Differentiated Care – Improving Engagement and Retention in HIV Care

Meg Doherty, MD PhD MPH
World Health Organization

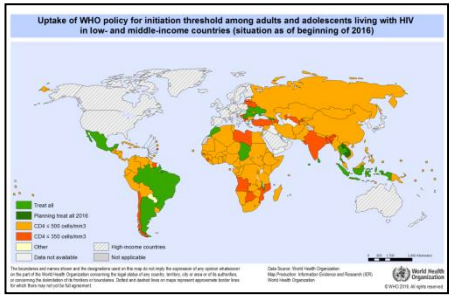
2018 CONTROLLING THE HIV EPIDEMIC SUMMIT

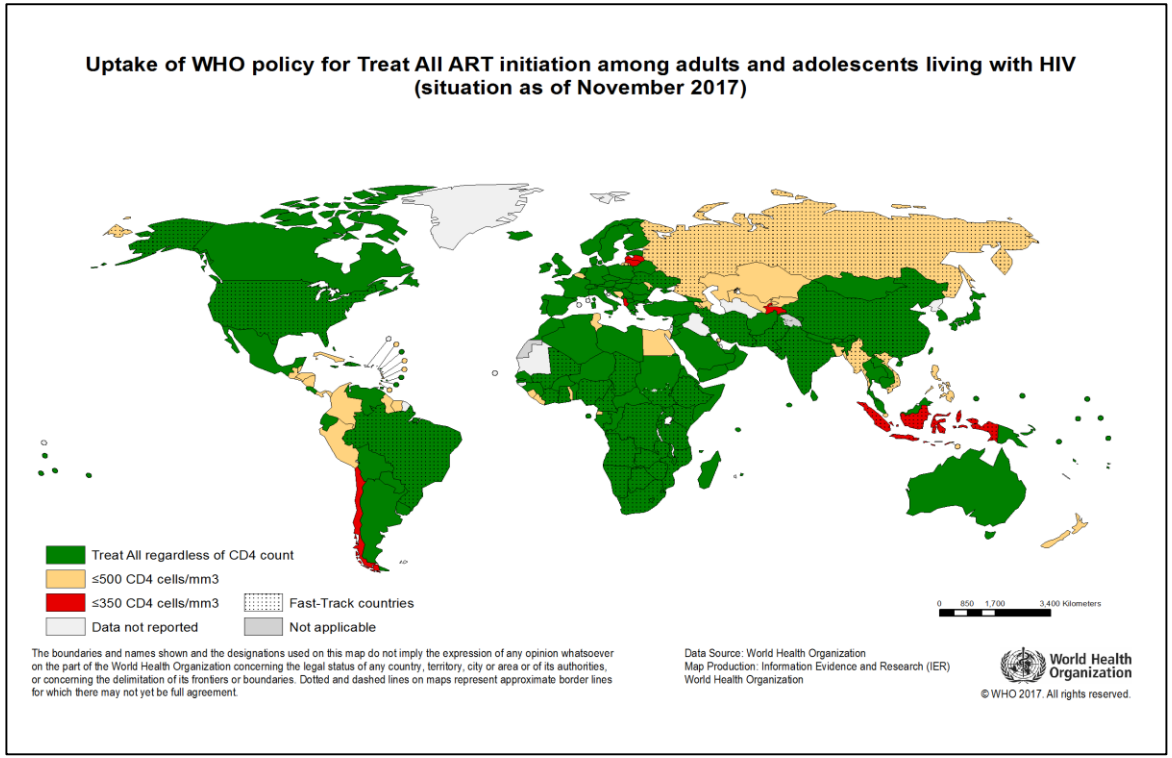
World Health Organization

- **Why differentiated care and how can it facilitate epidemic control**
- **Effects on linkage, engagement and retention in care**
- **Recent advances in HIV service delivery approaches**
- **Country examples of success**

World Health Organization

Status Treat All Uptake in 2018

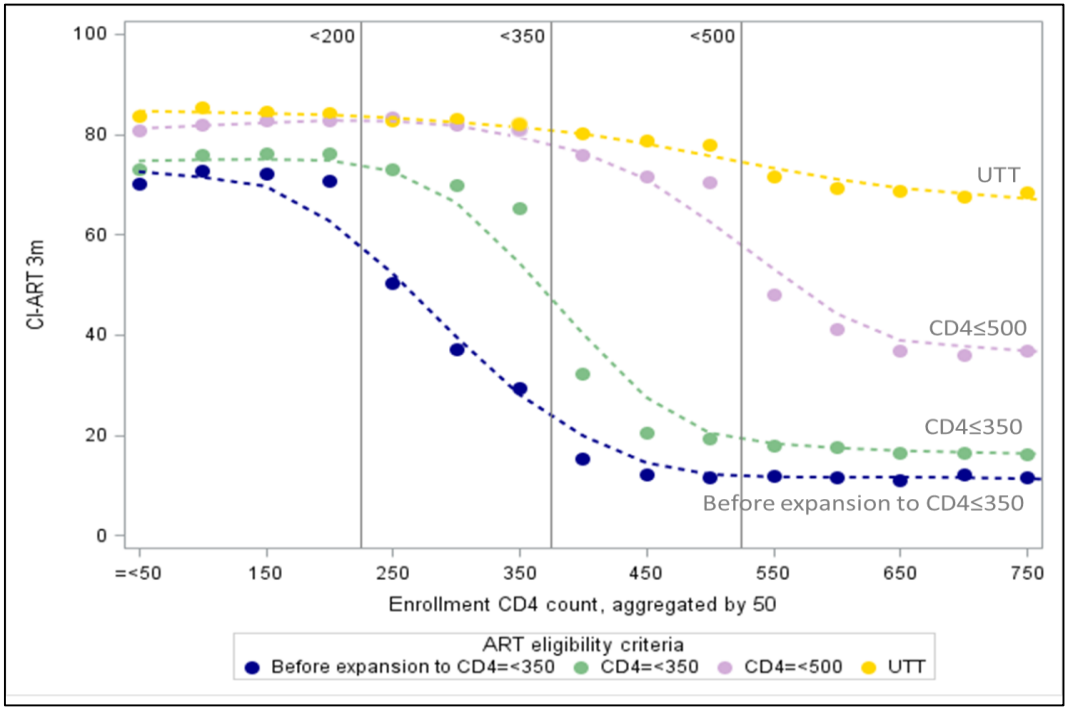




World Health Organization

Is “Treat All” having an impact?

ART Initiation 3 months after enrollment by CD4 Count

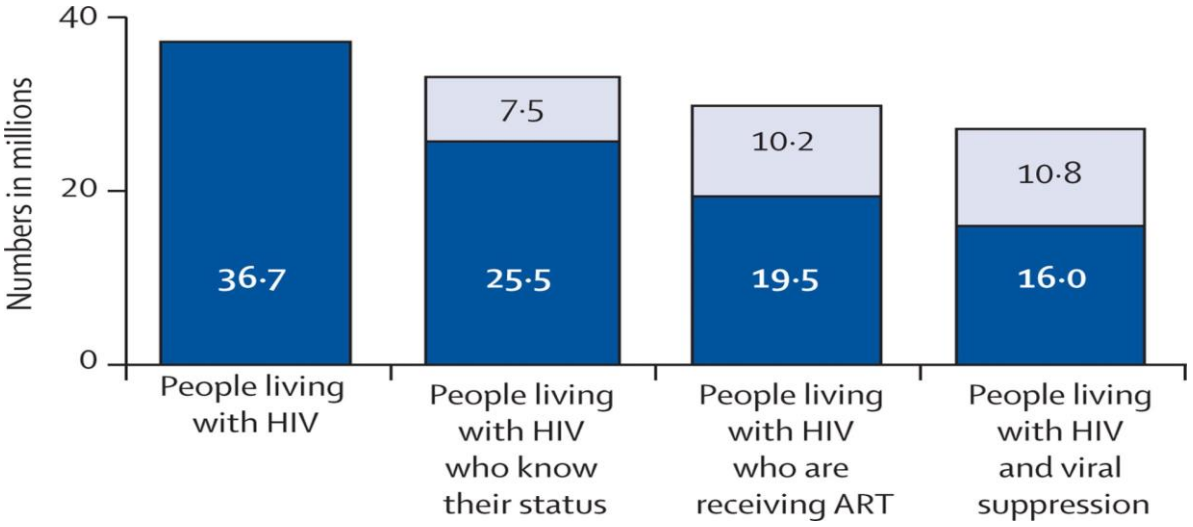


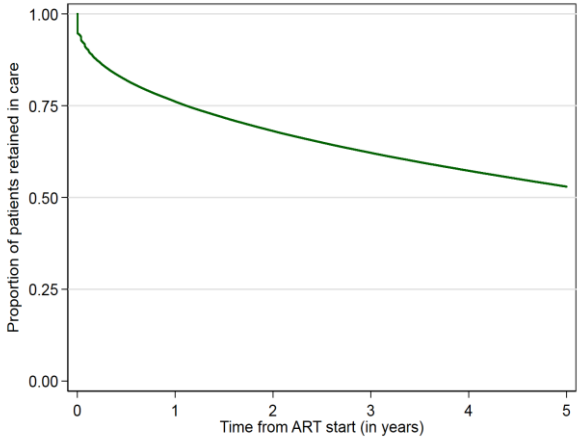
Treat All (UTT) increases the number of people starting ART within 3 months (among those eligible for ART)

Tymejczyk et al Plos Med 2018 (updated)

World Health Organization

Still major gaps in the care cascade -- linkage, retention and viral suppression



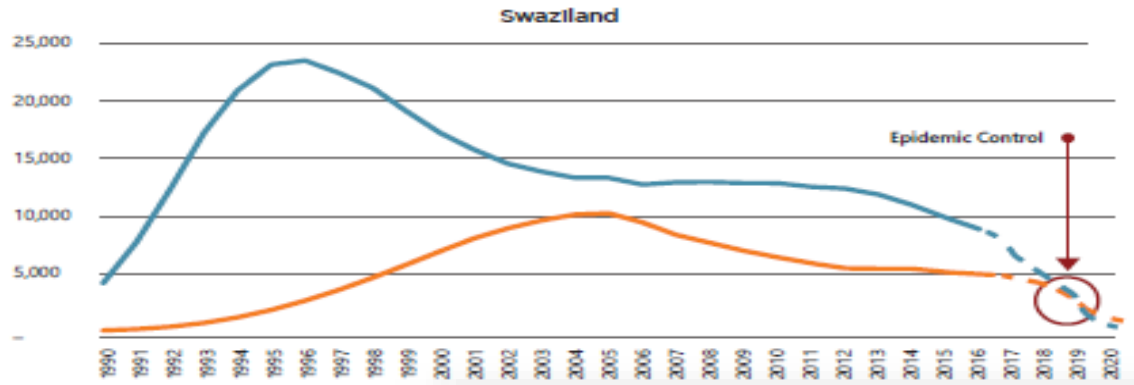


Epidemic Control

Defining Epidemic Control

Epidemiologists use the reproduction number of R_0 as the critical measure of epidemic control. In the context of controlling the HIV/AIDS pandemic, epidemic control is reached when the total number of new HIV infections fall below the total number of deaths from all causes among HIV-infected individuals (Figure 2).

