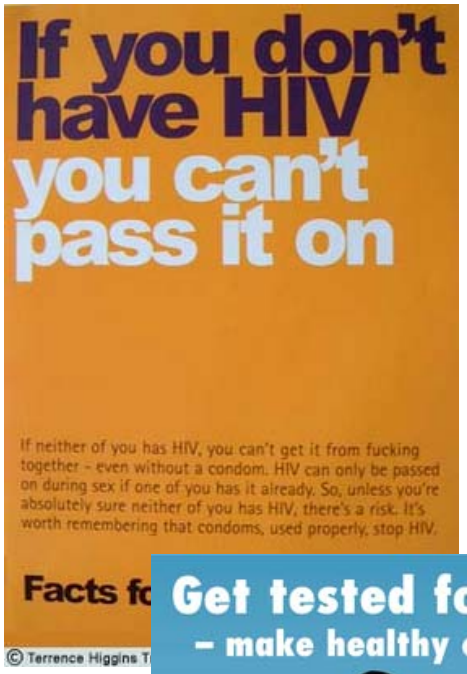
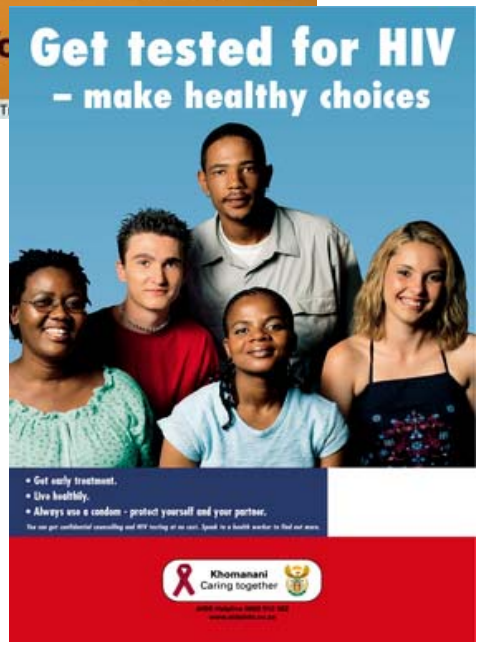
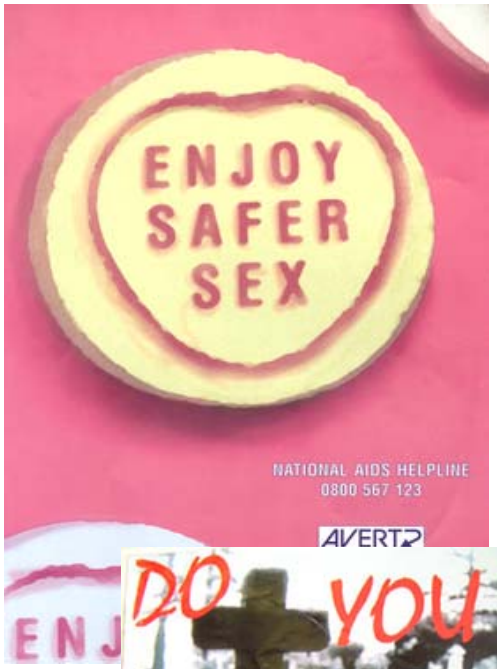
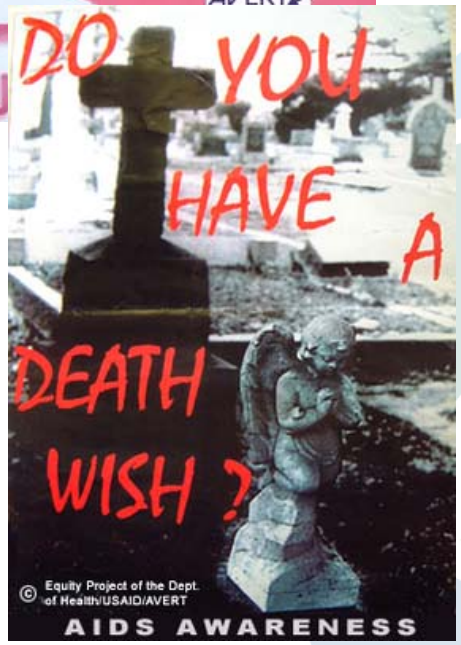
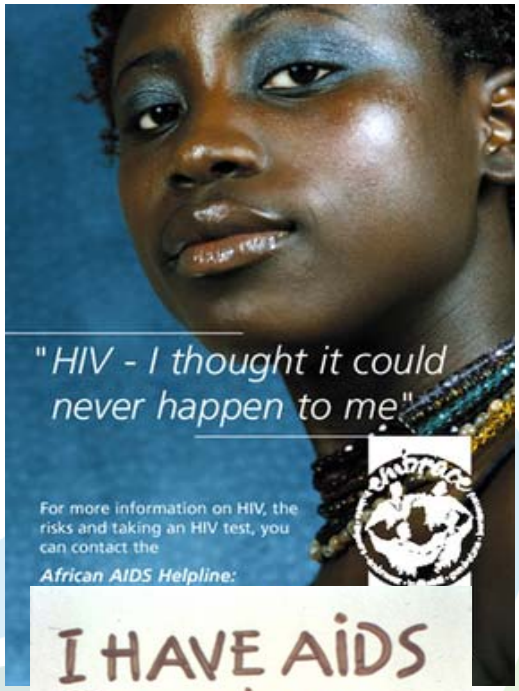

If you don't have HIV you can't pass it on
If neither of you has HIV, you can't get it from fucking together - even without a condom. HIV can only be passed on during sex if one of you has it already. So, unless you're absolutely sure neither of you has HIV, there's a risk. It's worth remembering that condoms, used properly, stop HIV.
Facts fo
© Terrence Higgins T


Get tested for HIV
– make healthy choices
• Get early treatment.
• Live healthily.
• Always use a condom - protect yourself and your partner.
Khomanani
Caring together


