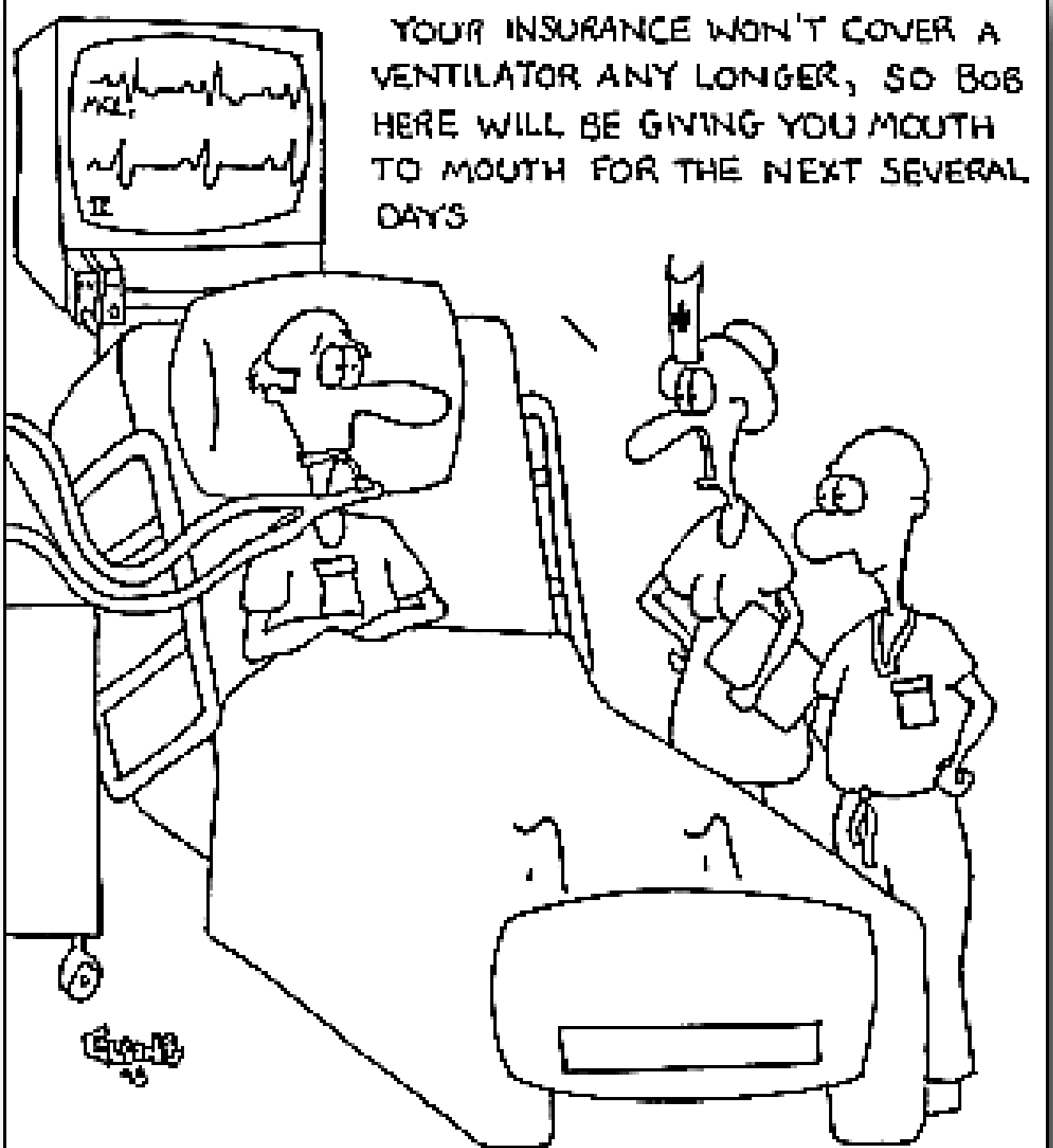
Managing the Patients Response to TB Treatment

Jacquline I Maldonado, MSN, RN

Essentials of TB Nurse Case Management Online

Jacquline I Maldonado, MSN, RN has the following disclosures to make:

- No conflict of interests
- No relevant financial relationships with any commercial companies pertaining to this educational activity


YOUR INSURANCE WON'T COVER A VENTILATOR ANY LONGER, SO BOB HERE WILL BE GIVING YOU MOUTH TO MOUTH FOR THE NEXT SEVERAL DAYS

Joys of Health Care

Objectives

- Identify Components that will determine if the patient is responding to treatment
- How to determine why the patient is NOT responding to treatment
- Determine if the patient is responding to anti-TB therapy via: clinical, bacteriologic, and radiographic responses.

