS, was given to this condition



HISTORY

- ▶ Virus causing AIDS – first isolated in 1983 simultaneously by Luc Montaigner in France and Robert Gallo in USA.
- ▶ Nomenclature was different.
- ▶ LAV (lymphadenopathy associated virus) by the French.
- ▶ HTLV III (human T cell lymphotropic virus – III) by the Americans.
- ▶ HIV in 1986 by international committee of viral taxonomy





“These unusual viruses pose enormous challenges-not only scientific and medical but also social, political and moral ones”- Robert Gallo



Luc Montagnier, MD
Discoverer of HIV

ORIGIN OF AIDS

- Cross species infection by simian viruses in Africa in 1930s.
- Direct human contact with primate blood
- Such transmissions occurred repeatedly over the years but reached epidemic proportions in the 1980s because of various social, economic and behavior changes.



RETROVIRIDAE FAMILY

Oncovirinae- HTLV- I (adult T cell leukemia)
and HTLV –II

Lentivirinae- HIV-1 and HIV-2

Spumavirinae- Foamyvirus

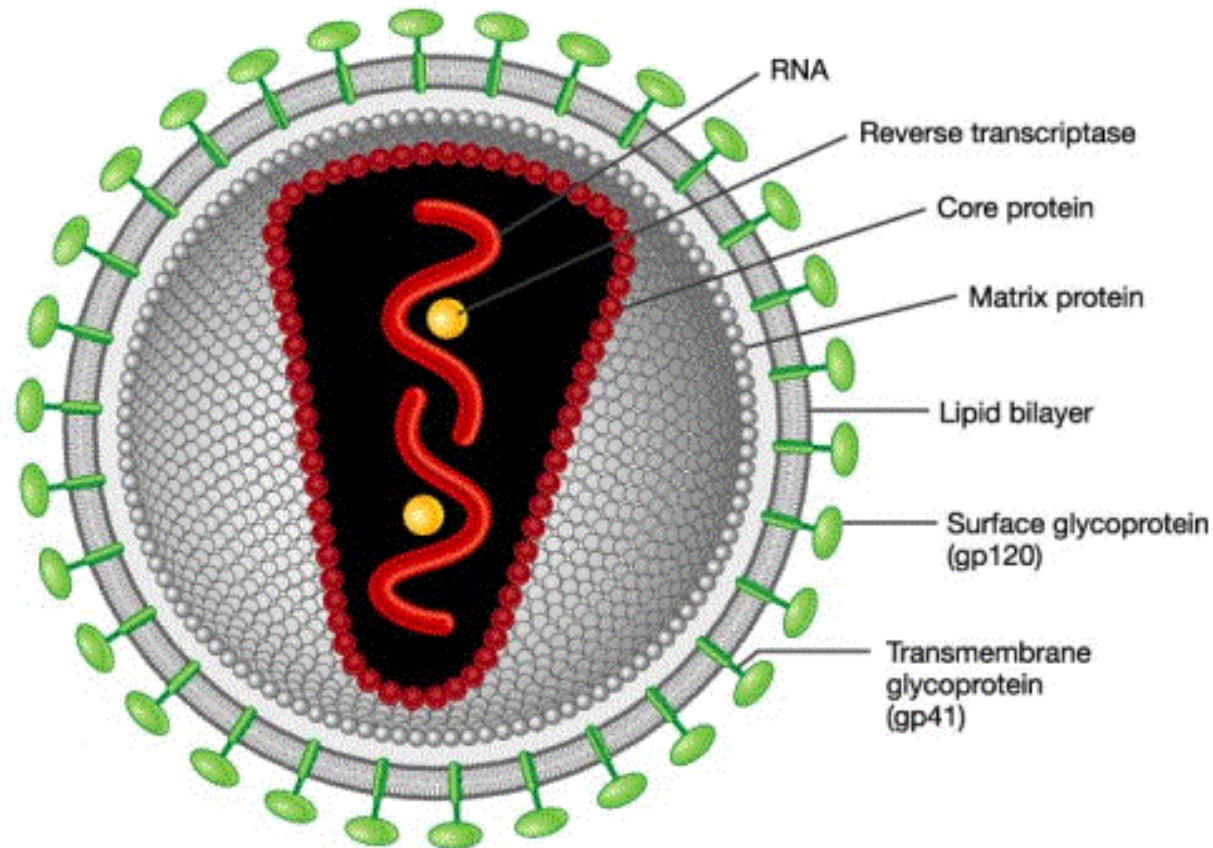


Structure of HIV virus

- spherical enveloped virus, 90-120 nm in size
- nucleocapsid has outer iscosaheral shell & inner cone shaped core, enclosing ribonucleoproteins.
- genome – diploid, two identical single stranded, positive sense RNA copies.
- reverse transcriptase enzyme



STRUCTURE OF HIV



Classification of HIV

- Types HIV- 1 (all over the world)
HIV- 2 (western Africa)
- HIV- 1 - 10 subtypes (A-J) based on sequence analysis of *gag* & *env* genes
- 3 groups - M (major) - all 10 subtypes
O (outlier)
N (new)
- M group - 10 subtypes or clades (A to J)

Classification of HIV

- HIV 1 subtypes – geographic distribution
- Subtype A - worldwide
- Subtype B - America & Europe
(spreads mostly thru' blood)
- Subtype A, C, D –Africa
- Subtype- E, C, B – Asia
- India, China – Subtype C (spreads mostly thru' heterosexual route)

**97% OF THOSE LIVING WITH HIV RESIDE IN LOW
AND MIDDLE INCOME COUNTRIES,
PARTICULARLY IN SUB-SAHARAN AFRICA**



**IN ASIA, ~4.7 MILLION PEOPLE
WERE LIVING WITH HIV IN 2001**



**IN LATIN AMERICA, ~2 MILLION PEOPLE
WERE LIVING WITH HIV IN 2008**



**IN EASTERN EUROPE & CENTRAL ASIA
THERE WERE 1.5 MILLION PEOPLE
LIVING WITH HIV/AIDS**

GAY & BISEXUAL MEN
OF ALL RACES



ARE THE MOST SEVERELY
AFFECTED BY HIV

>1 MILL | ARE LIVING WITH HIV IN THE U.S.



