

HIV/AIDS – Treatment Overview

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HIV/AIDS IN JAMAICA

Sero-prevalence among adults

1.5%

Estimated No. with HIV/AIDS

22,000

No. of persons in need of ARV

5,000

No. of persons currently on ARV

3000

Initial Management

- 1. History-including past medical problems, travel, pets, occupational exposures, drug and alcohol use, sexual history (past and current, including contraceptive use), social service needs etc.
- Use of supplements and alternative therapies should be obtained
- For all clients, status of HIV or AIDS reporting should be checked and reporting done as required

Vaccines

Review history of vaccines measles, rubella,
tetanus

Refer for dental cleaning every 3-6 months,
and oral exam at least q 6 months. More
frequently

Initial Management

Counseling/education

Safer sex and other secondary prevention

- Diet (ex. No unpasteurized milk products, raw eggs, etc)
- Nutritional consult
- If active substance abuse, encourage entry into counseling and/or treatment
- Screen for depression
- Discuss adherence –potential barriers

Initial Management

- Physical examination- with particular attention to the skin, eyes, oral cavity, lymph nodes, liver and spleen
- For women, PAP smear every 6-12 months

Laboratory Evaluation

- CBC, chem and liver function tests, urinalysis, lipid profile (repeat yearly)
- Hepatitis B test (HBSAg, HBSAb and HBCAb)-
- VDRL
- TB screen
- Chest X- ray
- CD4 count as baseline
- Viral load (to be done only for persons on Treatment for over six months)

Lymphocyte subsets

Total Lymphocytes → T lymphocyte

→ B lymphocytes

→ NK cells

T lymphocytes = CD3 +

T helper lymphocytes = CD3+ CD4+

T cytotoxic /suppressor = CD3+ CD8+

B lymphocytes = CD 19

All white cells = CD45

Co-receptors CD4 and CD8

- Cd4 and CD8 molecules act as co-receptors and help to increase the strength of adhesion between the T cell and the Antigen presenting cell
- Without the CD4 or CD8 molecules a T cell requires about 100 times more antigen to induce full activation

CD4 and CD8

- CD4 can be used as a marker for T-Helper cells
- CD8 can be used as a marker for cytotoxic T Cells
- T helper Cells, Monocytes and Dendritic cells carry the CD4 molecule
- HIV binds to CD4 molecules and so infects T-Helper but not Cytotoxic T cells
- The CD4 Molecule acts as a binding site for the gp120 envelope glycoprotein of the virus