Objectives Continued

- Identify next steps to take when the TB pt is not responding to therapy via: assessing adherence, identifying adverse reactions, drawing serum drug levels, and repeating susceptibility testing if possible.

Goals of TB Treatment

- Cure patient, minimize risk of death/disability, prevent transmission to others
- Provide safest, most effective therapy in shortest period of time (6 months or longer)
- Prescribe multiple drugs to which the organism are susceptible
- Never treat with a single drug or add a single drug to failing therapy
- Ensure adherence and completion of therapy

Develop Treatment and Monitoring Plan

- Plan should include:
  - Description of treatment regimen
  - Methods for assessing/ensuring adherence
  - Methods to monitor for adverse reactions
  - Methods for evaluating treatment response

Texas Department of State Health Services

TB Case and Suspect Management Plan

Patient's Name: _____ **Initial Report Date:** _____

Nurse Case Manager: _____ **Case Management Team:** _____

Directions: Blank boxes indicate week(s) TB service is to be provided. ***Document date and initials of the provider in the appropriate box when the task is completed.*** Document comments in progress notes.

	Action / Interval:	0 Begin	2 Wks	4 Wks	8 Wks	12 Wks	16 Wks	20 Wks	24 Wks	26 Wks
	Date:									
Responsibility	Assign nurse case manager; establish team; document in client's record									
Medical Evaluation	Obtain medical history; document on TB-202									
	Obtain release (L-30); request previous medical records									
	MD evaluation									
	RN evaluation									
	Mantoux skin test (if not previously done)									
	Chest X-ray									
	Supervised sputum for AFB smear/culture according to protocol									
	HIV testing, unless patient has knowledge of HIV+ status or has documented negative HIV test result within 14 days of TB diagnosis									
	Nutritional assessment									
Treatment	Drug regimen according to protocol or specific order									
	Initiate DOT on all cases/suspects: Daily X2 weeks, 2X/week (Mon/Thurs or Tues/Fri) or 3X/week (Mon/Wed/Fri) until completion of adequate therapy; document DOT on TB-206									
	Pyrazinamide X2 months and ethambutol X2 months (or until susceptibilities are reported and client's organism is known to be pan sensitive)									
	Vitamin B6 (if pregnant, diabetic, at risk for peripheral neuropathy)									
	Obtain Informed Consent form TB-411 (TB-411A, if Spanish speaking, only) initially and for any drugs added to regimen.									
Consultation	Obtain expert consult for drug resistant cases, complicated adult/pediatric cases or client who remains symptomatic or sputum positive after 2 months therapy; written consult in client record									
Toxicity/ Clinical Assessment	Clinical assessment according to protocol; document (TB-205 and progress note as appropriate)									
	Visual acuity (Snellen) and color discrimination (Ishihara Plates) initially and monthly if on EMB or rifabutin; document (TB-205)									
	Hearing sweep check initially and monthly if on amikacin, capreomycin, kanamycin or streptomycin; document (TB-205)									