1 IN 6 LIVING WITH HIV

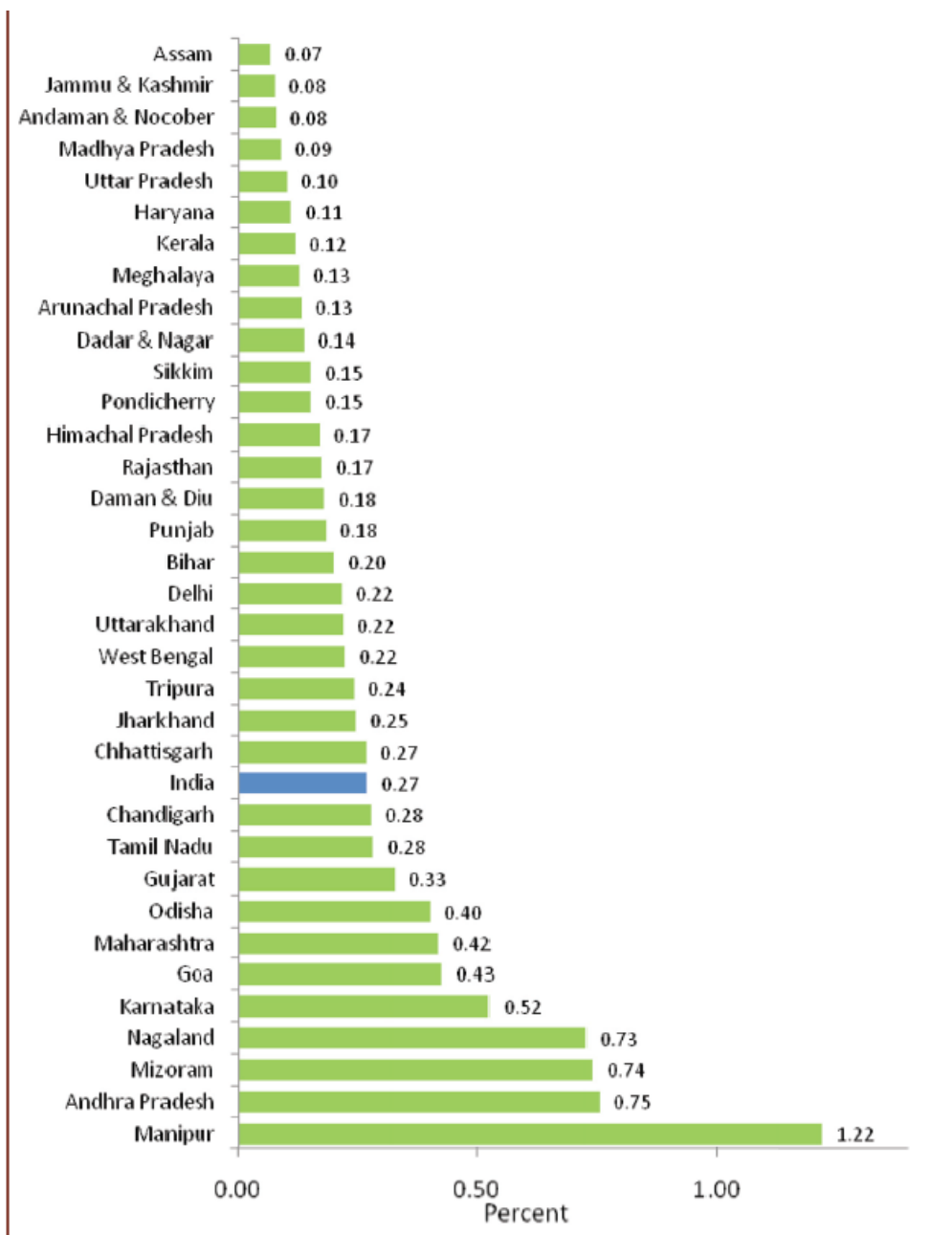


ARE UNAWARE OF THEIR INFECTION

ABOUT 1 IN 4 NEW
HIV INFECTIONS IS AMONG
YOUTH AGES 13-24

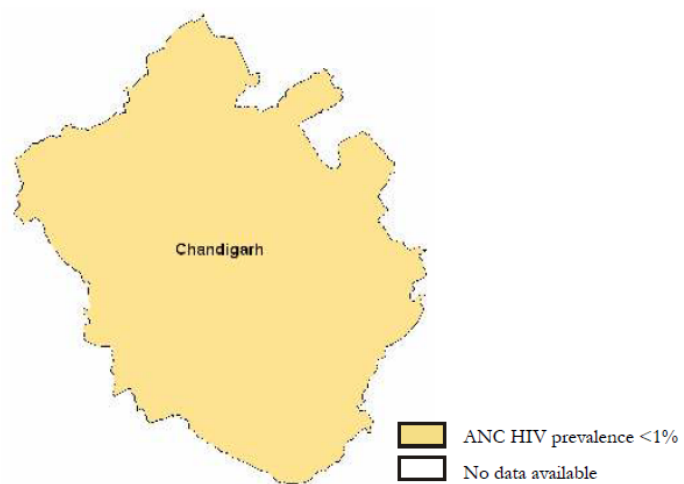


MOST OF THEM DO NOT KNOW THEY ARE
INFECTED, ARE NOT GETTING TREATED, AND CAN
UNKNOWNLY PASS THE VIRUS ON TO OTHERS

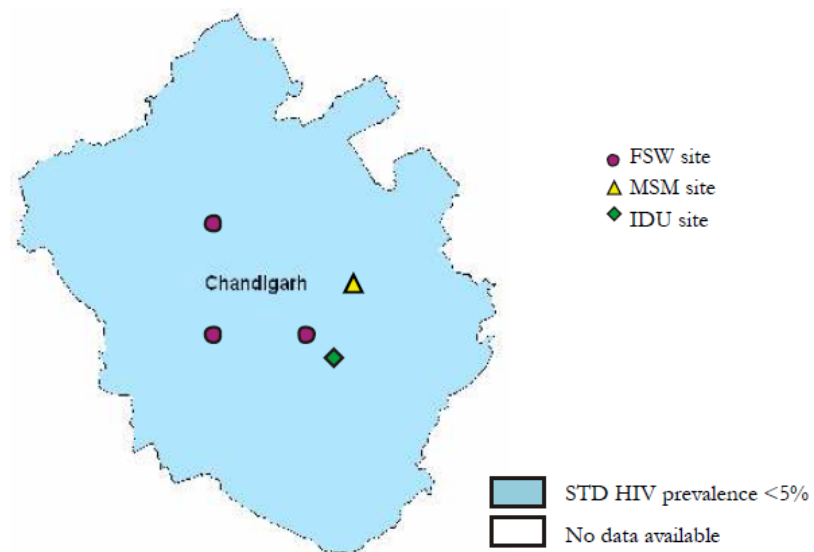


State-wise Estimated Adult (15-49 Years) HIV Prevalence (%), 2011

ANC: 2006



STD: 2006



HIV prevalence in different population groups

	2003	2004	2005	2006
ANC	0.50	0.50	0.00	0.25
STD	0.80	1.80	1.00	1.66
FSW	0.60	0.80	0.67	0.67
MSM	—	1.36	1.60	4.80
IDU	—	4.80	9.20	17.6



HIV / AIDS World scenario

- 40 Million living with HIV
- 2.2 Million children
- 50 % female
- 30 Million died since 1981
- 70 million will die in another 10 – 20 years
- 4.9 million new cases every year



Cont....



- 14,000 each day
- 50 % are in 15-24 years
- 25 million orphans by 2010
- Botswana – 38.3 % adult HIV +ve
- 90 % do not know about HIV
- 6 million AIDS cases needing ART and 60 % are females

Indian scenario

- 51 lakh HIV positive. 1.2 lakh children
50 % - 15 to 24 years.
- HIV Prevalence 0.9%.
- Total cumulative AIDS cases in India
Male - 73,203 ; female – 29,530 Total – 10,2733
- 90 % HIV cases in AP, TN, Karnataka,
Maharashtra, Nagaland and Manipur

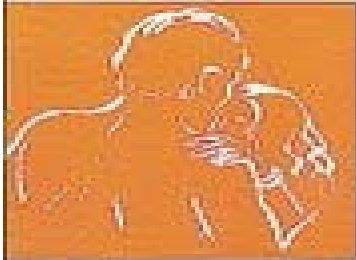
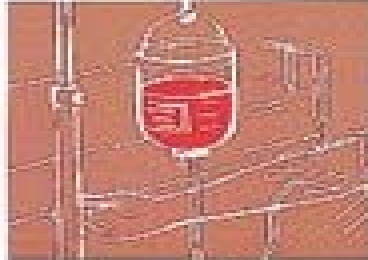
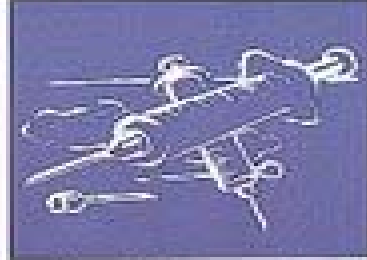
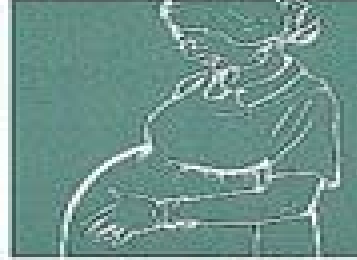


MODES OF TRANSMISSION


<u>Type of exposure</u>	<u>risk %</u>
Sexual	0.1-1%
Blood transfusion	>90%
Tissue or organ donation	50 -90%
Injection and injuries	0.5 – 1%
Mother to baby	30%


MODES OF TRANSMISSION

HIV can spread through:

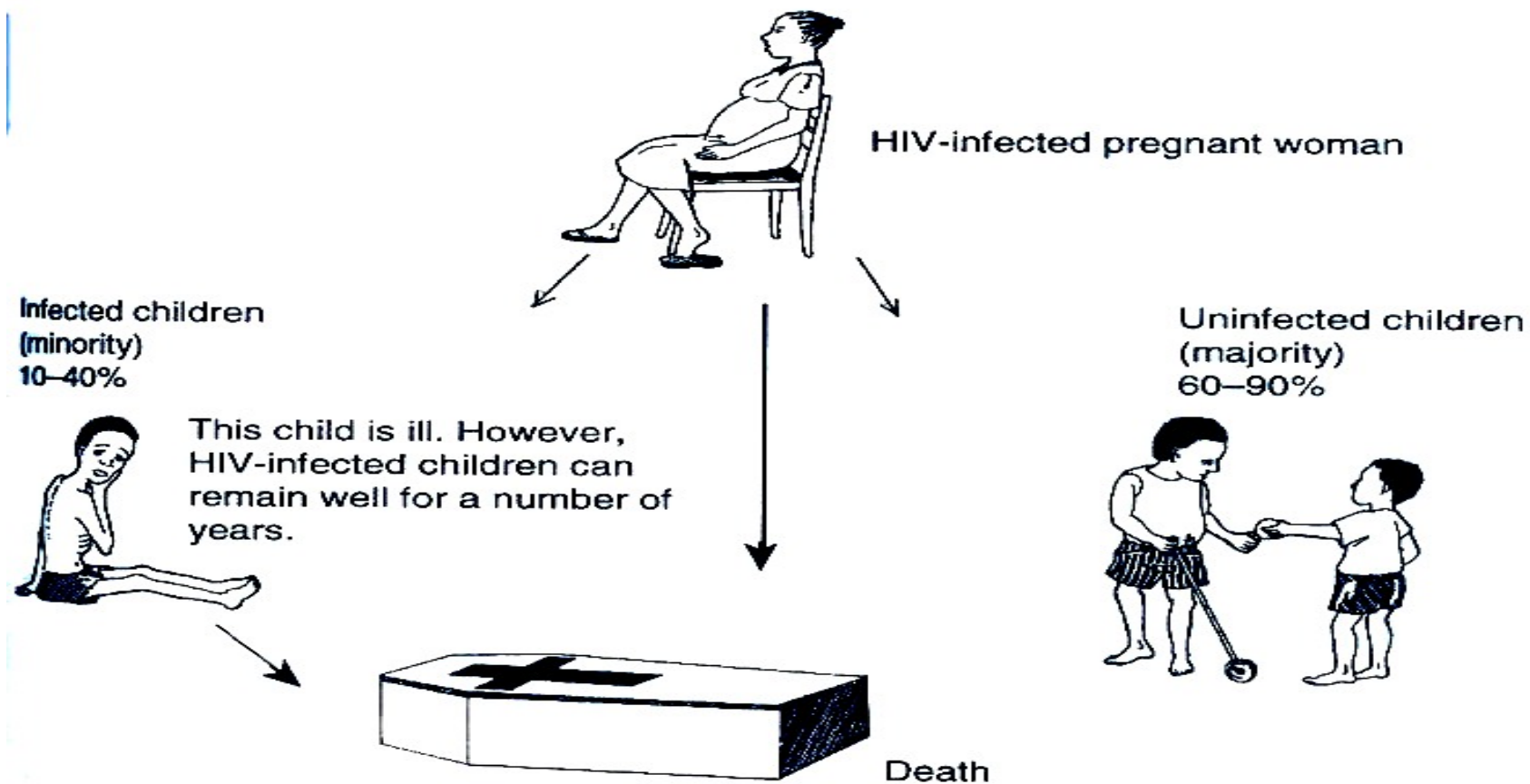
- 1**
Unprotected sex with an infected person