ENJOY SAFER SEX
NATIONAL AIDS HELPLINE
0800 567 123
AVERT
ENJ


DO YOU HAVE A DEATH WISH ?
© Equity Project of the Dept. of Health/USAID/AVERT
AIDS AWARENESS


"HIV - I thought it could never happen to me"
For more information on HIV, the risks and taking an HIV test, you can contact the
African AIDS Helpline:


I HAVE AIDS
PLease hug me
I can't make you sick
AIDS HOT LINE FOR KIDS
CENTER FOR ATTITUDINAL HEALING
19 MAIN ST, TIBURON, CA 94920, (415) 435-5022

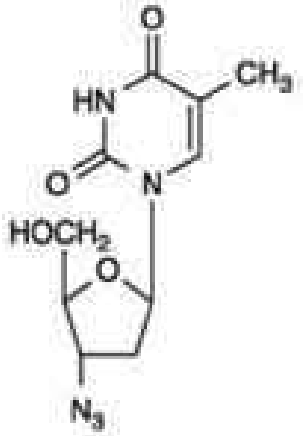
HIV and medicines

Kate Gandhi

One of the HIV Pharmacists

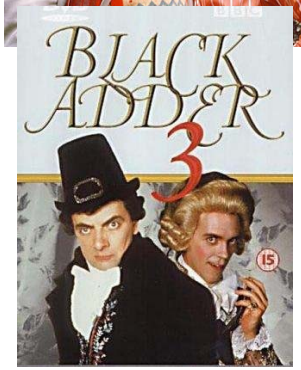
Extension 40865

Zidovudine (AZT) in 1987

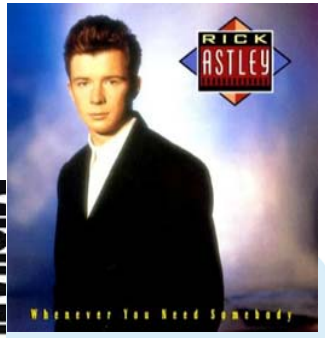


1987 – where were you?

TV shows

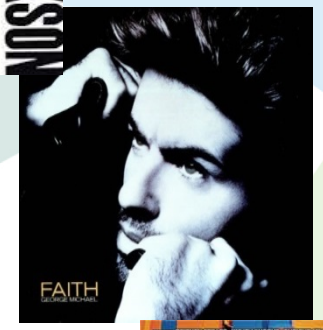


Films



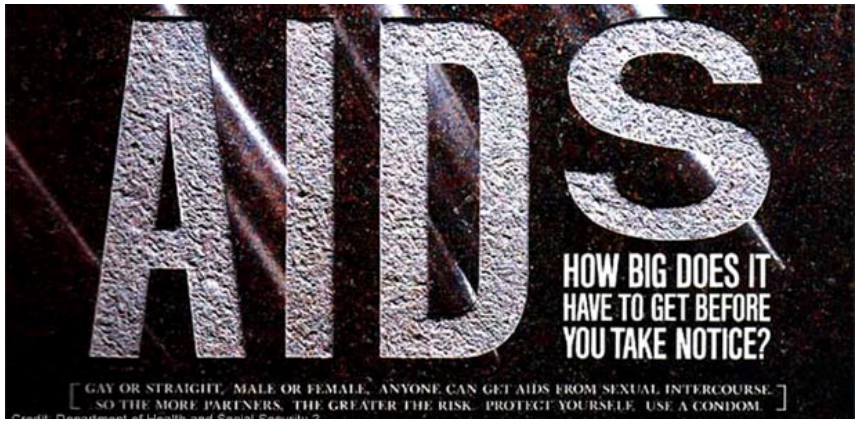
MICHAEL JACKSON

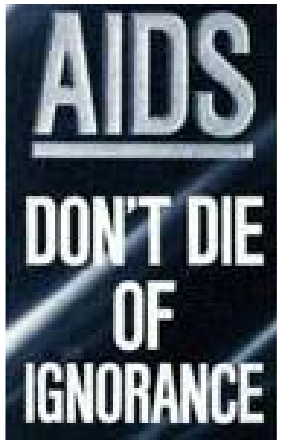
Music



Once in a lifetime event….