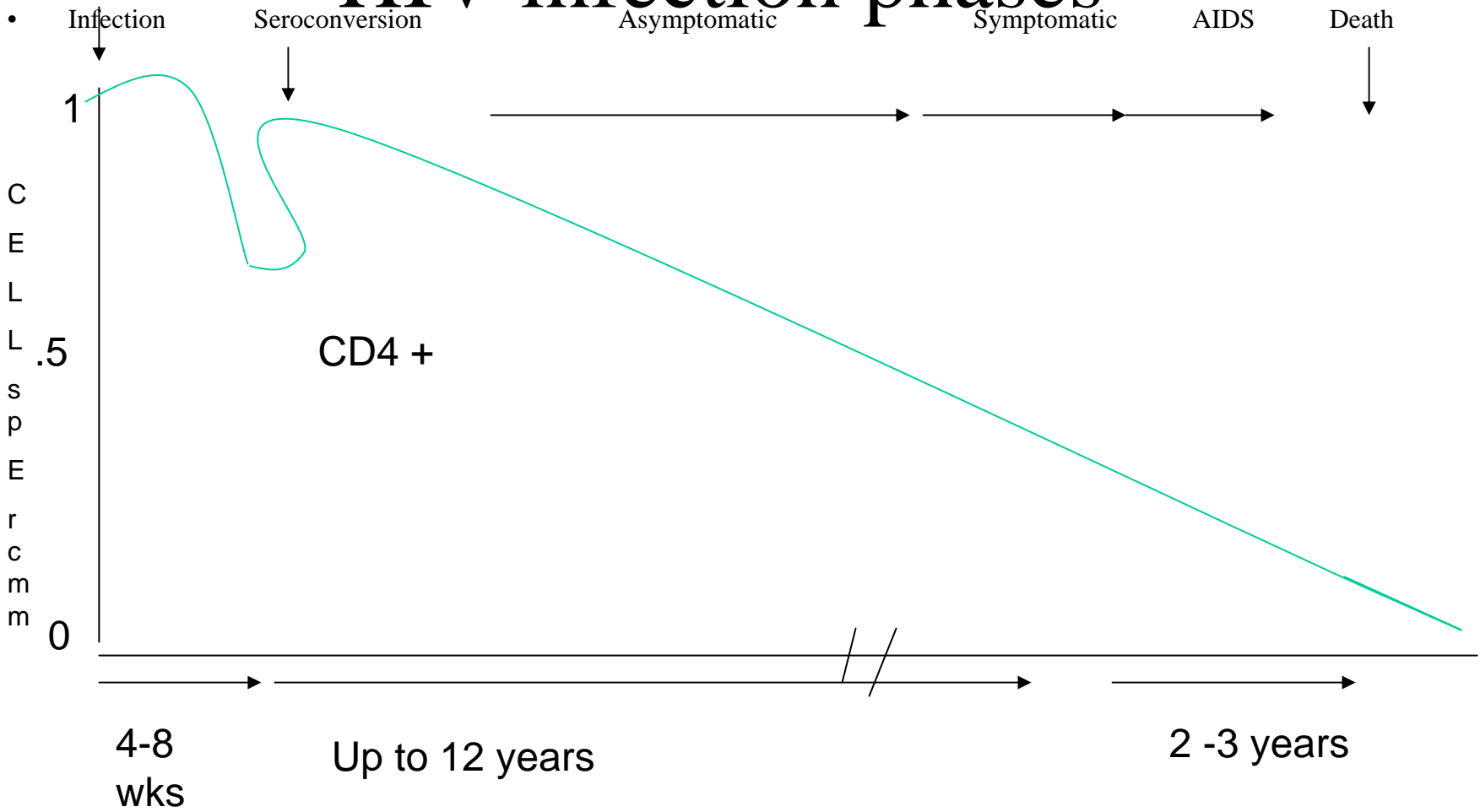
CD4 and CD8

- Monocytes, Macrophages and follicular dendritic cells are infected but are not generally destroyed
- Infected cells bear the fusion protein gp41 and may therefore fuse with other cells allowing the virus to spread
- Multinucleated cells are also formed – mostly seen in the brain

The immune system fights back

- Initially CD8 cells targeting infected cells are formed along with neutralizing antibodies and reduce the viremia
- The immune system soon start to suffer damage and the number of CD4 cells gradually decreased
- The body loses approximately 50-100 cells per annum

HIV infection phases



Immune Suppression

- T-helper cells directly killed by the virus
- T-helper cells induced to commit suicide (programmed cell death) by the virus
- T-helper cells made vulnerable to immune attack by cytotoxic T cells
- T cell replacement impaired by damage to the thymus and lymphnodes and by infection of stem cells
- Defects in antigen presentation associated with infection of dendritic cells

Interpretation

- All T cells have CD3 cell marker
- The CD3 marker distinguishes T cells from other cells with CD4 markers.
- CD3/CD4 positive cells are T helper cells
- CD3/CD8 positive cells are T suppressor/cytotoxic cells.
- The report gives the percentage of each cell type as well as the absolute count.
- % T helper = $\text{CD3}^+\text{CD4}^+ / \text{CD3}^+$ (CD4+)
- % T Suppressor/cytotoxic = $\text{CD3}^+\text{CD8}^+ / \text{CD3}^+$ (CD8+)
- Normal ranges for each cell type is given
- T helper/suppressor ratio is also given

Follow up

CD4 > 350

CD4 counts every 6-12 months

CD4 ≤ 350

- CD4 counts 3-6 months depending on level and clinical status
- PCP prophylaxis

Follow up

Cd4 \leq 200

- CD4 counts initially every 3 months depending on level and clinical status
- Discuss and recommend antiviral therapy
- PCP prophylaxis

When to Start

Adults

- All patients with clinical AIDS
- Patients with CD 4 levels of 350/mm³ and below,

Highly Active Antiretroviral Therapy (HAART)

Combination of at least 3 drugs, usually:

- NNRTI - based regimens (2 NRTIs + 1 NNRTI)
- NRTI - based regimens (3 NRTIs)
- PI - based regimens (2 NRTIs + 1-2 PIs)

- Therapy with only one or two ARV drugs allows HIV to overcome therapy through resistance mutations and should not be used