- 2**
Transfusion of infected blood/ blood products

- 3**
Sharing of contaminated syringes/needles

- 4**
Infected mother to child


HIV(Human Immuno Deficiency Virus) causes Acquired Immune Deficiency Syndrome(**AIDS**)


NACO
National AIDS Control Organisation
Prevention, Care and Support
Ministry of Health and Family Welfare, Government of India


UNAIDS
The Joint United Nations Programme on HIV/AIDS
2000 Washington Office, New Delhi
www.unaids.org/en/india

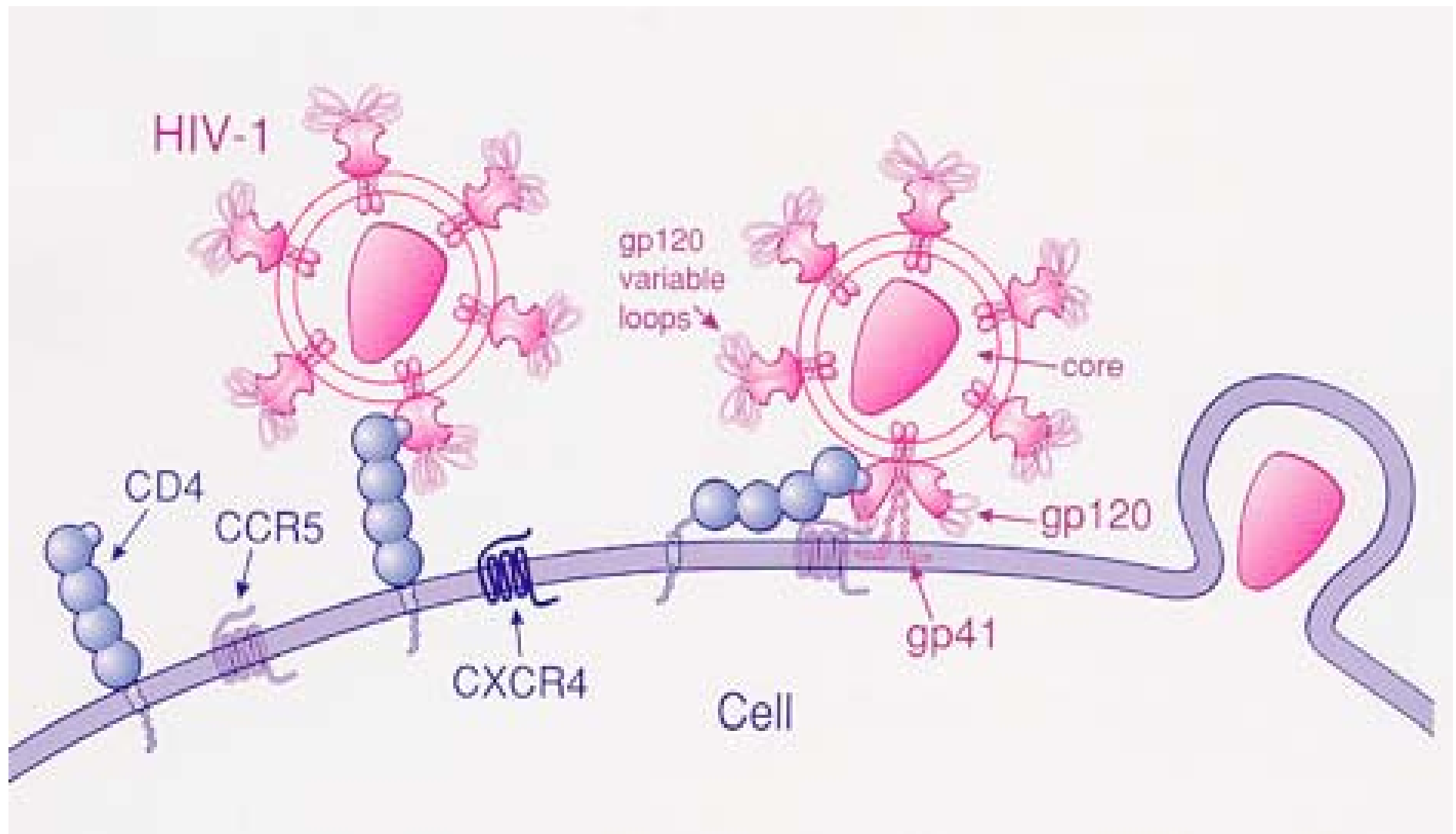
MODES OF TRANSMISSION



Pathogenesis

- Infection is transmitted when the virus enters the blood or tissues of a person and comes into contact with a suitable host cell, principally CD 4 lymphocyte.
- receptor for virus is CD4 antigen.
- CD4 antigen – Helper/ inducer T lymphocyte, B lymphocyte (5-10%), monocytes & macrophages (10- 20%), alveolar macrophages in lung, Langerhans cells in dermis, glial cells and microglia in CNS.

