Update on HIV Care

Dr Ada Lin
Special Preventive Programme
Department of Health

15 Dec 2015

1st reported HIV case
in **Hong Kong** in **1984**

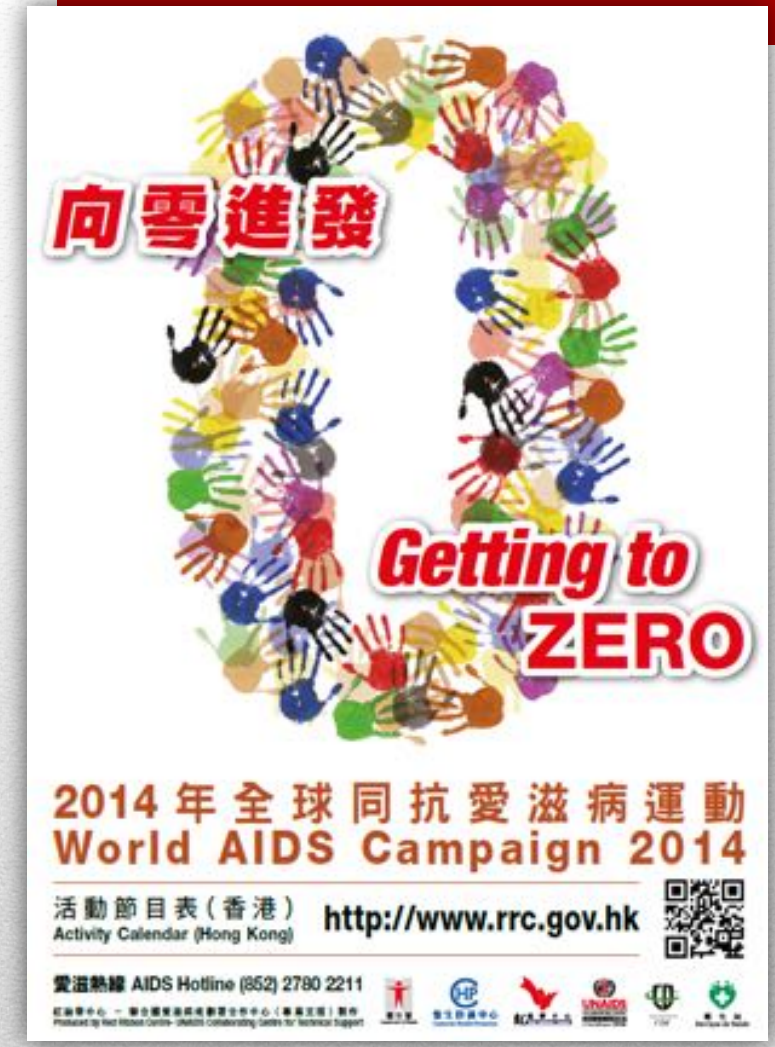
2015

Advances in HIV Medicine

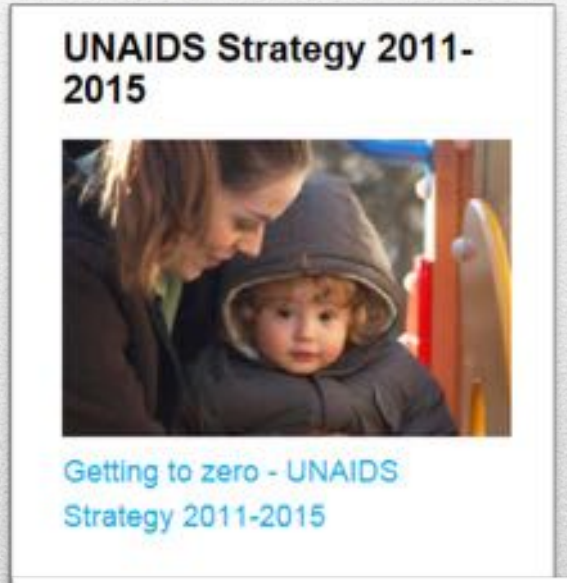
- **Antiretroviral therapy reduces AIDS mortality & morbidity**
- **HIV/AIDS has become a chronic treatable disease**
- **Changing morbidity, mortality**
  - ✧ *Co-infections, cancers, cardiovascular diseases, liver disease, renal disease, bone disease*
- **Changing care models**
  - ✧ *Hospital-based to ambulatory care*
- **Evidence of early treatment in reducing disease progress**
- **Treatment prevention continuum**
- *Vaccine and cure under active but challenging research*
- *Stigmatization of PLHIV prevails still*

Outline

- **Local epidemiology**
- **Key concepts in HIV prevention & care model**
  - *HIV treatment cascade*
  - *The three 90s*
- **What's new from the international guidelines for treatment**
- **Preventive strategies**
  - *Treatment as prevention (TasP)*
  - *Pre-exposure prophylaxis (PrEP)*
  - *Post-exposure prophylaxis (PEP)*



- *Zero new infection*
- *Zero AIDS-related deaths*
- *Zero discrimination*

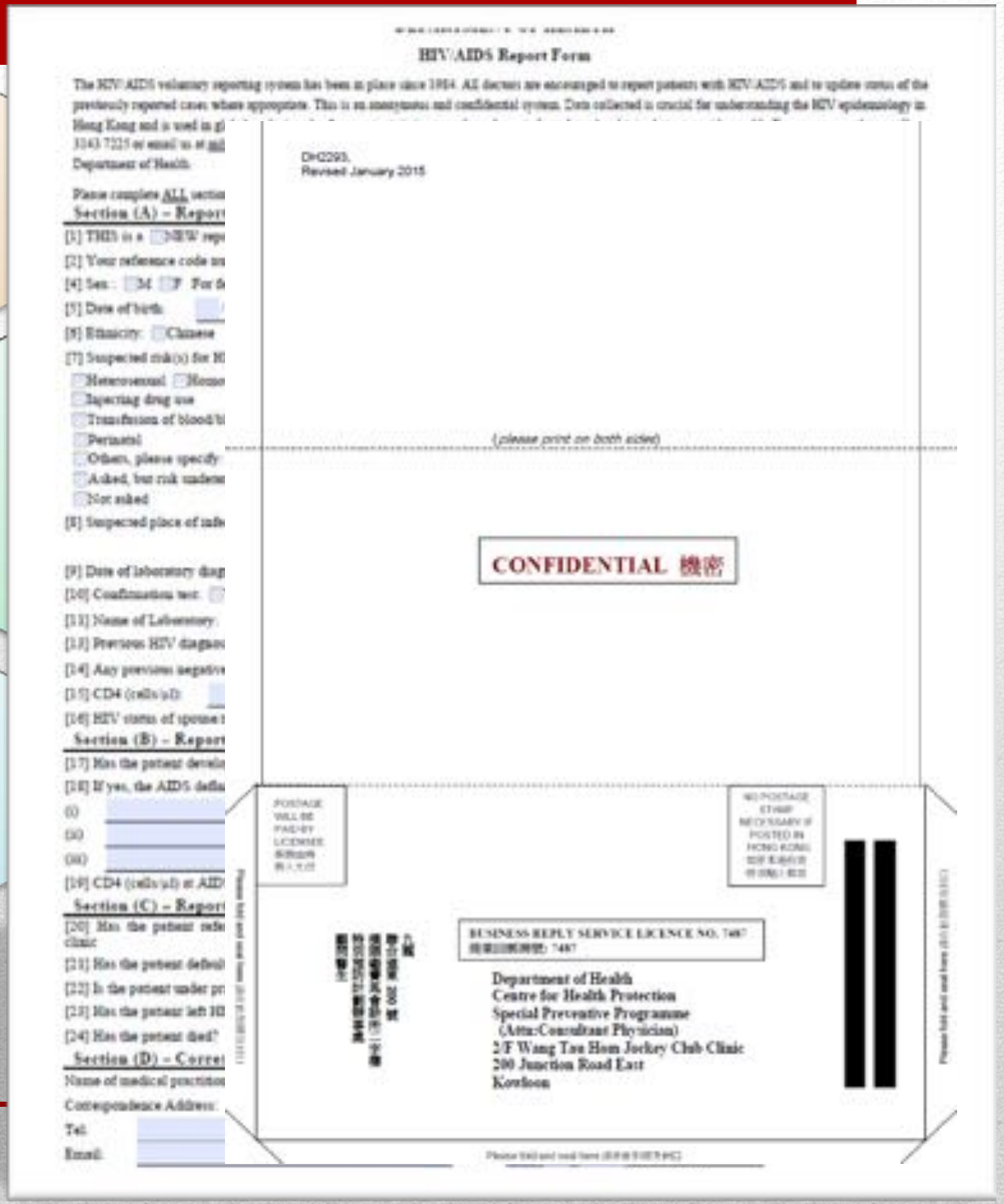


Getting to Zero

UNAIDS

Local Epidemiology

HIV/AIDS reporting system



HIV/AIDS Report Form

DH2293
Revised January 2015

(please print on both sides)

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Department of Health
Centre for Health Protection
Special Preventive Programme
(Attn:Consultant Physician)
2/F Wang Tau Hom Jockey Club Clinic
200 Junction Road East
Kowloon

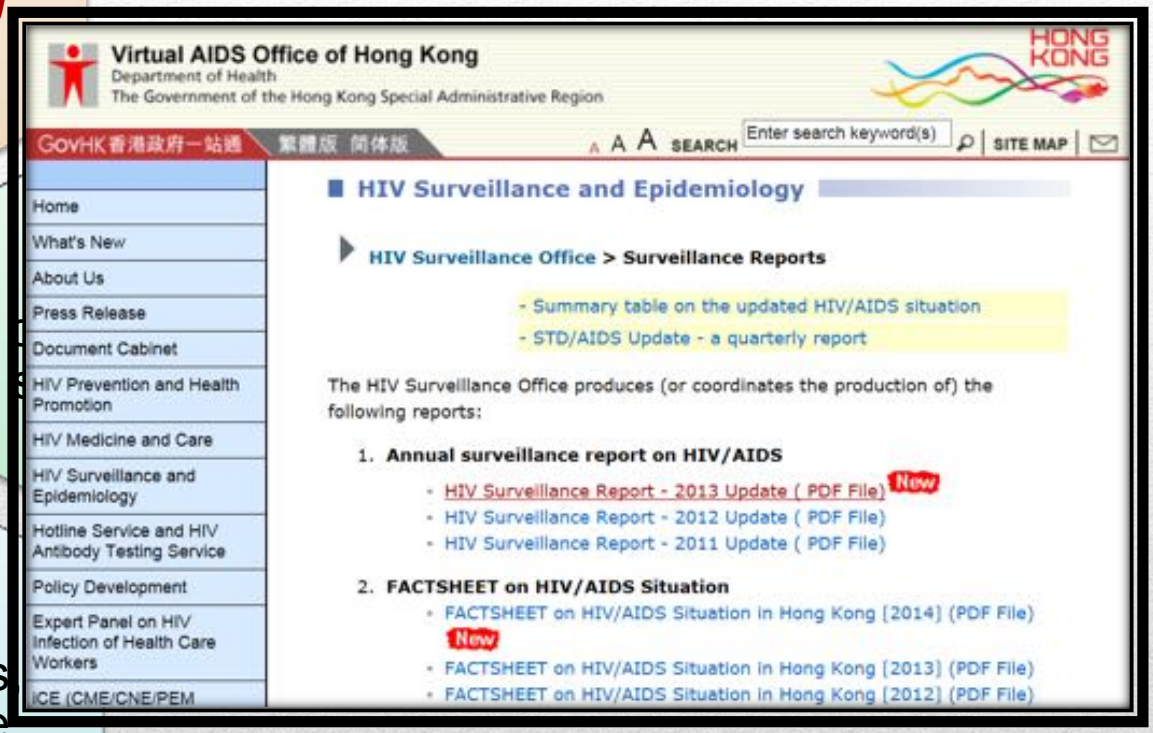
HIV prevalence surveys in different populations