What To Start

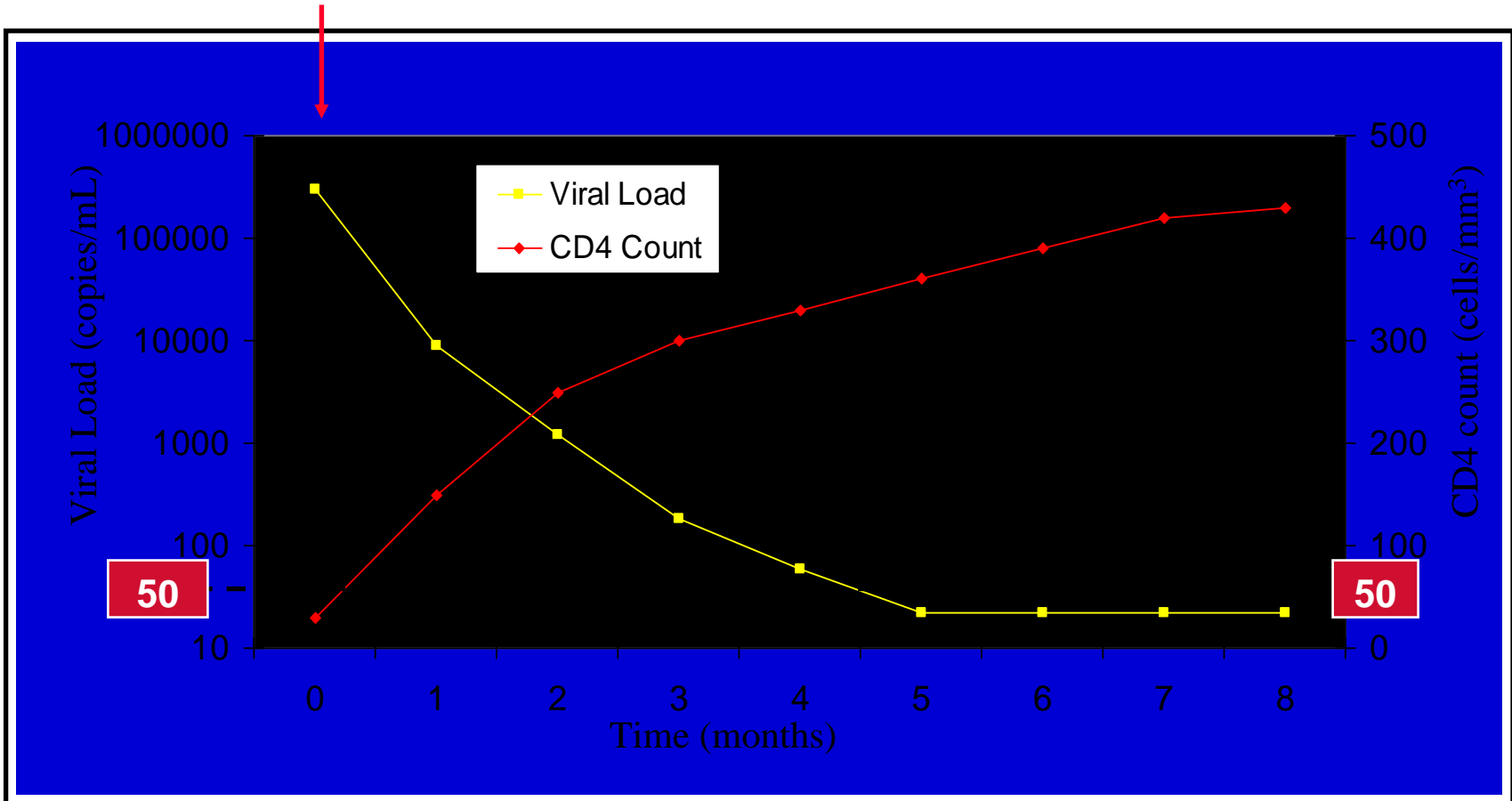
Choose one from A plus one from B

Column A	Column B
Zidovudine+ Lamivudine	Efavirenz
Tenovofir + Emtracitabine	Nevirapine
Lamividine + Stavudine	

Optimal Response to Initial HAART

- Clinical improvement
- Rise in CD4 count
- Immune restoration
- Steep drop in viral load to undetectable levels (< 50 copies/ml) after 4-6 months treatment

Antiretroviral Therapy: Optimal Response



PMTCT plus

PMTCT

Recommended Regime

CD4>250

- **Zidovudine 300 mg + Lamivudine+150mg**
plus
Nelfinavir **or Lopinavir + Ritonovir**

- **CD4<250**

- **Zidovudine 300 mg + Lamivudine+150mg**
plus
Nevirapine

- **Persons on ARVs should continue regime unless on Efavirenz which should be substituted**

ADHERENCE

Rationale

Failure with <78-95% adherence

Resistance with 50-95% adherence

Caution: Patients with

Low literacy

Low income

High anxiety

Poor support

Preparing for ARVs

- Culture
- Access + Knowledge + Motivation + Cues to Action
- Stigma & Discrimination