Figure 2. Swaziland – Pathway to reaching epidemic control

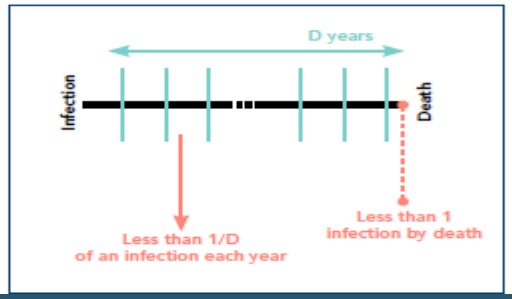


PEPFAR - cross point incidence vs. mortality

UNAIDS Consultation – Incidence:prevalence ratio

Figure 2. the incidence-prevalence ratio

$$\text{IPR} = \frac{\text{Number of new infections (adults) per year}}{\text{Number of adults living with HIV}}$$



D= the number of years between HIV acquisition and death for a person living with HIV.

The threshold for epidemic control must be less than **1/D** new infections per person per year.

If it is assumed that average survival following HIV acquisition is 33 years, then:
1/D = 1/33 = 0.03.

World Health Organization

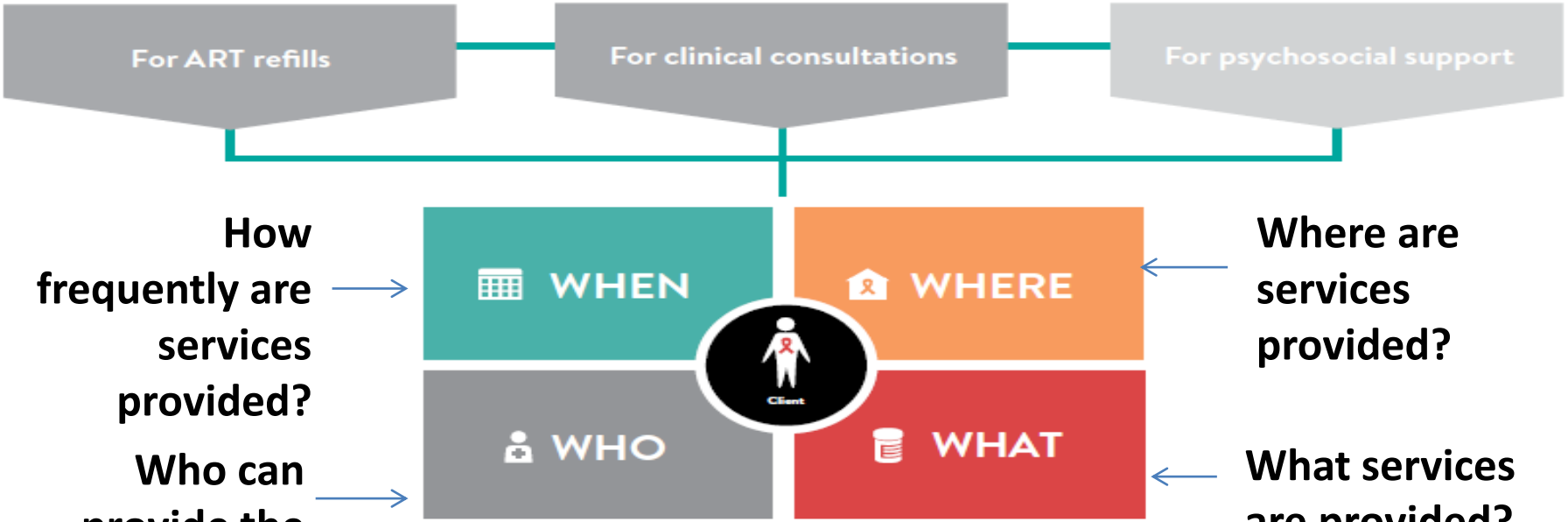
Why Differentiated Service Delivery?

- To improve client experience
- To improve health outcomes
- Leverage resources to 'treat all" and achieve 90-90-90

- **Reduced clinic visits for clients who are doing well**
- **Clinic services directed to those patients who need clinic care**

World Health Organization

Differentiated Service Delivery: building blocks



www.differentiatedcare.org

World Health Organization

Models for Clinically Stable Clients

Appointment spacing and fast-track drug refill	Adherence Clubs		Community ART Distribution Points (PODI)	Community ART Groups (CAGs)
	Facility-based clubs	Community-based clubs		

	Individual	Group
Health Facility Based	Fast Track visits Spacing of visits	ART Clubs Adolescent clubs Family visits
Community Based	PODI – drug pick ups ART delivery to home	Community ART delivery Adherence Groups

MEDECINS SANS FRONTIERES

www.differentiatedcare.org

WHO recommendations supporting DSD for clinically stable clients

WHEN

- 3-6 monthly ART refills
- 3-6 monthly clinic visits

WHERE

- ART maintenance at community level

WHO

- Trained non-physicians/nurses/midwives can initiate and maintain ART
- Trained/supervised lay providers can distribute ART
- Trained/supervised CHWs can dispense ART between clinic visits

World Health Organization

- Why differentiated care and how can it facilitate epidemic control
- **Effects on linkage, engagement and retention in care**
- Recent advances in HIV service delivery approaches
- Country examples of success

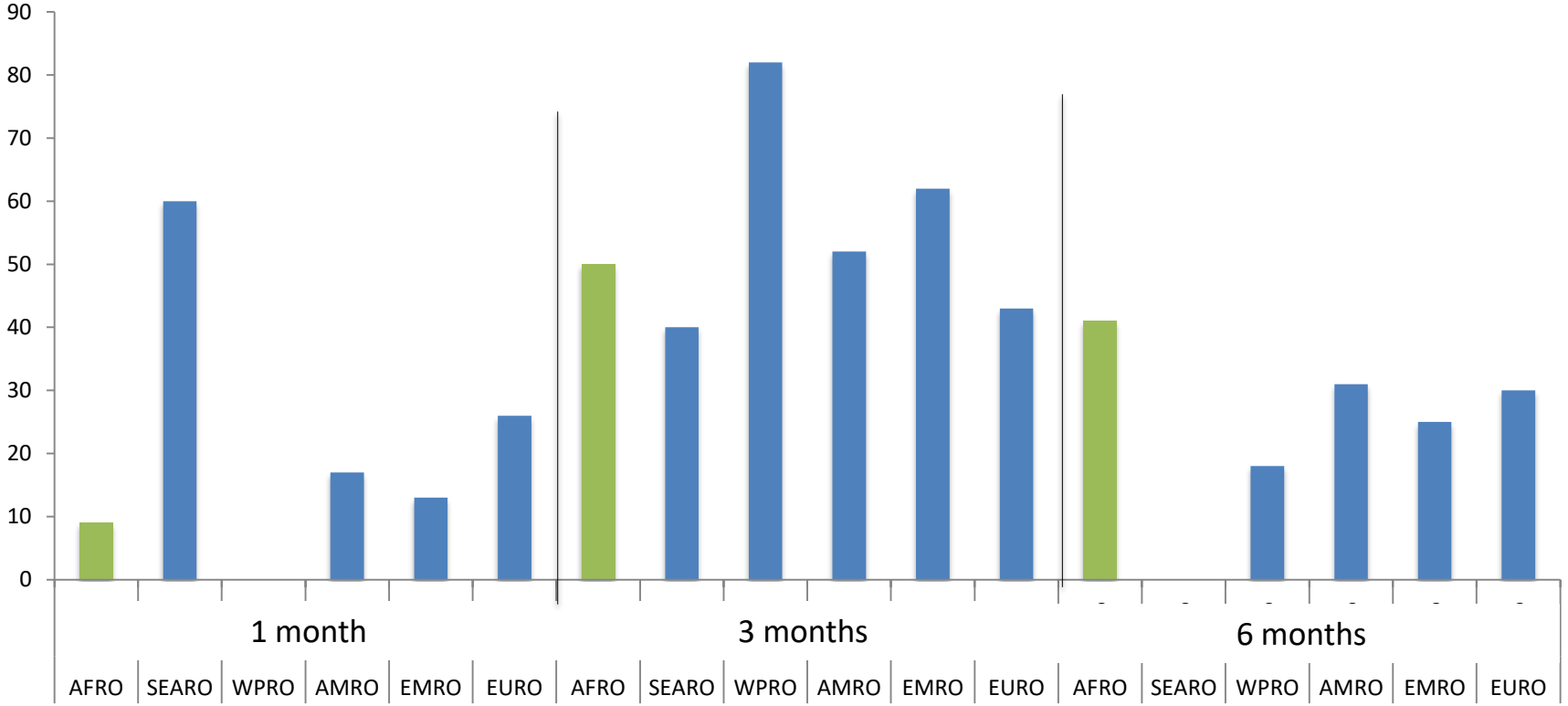
World Health Organization

DSD Policy uptake what do we know?