HIV/AIDS reporting system

Community surveys

Blood donars, antenatal women

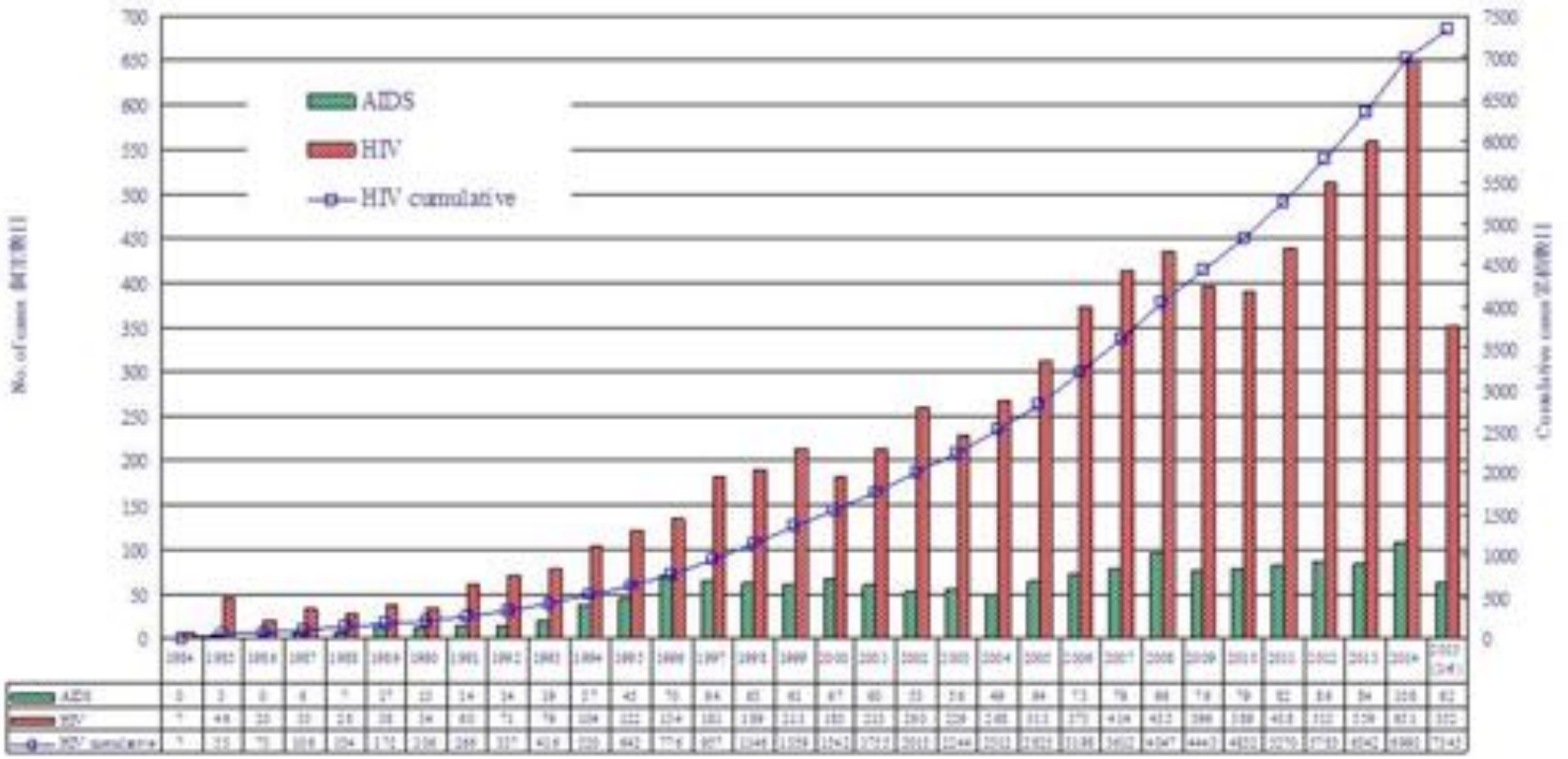
New prisoners, TB patients, methadone clinic users

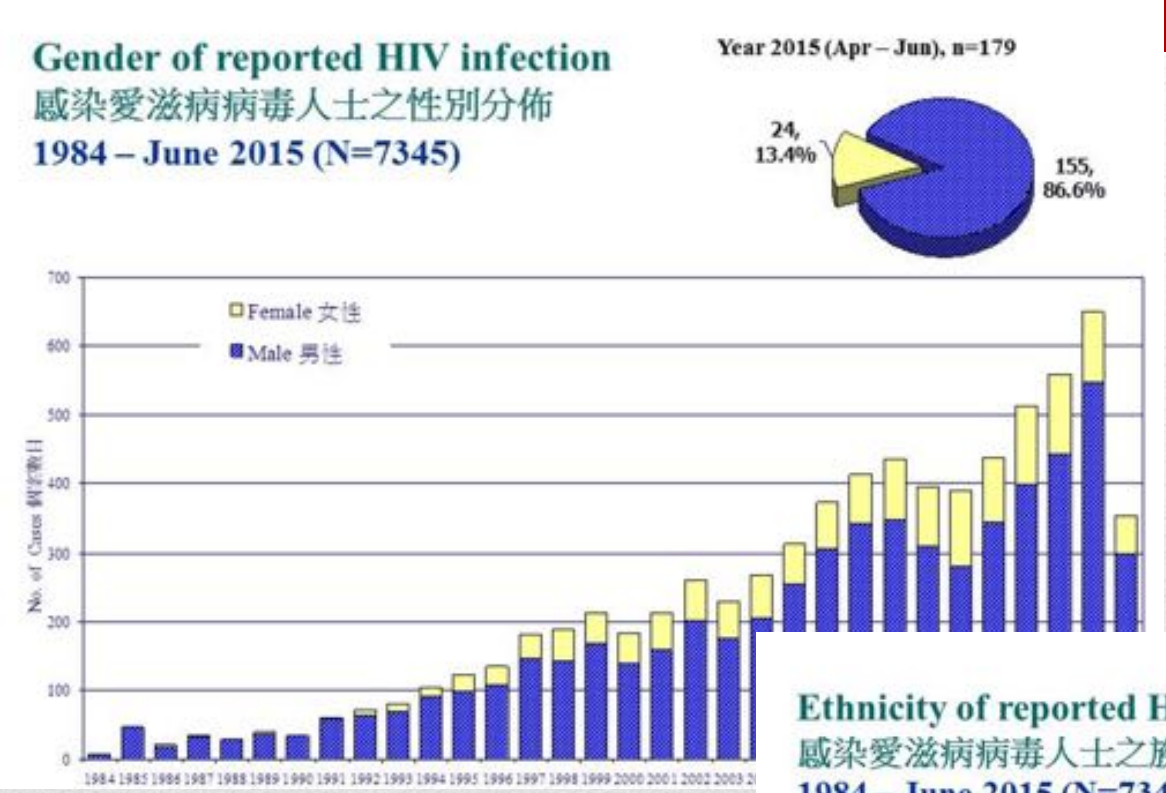


Annual HIV/AIDS Statistics

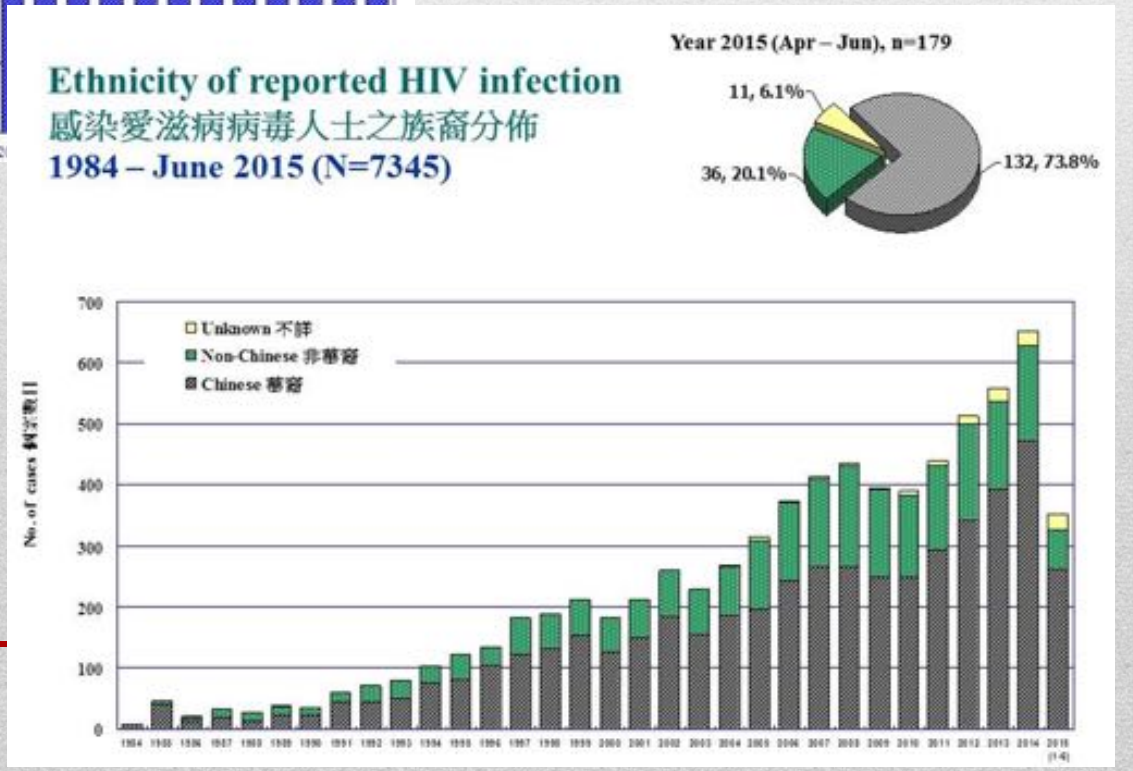
香港每年愛滋病病毒感染及愛滋病統計

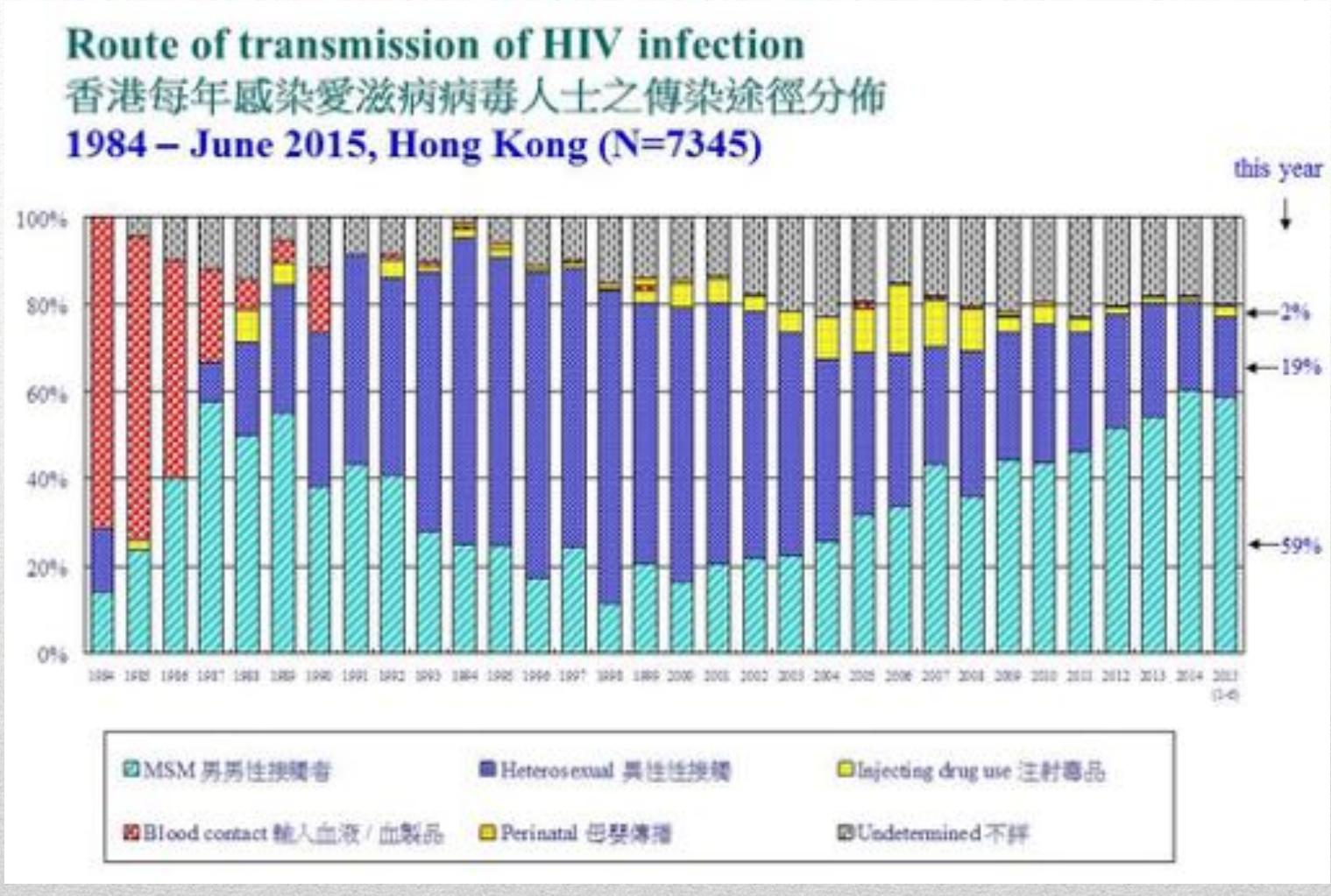
1984 – June 2015, Hong Kong (N=7345/1607)