Pathogenesis



PATHOGENESIS OF AIDS

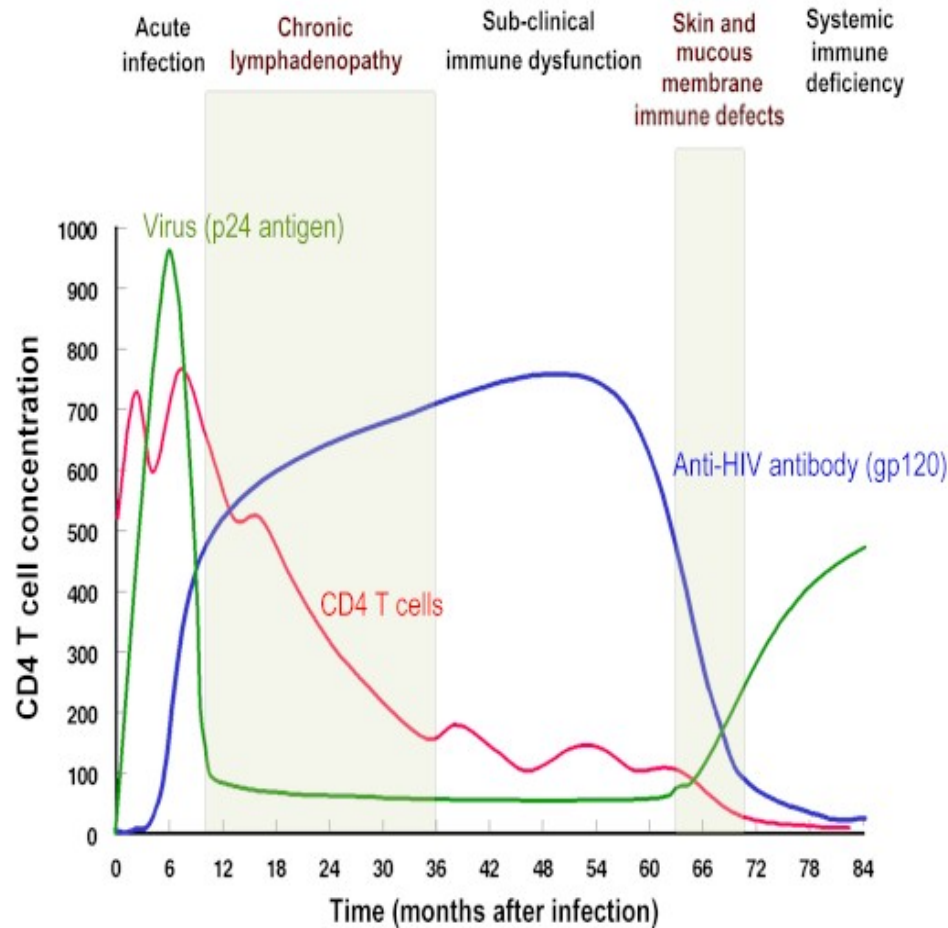
CARDINAL FEATURE—

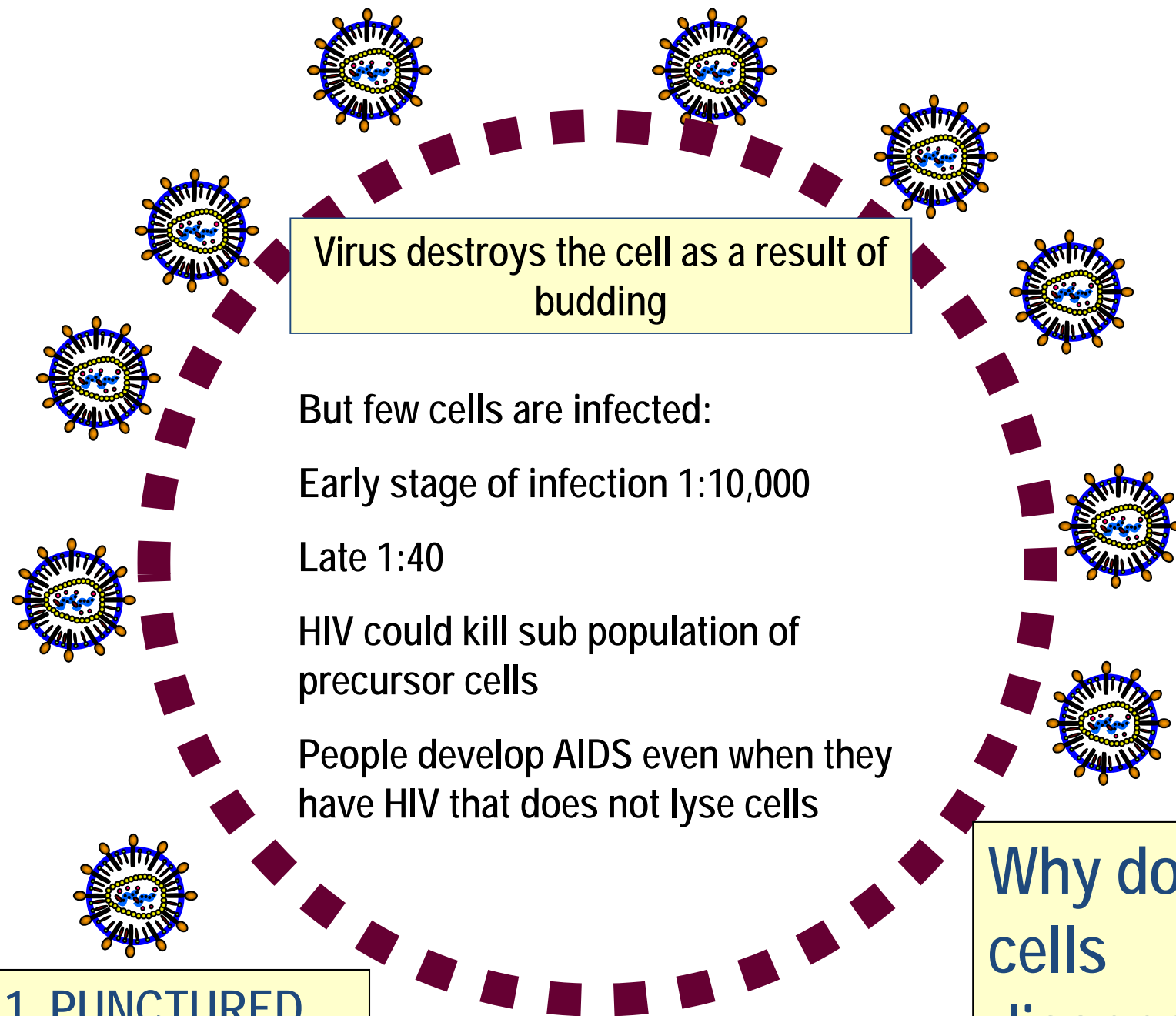
INEXORABLE DECLINE OF
CD4⁺T LYMPHOCYTES LEADING TO
OPPORTUNISTIC INFECTIONS AND
MALIGNANCIES

Inexorable decline of CD4+ T4 cells

Why do all of the T4 cells disappear?

At early stages of infection only 1 in 10,000 cells is infected
Late 1 in 40





The diagram illustrates the process of HIV budding from a cell membrane. A dashed purple line represents the cell membrane, with several HIV viruses budding from it. Each virus is depicted with a blue outer shell, a yellow inner shell, and a cluster of blue dots representing the viral core. The viruses are arranged in a circular pattern around the central text.

Virus destroys the cell as a result of budding

But few cells are infected:

Early stage of infection 1:10,000

Late 1:40

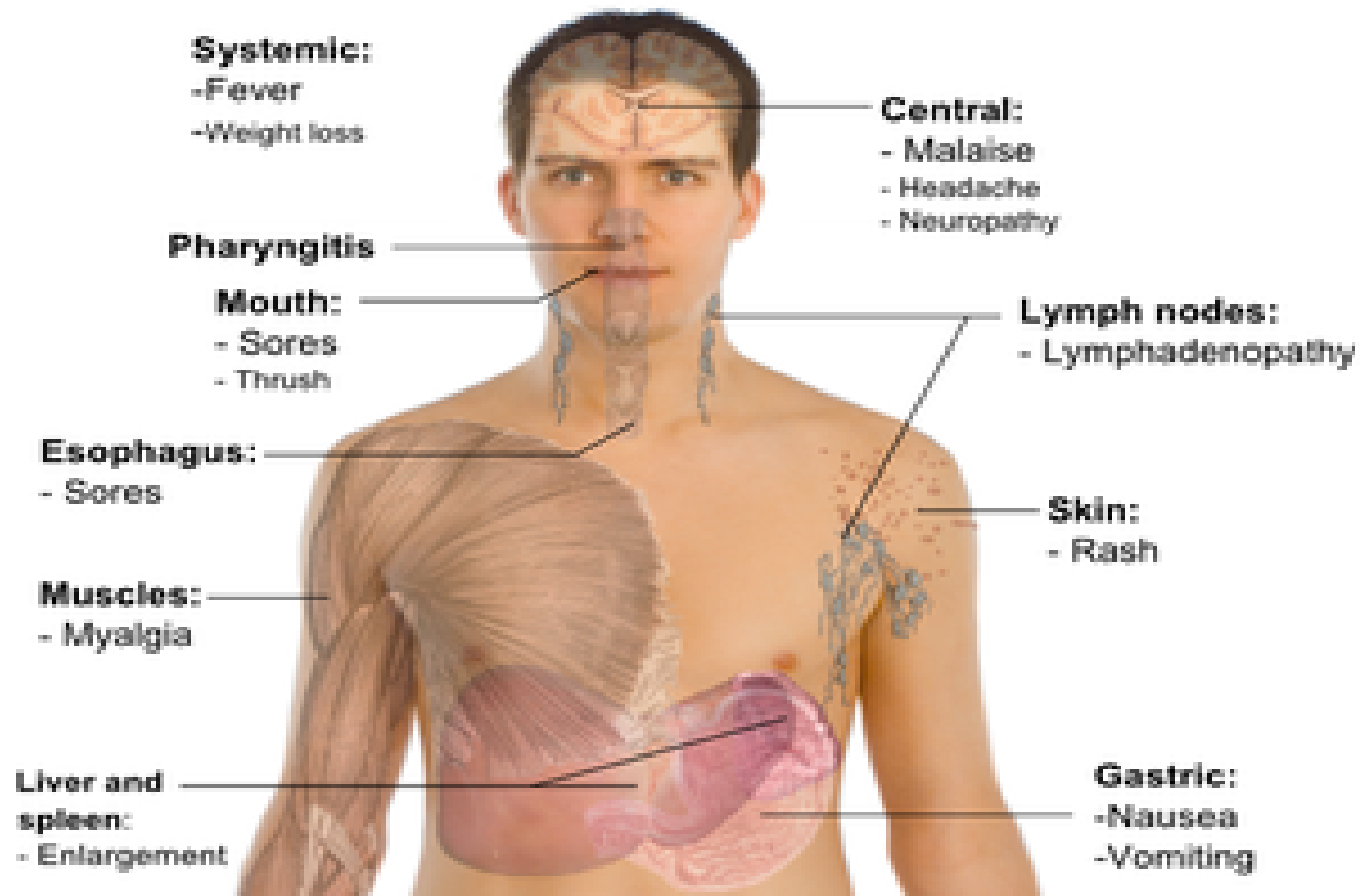
HIV could kill sub population of precursor cells

