Georgia Department of Public Health

Multi-Drug Resistant TB Flow Sheet

Name: DOB:	History:

TREATMENT REGIMEN

Date	INH	RIF	PZA	EMB	RFB	SM	KM	AK	CM	PAS	ETA	LFX	MFX	CS	B6		Comments

SUSCEPTIBILITY RESULTS

Date	Specimen	Lab	INH	RIF	PZA	EMB	RFB	SM	KM	AK	CM	PAS	ETA	LFX	MFX	CS	Comments

LAB RESULTS

Date	Weight	AST	ALT	Bili	Alk Phos.	BUN	SCr	24 hr CrCl	Hgb / Hct	WBC	Platelets	TSH	HbA1c	CD4+ count	Viral Load	Visual Screen	Vestibular Screen	Audiogram

Multi-Drug Resistant TB Flow Sheet
INSTRUCTIONS FOR USE

- In taking care of patients with TB who have drug resistance or who are on an alternative regimen that essentially makes them drug resistant, monitoring their clinical course can be complicated.
- The outcome of treatment is likely to vary depending on the number of drugs to which the isolate is resistant, the drugs used, the duration of therapy, the extent of disease, and the presence of other medical conditions, such as HIV infection. Standard dose counting can not be used to determine completion of therapy.
- The attached form is a flow sheet that can aid in organizing data and monitoring a patient on a complicated regimen.
- A sample MDR care plan is also attached that describes specific monitoring with specific medications.
- An excellent reference for information on TB medications and care of a patient with drug resistance is "Drug resistant Tuberculosis: A Survival Guide for Clinicians, 2nd ed. Published by the Francis J. Curry National TB Center and is available on line www.nationaltbcenter.edu/drtb.

Abbreviations Used:

INH = Isoniazid	SM = Streptomycin	ETA = Ethionamide	Bili = Bilirubin
RIF = Rifampin	KM = Kanamycin	LFX = Levofloxacin	AlkPhos = Alkaline Phosphotase
PZA = Pyrazinamide	AK = Amikacin	MFX = Moxifloxacin	SCr = Serum Creatinine
EMB = Ethambutol	CM = Capreomycin	CS = Cycloserine	
RFB = Rifabutin	PAS = P-Aminosalicylic Acid	B6 = Pyridoxine	

Complete the form as shown below:

Name: John Doe or Clinic Label DOB: MM/DD/YYYY	History: 32 year old W/M from India with Pulmonary TB; S+ C+; CXR with cavity; DX 07/21/08; Treated for TB in India in 2007.HIV + / CD4 83

TREATMENT REGIMEN

Date	INH	RIF	PZA	EMB	RFB	SM	KM	AK	CM	PAS	ETA	LFX	MFX	CS		Comments
07/01/08	300	600	1500	1200												
09/05/08			1500	1200				700		12G	750	750		500		Pic Line 09/03/08
09/15/08			1500	1200				700			750	750		500		PAS D/C'd due to nausea & vomiting

SUSCEPTIBILITY RESULTS

Date	Specimen	Lab	INH	RIF	PZA	EMB	RFB	SM	KM	AK	CM	PAS	ETA	LFX	MFX	CS	Comments
07/01/08	Sputum	PHL	R	R	S	S	R	R	S	S	S	S	S	S	S	S	Reported 09/02/08
09/07/08	Sputum	PHL	R	R	S	S	R	R	S	S	S	S	S	S	S	S	

LAB RESULTS

Date	Weight	AST	ALT	Bili	Alk Phos.	BUN	SCr	24 hr CrCl	Hgb / Hct	WBC	Platelets	TSH	HbA1c	CD4+ count	Viral Load	Visual Screen	Vestibular Screen	Audiogram
07/01/08	78kg	46	52	0.8	145	20	1.0		12 / 30	3.0	72	1.2		83	72k	Passed	Passed	N/A
08/05/08	69kg	35	40	0.9	130	18	0.8		12 / 31	4.2	90					Passed	Passed	N/A
09/04/08	67kg	37	56	1.2	134	18	0.9		11 / 30	3.9	92	1.3				Passed	Passed	Passed

Monitoring Tool 2: Care Plan

Baseline	Initiation of Treatment	Month 1	Month 2	Month 3	Month 4	Month 6	Month 9	Month 12	Month 18	Month 24
CXR – PA & lateral; Compare to old films	Consider CT and alternate views	CXR		CXR		CXR		CXR, Consider CT	CXR	CXR, Consider CT
TST Report case to LHD										
Request/review old records	Physician assessment	Physician assessment q 1-2 weeks	Physician assessment q 1-2 weeks	Physician assessment monthly →						
Create drug-o-gram	Update drug-o-gram	Update drug-o-gram →								
CBC, metabolic panel, 24° creatinine clearance*; review prior abnormal labs		CBC, LFTs, K+, Ca++, Mg++, Creat Clearance serially as indicated (see chapters 6&7) →								
HIV serology with pre/post test counseling		If HIV+: CD4, viral load	Evaluate for treatment →							
Baseline TSH (cycloserine / ethionamide)				TSH q 3 mo - Synthroid if elevated TSH →						
Review prior sputum results. Repeat sputum	Sputum q a.m. x3 days	Sputum x3 q 2 weeks until smear-negative	Sputum x2-3 q 1 mo until culture-negative	Sputum x2-3 q 1 mo until culture-negative	Sputum x1-2 q 1 mo →					
Review susceptibilities; request extended susceptibility tests	Follow-up pending susceptibilities			Repeat susceptibility if sputum culture-positive	Repeat serially for persistently positive cultures →					
Infection control/isolation	Continue until culture negative x3 (see chapter 8) →									
Consider insertion of indwelling catheter	Aminoglycoside and/or Capreomycin IV (IM) 5-7 days/wk	Consider peak/trough drug levels**	Consider peak/trough drug levels**		Consider peak/trough drug levels**	Δ to 3x/wk after 2-6 months	Discontinue after culture-negative 6-12 months			
	4-6 oral drugs	Consider peak drug levels**		Consider peak drug levels**				Consider peak drug levels**		
	DOT initiated/pt educated	Educate as needed →								
	Pyridoxine 100-150 mg (or more)	As long as ethionamide or cycloserine given →								
	Baseline weight	Weigh 2x/week	Weigh monthly →							
	Nutritional assessment	Nutritional supplement as needed (Not within 2 hours of fluoroquinolone) →								
Audiogram/vestibular screen. Continue monthly as long as aminoglycoside/capreomycin given →										
Vision and color discrimination screens monthly while EMB, clofazimine, or rifabutin used →										
Assess & Address	Substance abuse/psychosocial factors influencing compliance →									
Assess & Address	Education needs →									
Assess & Address	Complete contact eval (LHD) →									

* 24 hr. creatinine clearance if any elevation of creatinine or any question of renal compromise. Repeat if change in renal function.
** Some experts document drug levels for all patients. Adjust dose or interval and repeat as needed.

Adapted from Tuberculosis Resource and Education Center
www.tdh.state.tx.us/tcid/TB-Education-Ctr.htm