- Male predominate
- ~70% Chinese





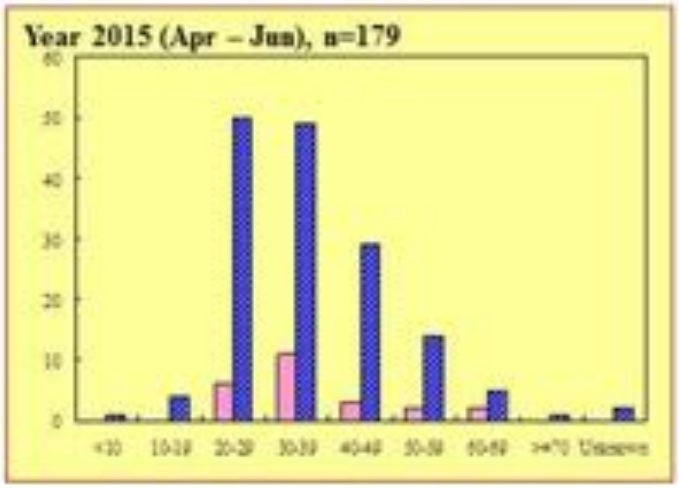
Epidemic among MSM

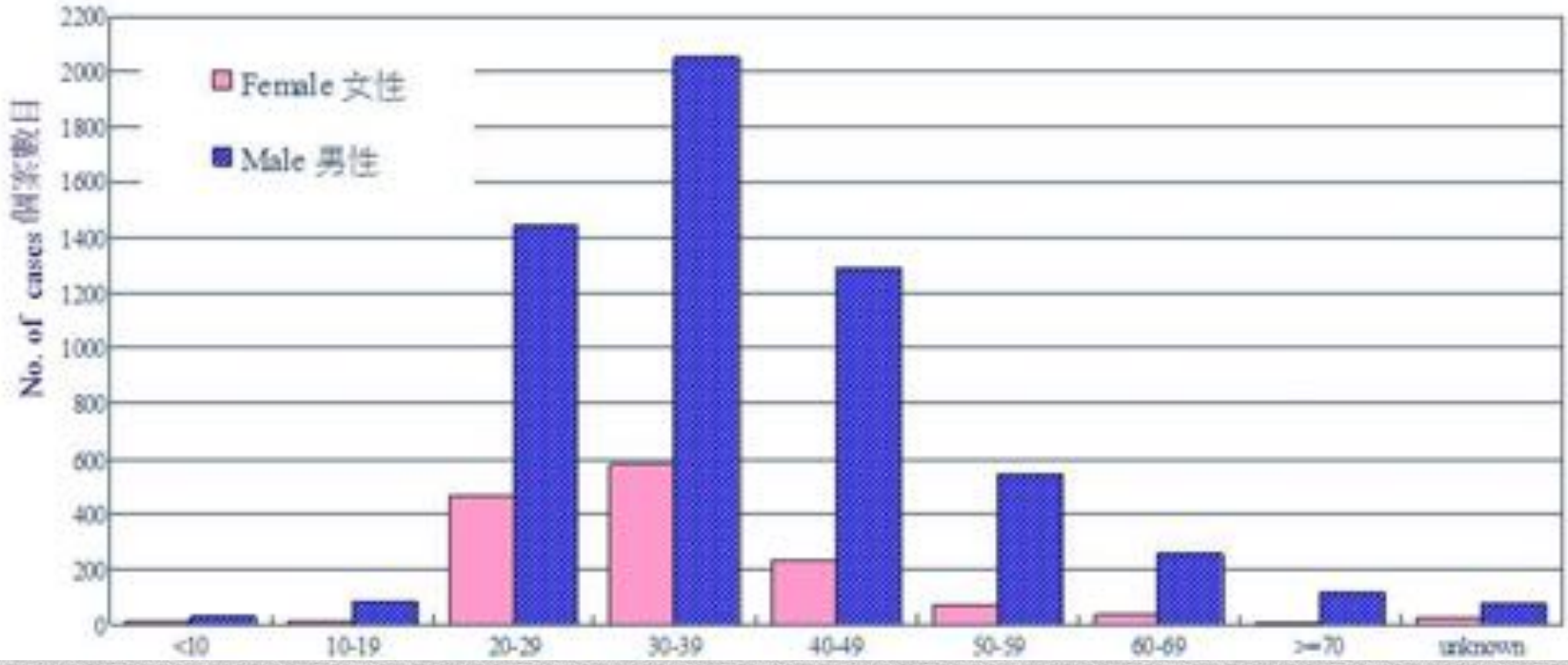
Age group and gender of reported HIV infection

感染愛滋病病毒人士之年齡及性別分佈

1984 – June 2015 (N=7345)

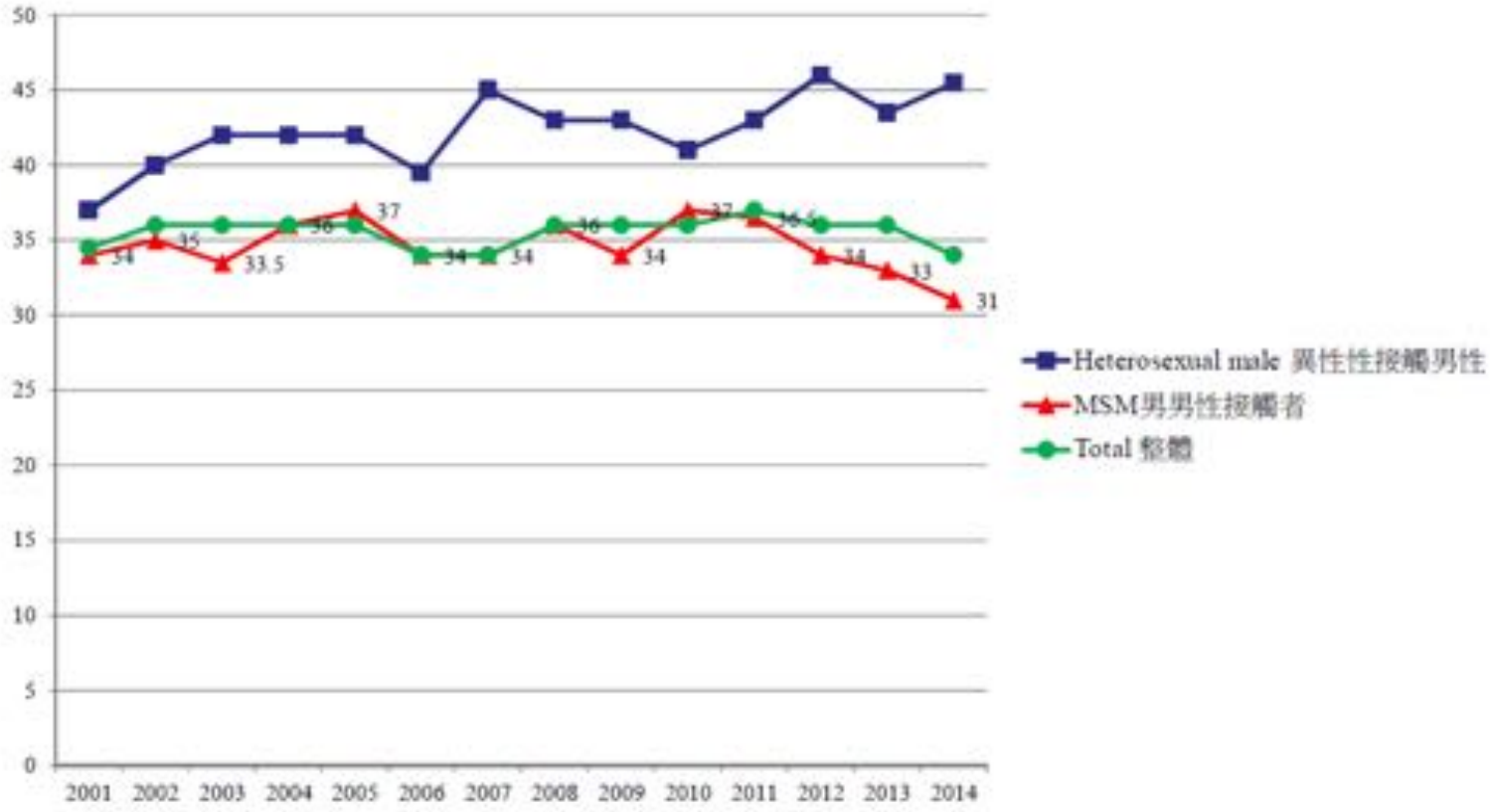
Younger





Median age of HIV infected Men who have sex with men (MSM)

感染愛滋病病毒男男性接觸者年齡中位數 (2001-2014)



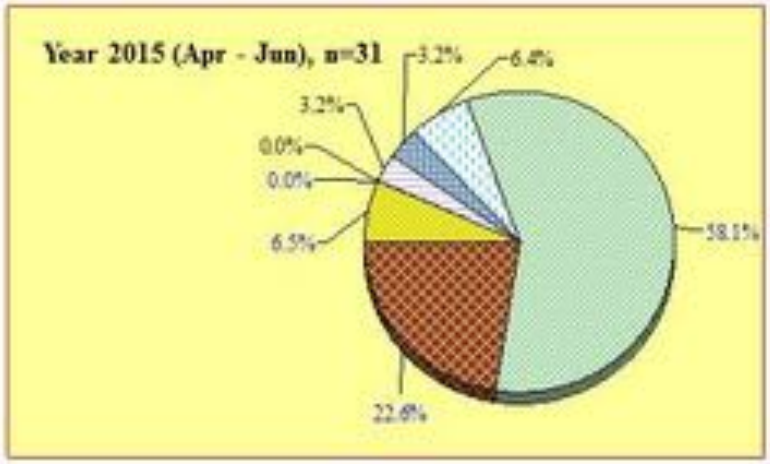
Box 1.8 – Reported CD4 levels at HIV diagnosis

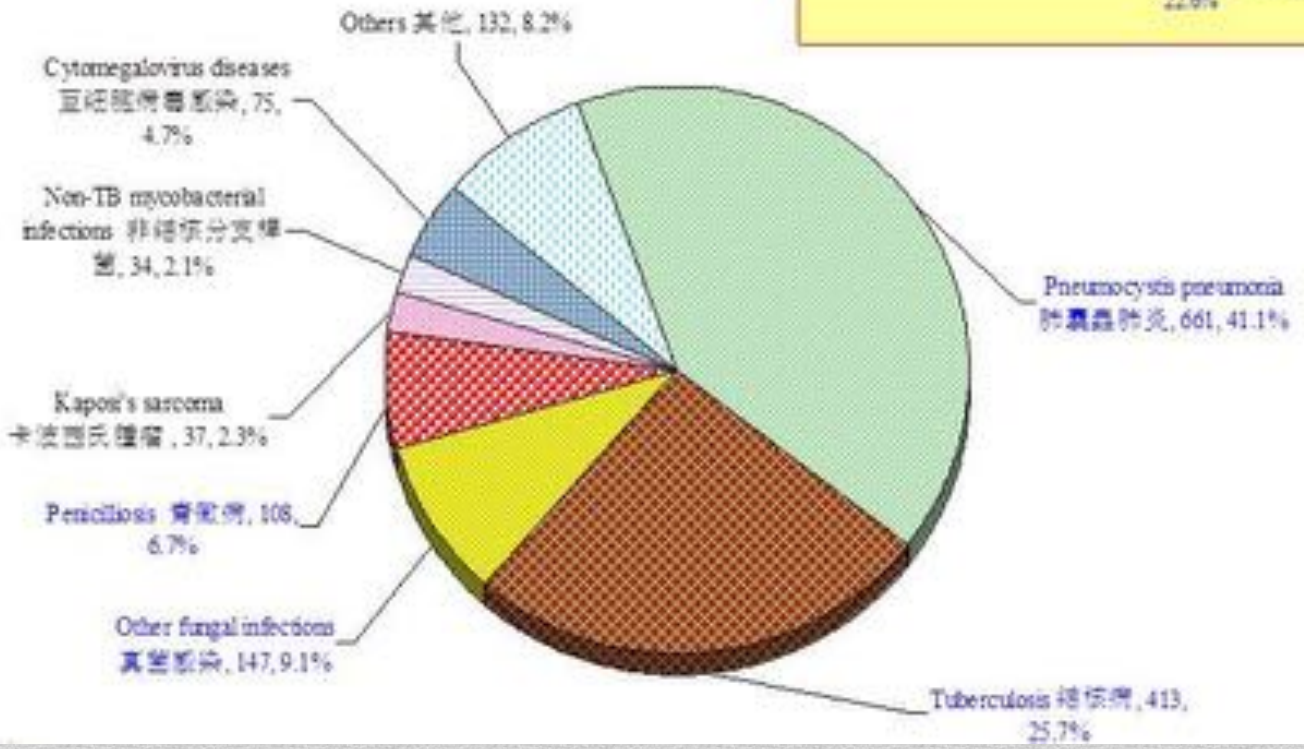
Year	No. of HIV reports	No. of CD4 reports	(%)	Median CD4 (cell/ul)	CD4>=200 (cell/ul)	(%)
2004	268	183	(68.3%)	208	97	(53.0%)
2005	313	239	(76.4%)	201	120	(50.2%)
2006	373	298	(79.9%)	233.5	163	(54.7%)
2007	414	327	(79.0%)	236	182	(55.7%)
2008	435	315	(72.4%)	193	154	(48.9%)
2009	396	289	(73.0%)	278	181	(62.6%)
2010	389	291	(74.8%)	208	149	(51.2%)
2011	438	312	(71.2%)	258	185	(59.3%)
2012	513	386	(75.2%)	280.5	251	(65.0%)
2013	559	437	(78.2%)	286	279	(63.8%)