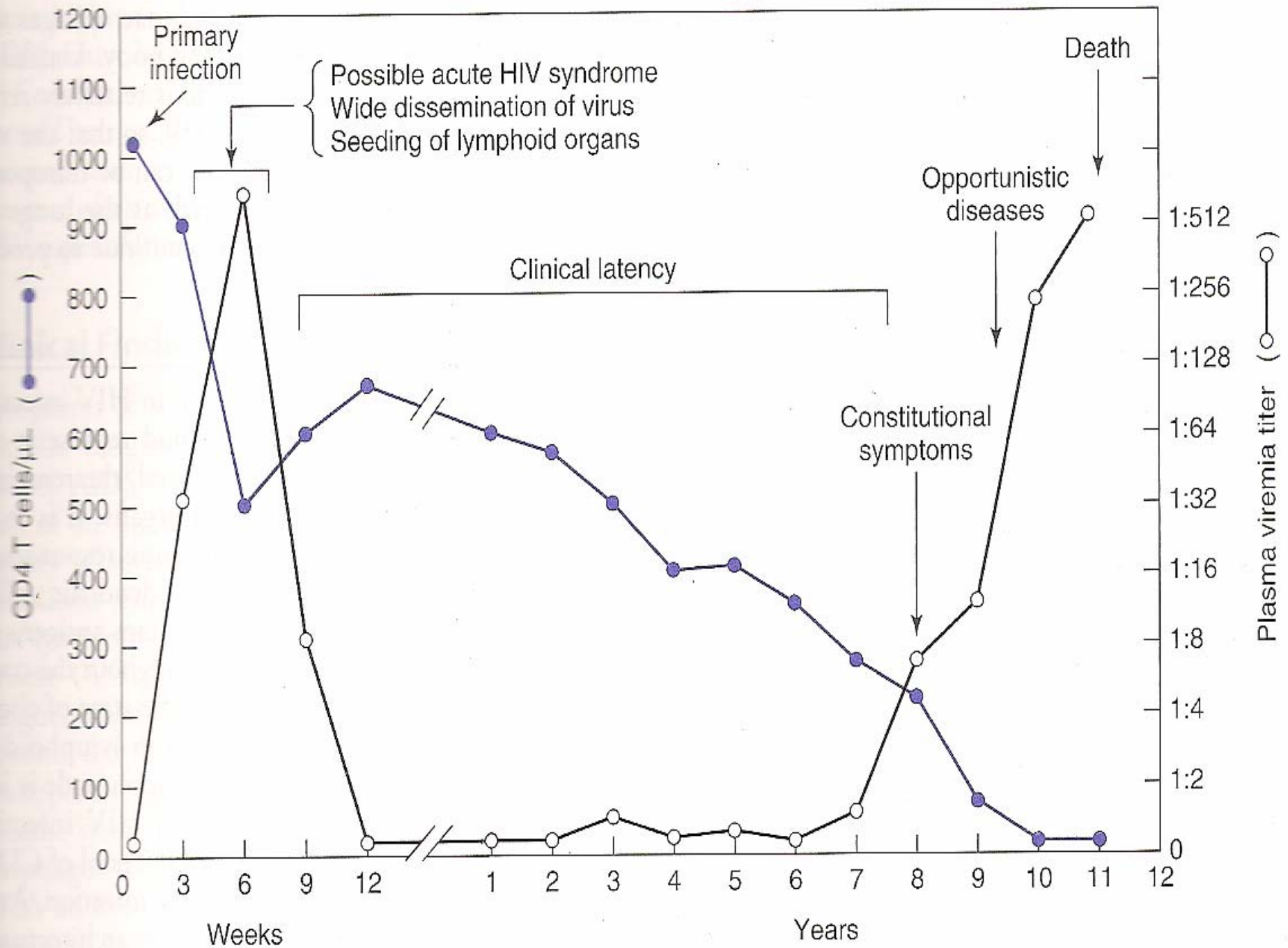
People develop AIDS even when they have HIV that does not lyse cells

1. PUNCTURED
MEMBRANE

Why do all T4
cells
disappear?