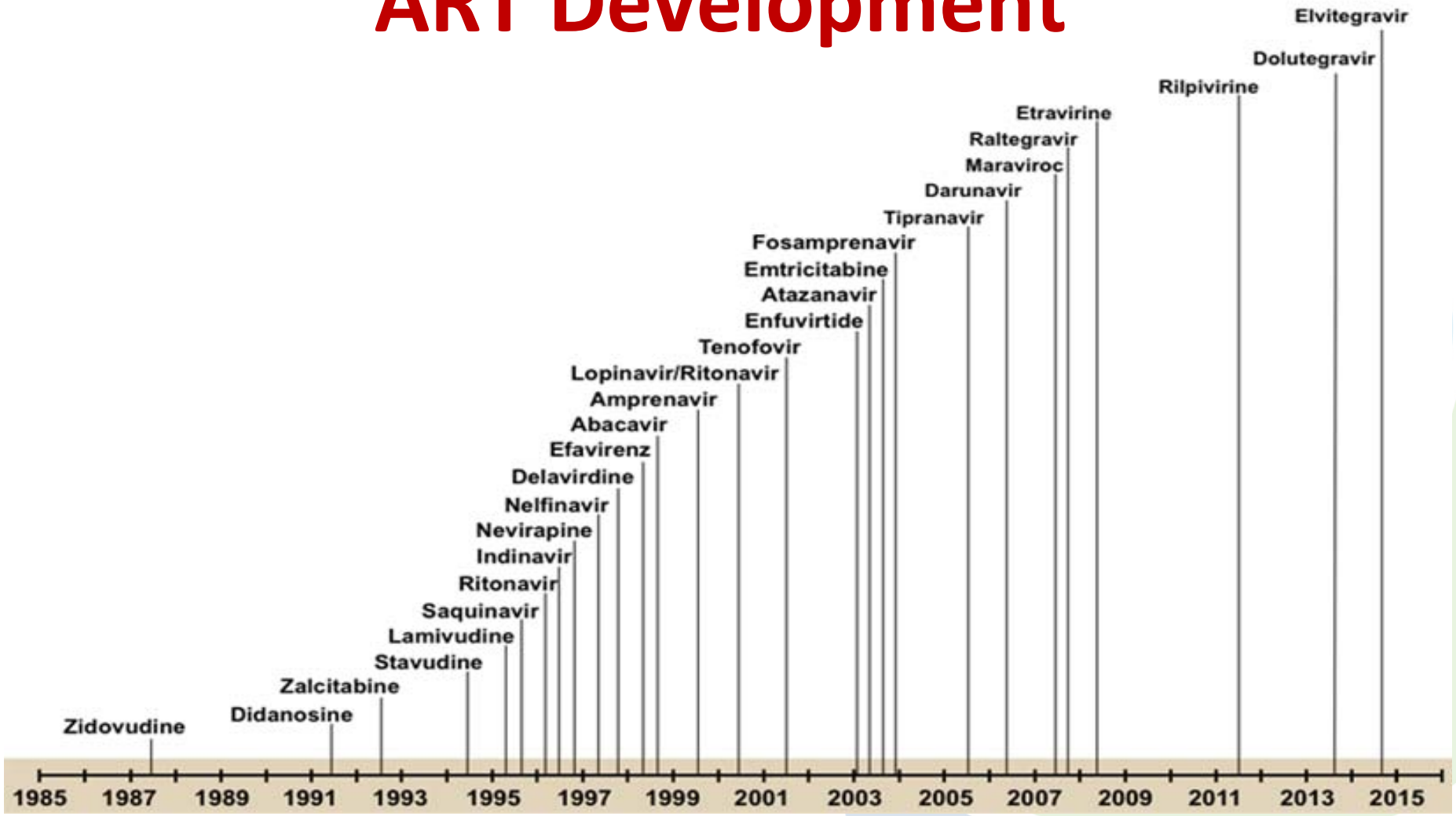
HIV/AIDS in 1987





Liberace – RIP 4.2.87

ART Development



29 ARVs have been developed (although we do not prescribe all of them)

What is antiretroviral therapy?

- Antiretroviral therapy (ART) is the use of HIV medicines to treat HIV infection. People on ART take a combination of HIV medicines (called an HIV *regimen*) **every** day.
- ART is recommended for everyone infected with HIV. ART can't cure HIV, but HIV medicines help people with HIV live longer, healthier lives.
- ART also reduces the risk of HIV transmission.

What is ART and what are ARVs?

What is ART?

•ART stands for antiretroviral treatment. It is also called combination therapy or “HIV treatment”.

What are ARVs?

•HIV drugs are called antiretrovirals (ARVs) because HIV is a type of virus called a retrovirus.

•ART nearly always includes at least three active drugs.

•Some pills contain more than one drug and some single pills contain a complete combination.

Antiretroviral (ARV) Medication

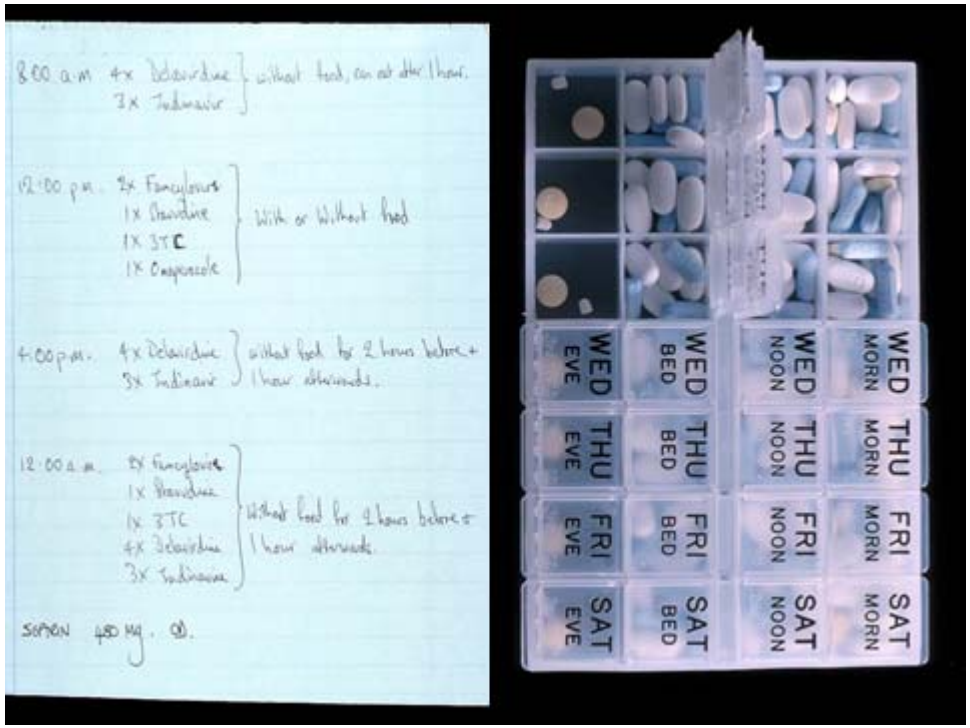
- **1996**: combination therapy first shown to be effective = HAART
  - **H**ighly
  - **A**ctive
  - **A**nti
  - **R**etroviral
  - **T**herapy

- **2017**: 29 ARV medicines licensed in the UK

NOT A CURE

Then and now

Late 1990s



2017

One tablet taken once a day

UK Antiretrovirals 2017

	Combination
NRTIs	
– Lamivudine	*Kivexa, Triumeq, Combivir & Trizivir*
– Abacavir	*Kivexa, Triumeq & Trizivir*
– Tenofovir DF	*Truvada, Atripla, Eviplera & Stribild*
– Tenofovir AF	*Descovy, Genvoya, Odefsey*
– Emtricitabine	*Truvada, Descovy, Atripla, Eviplera, Odefsey & Stribild*
– Zidovudine	*Combivir & Trizivir*
NNRTIs	
– Efavirenz	*Atripla*
– Nevirapine	
– Etravirine	
– Rilpivirine	*Eviplera, Odefsey*