Better CD4 at Dx in recent years

Age	Year	No. of HIV reports	No. of CD4 reports (%)		Median CD4 (cell/ul)	% of CD4 >= 200 (cell/ul)
<55	2004	225	161	(71.6%)	218	(55.3%)
	2005	282	216	(76.6%)	199.5	(50.0%)
	2006	341	272	(79.8%)	243.5	(57.4%)
	2007	377	300	(79.6%)	249	(57.3%)
	2008	380	272	(71.6%)	217	(52.6%)
	2009	357	260	(72.8%)	296.5	(66.5%)
	2010	353	259	(73.4%)	219	(52.5%)
	2011	384	275	(71.6%)	280	(62.2%)
	2012	463	346	(74.7%)	300	(66.8%)
	2013	501	387	(77.2%)	309	(68.0%)
>=55	2004	32	22	(68.8%)	93	(36.4%)
	2005	29	23	(79.3%)	223	(52.2%)
	2006	29	26	(89.7%)	154.5	(26.9%)
	2007	33	27	(81.8%)	90	(37.0%)
	2008	53	43	(81.1%)	74	(25.6%)
	2009	38	29	(76.3%)	72	(27.6%)
	2010	36	32	(88.9%)	121	(40.6%)
	2011	53	37	(69.8%)	126	(37.8%)
	2012	48	40	(83.3%)	197.5	(50.0%)
	2013	58	50	(86.2%)	111.5	(32.0%)

AIDS –defining illnesses
愛滋病界定疾病
1985 – June 2015 (N=1607)

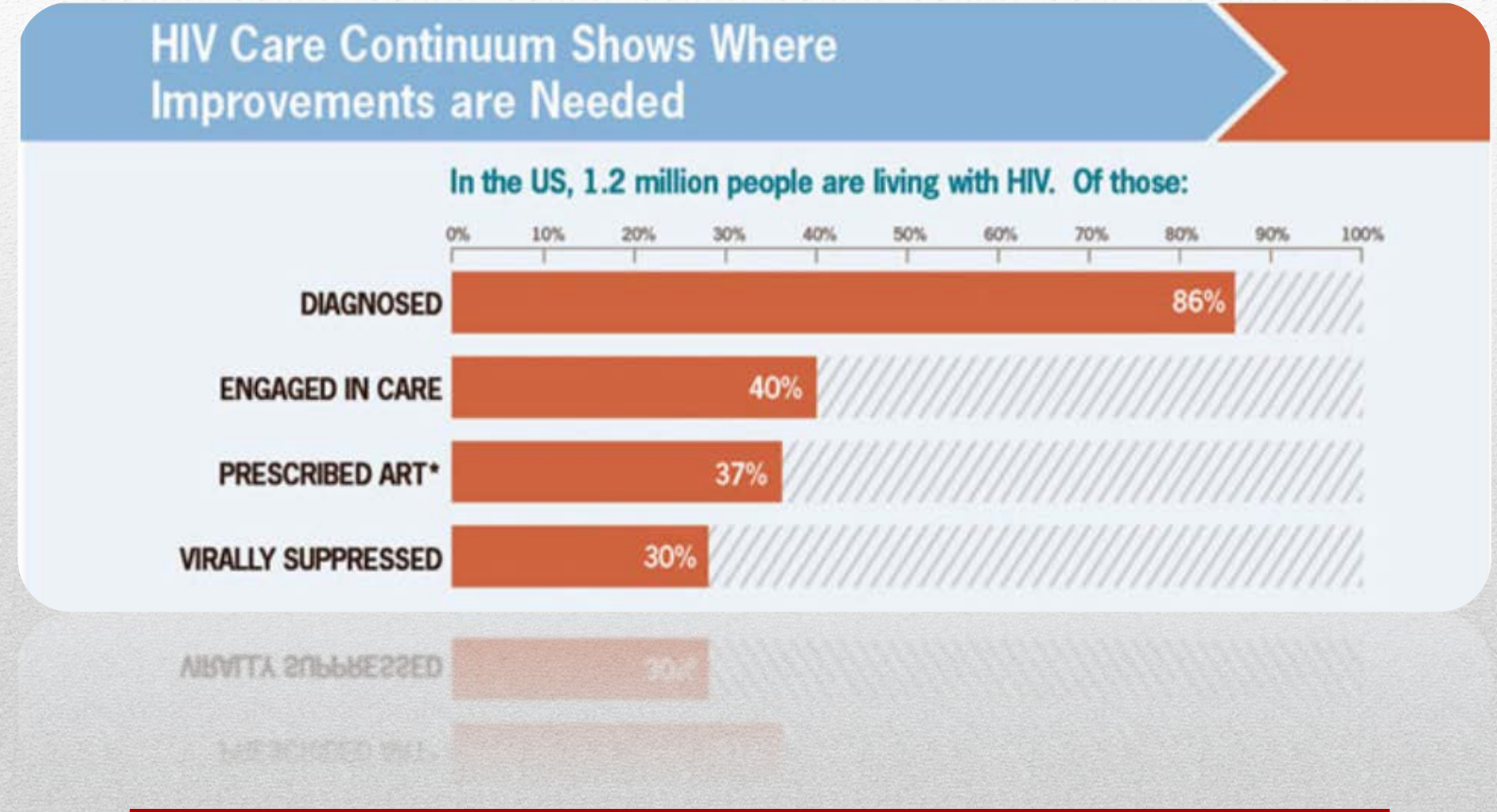




	2008	2009	2010	2011	2012	2013	2014
New blood donors	0.012%	<0.01%	<0.01%	<0.01%	<0.01%	<0.01%	0.01%
Antenatal women	<0.01%	0.01%	0.02%	0.01%	0.02%	0.01%	<0.01%
STD clinic attendees	0.23%	0.17%	0.15%	0.17%	0.21%	0.34%	0.4%
Methadone clinic attendees	0.47%	0.49%	0.48%	0.53%	0.62%	0.68%	0.81%
Men who have sex with men	4.31%	--	--	4.08% (venue) 3.3% (internet)	--	--	5.85%
Female sex workers	--	0.05%	--	--	--	--	--
TB patients	1.16%	1.00%	0.73%	0.90%	0.59%	0.68%	0.69%
New prisoners	0.94%	0.78%	0.97%	1.87%	0.74%	0.96%	1.04%

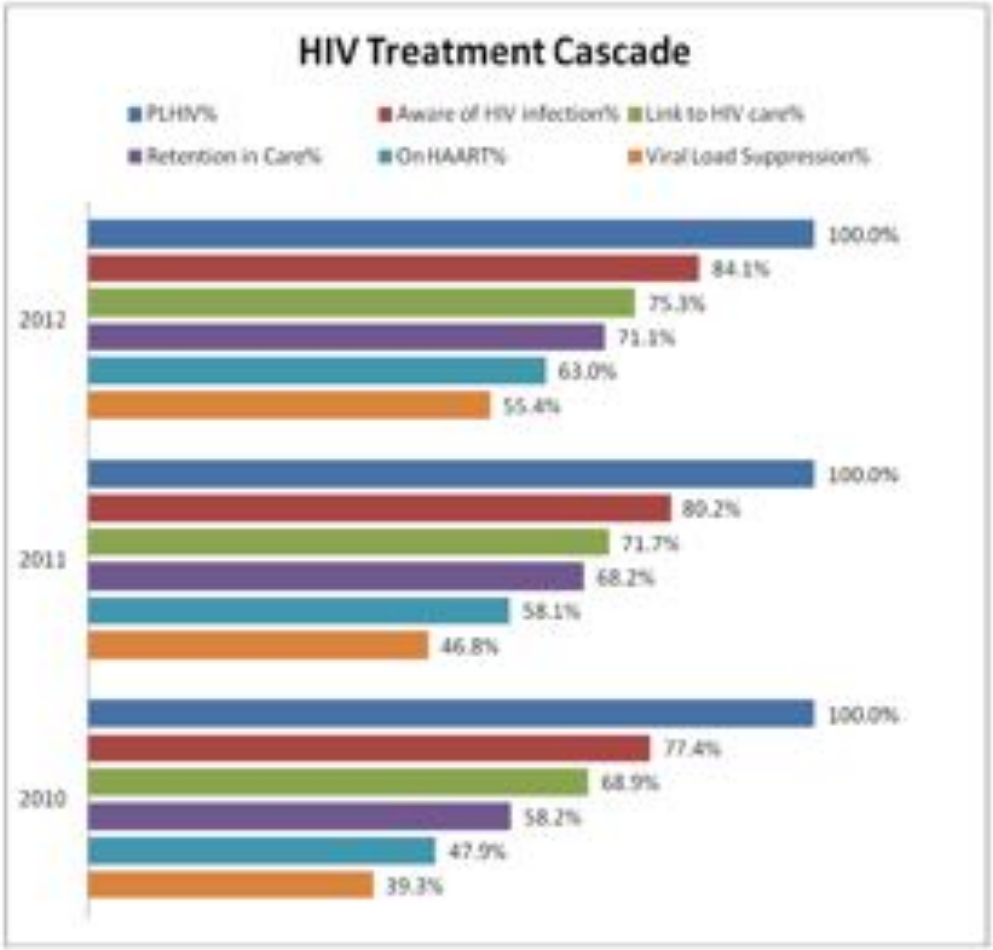
Key concepts in HIV prevention & care model

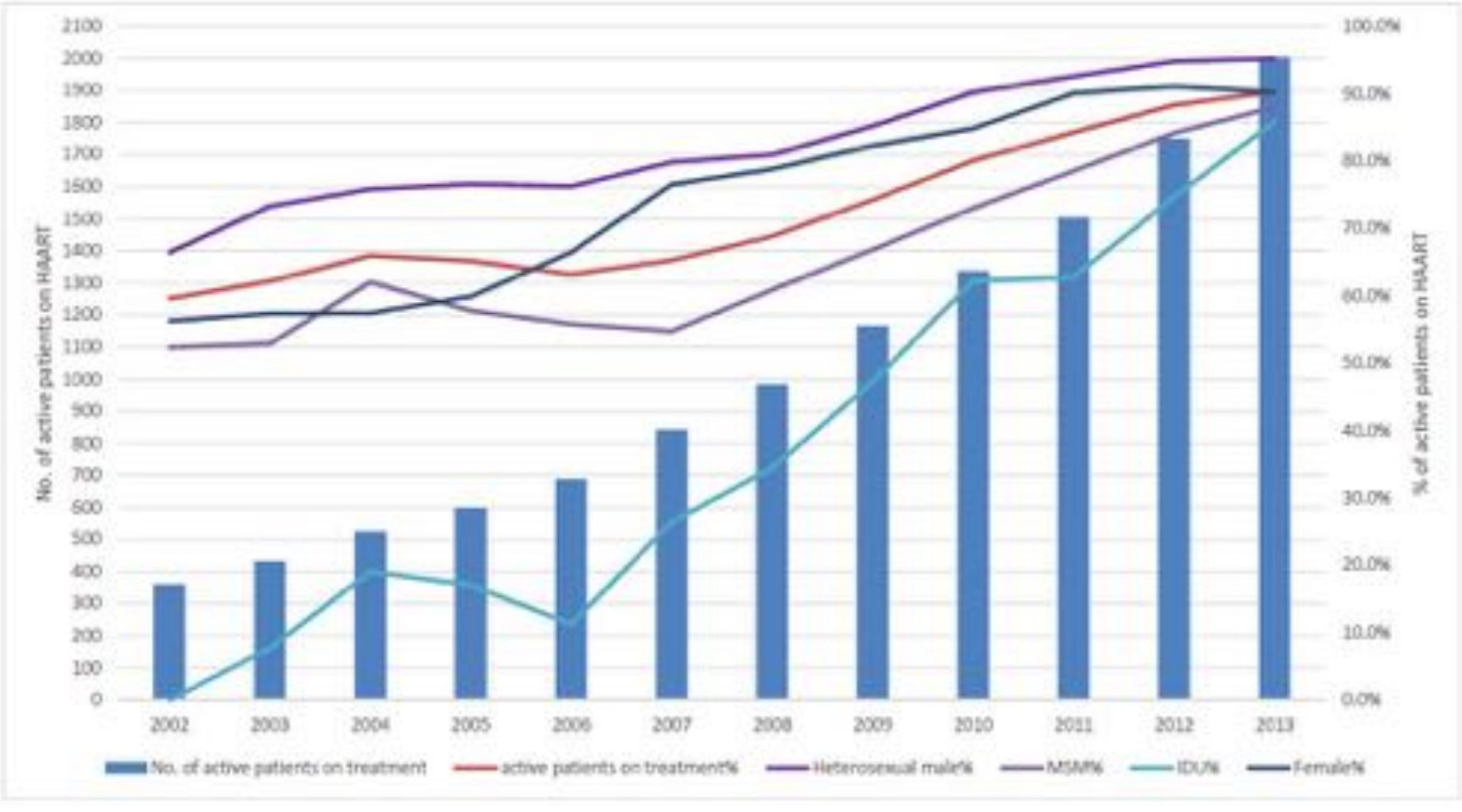
HIV Treatment Cascade/ HIV care continuum