Main symptoms of Acute HIV infection





CDC CLASSIFICATION OF AIDS

Group I- acute HIV infection

Group II – asymptomatic infection

Group III – PGL

Group IV

subgroup A- ARC

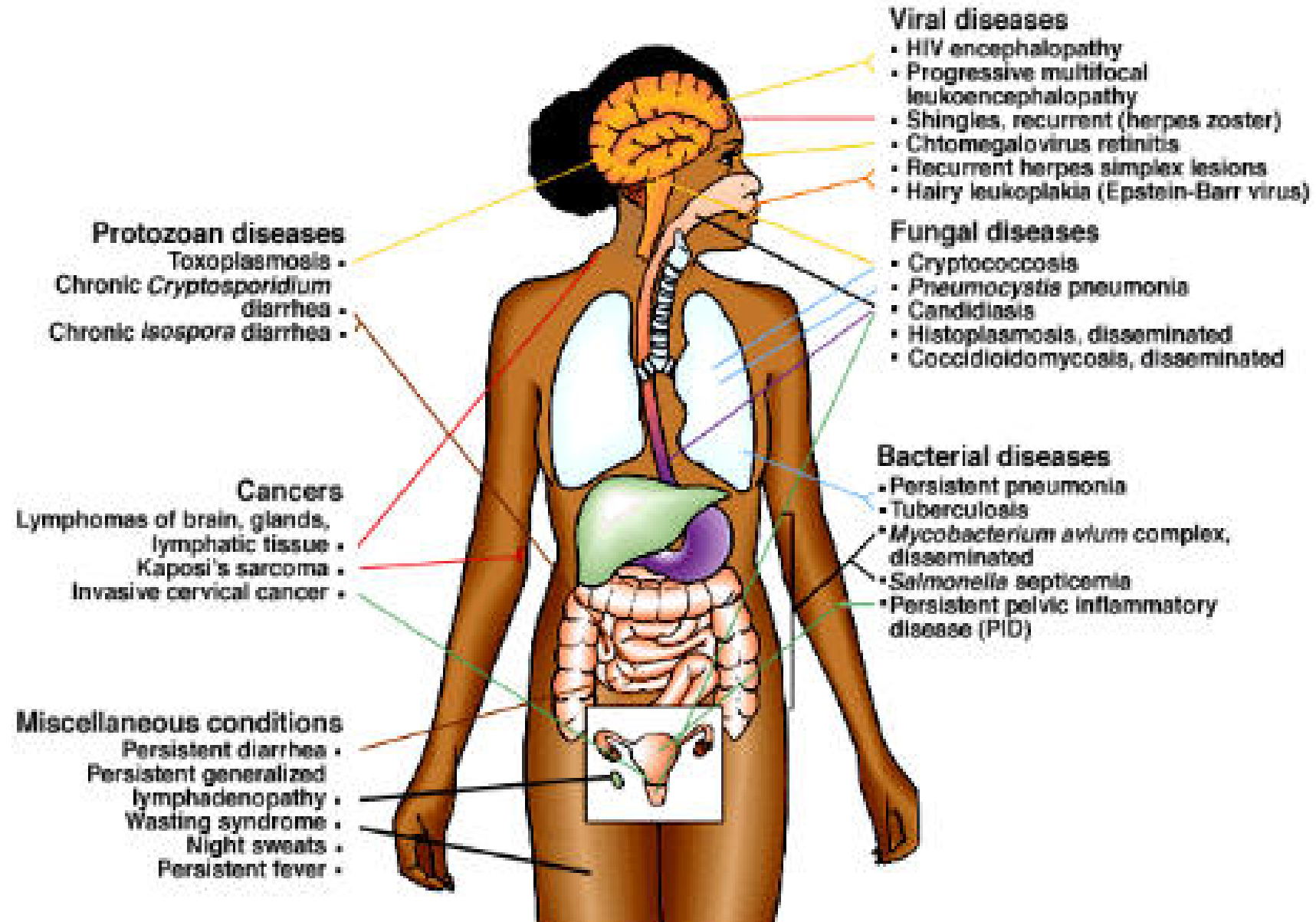
subgroup B – neurological disease

subgroup C – opportunistic infections

subgroup D – malignancies

subgroup E – other conditions

Diseases associated with AIDS



OPPORTUNISTIC INFECTIONS AND MALIGNANCIES

BACTERIA

Mycobacterium tuberculosis

Non tuberculous mycobacteria

Non typhoidal salmonella

VIRUSES

CMV, HSV, VZV, JC VIRUS

Candida

PARASITES

Toxoplasma gondii

Cryptosporidium

Isospora

Cyclospora

FUNGI

Cryptococcus

Pneumocystis

Histoplasma

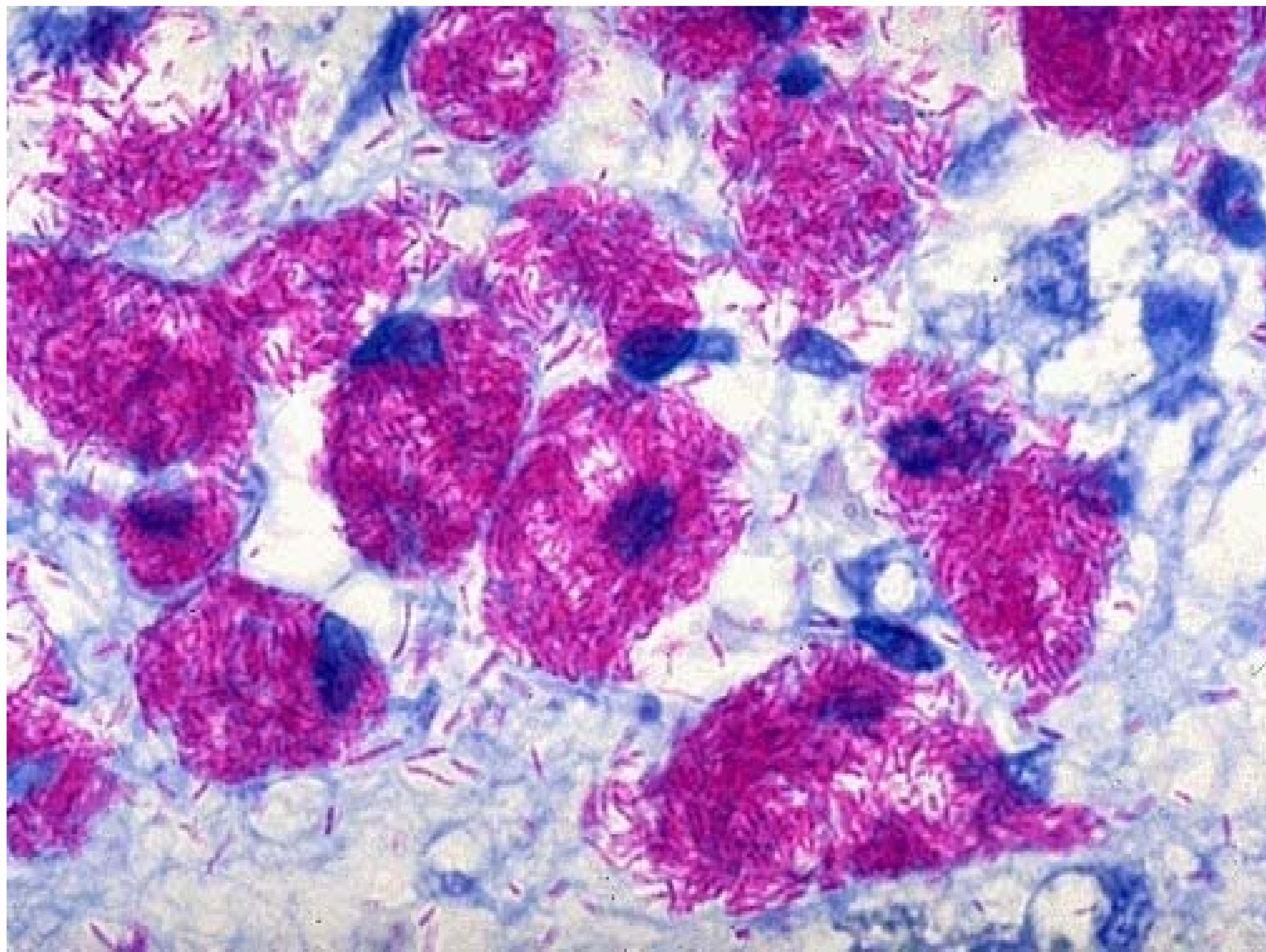
MALIGNANCIES

HL, NHL

KS

cervical cancer

anogenital cancer




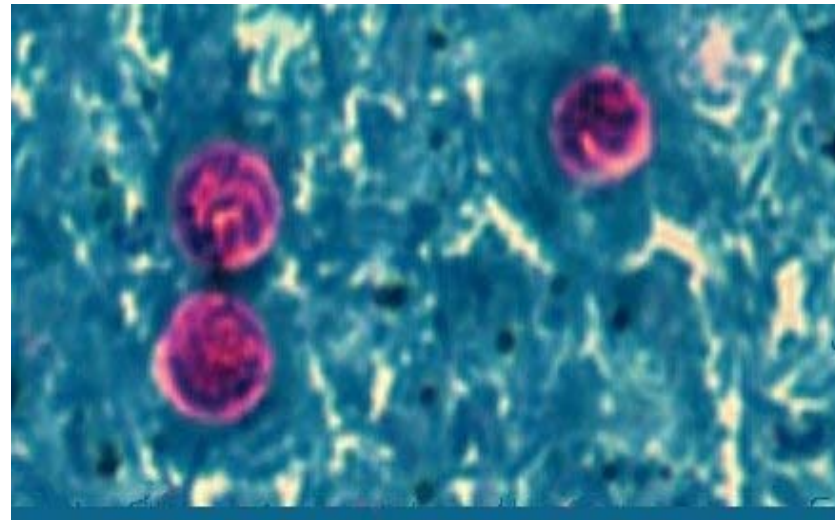
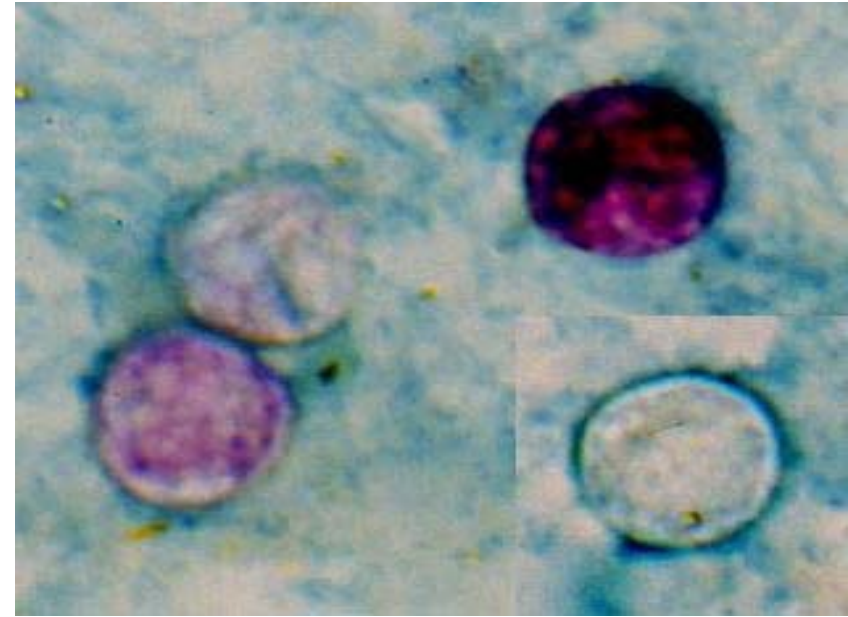
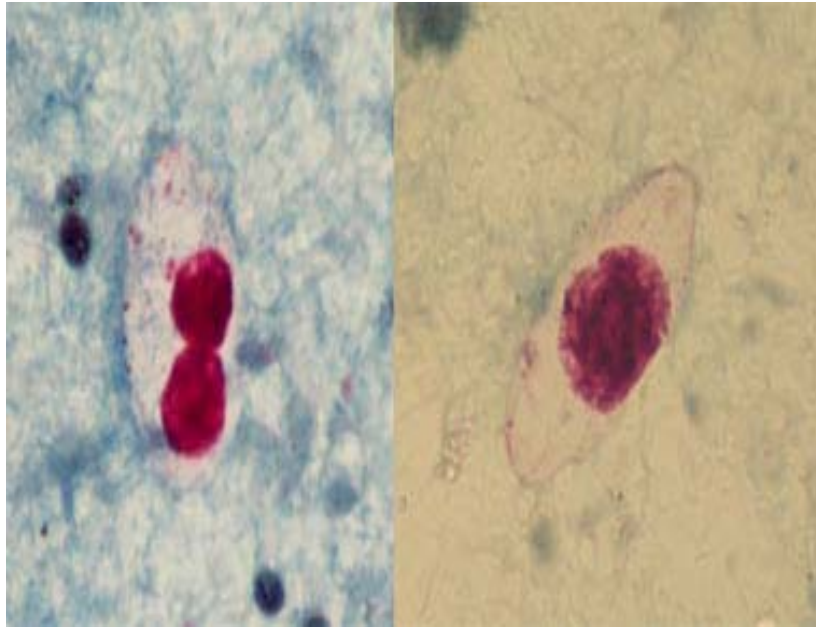
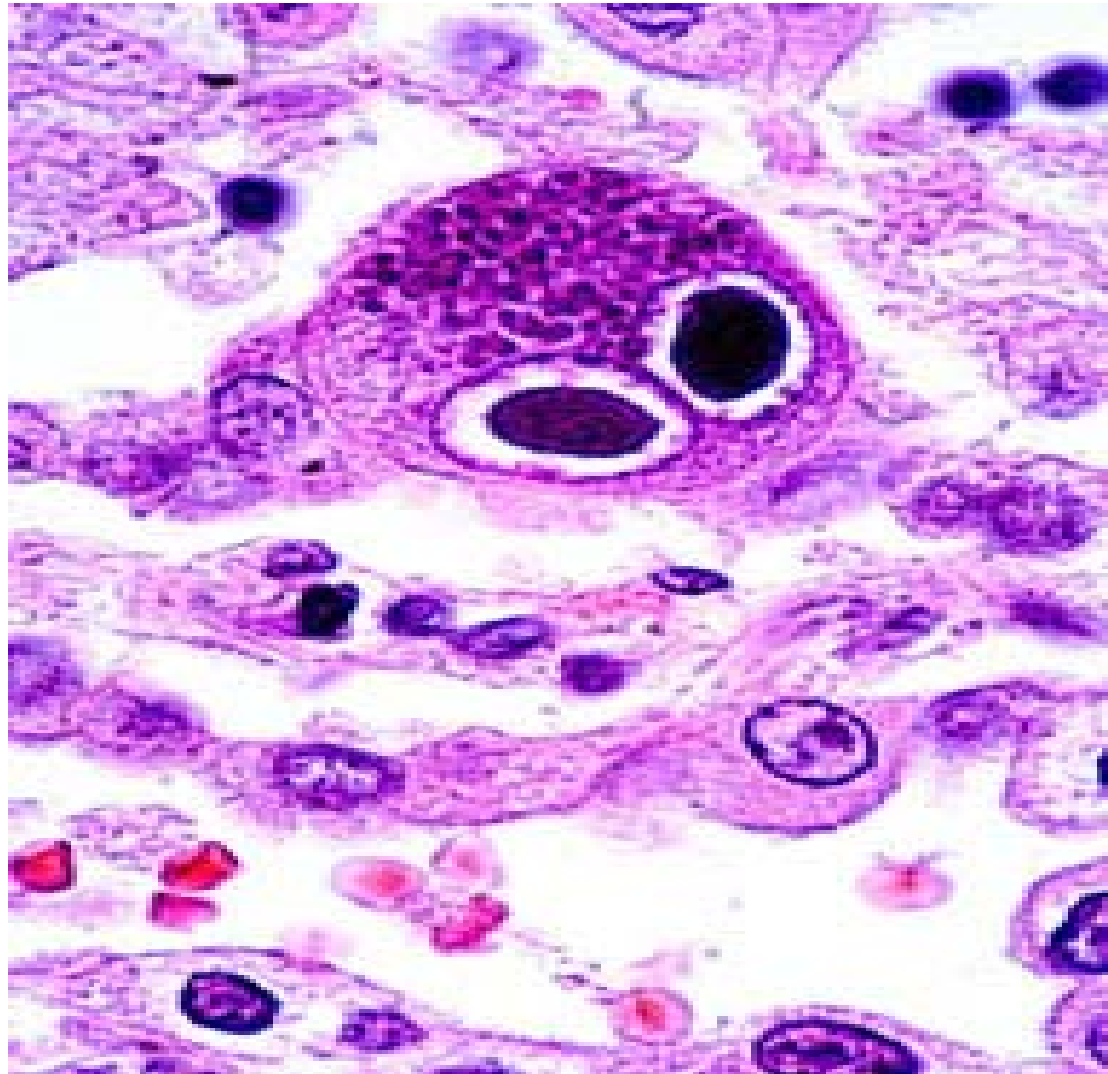
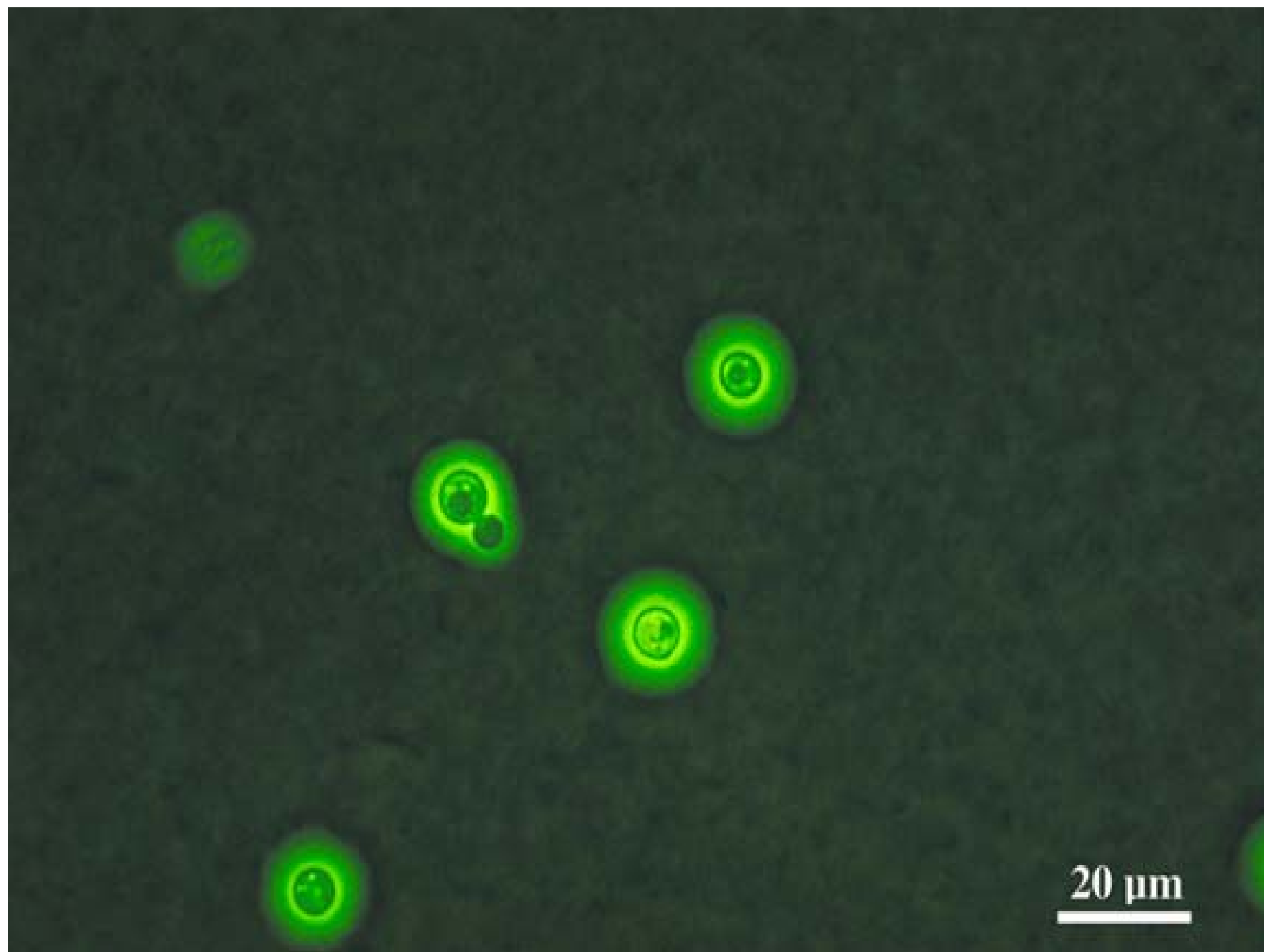
A microscopic image showing several Giardia lamblia trophozoites. These organisms are pear-shaped with two flagella at one end and a distinct nucleus. They are stained purple and are scattered across a light pink background. Some are in pairs, while others are solitary. The text "Photo by: Dr S.M. Sadjjadi" and the email "parasito@sums.ac.ir" are overlaid on the left side of the image.