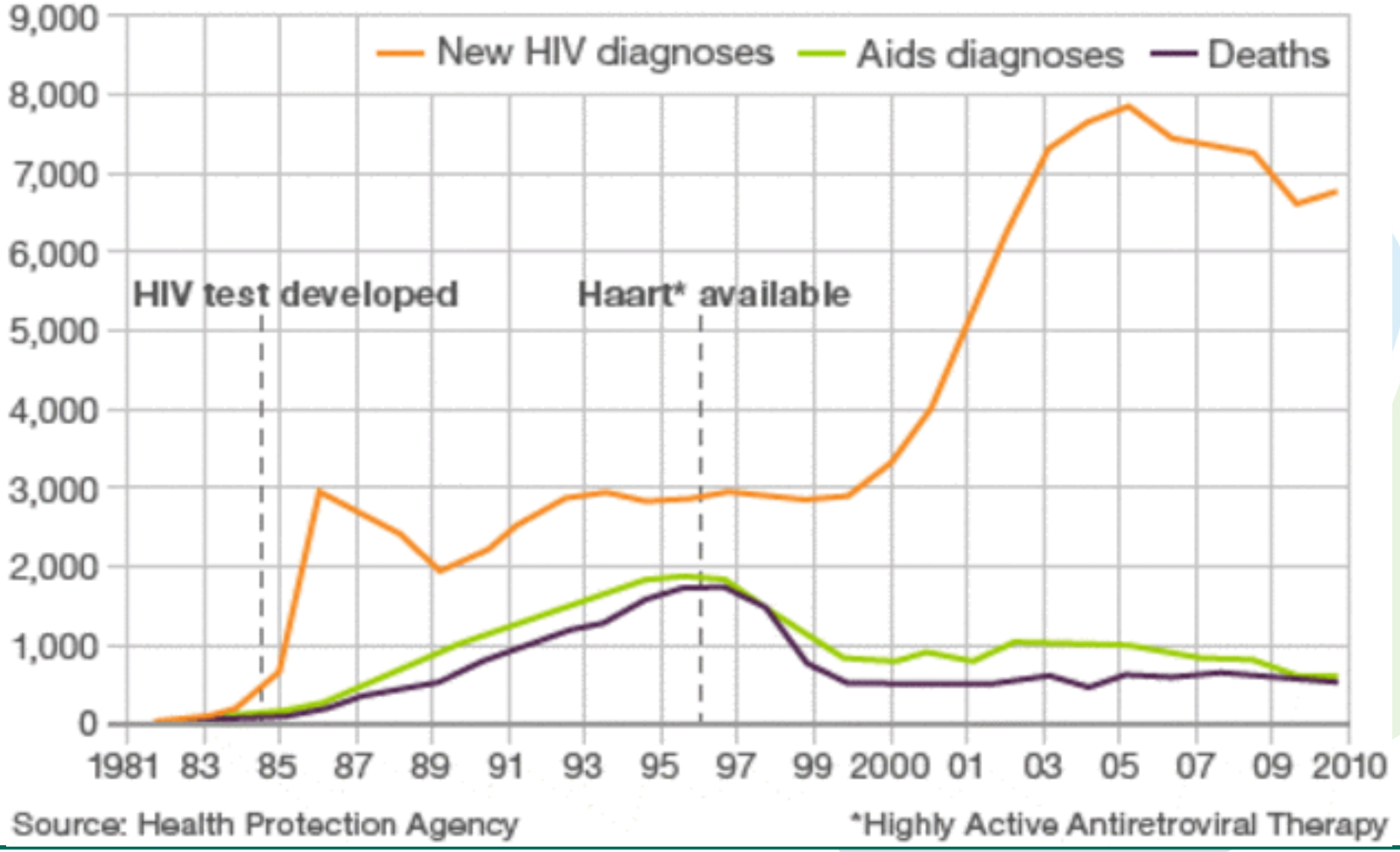
	Combination
Protease Inhibitors	
– Lopinavir	*Kaletra*
– Atazanavir	*Evotaz*
– Darunavir	*Rezolsta, Symtuza*
Boosters	
– Ritonavir (low dose)	*Kaletra*
– Cobicistat	*Evotaz, Rezolsta, Stribild, Genvoya, Symtuza*
Integrase Inhibitors	
– Raltegravir	
– Elvitegravir	*Stribild, Genvoya*
– Dolutegravir	*Triumeq*
CCR5 Entry Inhibitor	
– Maraviroc	