- ✓ Data reported to WHO, validated by MoH
- ✓ Data up to end 2016 (2017 in validation)
  - Frequency of clinic visits
  - Frequency of ART dispensing
  - Nurse-led ART
  - Community ART

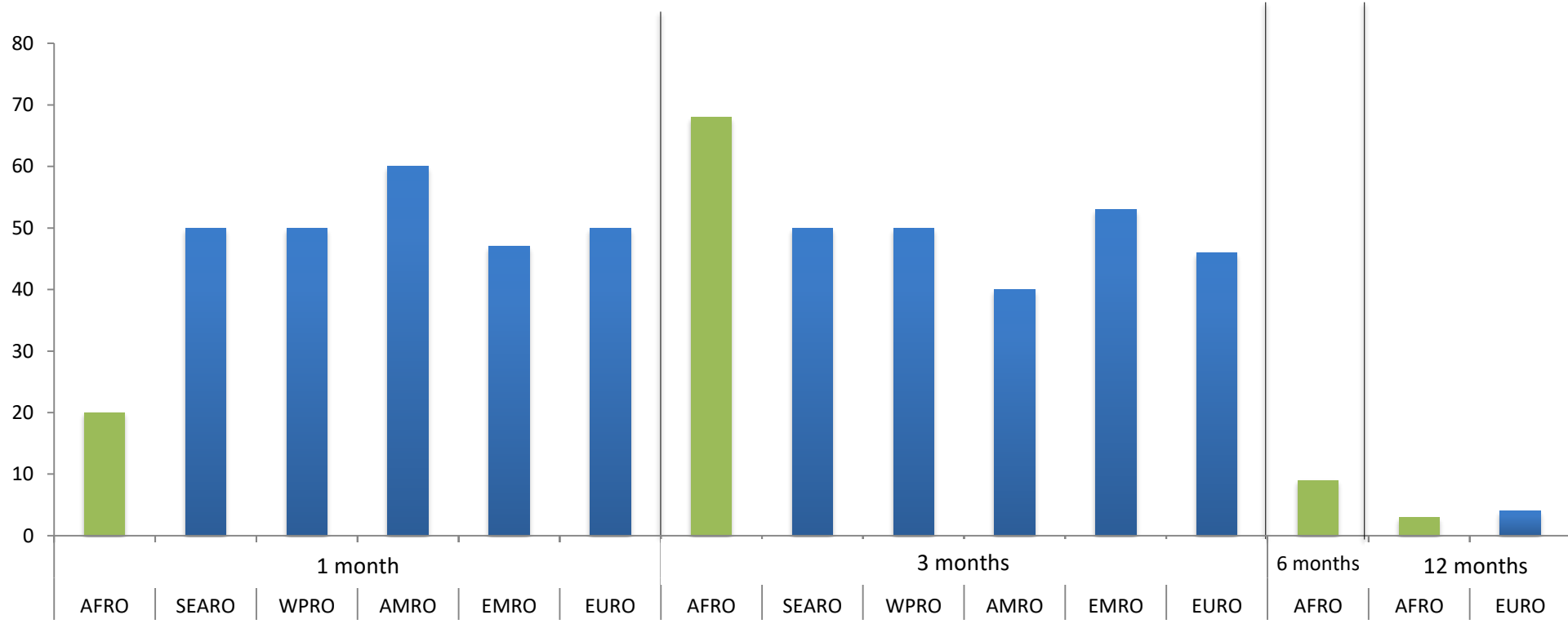
World Health Organization

WHEN: Frequency of clinic visits



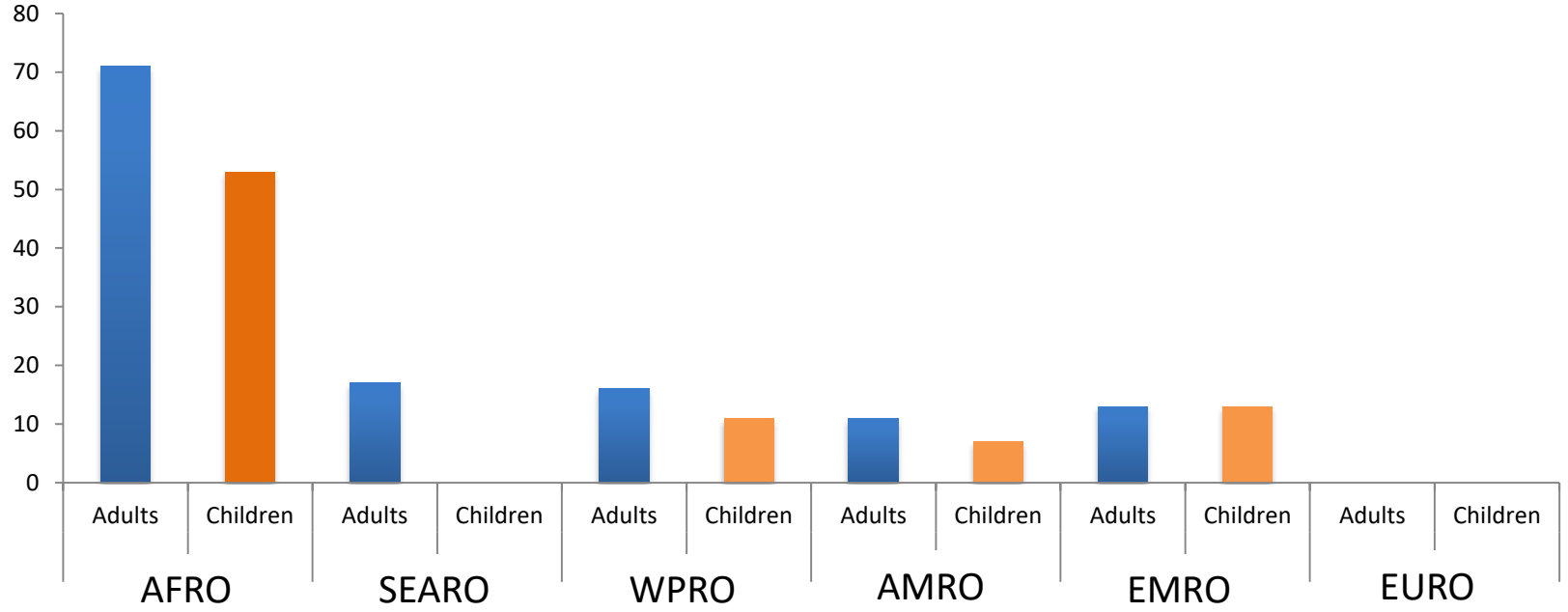
World Health Organization

WHEN: Frequency of dispensing



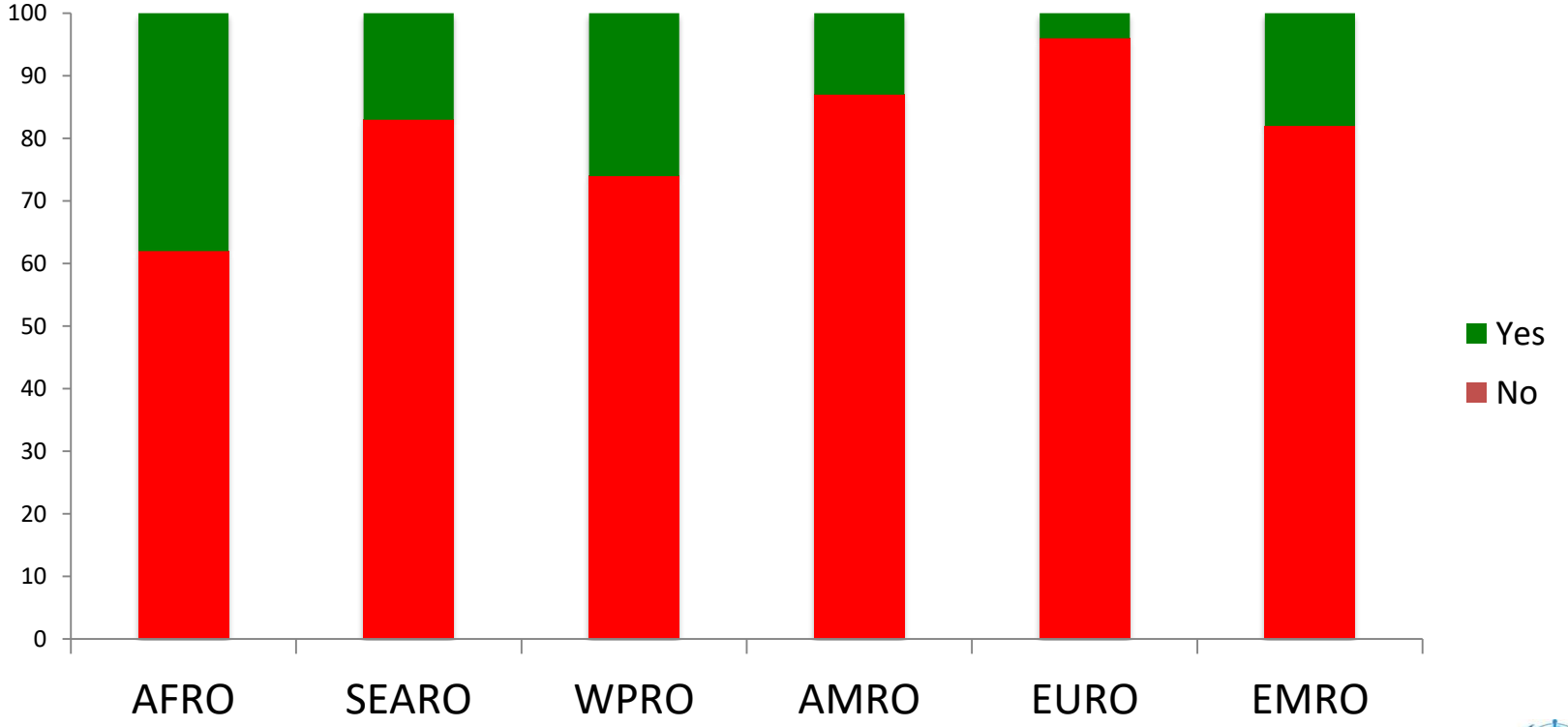
World Health Organization

WHO: Nurse led ART



World Health Organization

WHERE: Community ART



World Health Organization

Benefits of differentiated service delivery

6 monthly clinic visits improves retention in Zambia

Good adherence with 3 monthly clinic visits in Spain

Home delivery of ART feasible and improves outcomes in UK & Spain

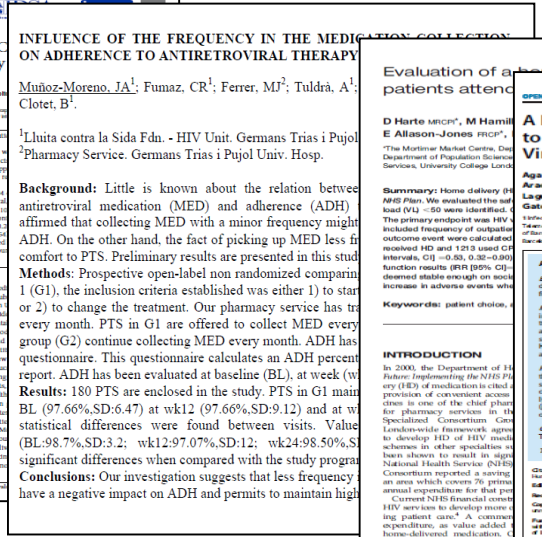
3 monthly clinic visits reduces costs to patients and health system in Kenya and Uganda