HIV Care Continuum Shows Where Improvements are Needed
In the US, 1.2 million people are living with HIV. Of those:
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
DIAGNOSED
86%
ENGAGED IN CARE
40%
PRESCRIBED ART*
37%
VIRALLY SUPPRESSED
30%

The Cascade in Hong Kong

- Very good in
  - retention
- Improved in
  - Diagnosis
  - Virologic suppression
  - % on HAART





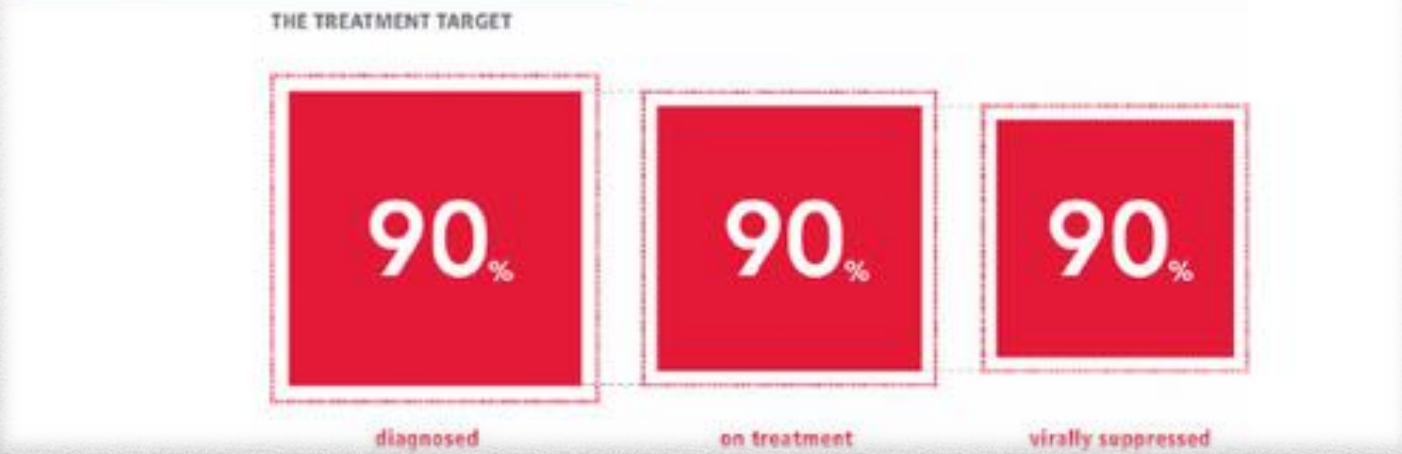
% of patients on cART in ITC, DH

UNAIDS | Reference | Discussion paper

AMBITIOUS TREATMENT TARGETS:

WRITING THE FINAL CHAPTER OF THE AIDS EPIDEMIC

By 2020, if the three targets were met, it would mean 73% of the entire world PLHIV had fully suppressed viral load; and the models predict the end of HIV as an epidemic disease by 2030



The three 90s

UNAIDS

Treatment

When to initiate cART?

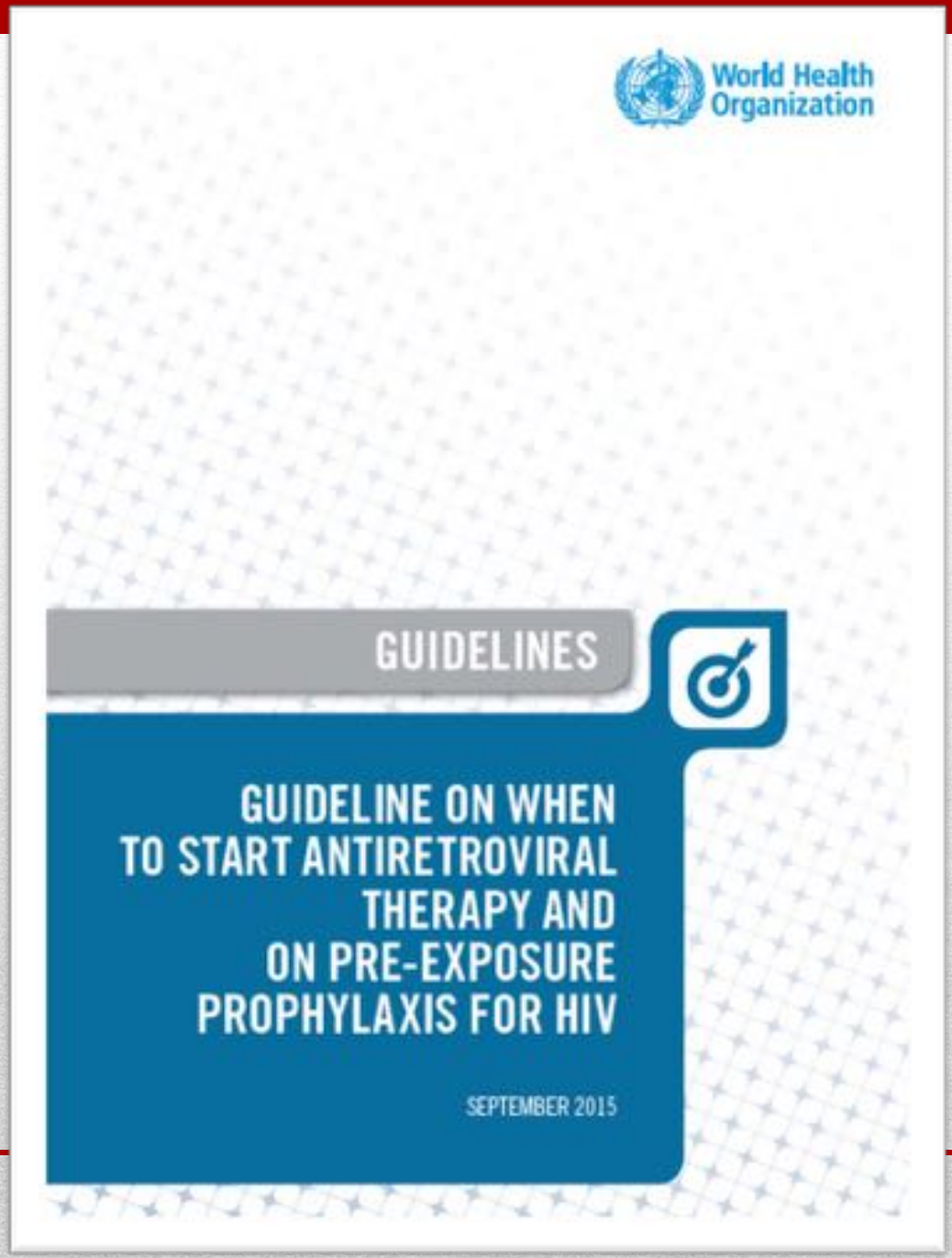
Initiation of cART

Over the years

2003-2005	2006-2009	2010-2012	2013-2014	2015
At CD4 <=200	<=200/200-350	<=350	<=500	

Other considerations:

- *coinfections, comorbities, IRIS, etc*


World Health Organization
GUIDELINES
GUIDELINE ON WHEN TO START ANTIRETROVIRAL THERAPY AND ON PRE-EXPOSURE PROPHYLAXIS FOR HIV
SEPTEMBER 2015

Summary of recommendations in this guideline

Recommendation 1: When to start ART among people living with HIV			
Target population	Specific recommendation	Strength of the recommendation	Quality of the evidence
Adults[a] (>19 years)	ART should be initiated in all adults living with HIV at any CD4 cell count	*Strong*	*Moderate* NEW
	As a priority, ART should be initiated in all adults with severe or advanced HIV clinical disease (WHO clinical stage 3 or 4) and individuals with CD4 count ≤350 cells/mm^3	*Strong*	*Moderate*
Pregnant and breastfeeding women	ART should be initiated in all pregnant and breastfeeding women living with HIV at any CD4 cell count and continued lifelong	*Strong*	*Moderate* UPDATED
Adolescents (10–19 years old)	ART should be initiated in all adolescents living with HIV at any CD4 cell count	*Conditional*	*Low* NEW
	As a priority, ART should be initiated in all adolescents with severe or advanced HIV clinical disease (WHO clinical stage 3 or 4) and individuals with CD4 count ≤350 cells/mm^3	*Strong*	*Moderate*

Initiating Antiretroviral Therapy in Treatment-Naive Patients (Last updated May 1, 2014; last reviewed May 1, 2014)

Panel's Recommendations

• Antiretroviral therapy (ART) is recommended for all HIV-infected individuals to reduce the risk of disease progression.
  • The strength of and evidence for this recommendation vary by pretreatment CD4 T lymphocyte (CD4) cell count: CD4 count <350 cells/mm^3 **(AI)**; CD4 count 350 to 500 cells/mm^3 **(AII)**; CD4 count >500 cells/mm^3 **(BIII)**.
• ART is also recommended for HIV-infected individuals to prevent of transmission of HIV.
  • The strength of and evidence for this recommendation vary by transmission risks: perinatal transmission **(AI)**; heterosexual transmission **(AI)**; other transmission risk groups **(AIII)**.
• Patients starting ART should be willing and able to commit to treatment and understand the benefits and risks of therapy and the importance of adherence **(AIII)**. Patients may choose to postpone therapy, and providers, on a case-by-case basis, may elect to defer therapy on the basis of clinical and/or psychosocial factors.

***Rating of Recommendations**: A = Strong; B = Moderate; C = Optional*

***Rating of Evidence**: I = Data from randomized controlled trials; II = Data from well-designed nonrandomized trials or observational cohort studies with long-term clinical outcomes; III = Expert opinion*

US Guidelines, 2014

4.0 When to start
4.1 Chronic infection
4.1.1 Recommendations
• We recommend people with HIV start ART (1A).
4.2 Individuals presenting with AIDS or a major infection
4.2.1 Recommendation
• We recommend that individuals presenting with an AIDS-defining infection, or with a serious bacterial infection and a CD4 cell count <200 cells/μL, start ART within 2 weeks of initiation of specific antimicrobial chemotherapy (1B).