TB Case and Suspect Management Plan for Outpatient Care

	Action Interval:	0 Begin	2 Wks	4 Wks	8 Wks	12 Wks	16 Wks	20 Wks	24 Wks	26 Wks
	Date:									
Adherence	Issue Order to Implement Measures for a Client With Tuberculosis form TB-410 (TB-410A, if Spanish speaking, only) on all cases/suspects									
	Follow-up missed appointments within 1 working day; initiate court-ordered management according to TDH policy (see TB Policy Manual, Section 5) and notify Regional office									
	Evaluate barriers to treatment									
Isolation	Conduct site visit to assess living situation.									
	Institute isolation in congregate living situation or home and exclude from work or school, if infectious									
	Discontinue congregate setting isolation or allow to return to work/school following at least 2 wks appropriate therapy, 3 consecutive negative smears on different days and an improvement of symptoms									
Education	Appropriate client education provided initially and monthly per protocol; written instructions and monthly review of medication side effects, document on TB-203									
Public Health/ Contact Investigation	Interview case/suspect and contacts; plan contact investigation using the "Concentric Circle" approach									
	Initiate contact investigation within 3 working days; interview and evaluate (skin test/reading, CXR, medical evaluation); document on TB-340									
	Expand contact investigation according to CDC guidelines and local criteria for expansion.									
	Provide second skin test 8-10 weeks after break in contact with the case to all contacts who were skin test negative on the initial test; document on TB-340									
	Provide education and counseling for contacts									
Reporting	Report suspect/case to state designated case registry within 1 working day of notification									
	Submit TB-400A and TB-400B (all data fields complete) within 7 days of diagnosis; submit TB-400B at least quarterly and at the time of closure									
	Submit TB-340 within 14 working days of initiating contact investigation and after second testing of negative contacts is complete									
Quality Assurance Review	Clinical supervisor or TB Program Manager reviews and evaluates contact investigation									
	Team review of client record									
Social Services	Enroll in Medicaid, if eligible; make appropriate referrals to drug/alcohol treatment programs, nutritional support programs, and refer for HIV services, if necessary									

PRINTED NAME:_____ SIGNATURE:_____ INITIALS:_____

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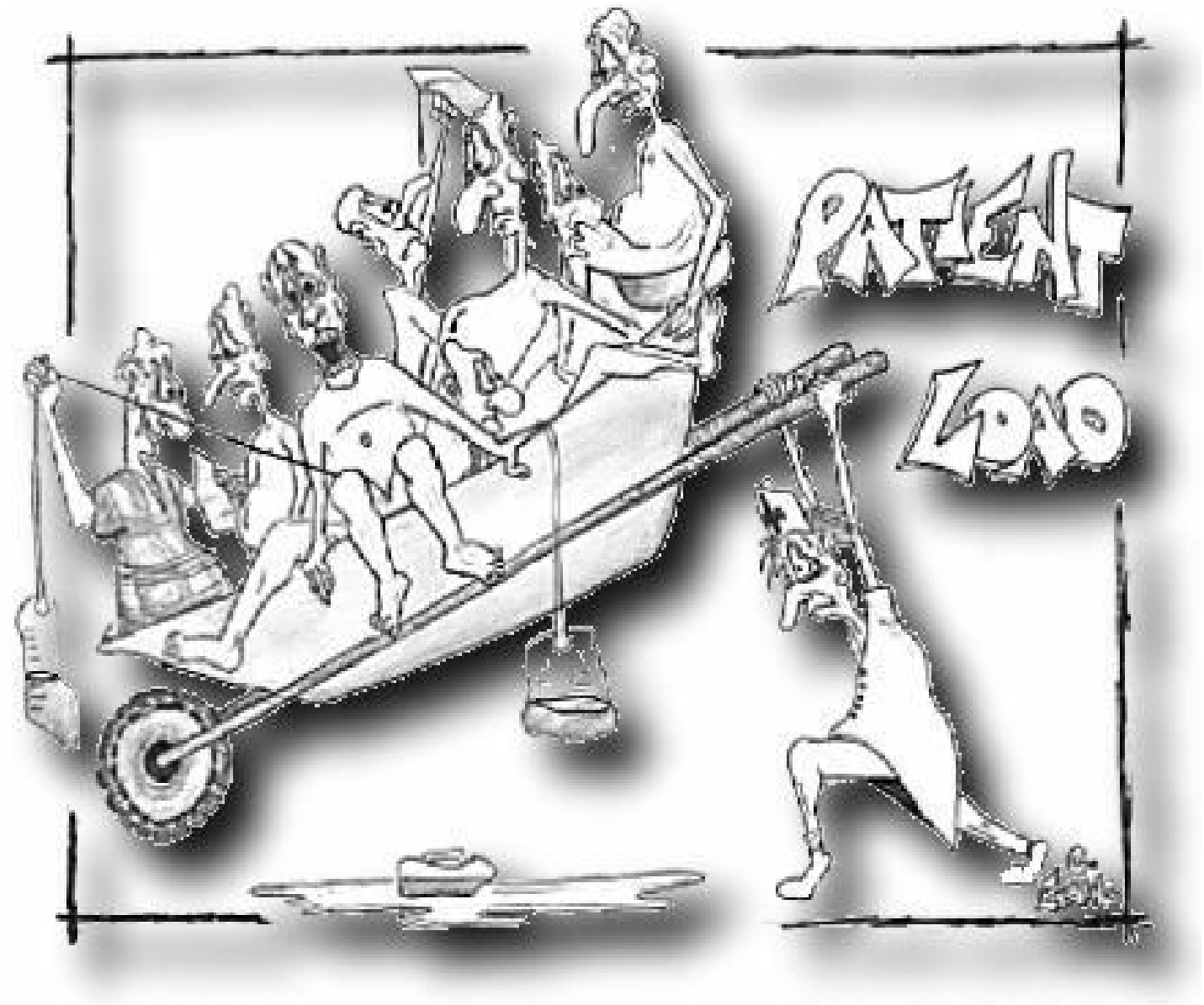
Case Management