Clinical Infectious Diseases

MAJOR ARTICLE

Improved Retention With 6-Month C
for Stable Human Immunodeficiency
Patients in Zambia

Mody, Clin Inf Dis 2017

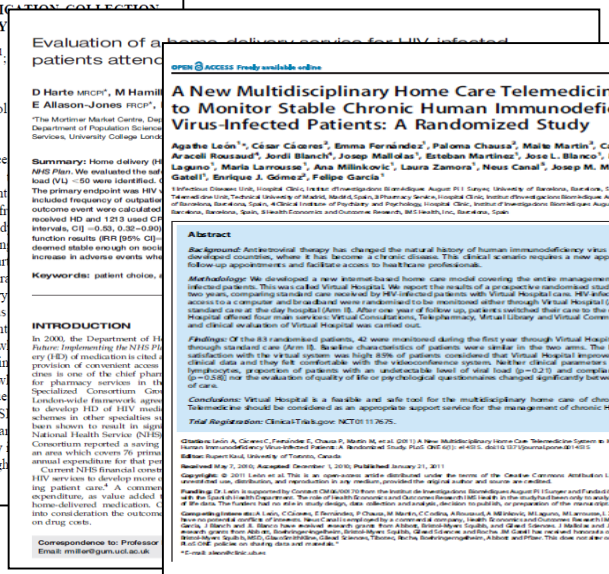

INFLUENCE OF THE FREQUENCY IN THE MEDIC
ON ADHERENCE TO ANTIRETROVIRAL THERAPY

Muñoz-Moreno, JA[1]; Fumaz, CR[1]; Ferrer, MJ[2]; Tuldrà, A[1]; Clotet, B[1].

[1]Lluita contra la Sida Fdn. - HIV Unit. Germans Trias i Pujol
[2]Pharmacy Service. Germans Trias i Pujol Univ. Hosp.

Background: Little is known about the relation betwee antiretroviral medication (MED) and adherence (ADH) affirmed that collecting MED with a minor frequency might ADH. On the other hand, the fact of picking up MED less fr comfort to PTS. Preliminary results are presented in this stud
Methods: Prospective open-label non randomized comparin 1 (G1), the inclusion criteria established was either 1) to star or 2) to change the treatment. Our pharmacy service has tr every month. PTS in G1 are offered to collect MED every group (G2) continue collecting MED every month. ADH has questionnaire. This questionnaire calculates an ADH percent report. ADH has been evaluated at baseline (BL), at week (w
Results: 180 PTS are enclosed in the study. PTS in G1 main BL (97.66%,SD:6.47) at wk12 (97.66%,SD:9.12) and at w statistical differences were found between visits. Value (BL:98.7%,SD:3.2; wk12:97.07%,SD:12; wk24:98.50%,S significant differences when compared with the study progra
Conclusions: Our investigation suggests that less frequency have a negative impact on ADH and permits to maintain high

Munoz-Moreno, IAS 2016


Evaluation of a
patients attenc

D Harte MRCP[1], M Hamil
E Allason-Jones FRCP[1],

Summary: Home delivery (H
NHS Plan. We evaluated the saf
load (VL) <50 were identified.
The primary endpoint was HIV
included frequency of outpatie
outcome event were calculated
received HD and 1213 used CF
intervals, CI] −0.53, 0.32–0.90)
function results (IRR [95% CI]-
deemed stable enough on socia
increase in adverse events whe

Keywords: patient choice,

INTRODUCTION

In 2000, the Department of H
Future: Implementing the NHS Pl
ery (HD) of medication is cited
provision of convenient access
dries is one of the chief pharr
for pharmacy services in th
Specialized Consortium Gre
London-wide framework agree
to develop HD of HIV medi
schemes in other specialties a
been shown to result in signi
National Health Service (NHS)
Consortium reported a saving
an area which covers 76 prima
annual expenditure for that per
Current NHS financial constr
HIV services to develop more
ing patient care.[4] A comme
expenditure, as value added
home-delivered medication. C
into consideration the outcom
on drug costs.

Correspondence to: Professor
Email: miller@gum.ucl.ac.uk

PLoS ONE ACCESS Freely available online

A New Multidisciplinary Home Care Telemedicine Syste
to Monitor Stable Chronic Human Immunodeficiency
Virus-Infected Patients: A Randomized Study

Agathe León[1]*, César Cáceres[2], Emma Fernández[2], Paloma Chausa[2], Maite Martín[2], Carles Codina
Araceli Roussaud[2], Jordi Blanch[2], Josep Mallolas[3], Esteban Martínez[3], Jose L. Blanco[3], Montserrat
Laguno[3], Maria Lamarca[3], Ana Milinkovic[3], Laura Zamora[3], Neus Canal[3], Josep M. Miró[3], Josep M
Gatell[3], Enrique J. Gómez[2], Felipe García[3]

Abstract

Background: Antiretroviral therapy has changed the natural history of human immunodeficiency virus (HIV) infection
developed countries, where it has become a chronic disease. This clinical scenario requires a new approach to simpl
follow-up appointments and facilitate access to healthcare professionals.

Methodology: We developed a new internet-based home care model covering the entire management of chronic HI
infected patients. This was called Virtual Hospital. We report the results of a prospective randomised study performed ov
two years, comparing standard care received by HIV-infected patients with Virtual Hospital care. HIV-infected patient
access to a computer and broadband were randomised to be monitored either through Virtual Hospital (Arm I) or throu
standard care at the day hospital (Arm II). After one year of follow up, patients switched their care to the other arm. Virtu
Hospital offered four main services: Virtual Consultations, Telepharmacy, Virtual Library and Virtual Community. A techni
and clinical evaluation of Virtual Hospital was carried out.

Findings: Of the 83 randomised patients, 42 were monitored during the first year through Virtual Hospital (Arm I) and
through standard care (Arm II). Baseline characteristics of patients were similar in the two arms. The level of techni
satisfaction with the virtual system was high: 85% of patients considered that Virtual Hospital improved their access
clinical data and they felt comfortable with the videoconference system. Neither clinical parameters [level of CD4
lymphocytes, proportion of patients with an undetectable level of viral load (p = 0.21) and compliance levels >90%
(p = 0.58)] nor the evaluation of quality of life or psychological questionnaires changed significantly between the two type
of care.

Conclusions: Virtual Hospital is a feasible and safe tool for the multidisciplinary home care of chronic HIV patient
Telemedicine should be considered as an appropriate support service for the management of chronic HIV infection.

Trial Registration: ClinicalTrials.gov NCT01117675.

Citation: León A, Cáceres C, Fernández E, Chausa P, Martín M, et al. (2011) A New Multidisciplinary Home Care Telemedicine System to Monitor Stable Chro
Human Immunodeficiency Virus-Infected Patients: A Randomized Study. PLoS ONE 6(1): e14551. doi:10.1371/journal.pone.0014551

Editor: Rupert Kaul, University of Toronto, Canada

Received May 7, 2010; Accepted December 1, 2010; Published January 21, 2011

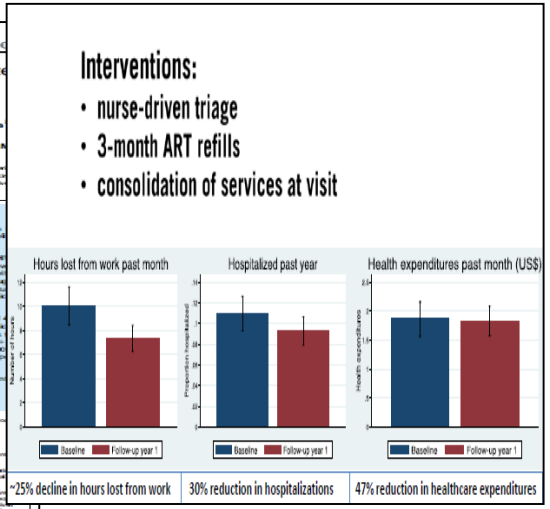
Copyright: © 2011 León et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permi
unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Funding: Dr León is supported by Contrat ISCIII 06/0011 from the Institut de Investigations Biomèdiques August Pi i Sunyer and Fundació Clínic in collaborati
with the Spanish Health Department. The role of Health Economics and Outcomes Research (ME) Health in the study had been only to analyse the patients' qual
of life data. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Competing Interests: León A, Cáceres C, Fernández E, Chausa P, Martín M, Codina C, Roussaud A, Milinkovic M, Mallolas J, Martínez E, Blanco JL, Laguno M, Lamarca M, Canal N, Miró JM, Gatell JM, García F, Gómez EJ declare no potential conflicts of interests. Neus Canal is employed by a company (Health, Economics and Outcomes Research (ME) Health, S.L.) that provides consultancy services to the pharmaceutical industry. Josep M. Miró has received consultancy fees from ABBOTT, GILEAD, BMS, TIBOTEC, PFIZER, MERCK, research grants from ABBOTT, Boehringer-Ingelheim, Bristol-Myers Squibb, Gilead Sciences and Roche. Jose M. Gatell has received honoraria or research grants from Bristol-Myers Squibb, MSD, Glaxo-Smith-Kline, Gilead Sciences, Tibotec, Roche, Boehringer-Ingelheim, Abbott and Pfizer. This does not alter our adherence to all the PLoS ONE policies on sharing data and materials.