• ↑ ADHERENCE

TREATMENT FAILURE

- Clinical disease progression with the reemergence, recurrence or development of an opportunistic infection or malignancy when the drugs have been given sufficient time to induce a protective degree of immune restoration

Treatment Failure

- **Treatment failure will be defined as:**
- A) presence of:
- Persistently declining CD4 of over 30% on two occasions measured 3-6 months apart **AND ONE OF THE FOLLOWING**
 - Significant weight loss
 - Popular prurigo, oral candidia or chronic diarrhoea
- Or
- Worsening symptoms or onset of new HIV-related illness

Treatment Failure

- **Treatment failure will be defined as:**
- B). Significant (grade 3 or 4) adverse drug reaction (ADR) necessitating therapy discontinuation

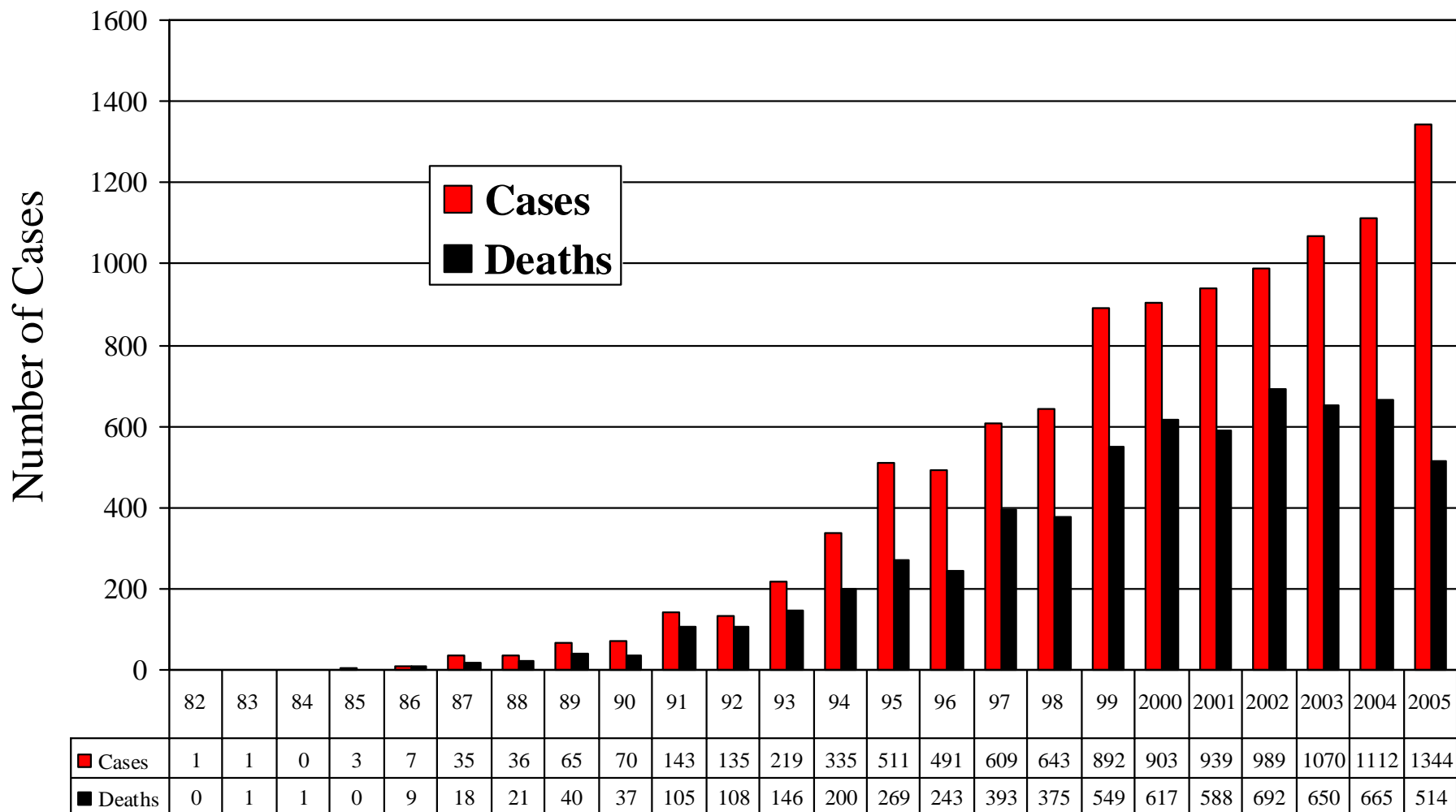
SWITCHES FOR VIROLOGIC FAILURE

Column A	Column B
Tenovofir + Emtracitabine	Lopinavir +Ritonavir
Zidovudine + Lamivudine	Indinavir + Ritonovir