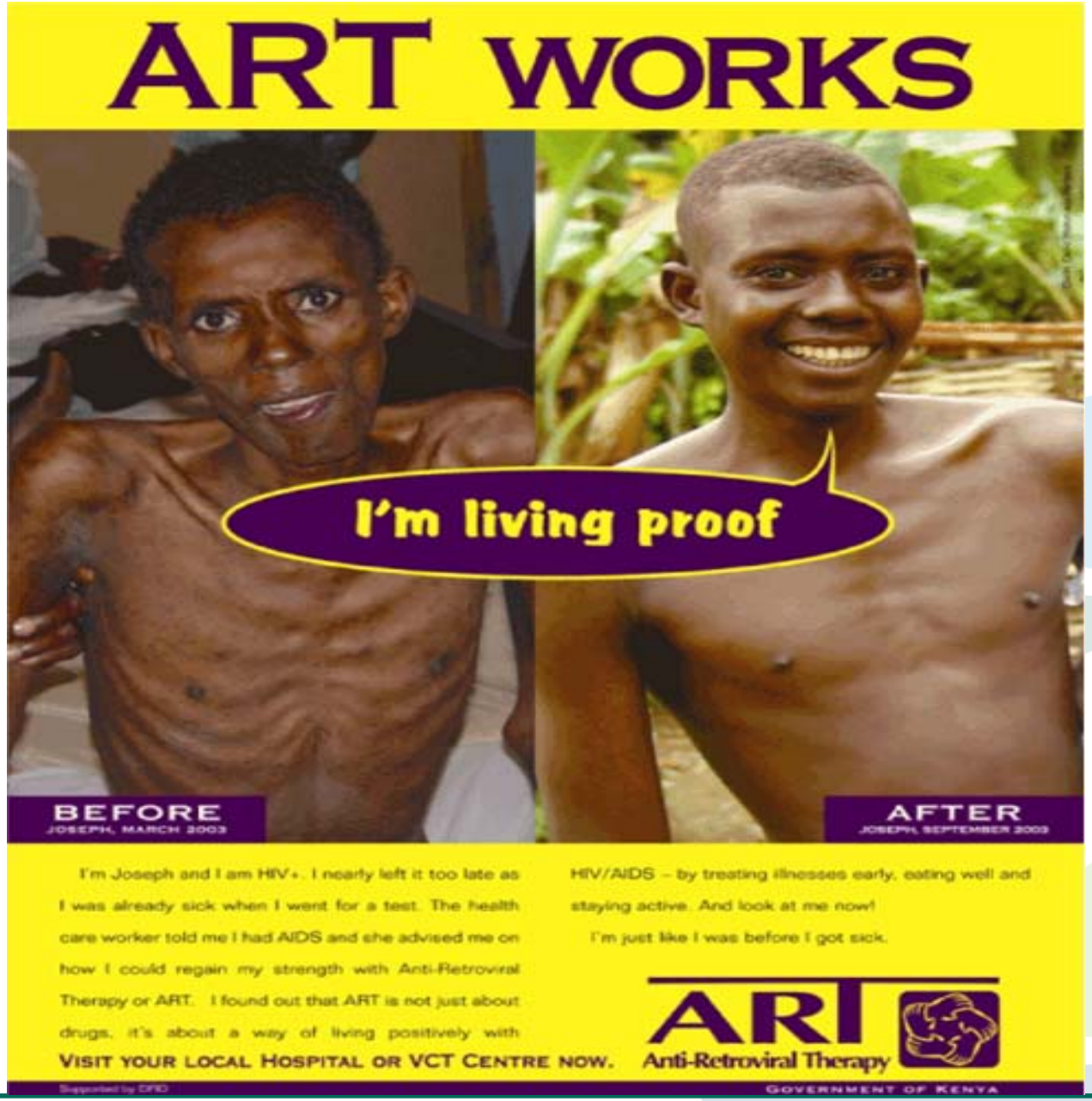
Green text – available as a generic preparation

Does ART really work?

- **Yes. ART has reduced HIV-related deaths and illnesses in every country.**
- **More than 17 million people are now on treatment worldwide.**
- ART works for adults and children, for women, men and transgender people. It works no matter how you were infected, whether this was sexually, through injecting drug use, at birth, or by blood or blood products.
- Taking drugs exactly as prescribed reduces the virus in your body to tiny amounts.
- Even though you will still be HIV positive, ART reduces the chance that you can transmit HIV.

HIV/Aids in the UK over 30 years




ART WORKS
I'm living proof
BEFORE
JOSEPH, MARCH 2003
AFTER
JOSEPH, SEPTEMBER 2003
I'm Joseph and I am HIV+. I nearly left it too late as I was already sick when I went for a test. The health care worker told me I had AIDS and she advised me on how I could regain my strength with Anti-Retroviral Therapy or ART. I found out that ART is not just about drugs, it's about a way of living positively with HIV/AIDS – by treating illnesses early, eating well and staying active. And look at me now!
I'm just like I was before I got sick.
VISIT YOUR LOCAL HOSPITAL OR VCT CENTRE NOW.
ART
Anti-Retroviral Therapy
GOVERNMENT OF KENYA