*E-mail: aleon@clinic.ub.es

Leon PlosONE 2011; Harte I J STD AIDS 2008



Thirumurthy, IAS 2016

World Health Organization

- Why differentiated care and how can it facilitate epidemic control
- Effects on linkage, engagement and retention in care
- **Recent advances in HIV service delivery approaches**
- Country examples of success

World Health Organization

HIV TREATMENT

Service Delivery Approaches

- **The HOW: Differentiated care interventions:**

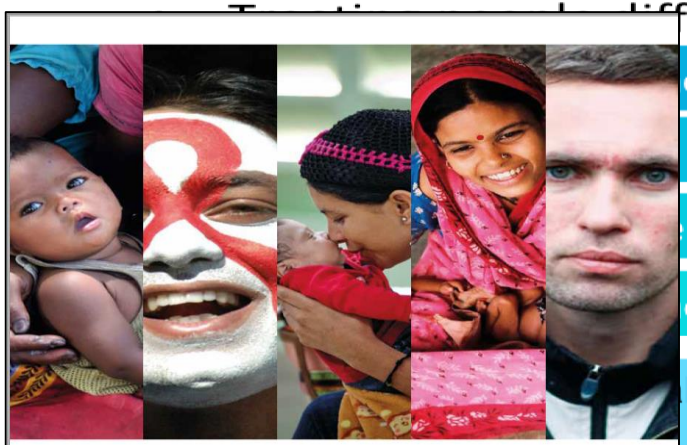
ferently within a public he

ce & retention supp

clinical packa educe

d ART d ry- Differentiated Care Models

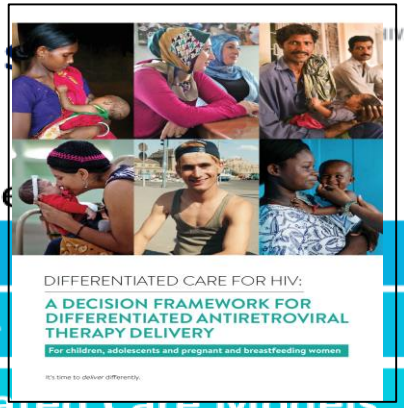
ce w switch



KEY CONSIDERATIONS FOR DIFFERENTIATED ANTIRETROVIRAL THERAPY DELIVERY FOR SPECIFIC POPULATIONS:

CHILDREN, ADOLESCENTS, PREGNANT AND BREASTFEEDING WOMEN AND KEY POPULATIONS

World Health Organization · CDC · PEPFAR · USAID · IAS



DIFFERENTIATED CARE FOR HIV:

A DECISION FRAMEWORK FOR DIFFERENTIATED ANTIRETROVIRAL THERAPY DELIVERY

For children, adolescents and pregnant and breastfeeding women

It's time to *deliver* differently.

ble

clinical

ART

ated

ere viral

available

The Package of C als with

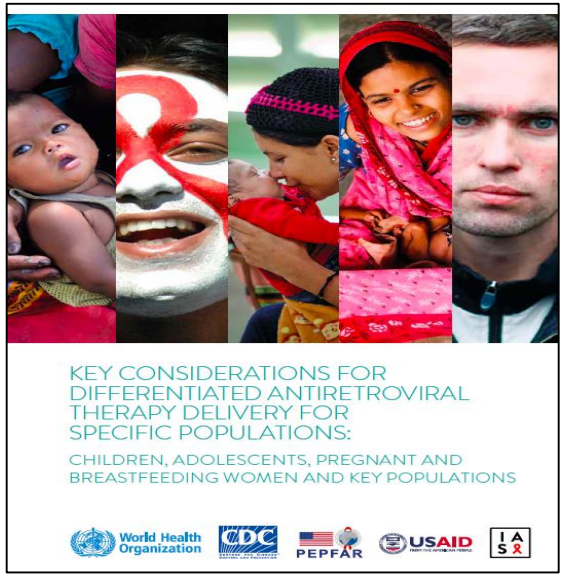
d diseas

- Rap iatic
- Systematic C gen screening
- TB screening iazid Preventive Th ary)
- Screening for toxoplasmosis and cotrimoxazole prophylaxis
- Intensive follow-up

Decision Framework for key populations

World Health Organization

DSD for families and key populations



- Clinically stable children, adolescents and pregnant and breastfeeding women as well as members of key populations can benefit from differentiated antiretroviral therapy (ART) delivery models
- Services should be tailored to keep families together
- Differentiated ART delivery can address inequities and enable key population communities to be more involved in HIV treatment and care

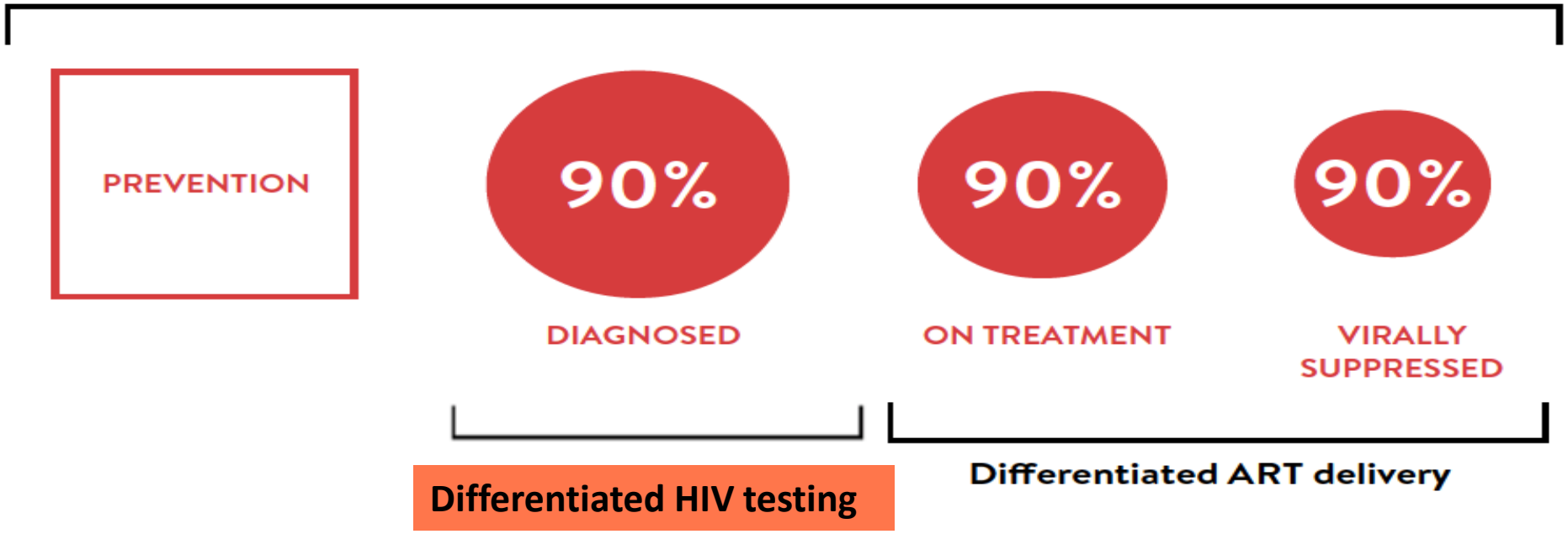
Real-world examples

Building blocks of female sex worker community-client led ART delivery in Entebbe, Uganda

	ART REFILLS	CLINICAL CONSULTATIONS	PSYCHOSOCIAL SUPPORT
WHEN	Every two months, 6 times/year Flexible service hours, decided by the group	Semi-annually (2 times/year)	Every time months or more as required
WHERE	Community: (Community Drug Distribution Point (CDDP)	Primary care clinic	Community
WHO	Group nominated FSW peer leader	Doctor or clinical officer	Group nominated FSW peer leader
WHAT	ART refill distribution, peer psychosocial support, peer adherence monitoring, psychosocial support	Nutrition monitoring, adherence measurement, TB screening, OI examinations if any, Lab investigation (VL and CD4), weight monitoring, Mental Health screening, dosage adjustment as required	Peer psychosocial support

World Health Organization

Differentiated service delivery applies across the HIV care continuum



World Health Organization

Differentiated HIV testing services

Mobilizing

- Mass/Group
- Network-based
- Partner notification and index testing

Testing

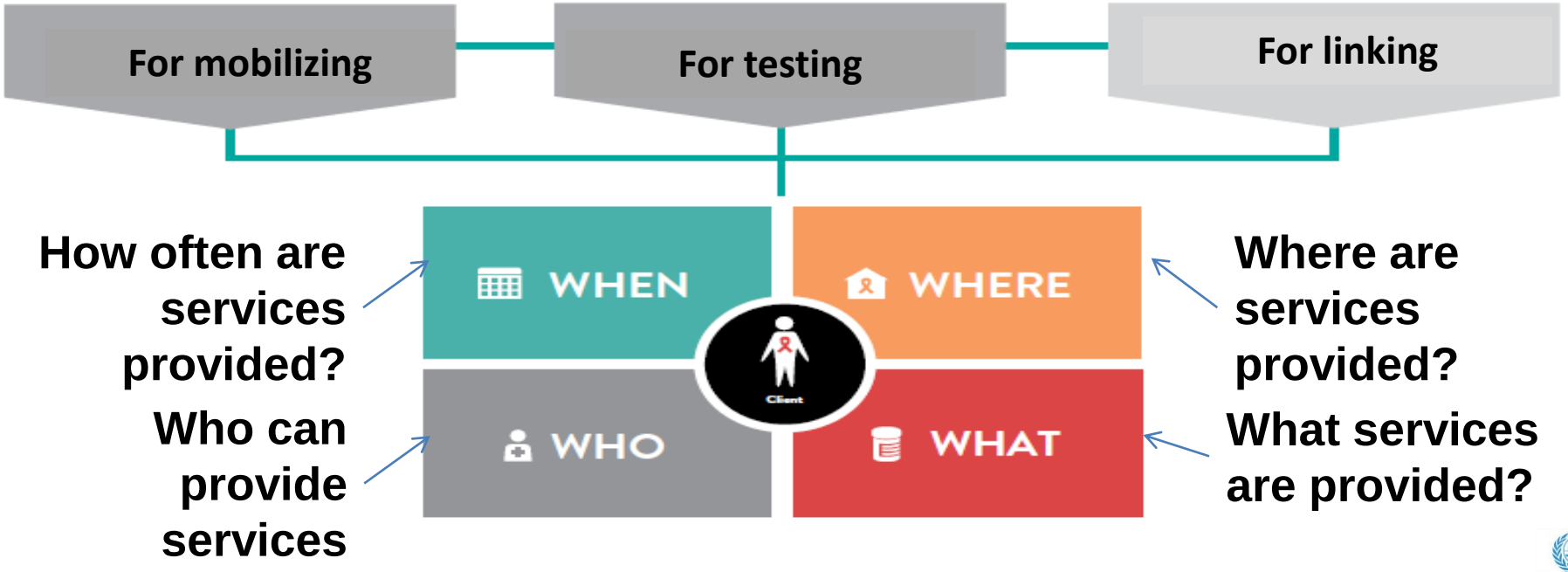
- Health facility
- Non-health facility
- Community
- Self-testing*