BHIV Guidelines, 2015

Initiation of cART

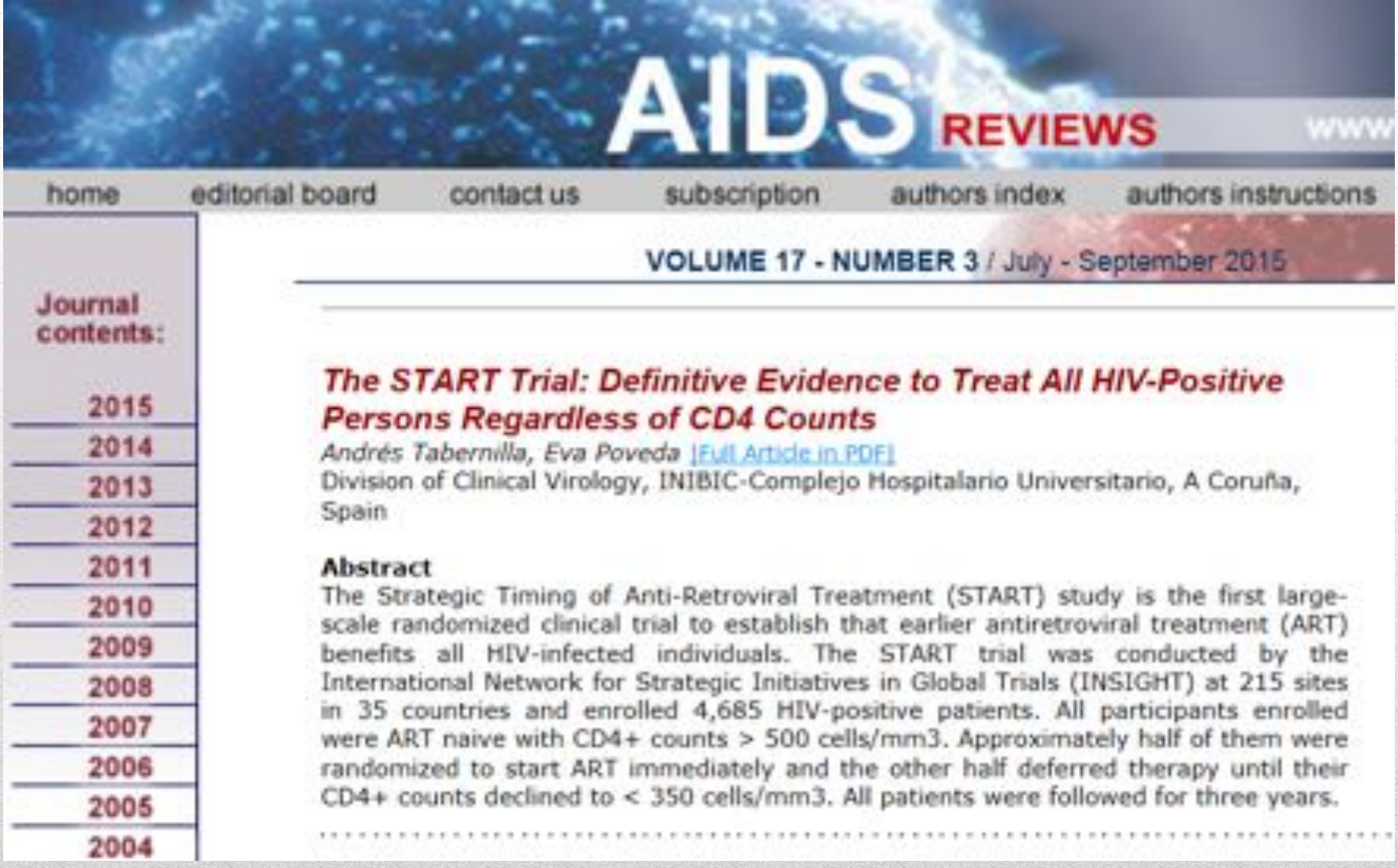
Over the years

2003-2005	2006-2009	2010-2012	2013-2014	2015
At CD4 <=200	<=200/200-350	<=350	<=500	

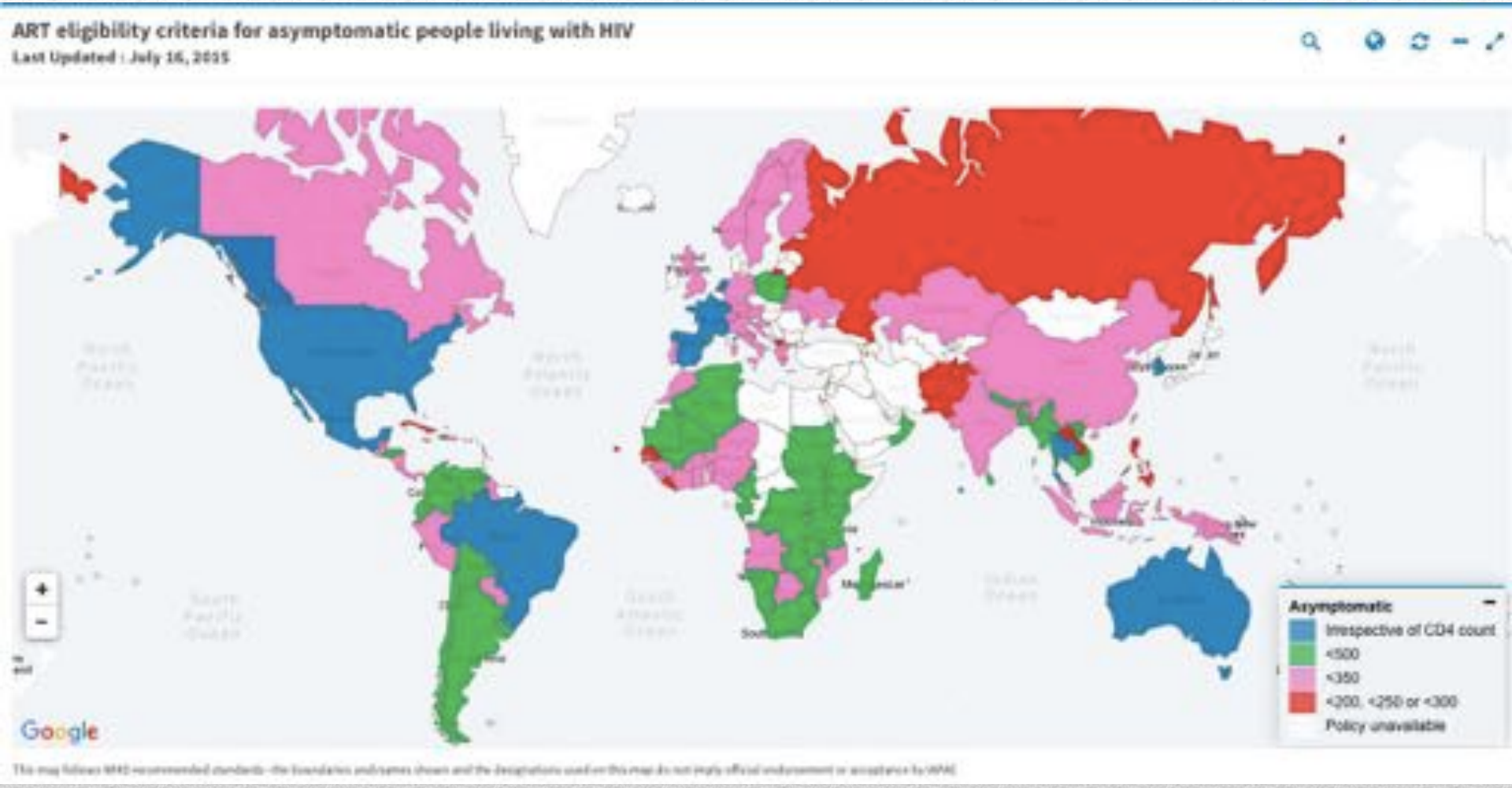
Other considerations:

- *coinfections, comorbities, IRIS, etc*

- ✓ ***After acute OI: start within 2 weeks*** *(some exceptions in TB cases)*
- ✓ ***Asymptomatic: start for all,*** *esp pregnant women*



Interim results of the Strategic Timing of AntiRetroviral Treatment Trial


ART eligibility criteria for asymptomatic people living with HIV
Last Updated : July 16, 2015
Asymptomatic
Irrespective of CD4 count
<500
<350
<200, <250 or <300
Policy unavailable
Google

Timing of cART in acute opportunistic infections

- **cART needed in untreatable OI**
  - Cryptosporidiosis, microsporodiosis, PML, (KS)
- **In most otherwise treatable diseases**
  - Used to be controversial
  - Consensus: now towards *as soon as possible*

Early Antiretroviral Therapy Reduces AIDS Progression/ Death in Individuals with Acute Opportunistic Infections: A Multicenter Randomized Strategy Trial

Andrew R. Zolopa[1*], Janet Andersen[2], Lauren Komarow[8], Ian Sanne[5], Alejandro Sanchez[4], Evelyn Hogg[7], Carol Suckow[6], William Powderly[3] for the ACTG A5164 study team

PLoS One. 2009;4(5):e5575

- RCT: early (within 14d) vs deferred cART
  - disease progression/death at 48 wk (14.2% vs 24.1%, p=0.035)
- No difference in IRIS occurrence, VL and CD4 outcome
- 63% PCP; TB excluded

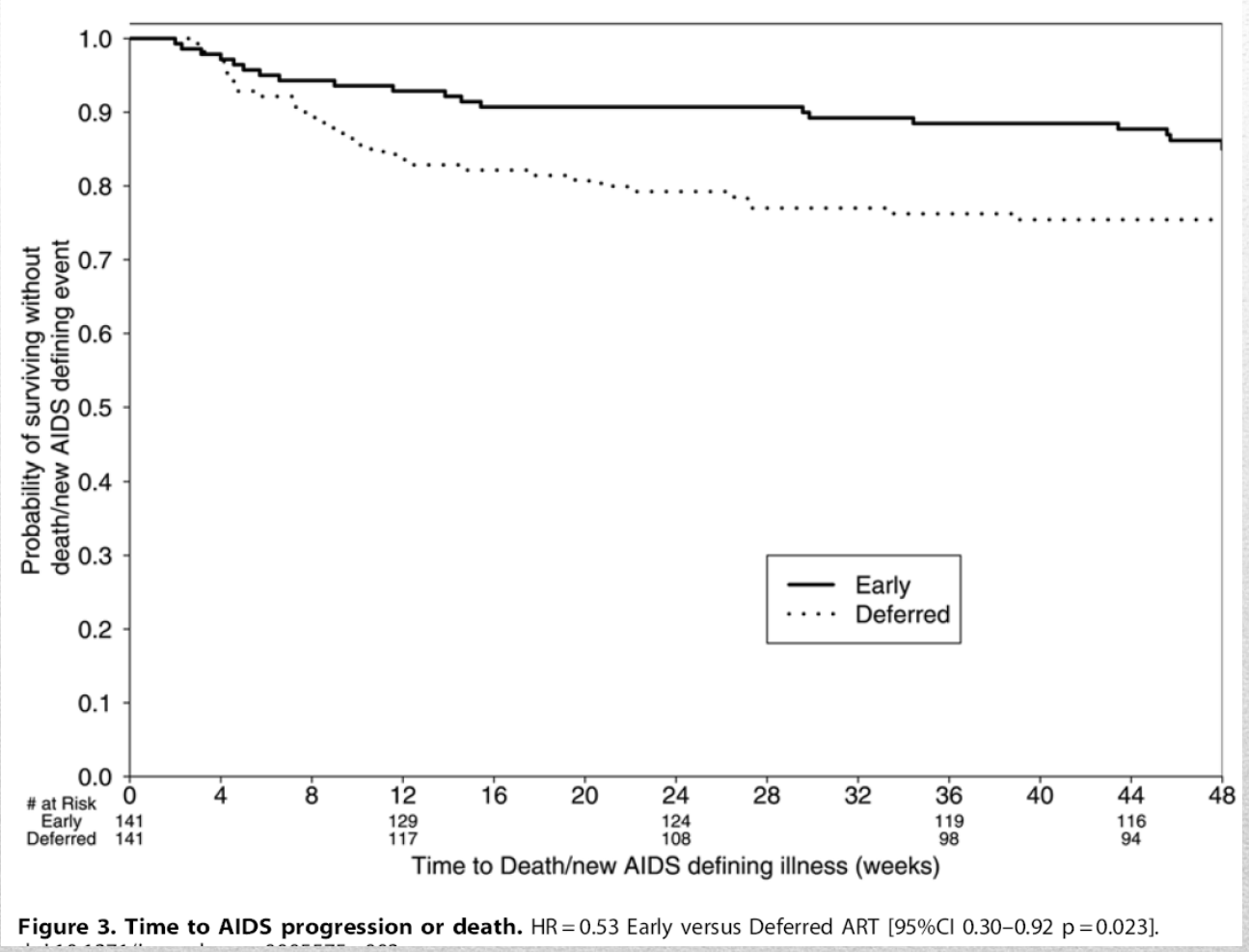


Figure 3. Time to AIDS progression or death. HR = 0.53 Early versus Deferred ART [95%CI 0.30–0.92 p = 0.023].

Zolopa et al. PLoS One. 2009;4(5):e5575

8.1.1 When to start ART in TB/HIV co infection

8.1.1.1 Recommendations

- We recommend all patients with HIV TB co-infection start ART (1B).
- We recommend individuals with CD4 cell count <50 cells/µL start ART as soon as TB treatment is tolerated and wherever possible within 2 weeks (1B).
- We recommend that for individuals with CD4 cell counts ≥50 cells/µL, ART can be deferred until between 8 and 12 weeks of TB treatment, especially when there are difficulties with drug–drug interactions, adherence and toxicities (1B). (Although the data suggest a cut-off of 50 cells/µL, because of the daily variability in CD4, a cut-off of 100 cells/µL may be more appropriate.)