Nursing Management

- Administrative
- Initial Assessment
- **Monitoring**
- Treatment

Texas Department of State Health Services
Tuberculosis Education/Counseling Record

NAME: _____ **D.O.B.:** ____/____/____ **SS#:** ____/____/____

Instructions: 1. Provide appropriate Education/Counseling to ALL TB clients. 2. Each client must have an education/counseling plan based on individual assessment and need. 3. This tool serves as a guideline but education/counseling should not be limited to this information only. 4. Initial each box as education/counseling is performed. 5. The (Y) □ indicates when instruction should occur. 6. Standardized printed materials (in client's preferred language, if available) are provided to client on the initial visit. 7. Staff providing client education must be familiar with reference information listed in the TB standing delegation orders.	**Language used for education/ counseling:** **Interpreter names:** **Comments:**								
	Initial Visit	**1 Mo Date**	**2 Mo Date**	**3 Mo Date**	**4 Mo Date**	**5 Mo Date**	**6 Mo Date**	**7 Mo Date**	**8 Mo Date**	**9 Mo Date**
TRANSMISSION/PATHOGENESIS: • Signs/symptoms of TB disease • Airborne disease / Shared airspace • Infectiousness of case • PPD(+) 2-10 weeks after initial infection • TB infection vs. disease	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
INFECTION CONTROL MEASURES: □ • Proper use of masks and tissues • Isolation/return to work after 3 negative smears, clinically improved, DOT for 2 weeks • Sputum collection	✔	✔	✔	✔						
EVALUATION: • PPD testing/significance, CXR results, other tests	✔						✔			✔
HIGH RISK GROUPS/FACTORS: • Diabetics, Silicosis, HIV+, Gastric resection • Alcohol/drug abuse (IVDU), Underweight • Corticosteroids, TNF-alpha antagonists • Foreign born, Resident of correctional or long term care facility	✔	✔	✔							
MEDICATION: • Possible side effects, actions to take if side effects occur • Increased risk of side effects if post-partum, alcohol abuse, kidney or liver disease • Benefits = cure of disease or prevention of disease • Administration = dosage/frequency, length of treatment, DOT/DOPT	✔	✔	✔							

Evaluating Response to Treatment

- Three methods used to assess patient's response to treatment
  - –Clinical Evaluation
  - –Bacteriological examination
  - –Chest radiograph

Monitoring-Clinical

- Perform Clinical Evaluation-Monthly
  - Identify possible adverse reactions
  - Assess Adherence
  - Determine treatment efficacy
  - Keep open line of communication with your DOT worker to assess how your patient is doing in the field

DOT Worker Engagement

- It is imperative that the nurse case manager keep open communication with their DOT workers at least on a weekly basis to ensure that patients receiving DOT in the field are adherent to therapy and are not experiencing adverse effects with their therapy.
- The DOT worker should phone the case manager if a patient complains of s/s of toxicity before providing DOT.
- If there are concerns that the patient is not ingesting the medication, the DOT worker should ask the patient to open their mouth for observation after DOT to ensure that the patient is not holding the meds in their mouth to be spit out later.

