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CHALLENGE > **TB**

Drug-Resistant TB/HIV Algorithm

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This job aid is designed to guide health care workers in the management of DR-TB patients with HIV co-infection.

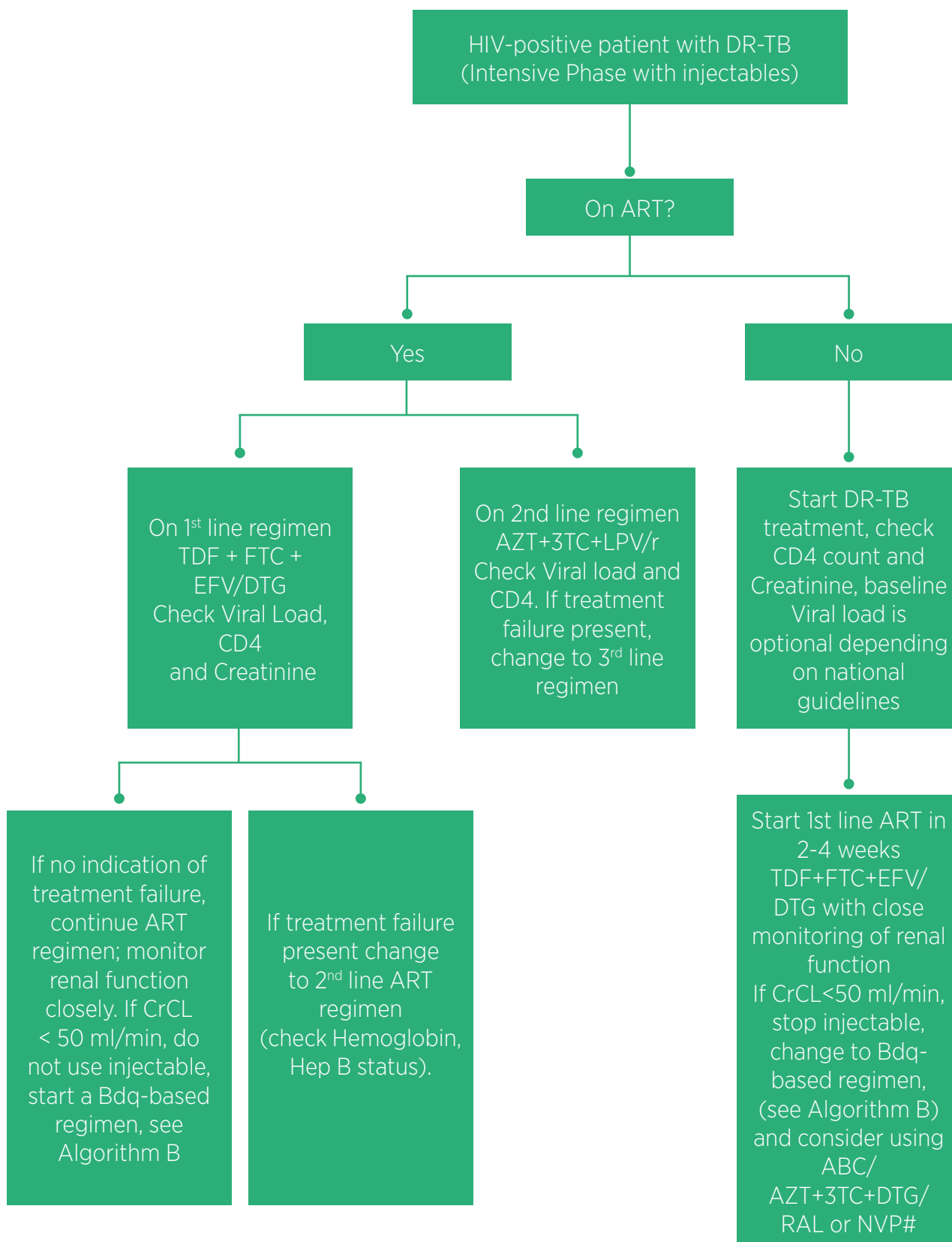
This algorithm was developed as an output of the “Core - Bedaquiline Coordination Project” for the USAID-funded Challenge TB Project.

This document was prepared by Marcela Tommasi and Inge Koppelaar, with the contributions of Celeste Edwards, Mamel Quelapio (KNCV Tuberculosis Foundation) and Olga Pavlova (PATH).

Design and layout by Tristan Bayly.