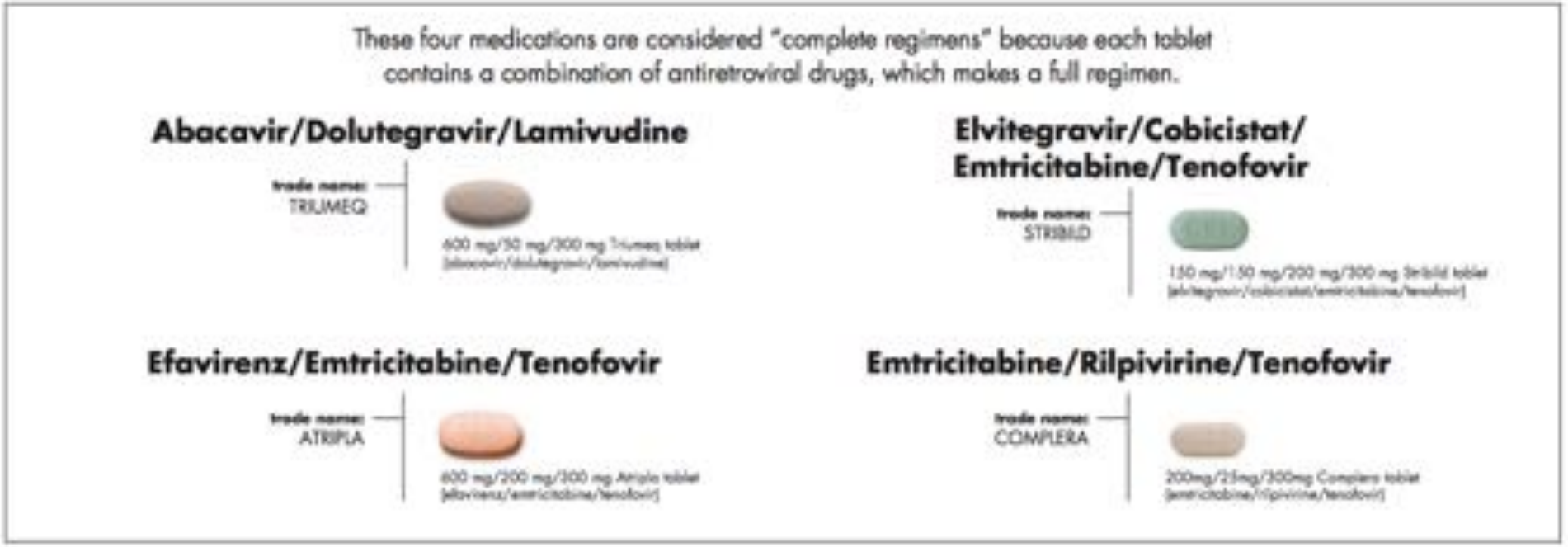
BHIV, 2015

TB/HIV coinfection

What to initiate?

NRTI	NNRTI	Protease inhibitors	Integrase Inhibitors
Zidovudine (1987)	Nevirapine (1996)	Saquinavir (1995)	Raltegravir (2007)
Didanosine (1991)	Delavirdine (1997)	Ritonavir (1996)	Dolutegravir (2013)
Stavudine (1994)	Efavirenz (1998)	Indinavir (1996)	Elvitegravir (2014)
Lamivudine (1995)	Etravirine (2008)	Nelfinavir (1997)	
Abacavir (1998)	Rilpivirine (2011)	Atazanavir (2003)	**Entry Inhibitors**
Tenofovir (2001)		Fosamprenavir (2003)	Enfuvirtide (2003)
Emtricitabine (2003)		Tipranavir (2005)	Maraviroc (2007)
		Darunavir (2006)	
			Pharmacokinetic Enhancers
			Cobicistat (2014)

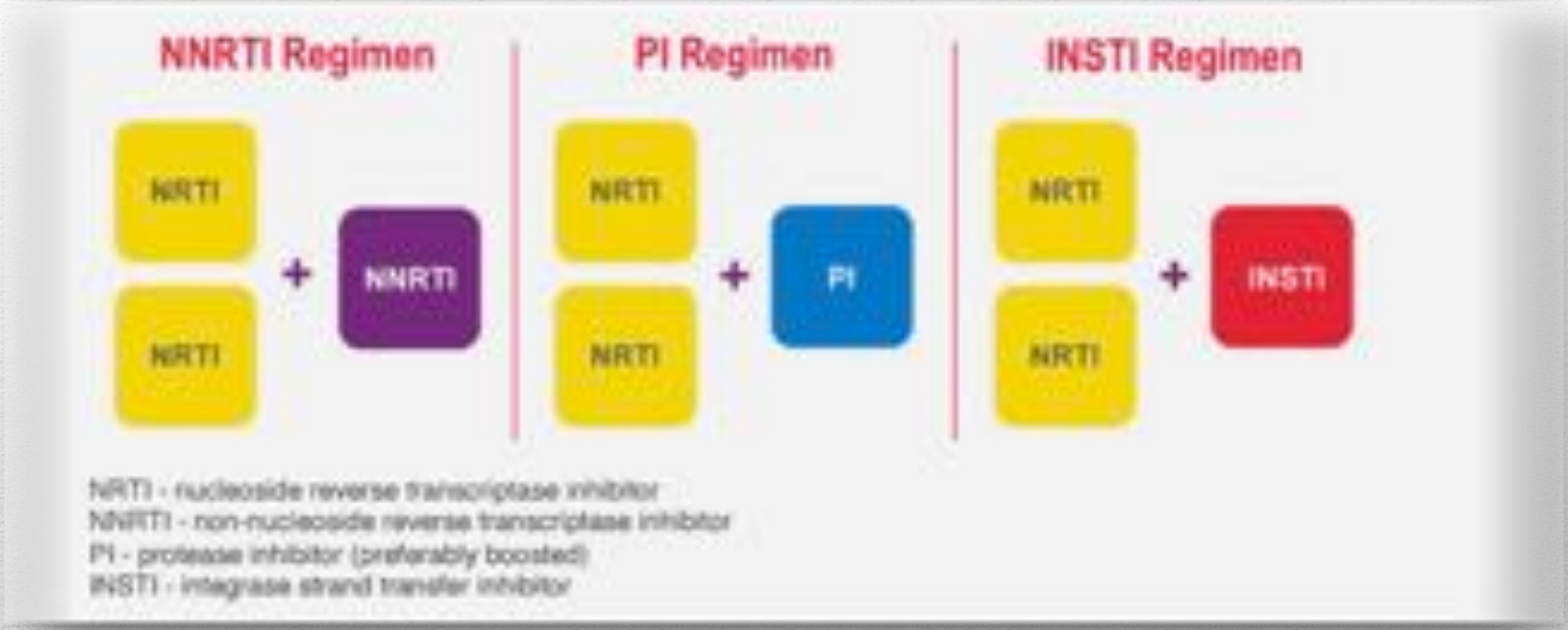
Table of FDA approved HIV med 2015



Single pill regimen

Expanding the formulary

- Less toxicity, better tolerance
- Better quality of life
- More convenience
- More options for treatment failure



What to start?

Treatment goal

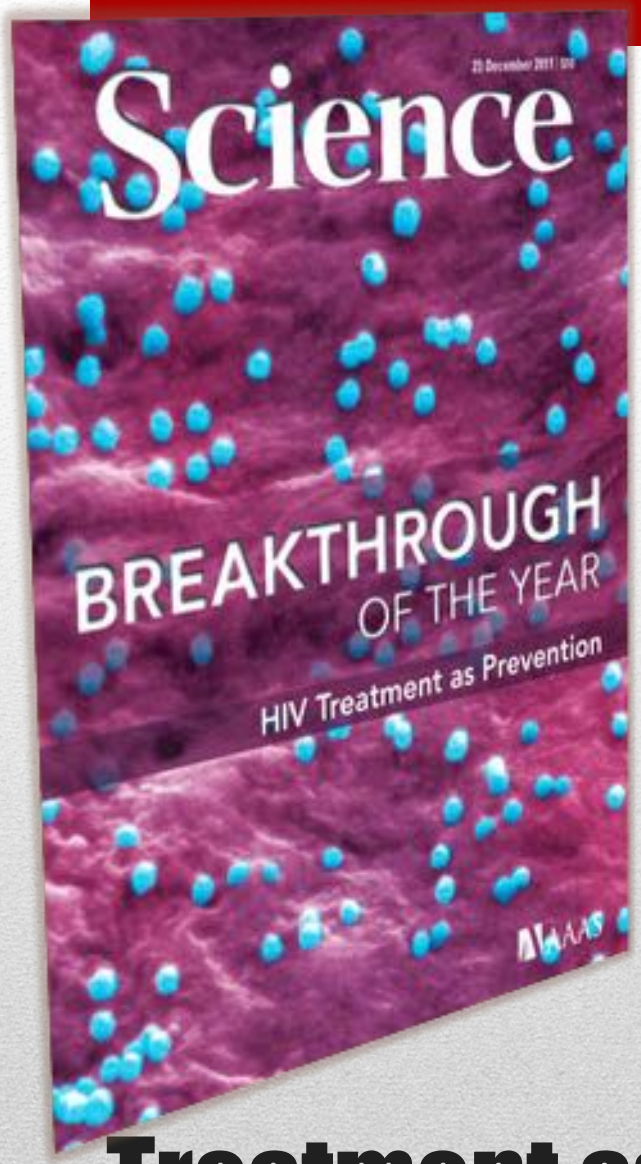
- **Maximally and durably suppress plasma HIV viral load**
  - **VL<40cp/ml3**
- **Restore and preserve immunological function**

- ***Reduce HIV-associated mortality and morbidity***
- ***Improve quality of life***
- ***Prevent HIV infection***

Preventive Strategies

Early recognition of ART benefits for HIV prevention

- Reduction of mother-to-child-transmission of HIV
- 3-part ART + elective LSCS (in certain cases nowadays) + no breastfeeding
  - Reduction of risk from 15-45% to 1%



Breakthrough of the Year, 2011

The year 2011 saw scientific research that stretched from the farthest reaches of the universe to th
deepest mysteries of the cell. Following a yearly tradition, *Science*'s editors and news staff have
selected one scientific Breakthrough of the Year and nine runners-up -- and have also highlighted
some areas to watch for 2012. [Access to articles may require membership or a subscription.]

WINNER

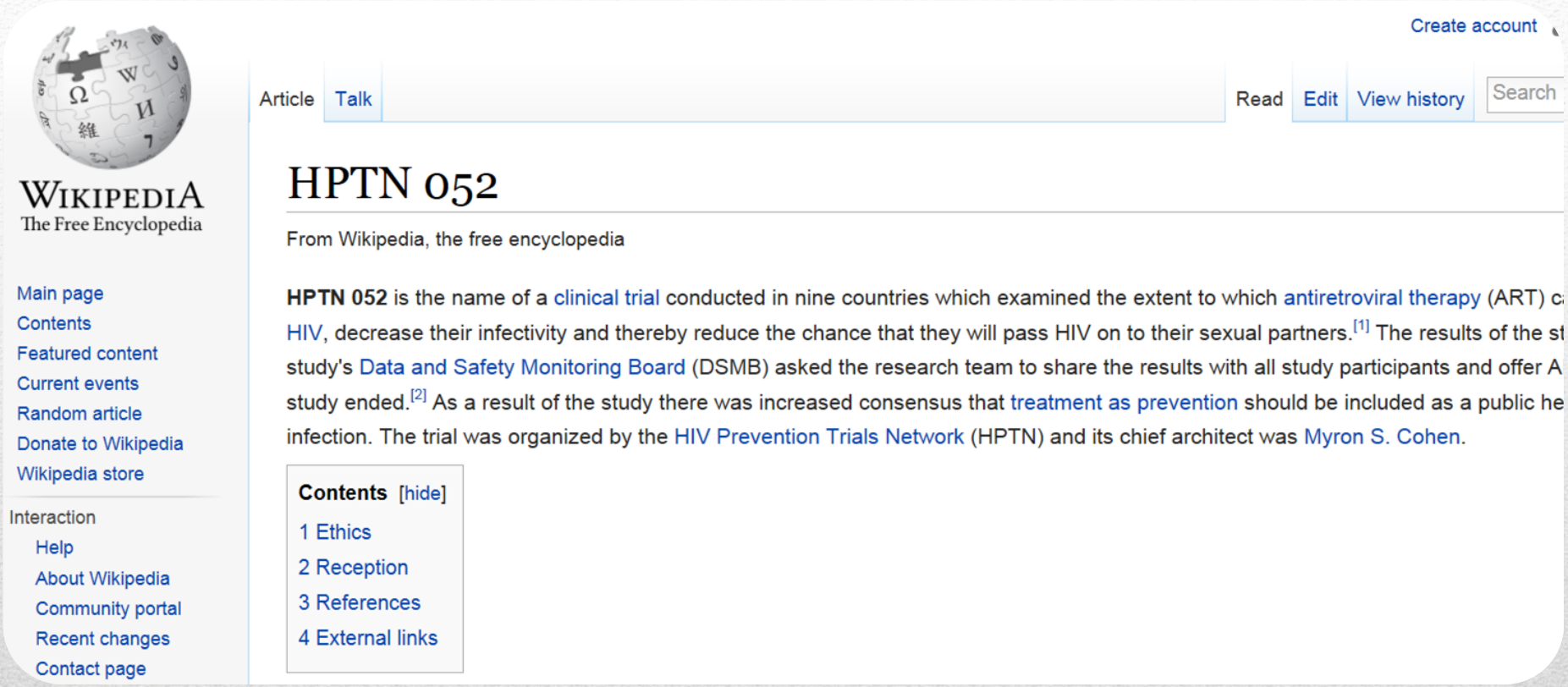
HIV Treatment as Prevention

J. Cohen

The antiretroviral drugs used to treat HIV-infected people also dramatically reduce HIV transmission rates, a finding that may influence the strategies used by health advocates and policymakers to battle the disease.