Linking

- Referral
- Accompaniment
- Compensation/incentives
- Same day initiation
- Friendly services
- Tracing

World Health Organization

Decision Framework for HIV testing services



World Health Organization

Real-world examples

Building blocks of reaching men in Eshowe, South Africa

	MOBILIZING	TESTING	LINKING
WHEN	Routine outreach and mobilization by male providers and mobilizers	Routine offer	Following HIV-positive test
WHERE	Taxi ranks and locations where men hang out On the farm	Male-friendly satellite clinic; workplace (farm)	Clinics near farm and VMMC
WHO	Male providers, counsellors and mobilizers	Male health workers and counsellors	Male providers, counsellors and mobilizers
WHAT	Community mobilization by all male counsellors and mobilizers	Rapid HIV testing, and screening for STIs, NCDs and TB	ART initiation

- Why differentiated care and how can it facilitate epidemic control
- Effects on linkage, engagement and retention in care
- **Recent advances in HIV service delivery approaches**
- Country examples of success

World Health Organization

Accelerated ART initiation

Benefits and risks of rapid initiation of antiretroviral therapy

Nathan Ford[a,b], Chantal Migone[a], Alexandra Calmy[c], Bernhard Kerschberger[d], Steve Kanters[e], Sabin Nsanzimana[f,g], Edward J. Mills[h], Graeme Meintjes[i], Marco Vitoria[a], Meg Doherty[a] and Zara Shubber[j]

Background: Recent attention has focused on the question of how quickly antiretroviral therapy (ART) should be started once HIV diagnosis is confirmed. We assessed whether rapid ART initiation improves patient outcomes.

Methods: We searched five databases from inception up to August 2017. Rapid ART initiation was defined as initiation within 14 days of HIV diagnosis. Data were pooled using random effects meta-analysis.

Results: Across the randomized trials, ART start on the same day increased viral suppression at 12 months (three trials: relative risk (RR) 1.17, 95% confidence interval (CI) 1.07–1.27), retention in care at 12 months (RR 1.11, 95% CI 0.99–1.26), and the likelihood of starting ART within 90 days (four trials: RR 1.35, 95% CI 1.13–1.62) and 12 months after eligibility was established (three trials: RR 1.17, 95% CI 1.07–1.27). There was a nonsignificant trend toward reduced mortality (three trials: RR 0.53, 95% CI 0.24–1.08), as well as reduced loss to follow-up at 12 months (2 trials: RR 0.66, 95% CI 0.42–1.04). In the observational studies, offering accelerated ART initiation resulted in a greater likelihood of having started ART within 3 months (two studies: RR 1.53, 95% CI 1.11–2.10). There was a trend toward an increased risk of being lost to follow-up at 6 months (three studies: RR 1.85, 95% CI 0.96–3.55).

Conclusion: Accelerated ART initiation can lead to improved clinical outcomes and is likely to be of particular benefit in those settings where extensive patient preparation prior to starting ART results in long delays. These findings informed a WHO recommendation supporting accelerated ART initiation, including same day ART start.

AIDS 2018, **32**:17–23

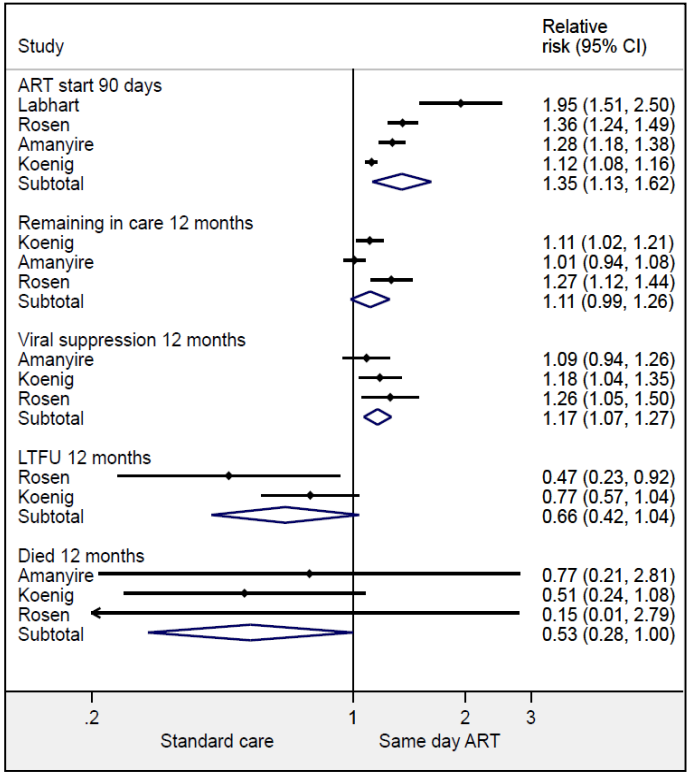
Keywords: antiretroviral therapy, rapid initiation, same day start

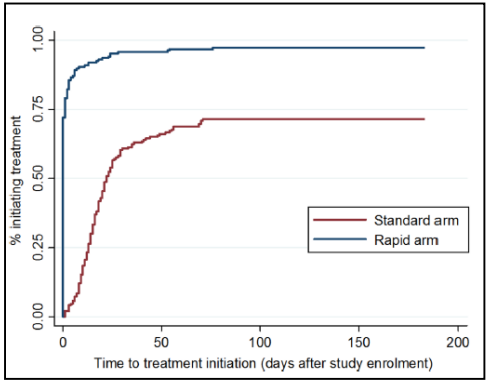
Introduction

The question of when to start antiretroviral therapy (ART) in people living with HIV (PLHIV) has been a major focus of research and policy over the last two decades. Following the results of two large randomized trials demonstrating a clinical benefit to starting ART at any CD4$^+$ cell count [1,2], there has been a rapid shift in global guidelines toward adopting a policy of treating all PLHIV as soon as an HIV diagnosis is confirmed [3].

[a]Department of HIV, World Health Organization, Geneva, Switzerland, [b]Centre for Infectious Disease Epidemiology and Research, University of Cape Town, Cape Town, South Africa, [c]HIV Unit, Division of Infectious Diseases, Geneva University Hospital, Geneva, Switzerland, [d]Médecins sans Frontières, Mbabane, Swaziland, [e]School of Population and Public Health, University of British Columbia, Vancouver, British Columbia, Canada, [f]HIV/AIDS and STIs Diseases Division, Rwanda Biomedical Centre, Kigali, Rwanda, [g]Basel Institute for Clinical Epidemiology and Biostatistics, University Hospital of Basel, Basel, Switzerland, [h]University of Rwanda, Kigali, Rwanda, [i]Department of Medicine, University of Cape Town Health Sciences Faculty, Cape Town, South Africa, and [j]Department of Infectious Disease Epidemiology, Imperial College London, London, UK. Correspondence to Dr Nathan Ford, FRCPE, World Health Organization, 20 Avenue Appia, 1211 Geneva, Switzerland.
E-mail: fordn@who.int
Received: 1 August 2017; revised: 22 September 2017; accepted: 30 September 2017.