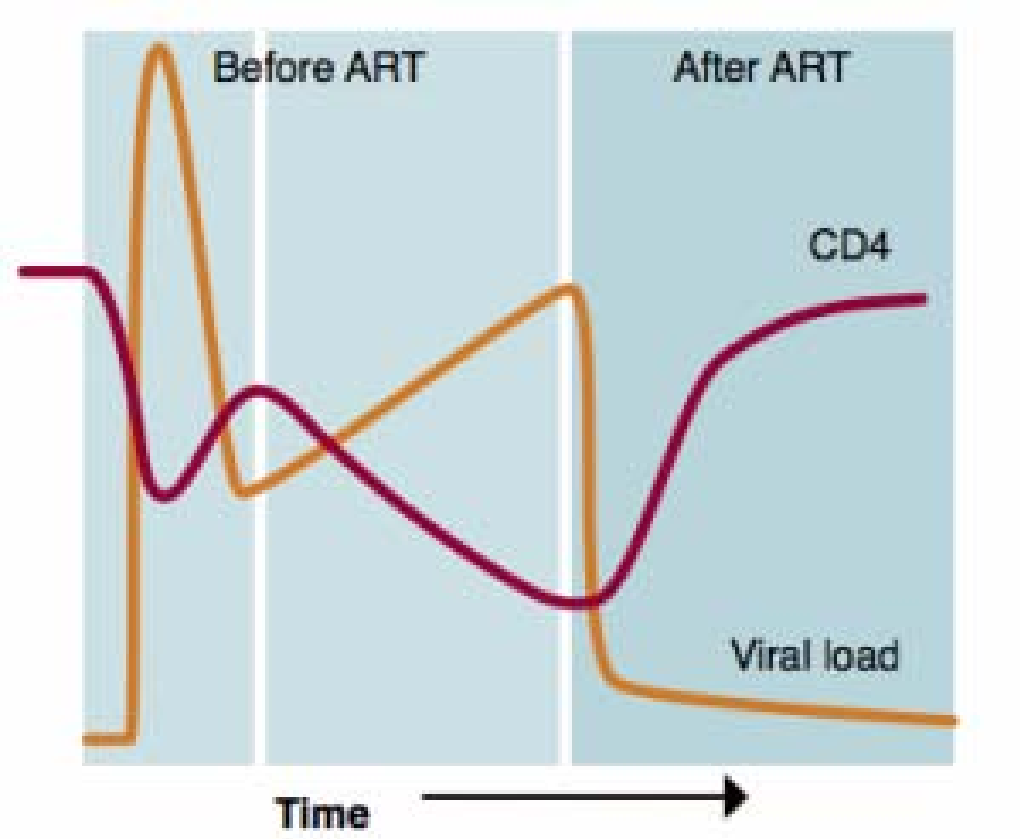
HIV Viral Load and CD4 Count

- HIV attacks and destroys the infection-fighting cells (called **CD4 cells**) of the immune system.
- *The CD4 count in the blood falls.*
- *The amount of HIV in the blood (the HIV Viral Load) rises.*
- Loss of CD4 cells makes it hard for the body to fight off infections and certain HIV-related cancers.

How do HIV medicines work?

- HIV medicines prevent HIV from multiplying (making copies of itself), which reduces the amount of HIV in the body. Having less HIV in the body gives the immune system a chance to recover.
- Even though there is still some HIV in the body, the immune system is strong enough to fight off infections and certain HIV-related cancers.
- By reducing the amount of HIV in the body, HIV medicines also reduce the risk of HIV transmission.

Blood test results after starting ART



After starting ART:

- The HIV Viral Load falls
- CD4 count rises

When is it time to start taking HIV medicine?

- People infected with HIV should start ART as soon as possible.
- In people with the following conditions, it's especially important to start ART right away:
  - pregnancy
  - certain HIV-related illnesses and coinfections
  - early HIV infection (the period up to 6 months after infection with HIV.)

Factors influencing ART choice

- CD4 count
- Viral Load >100,000
- Swallow tablets?
- Baseline resistance
- Potential for adverse effects: HLA- B5701 result (use of abacavir)
- Cost, guidelines - BHIVA, trials
- HIV Co-morbidities e.g TB, Hepatitis B & C
- Pregnancy
- Drug interactions e.g prescribed, recreational, OTC, herbal
- Patient/ clinician preference/ perceptions
- Other co-morbidities e.g lipids/ cardiovascular, renal, liver, mental health
- Lifestyle e.g, shift work, meals, routine
- age

What HIV medicines are included in an HIV regimen?

- There are many HIV medicines available for HIV regimens. The HIV medicines are grouped into drug classes according to how they fight HIV.
- A person's initial HIV regimen usually includes three HIV medicines from at least two different HIV drug classes.
- Selection of an HIV regimen depends on several factors, including possible side effects of HIV medicines and potential drug interactions between medicines.
- Because the needs of people with HIV vary, there are several HIV regimens to choose from.

5 different classes of ARVs

1. **Nucleoside reverse transcriptase inhibitors** (NRTIs, “nukes”, “backbone”) - zidovudine, abacavir, lamivudine, tenofovir, emtricitabine
2. **Non-nucleoside reverse transcriptase inhibitors** (NNRTIs, “non-nukes”) - efavirenz, nevirapine, etravirine, rilpivirine
3. **Integrase inhibitors** - raltegravir, dolutegravir, elvitegravir
4. **Protease inhibitors** - darunavir, atazanavir, lopinavir with a booster (ritonavir, cobicistat)
5. **Fusion/entry inhibitors** – enfuvirtide, maraviroc

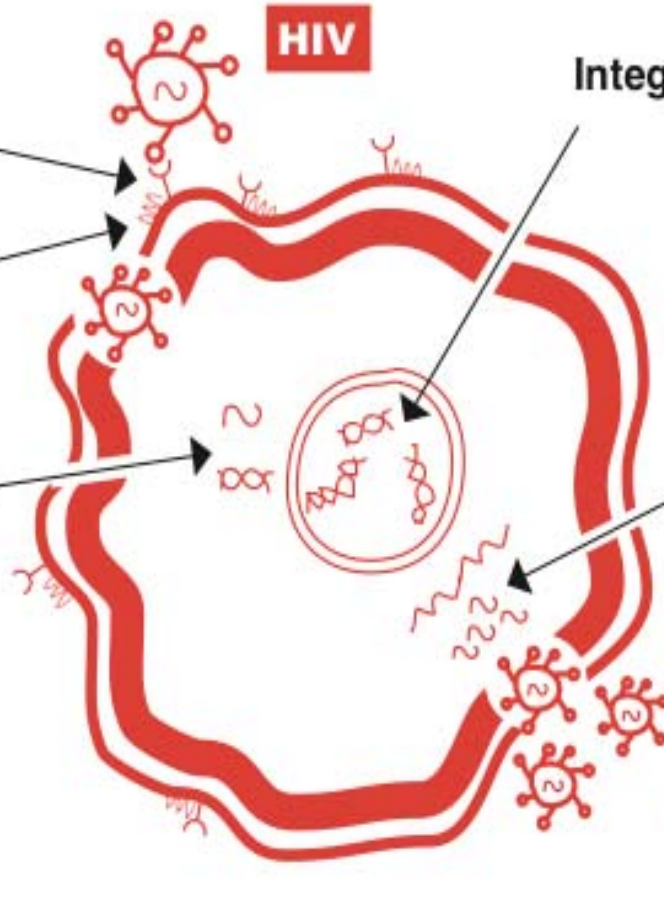
Entry Inhibitors

Attachment inhibitors block HIV from connecting to the CD4 cell. T-20 is a type of attachment inhibitor called a fusion inhibitor.

CCR5 inhibitors block attachment to a co-receptor called CCR5.

Nukes & non-nukes (NRTIs & NNRTIs)

These types of drugs stop HIV changing from a single strand of RNA into a double strand of DNA.



Integrase Inhibitors (INIs)

INIs block HIV from being integrated into the cell's DNA

Protease Inhibitors (PIs)

PIs block new HIV from being cut into smaller proteins and from being reassembled into new infectious particles.