Related Policy Forum by J. D. Shelton: ARVs as HIV Prevention: A Tough Road to Wide Impact

Treatment as Prevention (TasP)



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HPTN 052

From Wikipedia, the free encyclopedia

HPTN 052 is the name of a clinical trial conducted in nine countries which examined the extent to which antiretroviral therapy (ART) c
HIV, decrease their infectivity and thereby reduce the chance that they will pass HIV on to their sexual partners.[1] The results of the st
study's Data and Safety Monitoring Board (DSMB) asked the research team to share the results with all study participants and offer A
study ended.[2] As a result of the study there was increased consensus that treatment as prevention should be included as a public he
infection. The trial was organized by the HIV Prevention Trials Network (HPTN) and its chief architect was Myron S. Cohen.

Contents [hide]

1 Ethics
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HPTN 052

HPTN 052

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 AUGUST 11, 2011 VOL. 365 NO. 6

Prevention of HIV-1 Infection with Early Antiretroviral Therapy

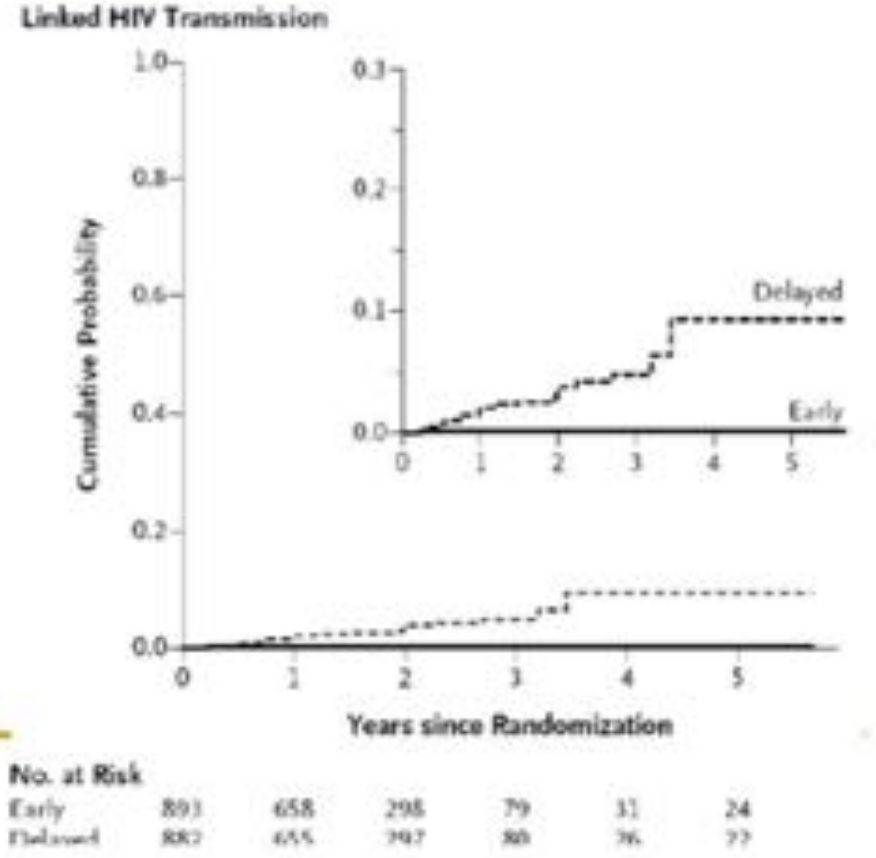
Myron S. Cohen, M.D., Ying Q. Chen, Ph.D., Marybeth McCauley, M.P.H., Theresa Gamble, Ph.D., Mina C. Hosseinipour, M.D., Nagalingeswaran Kumarasamy, M.B., B.S., James G. Hakim, M.D., Johnstone Kumwenda, F.R.C.P., Beatriz Grinsztejn, M.D., Jose H.S. Pilotto, M.D., Sheela V. Godbole, M.D., Sanjay Mehendale, M.D., Suwat Chariyalertsak, M.D., Breno R. Santos, M.D., Kenneth H. Mayer, M.D., Irving F. Hoffman, P.A., Susan H. Eshleman, M.D., Estelle Piwowar-Manning, M.T., Lei Wang, Ph.D., Joseph Makhema, F.R.C.P., Lisa A. Mills, M.D., Guy de Bruyn, M.B., B.Ch., Ian Sanne, M.B., B.Ch., Joseph Eron, M.D., Joel Gallant, M.D., Diane Havlir, M.D., Susan Swindells, M.B., B.S., Heather Ribaudo, Ph.D., Vanessa Elharrar, M.D., David Burns, M.D., Taha E. Taha, M.B., B.S., Karin Nielsen-Saines, M.D., David Celentano, Sc.D., Max Essex, D.V.M., and Thomas R. Fleming, Ph.D., for the HPTN 052 Study Team*

- 13 sites (Botswana, South Africa, Malawi, Kenya, Zimbabwe, Brazil, Thailand, India, Boston)
  - 54% subjects from Africa
- 2007-2010
- Subjects
  - HIV serodiscordant couples with stable relationship, HIV status disclosed, and patients with CD4 350 – 550
  - 1763 couples enrolled
    - 97% heterosexual

- Randomized 1:1
  - Early, immediate therapy
  - Delayed therapy = when CD4 <250

28 linked transmissions ⇒ incidence of 0.9/100 py

- 1 (early) ⇒ 0.1/100 py
- 27 (delayed) ⇒ 1.7/100py (all while pt were not on ART)
- **Hazard ratio = 0.04 for early therapy, p<0.001**



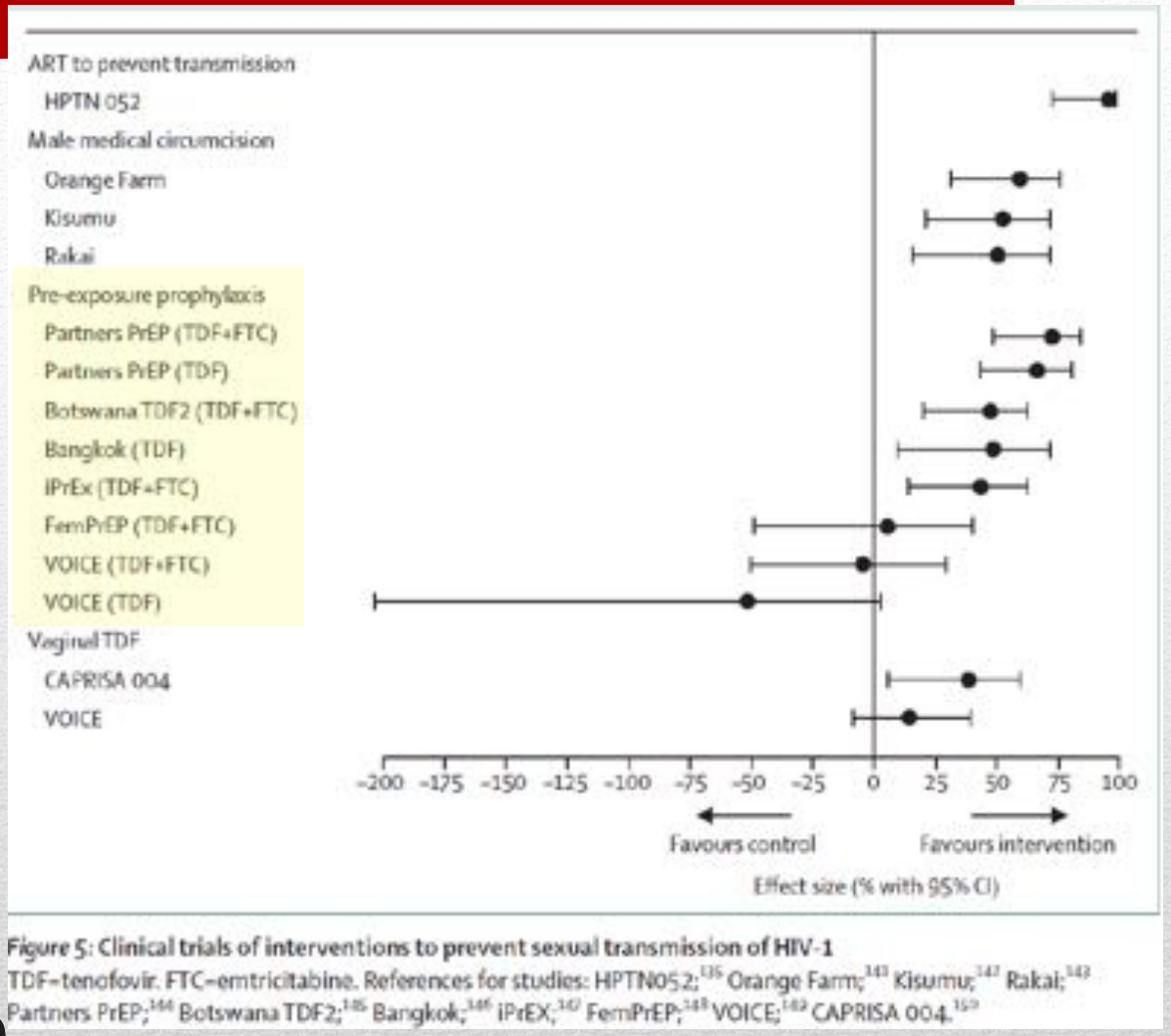


Figure 5: **Clinical trials of interventions to prevent sexual transmission of HIV-1**
TDF=tenofovir. FTC=emtricitabine. References for studies: HPTN052;[135] Orange Farm;[143] Kisumu;[147] Rakai;[142] Partners PrEP;[144] Botswana TDF2;[145] Bangkok;[146] iPrEX;[147] FemPrEP;[148] VOICE;[149] CAPRISA 004.[150]

Pre-exposure prophylaxis

Maartens G et al, Lancet 2014;384:258-71

US Public Health Service

PREEXPOSURE PROPHYLAXIS FOR THE PREVENTION OF HIV INFECTION IN THE UNITED STATES - 2014

A CLINICAL PRACTICE GUIDELINE

Table 1: Summary of Guidance for PrEP Use

	Men Who Have Sex with Men	Heterosexual Women and Men	Injection Drug Users
Detecting substantial risk of acquiring HIV infection	HIV-positive sexual partner Recent bacterial STI High number of sex partners History of inconsistent or no condom use Commercial sex work	HIV-positive sexual partner Recent bacterial STI High number of sex partners History of inconsistent or no condom use Commercial sex work In high-prevalence area or network	HIV-positive injecting partner Sharing injection equipment Recent drug treatment (but currently injecting)
Clinically eligible	Documented negative HIV test result before prescribing PrEP No signs/symptoms of acute HIV infection Normal renal function; no contraindicated medications Documented hepatitis B virus infection and vaccination status		
Prescription	Daily, continuing, oral dose of TDF/FTC (Truvada), ≥90-day supply		
Other services	Follow-up visits at least every 3 months to provide the following: HIV test, medication adherence counseling, behavioral risk reduction support, side effect assessment, STI symptom assessment At 3 months and every 6 months thereafter, assess renal function Every 6 months, test for bacterial STIs		
	Do oral/rectal STI testing	Assess pregnancy intent Pregnancy test every 3 months	Access to clean needles/syringes and drug treatment services

STI: sexually transmitted infection

WHO, 2015

Recommendation 2: Oral pre-exposure prophylaxis to prevent HIV acquisition			
Target population	Specific recommendation	Strength of the recommendation	Quality of the evidence
HIV-negative individuals at substantial risk of HIV infection[b]	Oral PrEP (containing TDF) should be offered as an additional prevention choice for people at substantial risk of HIV infection as part of combination prevention approaches	*Strong*	*High* NEW

- A variety of considerations: resources, feasibility, demand, other opportunities for HIV prevention

Summary

- **Advances in HIV medicine in various aspects**

- **Antiretroviral therapy: *early initiation***
  - **Individual benefit**
  - **HIV prevention**

- **Changing**
  - **Mortality and morbidity of PLHIV**
  - **Concept in HIV care**

- **Etc…**

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中華人民共和國香港特別行政區政府
The Government of the Hong Kong Special Administrative Region of the People's Republic of China

- HIV/AIDS epidemiology
- Clinical guidelines
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HIV MANUAL
THIRD EDITION
A A A
Stanley Ho Centre for Emerging Infectious Diseases
The Chinese University of Hong Kong
and
Centre for Health Protection
Department of Health
Hong Kong Special Administrative Region Government
Updates to the Manual and Anti-HIV Med would be announced on the Facebook page
Available on the App Store
GET IT ON Google play
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Foreword
Foreword
Project Team
Acknowledgements
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END