DOI:10.1097/QAD.0000000000001671

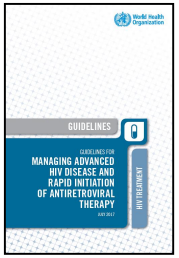




Ford et al, AIDS 2018; Rosen et al Plos Med 2016

World Health Organization

WHO Recommendation

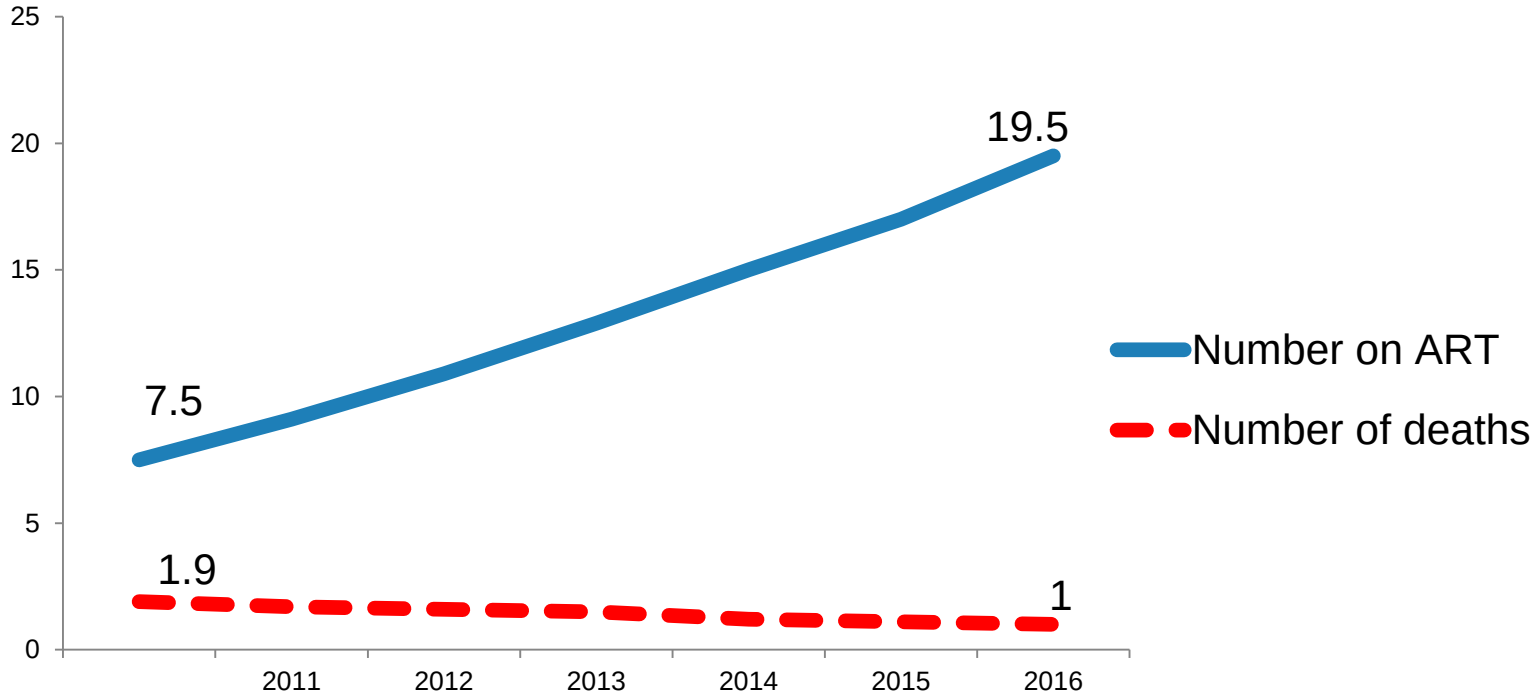


Rapid ART initiation* should be offered to all people living with HIV following a confirmed HIV diagnosis and clinical assessment
(Strong recommendation: high-quality evidence for adults and adolescents; low-quality evidence for children)

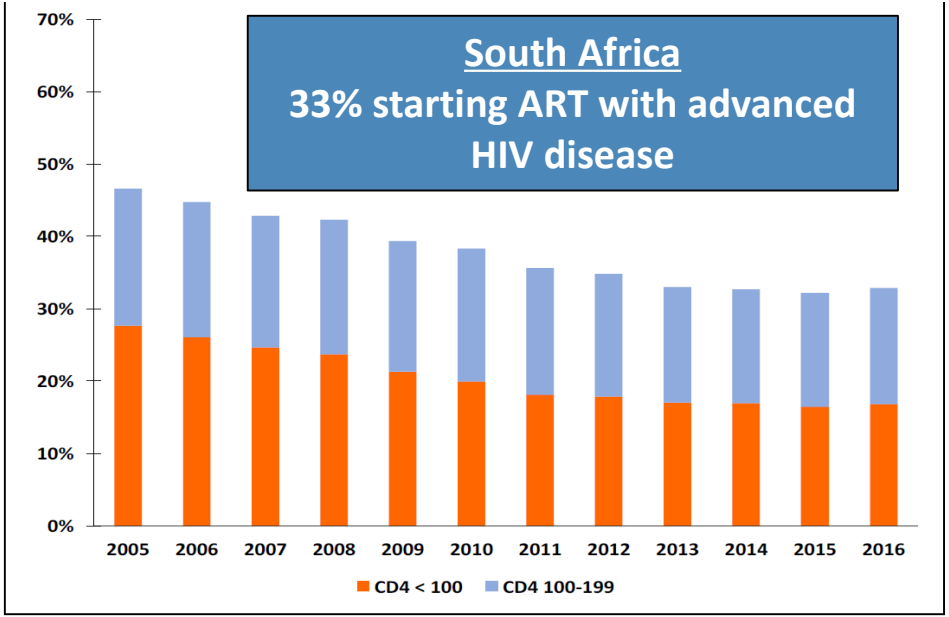
*Rapid initiation is defined **as within seven days from the day of HIV diagnosis**; people with advanced HIV disease should be given priority for assessment and initiation.

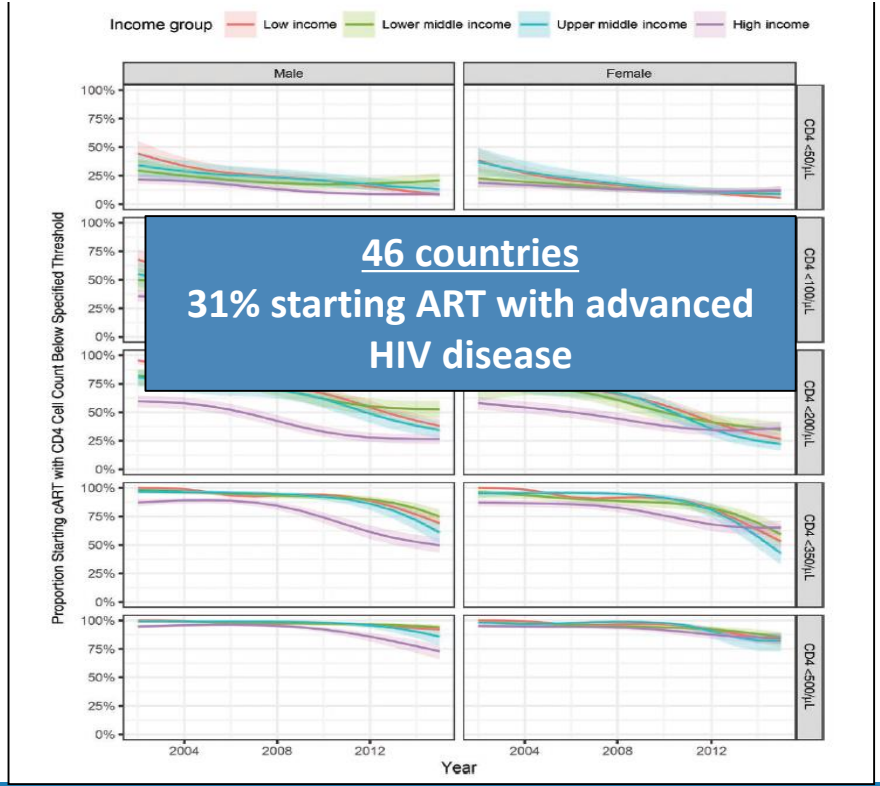
ART initiation should be offered on the same day to people who are ready to start.
(Strong recommendation: high-quality evidence for adults and adolescents; low-quality evidence for children)

Advanced HIV disease



Advanced HIV disease

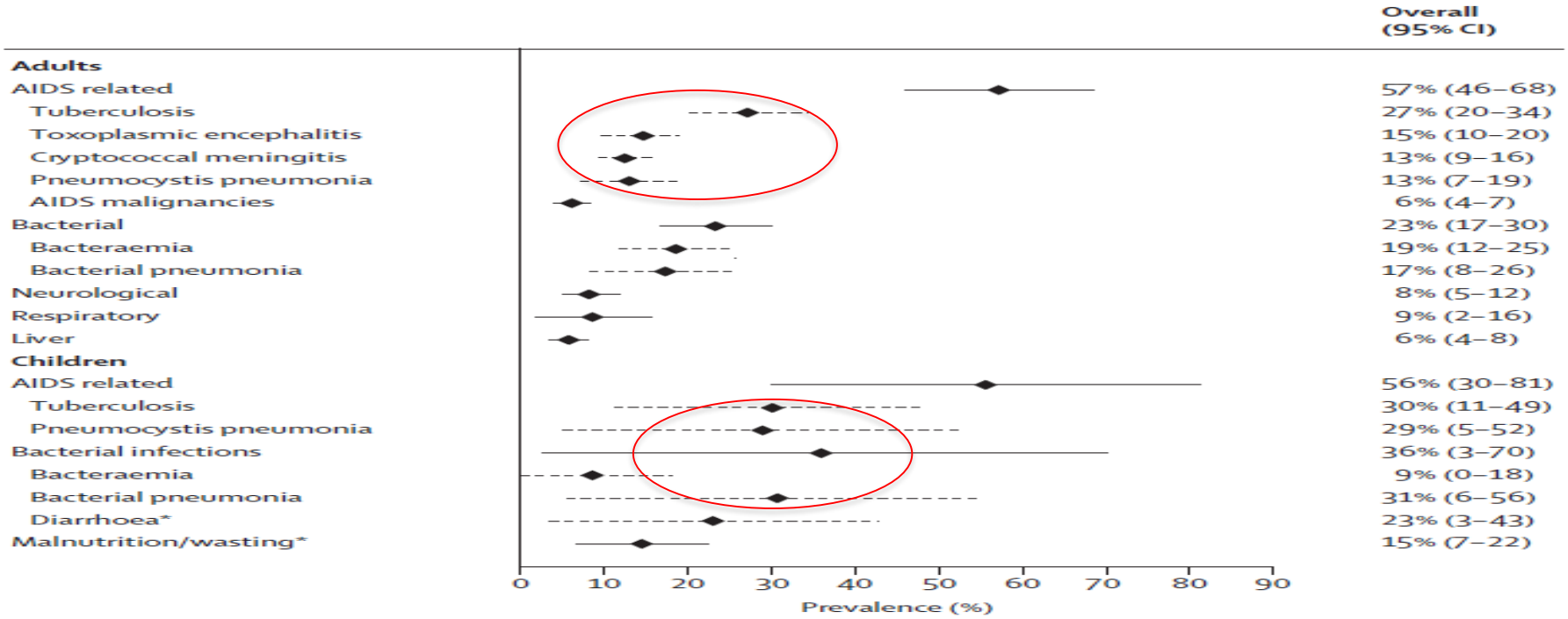




Carmona S et al, *Clin Inf Dis* 2018; IeDEA and COHERE, *Clin Inf Dis* 2017

World Health Organization

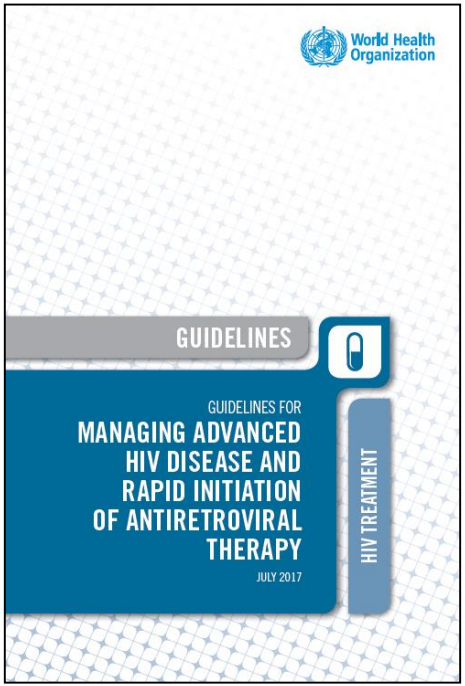
Advanced HIV disease: a public health approach