Algorithm A

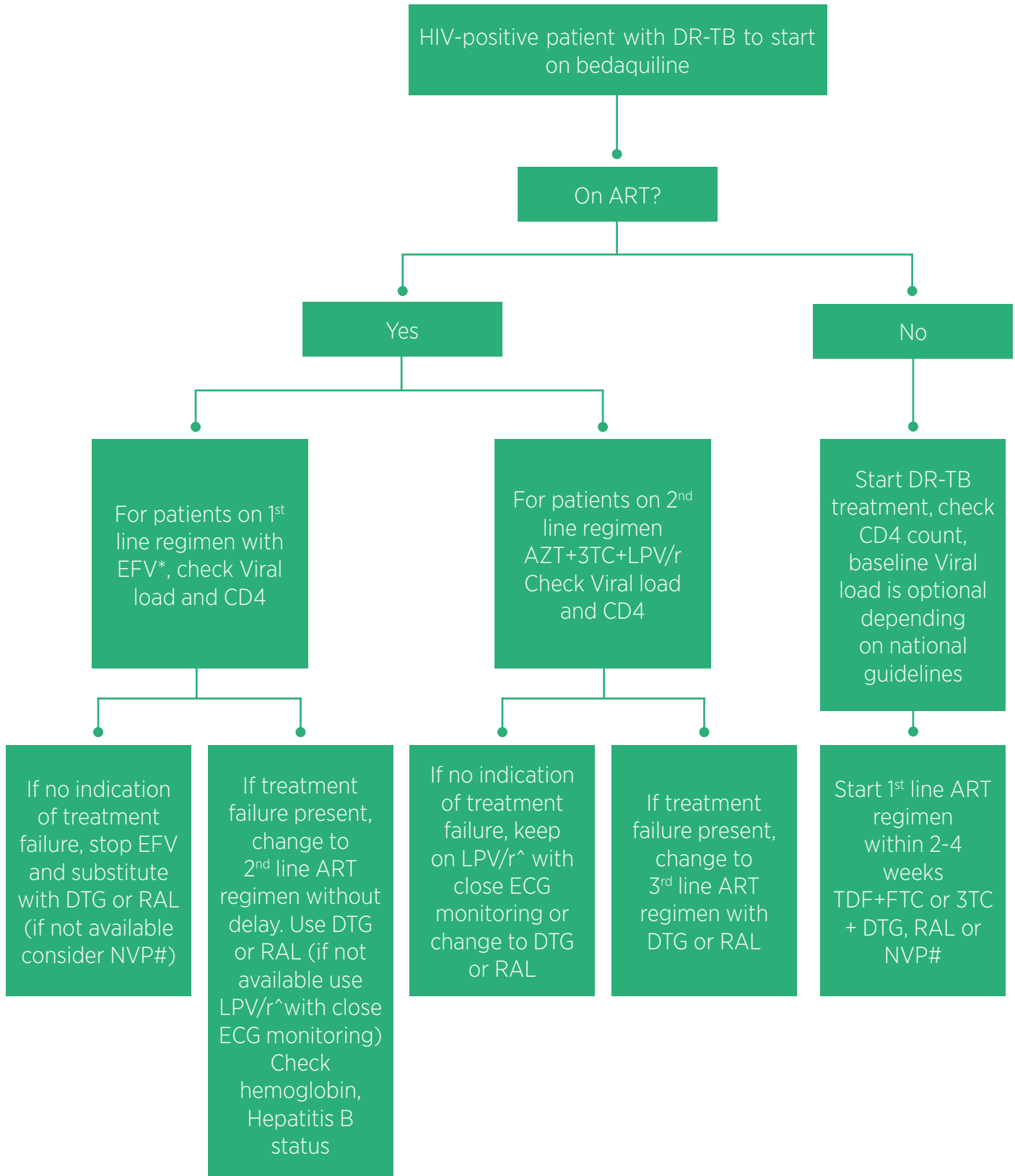
ART with injectable-containing DR-TB regimen (without bedaquiline)



#use NVP only if no other options available and with caution if CD4 count > 250 cells/ μ l for females and > 400 cells/ μ l in males to avoid hepatotoxicity and monitor LFT closely.

Algorithm B

ART with bedaquiline-based DR-TB regimen



*EFV reduces steady state concentrations of bedaquiline by 52% (modeling study). Allow at least 5 days wash out when substituting EFV, unless the patient is critically ill. Switching back to EFV can be done immediately after bedaquiline is stopped.

#use NVP only if no other options are available and with caution if CD4 count > 250 cells/ μ l for females and > 400 cells/ μ l in males to avoid hepatotoxicity and monitor LFT closely.