Nursing Management

- When a patient is complaining of adverse effects in the field, it is the nurse case manager's responsibility to hold the DOT PRN and advise the pt's MD of the concern. The nurse may also need to bring the patient into the clinic or perform a field visit to obtain labs on the patient to assess health status.
- If there are concerns of hepatoxicity, the DOT should be kept on hold until LFTs come in and are WNL for resuming the pt's DOT.

Monitoring-Clinical

- Is there symptom improvement?
  - Assess symptoms at least monthly
    - Gradual improvement
    - Complete resolving of symptoms
- Symptoms **NOT** improving?
  - After first 2 months
    - Reevaluate for adherence/resistance
  - Symptoms worsening?
    - Reevaluate for adherence issues
    - Development of drug resistance
    - Consider drawing serum drug levels if at 3 months still culture positive (AFB culture positive at 4 months is a treatment failure)

Pulmonary TB Symptoms to Assess--Is there Clinical Improvement in the Following:

- Cough
- Hemoptysis
- Loss of Appetite
- Weight Loss
- Fever/Chills
- Dyspnea
- Chest Pain
- Fatigue
- Night Sweats

Monitoring-Clinical

- Adverse Drug Reaction
  - Type and frequency dependent on meds used and patient's risk
  - Relatively rare but may be severe
  - Educate patient on common side effects

Treating After an Adverse Reaction

- Let reaction resolve (i.e., pt to take Benadryl for itchy rash and don't restart medications until rash resolves)
- Get expert consult
- Start medications one by one "serially" at low doses and build up to full dose on each medication before introducing new medication. Pt must come into clinic to be observed in case of another reaction; have emergency medications for severe allergy/anaphylaxis
- Try to figure out which medication caused the reaction and see if pt could be treated without that medication
- Don't count any of the serial doses until patient has an adequate regimen on board

Texas Department of State Health Services
Clinical Assessment for Tuberculosis Disease Medication Toxicity

NAME: _____ **D.O.B.:** ____/____/____ **SS#:** ____/___/_____

Adverse Drug Reaction Assessment:
Ask questions (1-19) when patient is on first-line drugs and ask questions (1-29) if any second-line drugs are added to patient's regimen. Document [+] results in the progress notes and notify the physician. Notify physician if a woman of childbearing age indicates that she thinks she may be pregnant or has signs of pregnancy.
Results: [+] = If Present [-] = If Denies [NA] = If Not Applicable

	Date	Date	Date	Date	Date	Date	Date	Date	Date
Weight									
Temperature									
Blood Pressure									
Do you have any of the following symptoms now or since your last clinic appointment?									
1. Loss of Appetite									
2. Nausea/Vomiting									
3. Urine Color Change (Dark)									
4. Skin Rashes/Dry									
5. Sores on Lips or Inside the Mouth									
6. Numbness/Tingling (Hands/Feet, Face/Mouth)									
7. Change in Vision*									
8. Eye Pain/Irritation (Redness, Excessive Tears)									
9. Jaundice (Yellow Skin/Eyes)									
10. Flu-like Symptoms									
11. Fatigue									
12. Headaches									
13. Fever									
14. Joint Pains/Swelling									
15. Urine Output ↕									
16. Bleeding (Nose Bleeds, Hemoptysis)									
17. Vertigo/Dizziness/Fainting									
Teeter/Fall to Left or Right When Standing (With Eyes Closed)									
Weave/Stagger When Walking (Normal Gait)									
18. Hearing Loss/Ears Ringing/Fullness									
19. Nervousness/Giddiness/Restlessness									
20. Increased Gas/Stomach Cramps									
21. Abdominal Pain/Diarrhea									
22. Sleep Problems									
23. Mood Changes/Depression									
24. Change in Heart Rate									