THREE active ARVs needed from at least 2 different drug classes

NRTI backbone – 2 drugs

- **Abacavir + lamivudine** (*Kivexa*)

OR

- ***Truvada***
- (tenofovir disoproxil fumarate + emtricitabine)

OR

- ***Descovy***
- (tenofovir alafenamide + emtricitabine)
  - *NB 2 strengths depending on 3rd drug choice*

Plus 3rd drug choice (1 drug)

- **NNRTI**

efavirenz 

or rilpivirine 

or

- **Integrase Inhibitor**

dolutegravir 
or raltegravir 

or

- **Protease Inhibitor**

darunavir/ritonavir 

darunavir/cobicistat (*Rezolsta*) 

atazanavir /ritonavir 

atazanavir/cobicistat (*Evotaz*) 

Examples of tablet regimens

Fixed Dose Combinations

One tablet to be taken once a day

- *Triumeq* 

(abacavir/lamivudine/dolutegravir)
- *Atripla* 

(tenofovir DF/emtricitabine/efavirenz)
- *Eviplera* 

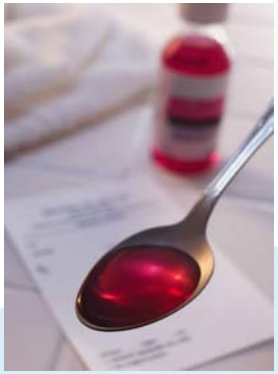
(tenofovir **(DF)**/emtricitabine/rilpivirine)
- *Odefsey* 

(tenofovir **(AF)**/emtricitabine/rilpivirine
- *Stribild* 

(tenofovir **(DF)***/emtricitabine/elvitegravir (cobicistat)*
- *Genvoya* 

(tenofovir **(AF)***/emtricitabine/elvitegravir (cobicistat)*

What does *adherence* mean?



- **The correct dose :**
  - number of tablets
  - volume of liquid
- **At the correct time:**
  - once or twice a day
  - **Time of drug rounds on the wards**
- **In the correct way:**
  - empty stomach (efavirenz)
  - with food (rilpivrine)
  - Avoid drug interactions

  e.g vitamins/iron/indigestion remedies with integrase inhibitors.

"Drugs don't work if people don't take them"

Charles Everitt Koop

Taking every dose of your HIV treatment as prescribed will keep it working longer

- 8 out of 10 people who took at least 95% of their doses (dark green) reached their treatment goal (an undetectable viral load)
- Missing just a few doses increases your risk of treatment failure significantly

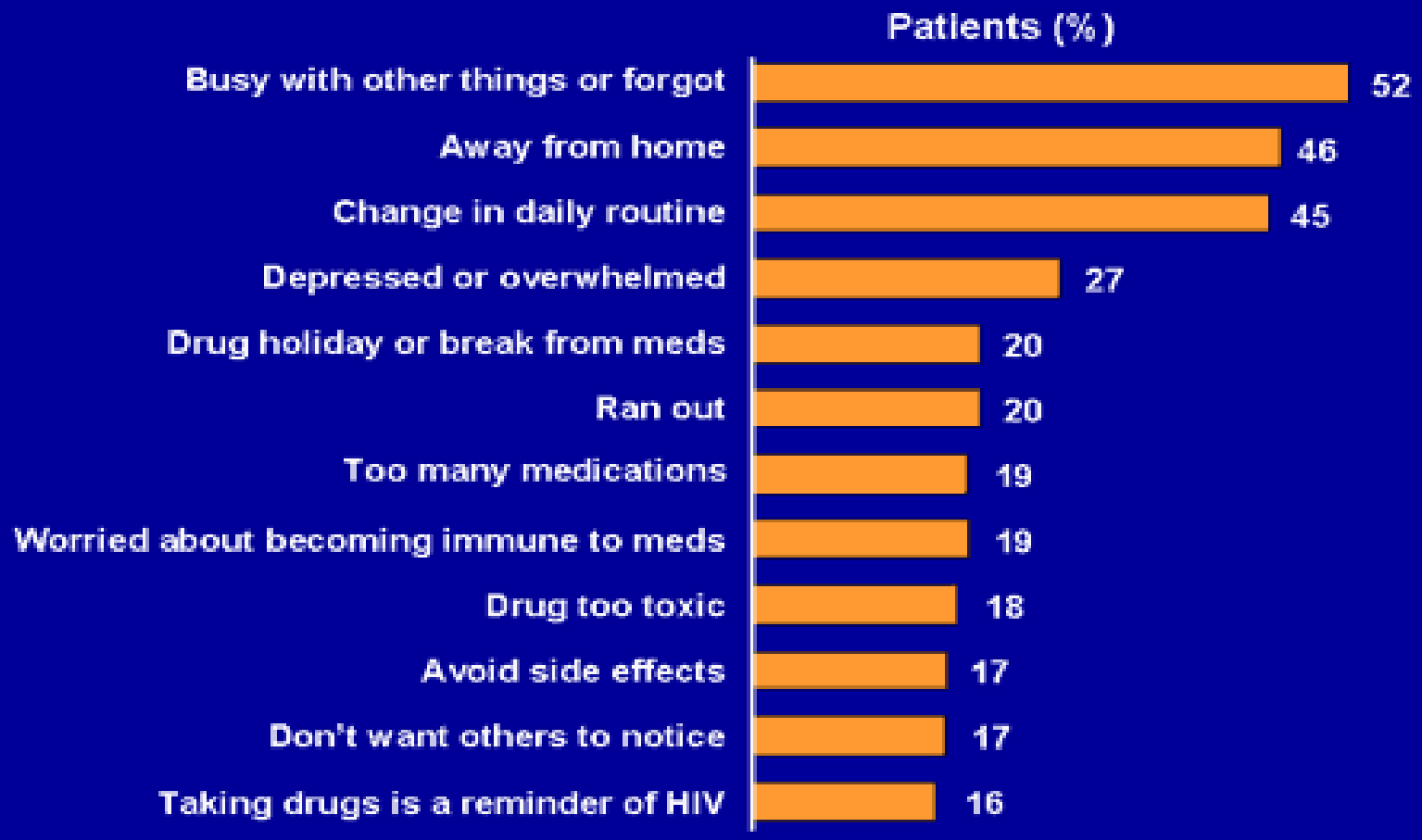
Source: Paterson DL, Swindles S, Mohr J *et al.* Ann Intern Med 2000; 133(1): 21-30

ADHERENCE (PATERSON)

Could you do it?