^LPV/r increases bedaquiline levels, hence the need for intensified ECG monitoring.

Overview of drug-drug interactions: ART and new DR-TB drugs

Antiretroviral	Bedaquiline	Delamanid
Efavirenz	Do not co-administer	No interaction
Nevirapine	No dose adjustment	Not expected
Rilpivirine	Not expected	Not expected
Lopinavir/Ritonavir	Increases bedaquiline exposure: may lead to toxicity?	Increased delamanid exposure: clinical relevance?
Atazanavir/Ritonavir		
Darunavir/Ritonavir		
Raltegravir	No interaction expected	Not studied, no interaction expected
Dolutegravir		

Source: Dr. Singh: New antiretroviral agents and dosing with TB treatment 15 June 2017 8th SA AIDS Conference

WHO Definitions on treatment failure for patients on ART

Clinical failure: New or recurrent clinical event indicating severe immunodeficiency (WHO clinical stage 4 condition) after 6 months of effective treatment. For adults, certain WHO Stage 3 clinical conditions (pulmonary TB and severe bacterial infections) may also indicate therapeutic failure.

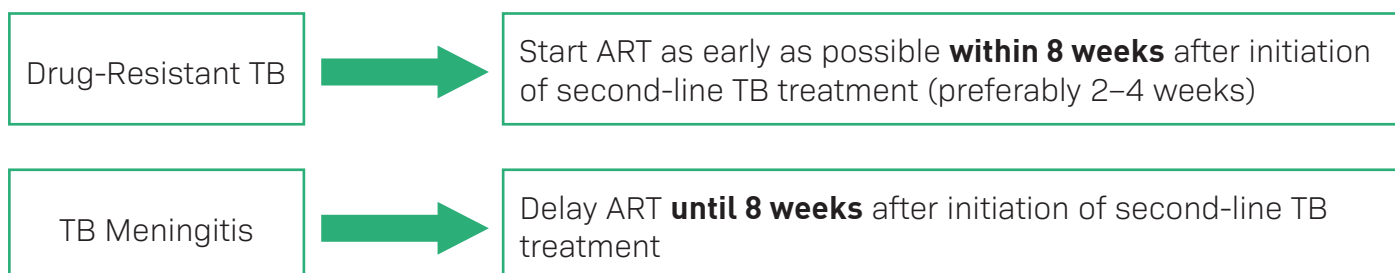
The condition must be differentiated from immune reconstitution inflammatory syndrome occurring after initiating ART.

Immunological failure: CD4 count ≤ 250 cells/mm³ after clinical failure or CD4 levels persistently below 100 cells/mm³.

Virological failure: Viral load above 1000 copies/ml based on two consecutive viral load measurements in 3 months, with adherence support following the first viral load test. After at least 6-months on ART.

Source: WHO guidelines on the use on antiretroviral drugs for treating and preventing HIV infection. 2nd edition 2016

Timing of ART Initiation



Source: Companion Handbook to WHO guidelines on programmatic management drug-resistant TB update 2016

ARV Drug Classes and Dosages

Drug Class	Name	Dosage
Nucleoside reverse transcriptase Inhibitors (NRTI)	Abacavir (ABC)	300 mg twice or 600 mg once daily
	Zidovudine (AZT)	300 mg twice daily
	Lamivudine (3TC)	150 mg twice or 300 mg once daily
	Emtricitabine (FTC)	200 mg once daily
Nucleotide reverse transcriptase Inhibitors (NtRTI)	Tenofovir (TDF)	300 mg once daily
Non-nucleoside reverse transcriptase Inhibitors (NNRTI)	Efavirenz (EFV)	400-600 mg once daily
	Nevirapine (NVP)	200 mg once (14 days) - 200 mg twice daily
	Etravirine (ETV)	200 mg twice daily
	Rilpivirine (RPV)	25 mg once daily
Integrase Inhibitors (INSTI)	Dolutegravir (DTG)	50 mg once daily
	Raltegravir (RAL)	400 mg twice daily
Protease Inhibitors (PI)	Lopinavir/Ritonavir (LPV/r)	400 mg/100 mg twice daily
	Darunavir/Ritonavir or cobicistat (DRV/r or k)	800 mg/100 mg once daily (PI naïve) or 600 mg/100 mg twice daily (previous PI use)
	Atazanavir/Ritonavir (ATV/r)	300 mg/100 mg once daily

Source: WHO guidelines on the use on antiretroviral drugs for treating and preventing HIV infection. 2nd edition 2016