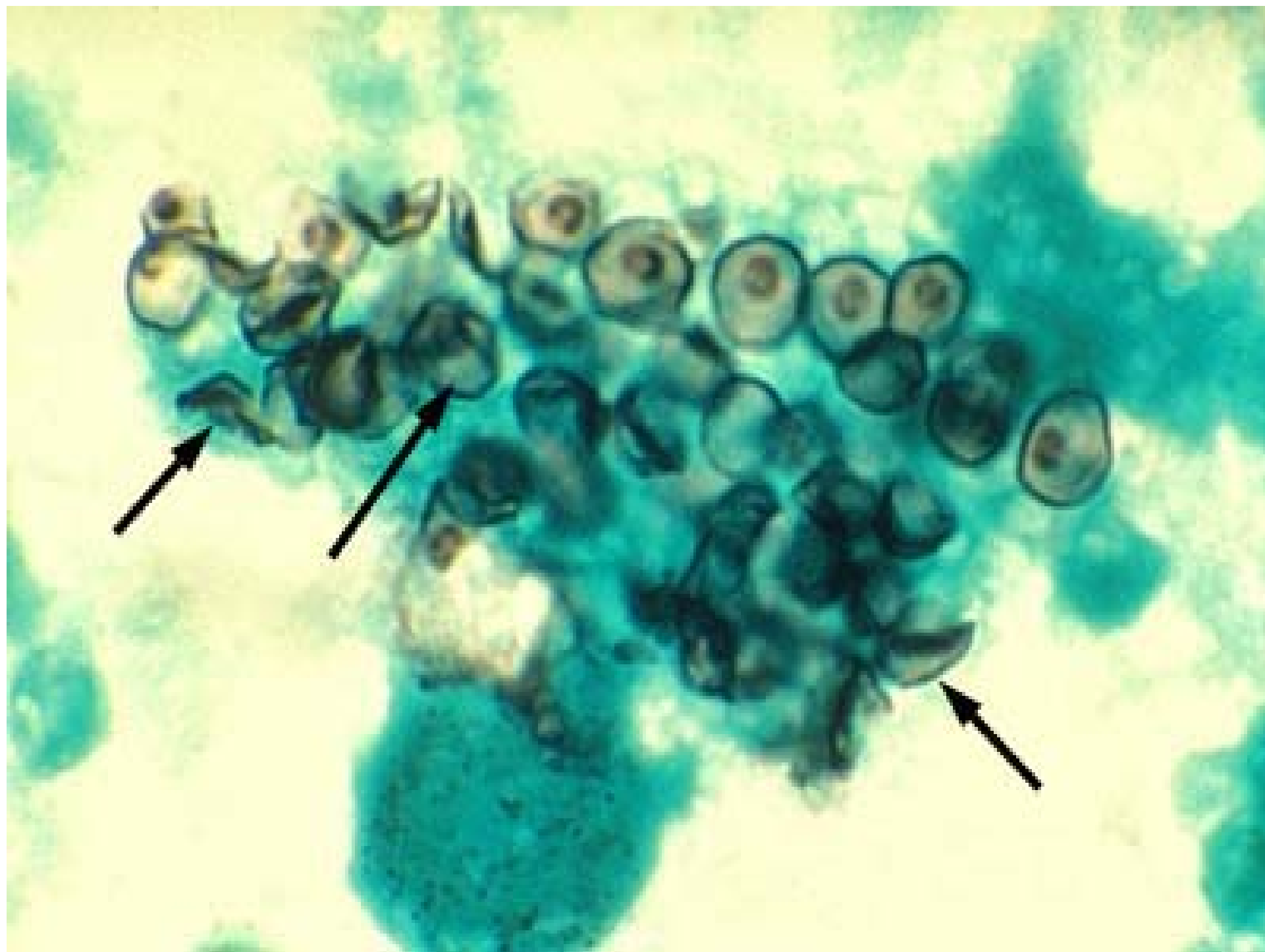
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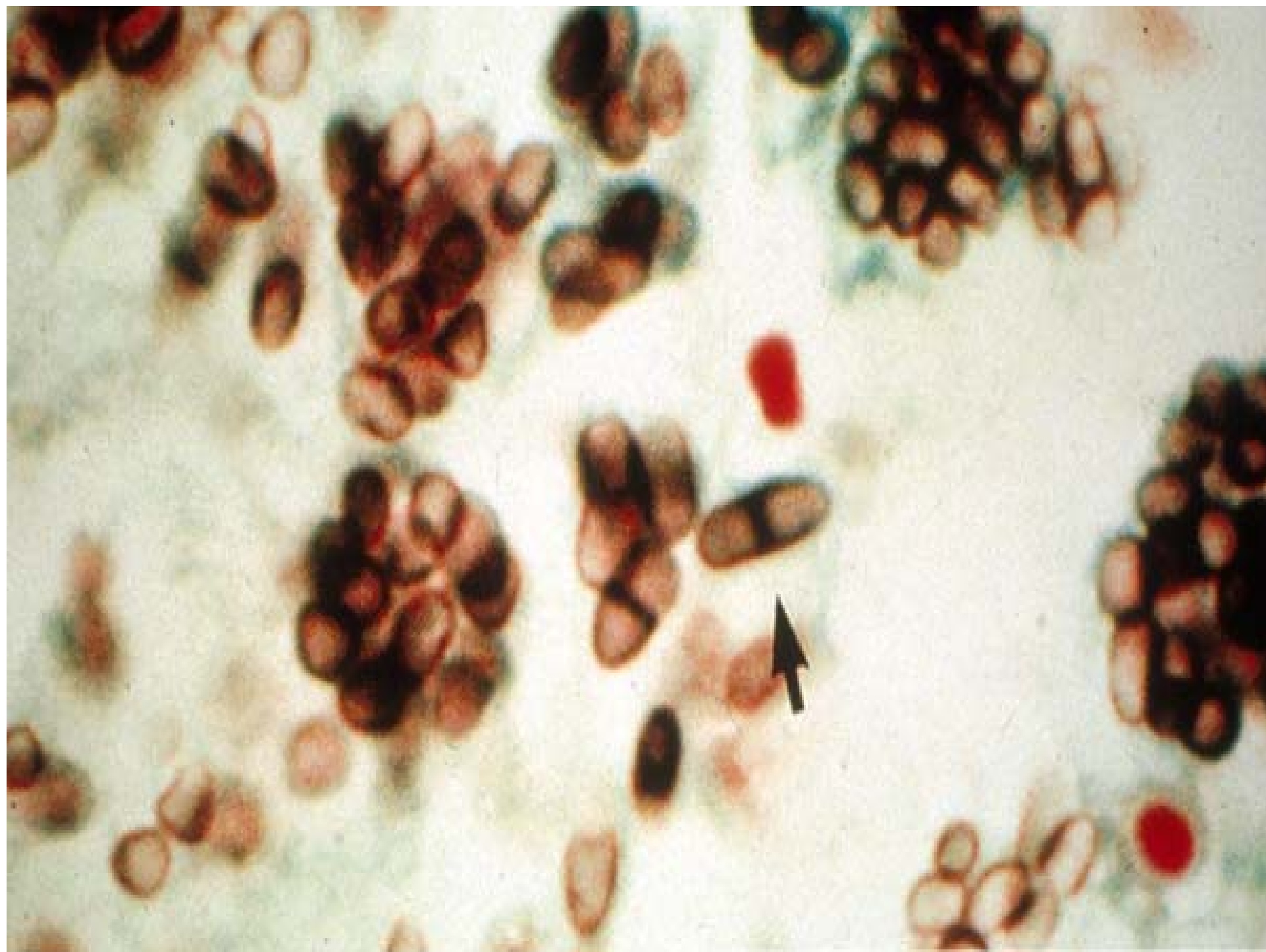