Jamaica

AIDS Cases & Deaths

Reported Annually in Jamaica (1982 to 2005)

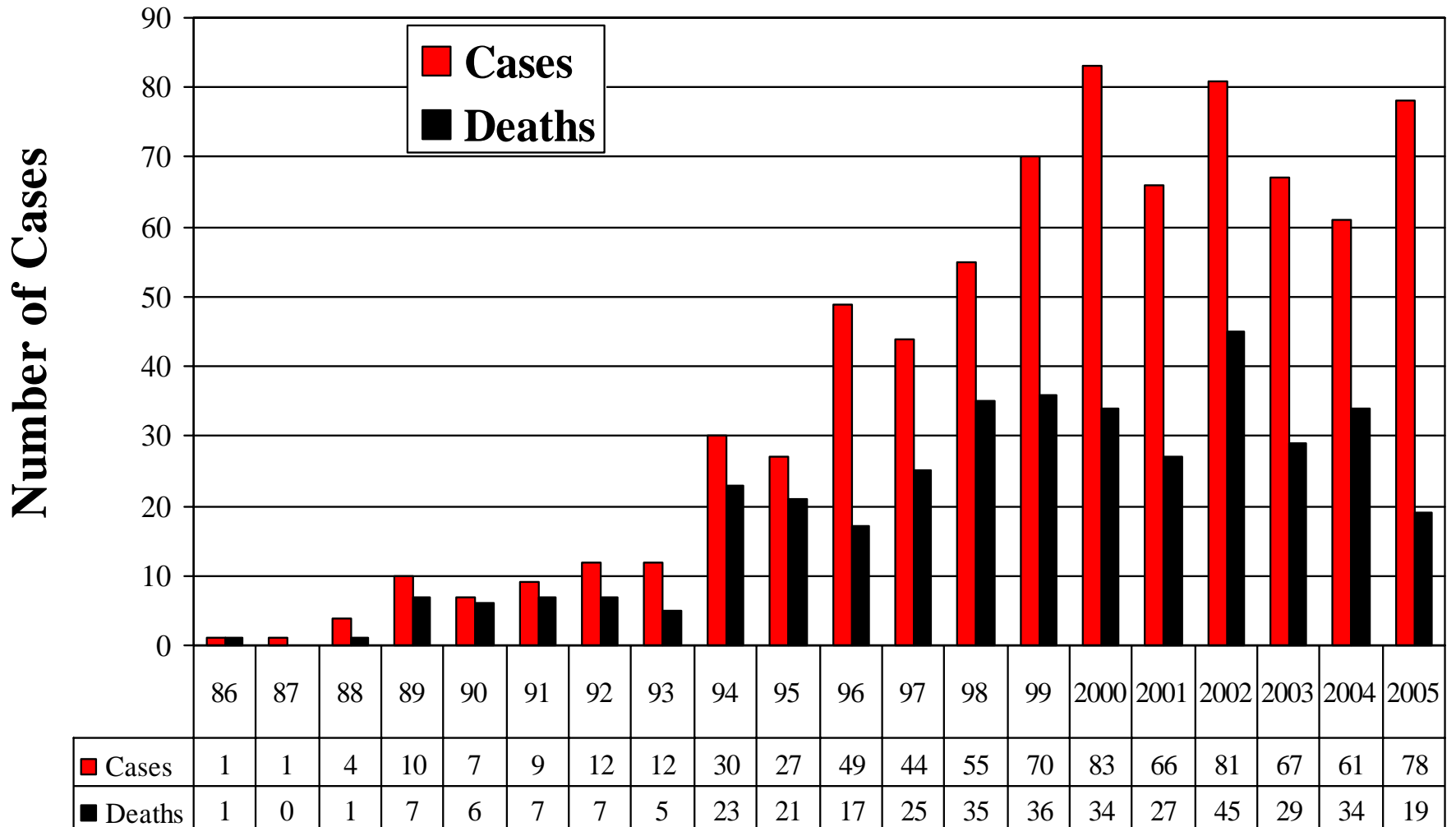


AIDS definition includes advanced HIV disease in 2005

Jamaica

Paediatric AIDS Cases & Deaths

(1982 - 2005)



Conclusion

- Stigma and discrimination particularly among health care workers must be eliminated allowing comfortable access to care and support services

AIDS/STD Helpline

Patient

- Source of HIV information
- Confidential counseling

Provider

- Source of useful information
- Resources available

Telephone: 967-3764

967-3830

1-888-991-4444

Thank You