Ford et al, Lancet HIV 2016

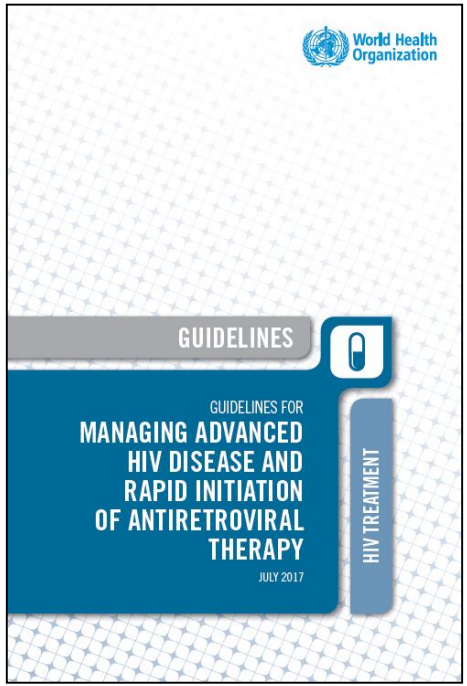
World Health Organization

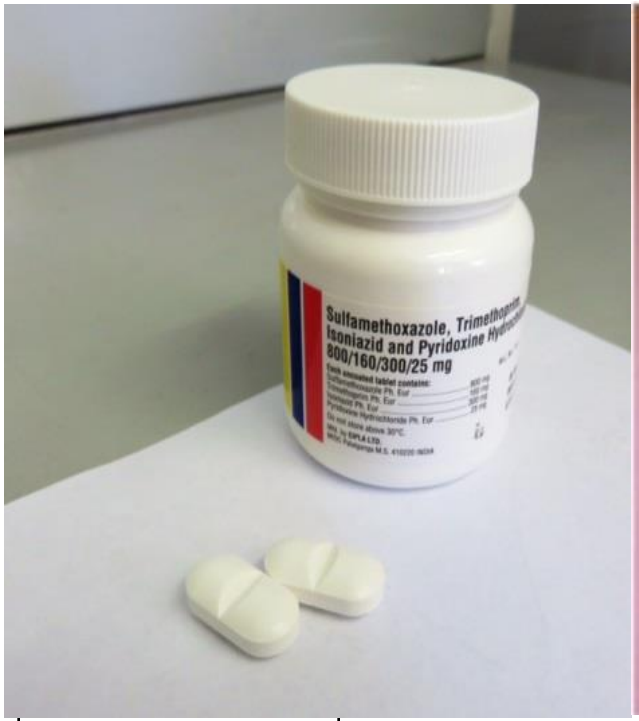
Package of care for people with advanced HIV disease: Screening



Diagnosis	Prophylaxis	ART initiation	Adapted adherence support
XPERT MTB/RIF as first test for TB	Cotrimoxazole prophylaxis	Rapid ART initiation	Tailored counselling for adherence
LF-LAM for TB diagnosis among people with signs and symptoms	TB preventive treatment	Defer if clinical symptoms suggest TB or cryptoccal meningitis	
Cryptococcal antigen screening	Fluconazole pre-emptive therapy		

INH/B6/CTX scored FDC
Half doses if <12 years

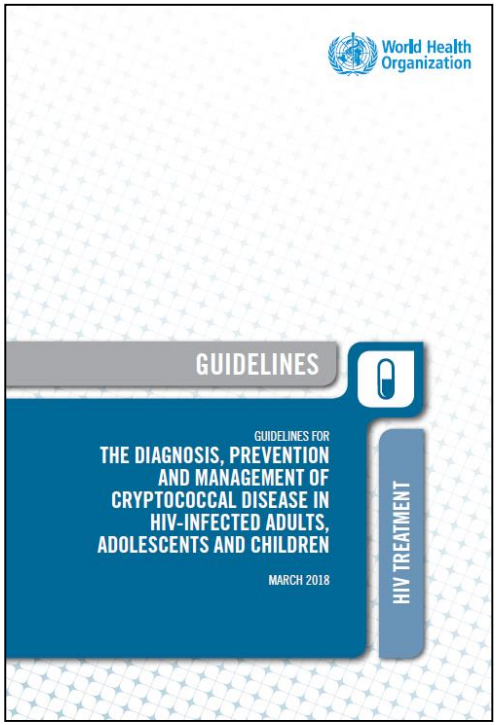




antigen screening	emptive therapy		

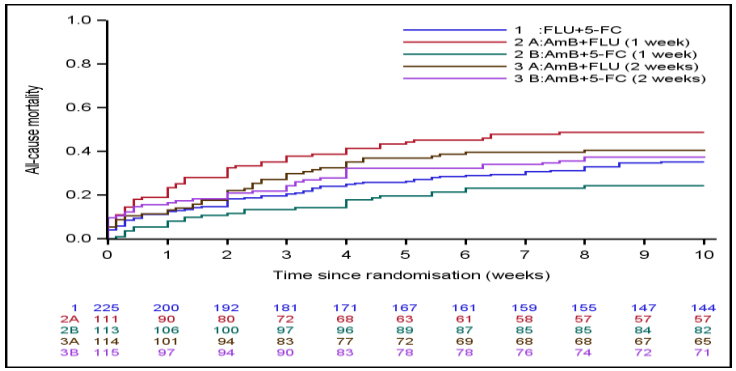
World Health Organization

WHO guidelines for cryptococcal disease



- Diagnosis
- Prevention and screening
- Treatment (1 week Ampho B + Flucytosine)
- (non) use of corticosteroids
- Timing of ART

Shorter induction treatment = better outcomes



WHO 2018; Molloy et al, NEJM 15 March 2018

World Health Organization

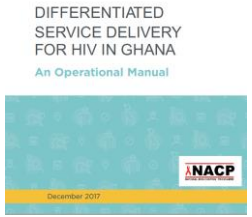
WHO recommendations supporting patients with advanced HIV disease

		Requirements
WHEN?	Close follow-up required	• Training and mentorship • Follow-up mechanisms, adherence support
WHERE?	Hospital & peripheral sites according to clinical status of the person, clinical skills of healthcare workers and access to diagnostics	• Clear care pathways with access to high-level clinical management when required
WHO?	Task-sharing to nurses and other mid-level healthcare workers	• Training and mentorship • Clear referral criteria • Clear care pathways
WHAT?	WHO package of care for advanced disease	• CD4 cell count testing • Point of care diagnostics (CD4, Urine LAM, CrAg, Gene Xpert) • Access to medicines: Co-trimoxazole, TB preventative therapy (IPT), fluconazole as well as ART

- Why differentiated care and how can it facilitate epidemic control
- Effects on linkage, engagement and retention in care
- Recent advances in HIV service delivery approaches
- **Country examples of success**

World Health Organization

Differentiated service delivery: Ghana



Led by Ghana Health Service/National AIDS Control Programme

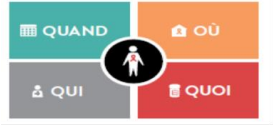
- ✓ Differentiated Service Delivery Operational Manual 2017
- ✓ Stakeholders:
  - Community Health Nurses, Community Health Workers
  - Clinician supervisors
  - Models of Hope (PLHIV)
  - Partners (WHO, GF, UNAIDS, GAC, CBOs, NGOs (EQUIP), NAP+

World Health Organization

Differentiated service delivery: Ghana

Treat All Policy adoption: stable, advanced disease, PW, children, adolescents, KPs

- ✓ Adolescent clinic days
- ✓ Targeted activities for key populations
- ✓ Refills for stable patients scheduled on different days to new enrollements
- ✓ Multi month prescribing and dispensing (6 months)



World Health Organization

Differentiated Care in Cameroon

Target:

- ✓ Increase ART coverage by 33%
- ✓ Improve ART retention from 60% in 2014 to 90% in 2020

Community ART delivery in 3 models:

- PODI (Point de Dispensation Communautaire
- Support Groups or Adherence clubs
- Community ART groups

World Health Organization

Increasing trend in ART delivered by community Cameroon -- June to December 2017

Source: Anne Marie WEDROGO and James Clovis KAYO | Consultants DAT ONUSIDA

World Health Organization

Summary

- **DSD not just for stable clients**
  - is for children, adolescents, pregnant women, key populations and those with advanced disease
  - Is for testing and linkage
- **DSD policies vary in uptake and implementation**
  - 1/3/6/12 months ART dispensing with 3 mos. most common
  - Implementation of clinic visit spacing more common than ART dispensing
  - Community ART: further progress can be made
  - Task shifting for children remains limited
- **Real world experience**
  - Improved linkage
  - Improved retention and VL suppression
  - Helping countries with poor ARV coverage to take programmes to scale

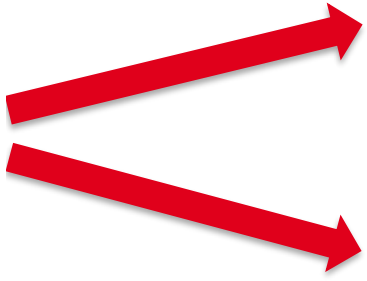
World Health Organization

It's time to *test* and *treat* differently: Comparing and contrasting differentiated service delivery along the HIV care cascade from countries and communities

Satellite session at AIDS 2018

Organized by the International AIDS Society and World Health Organization

Date and time: Monday, July 23rd, TBC (08h00-10h00)



Decision Framework for key populations

Decision Framework for HIV testing services

World Health Organization

DIFFERENTIATED CARE

Sign up for the quarterly newsletter for updates

nowledgements

an Ford
Grimsrud
tal Migone
tte Verster
nia MacDonald

Online knowledge repository

www.differentiatedcare.org

Global and country guidance

- **ART delivery model examples & tools**
- **Published evidence & resources**