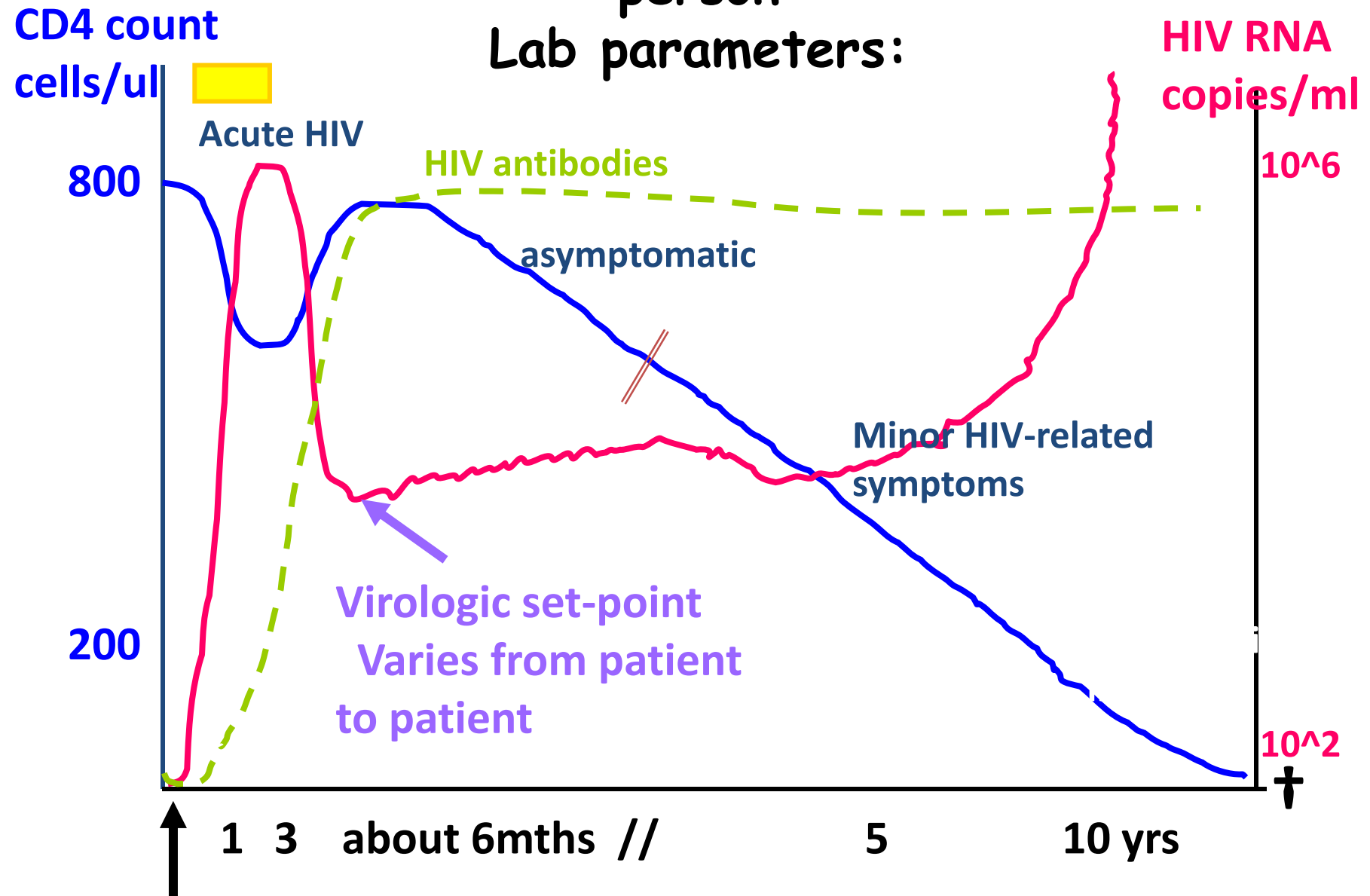








Typical course of HIV infection in an untreated person



ISSUES IN HIV TESTING

- confidentiality
- consent
- counseling

Availability of ART should make diagnosis no longer an issue of infringement on an individual's rights but an important step in the care of a HIV positive patient

THANK YOU