The same time each day……

What Are the Key Barriers to Adherence?



Gifford AL, et al. *J Acquir Immune Defic Syndr.* 2000;23:386-395.

Adherence

Benefits of Adherence

- Sustained Viral Suppression
- Reduced Risk of Drug Resistance
- Better Overall Health
- Improved Quality of Life
- Decreased Risk of HIV Transmission

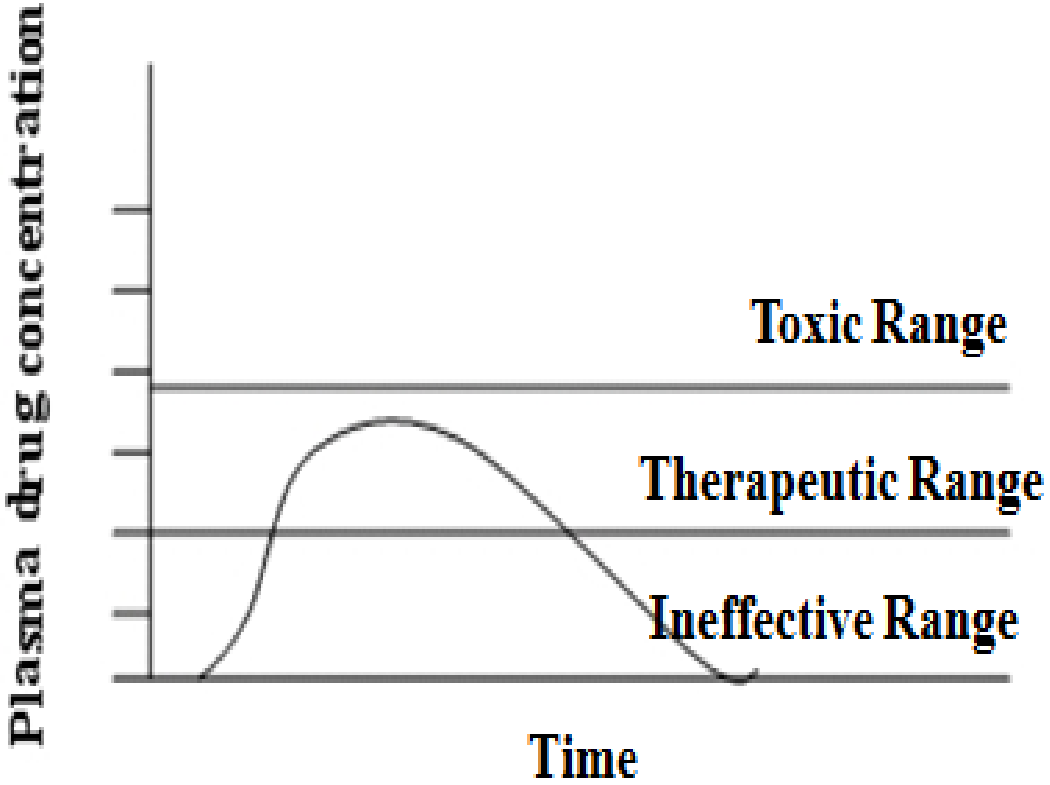
Adherence aids

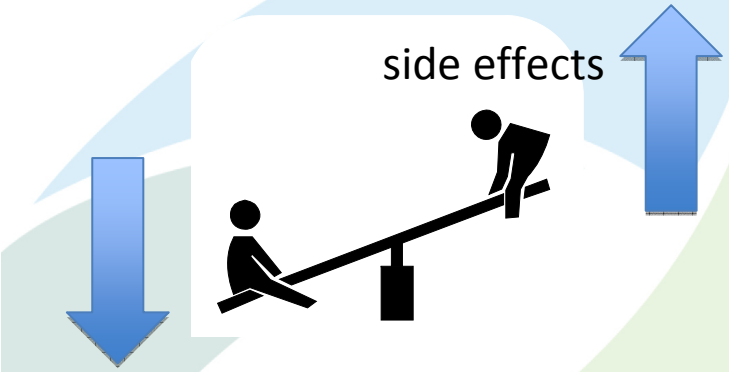
Drug resistance

- Drug resistance occurs when the virus changes its structure in a way that stops a drug from working. These changes are called drug mutations.
- Resistance only develops if you are on treatment or in the short period after stopping treatment.
- The risk of resistance increases when drug levels drop below a minimum active level. This usually only occurs if you miss doses or stop treatment. The more often you are late, the greater the chance of resistance.
- You can be infected (or reinfected) with drug resistant HIV.
- About 1 in 10 new infections in the UK have resistance to at least one drug or class of drug.

Drug interactions

A balance….





Other medicines or ART ineffective
e.g antiepileptics, oral contraceptives, methadone, blood pressure pills

HIV drug resistance

Think about prescribed and non-prescribed drugs/remedies

Where is this information?

- **Liverpool HIV drug interactions website**
  - www.hiv-druginteractions.org
  - Also available as an App (HIV iChart)
  - Or phone and speak to HIV pharmacists

Pharmacy

Principal HIV Pharmacist
- *Justine Barnes*

Lead HIV Pharmacists:
- *Kate Gandhi (includes paediatrics)*
- *Simone Gardner*
- *Baldip Kaur*

Rotational Senior Pharmacists:
- *Margaret Holmes*
- *Shauna Henry*

HIV Pharmacy Service (Based at Hawthorn House)

Thank you

Any questions?

0121 424 0865 or **ext : 40865**

bhs-tr.HIVPharmacists@nhs.net