Red/Green Color Discrimination:
The (X) mark indicates the plate cannot be read. Screen all 14 plates. Client must pass 10 of the first 11 plates for the test to be regarded as normal. Refer for evaluation if ≤ 7 plates are read as normal.
Results: [N] = Normal [A] = Abnormal

Ishihara Plate #	Normal Reading	Red/Green Deficiency				Date	Date	Date	Date	Date	Date	Date	Date	Date
1	12	12												
2	8	3												
3	5	2												
4	29	70												
5	74	21												
6	7	X												
7	45	X												
8	2	X												
9	X	2												
10	16	X												
11	Traceable	X												
		Protan		Deutan										
		Strong	Mild	Strong	Mild									
12	35	5	(3) 5	3	3 (5)									
13	96	6	(9) 6	9	9 (6)									
14	Can trace 2 lines	Purple	Purple (Red)	Red	Red (Purple)									
Results														
Initials														

Visual Acuity:
If initial screen was conducted with corrective lenses (glasses or contacts), follow-up screens must be done the same. A change of 1 or more lines from the initial screen in either one or both eyes must be reported to the physician immediately.
Results: [P] = Pass [F] = Fail [U] = Unscreenable Chart Used: [ ] Letter [ ] "E" [ ] Other, Specify:_____
Corrective Lenses: [ ] = Yes [ ] = No

Distance Acuity	Date	Date	Date	Date	Date	Date	Date	Date	Date
Right Eye	20/	20/	20/	20/	20/	20/	20/	20/	20/
Left Eye	20/	20/	20/	20/	20/	20/	20/	20/	20/
Both Eyes	20/	20/	20/	20/	20/	20/	20/	20/	20/
Results									
Initials									

Hearing Sweep Check:
When patient is taking amikacin, capreomycin, kanamycin, or streptomycin, for each of the four frequencies listed, record the lowest level in decibels (dB) at which the person responds. Record the findings for both the right and left ear. Refer to an appropriately licensed professional if any two of the four frequencies are recorded as greater than 25 dB in either ear or the same ear or if there is a change of decreased hearing level from baseline. Start with 40 dB, if heard decrease by 10 dB until no response is obtained or until 20 dB is reached. If 20 dB is heard, record as 20 dB. Once no response is obtained, increase the dB level by 5 until a

Adverse Drug Reaction

Caused by	Adverse Reaction	Signs and Symptoms	Significance of reaction
Any drug	Allergic	●Skin rash	May be serious to minor
EMB INH (rare)	Eye damage	●Blurred or changed vision ●Changed color vision	Serious
INH PZA RIF	Hepatic Toxicity	●Abdominal Pain ●Abnormal liver function test results ●Dark Urine ●Fatigue ●Fever for 3 or more days ●Flu-like Symptoms ●Lack of appetite ●Nausea, vomiting ●Jaundice	Serious
INH	Nervous system damage	●Dizziness; tingling or numbness around the mouth	Serious

Adverse Drug Reaction

Caused by	Adverse Reaction	Signs and Symptoms	Significance of reaction
INH	Peripheral neuropathy	●Tingling sensation in hands and feet	Serious
INH (Avoid foods containing tyramines)	Serotonin syndrome	• mild (shivering and diarrhea) • severe (muscle rigidity, fever and seizures) • Severe serotonin syndrome can cause death	Serious to minor
PZA	Stomach upset	●Stomach Upset ●Vomiting ●Lack of Appetite	May be serious or minor
PZA	Gout	●Abdominal uric acid level ●Joint aches	Serious

RIF	Bleeding problems	●Easy bruising ●Slow blood clotting	Serious
RIF	Discoloration of body fluids	●Orange urine ●Permanently stained soft contacts	Minor
RIF	Drug Interactions	●Interferes with certain medications i.e. BCP, methadone	May be serious or minor
RIF PZA	Sensitivity to the sun	●Frequent sunburn	Minor

Common Adverse Reactions

- Gastrointestinal Problems
  - Nausea
  - Poor appetite
  - Abdominal pain
- Hepatitis
  - Indicated by AST ≥ 3 times the upper limit with symptoms
  - Or ≥ 5 times the upper limit without symptoms

AST and ALT Level	Levels of Toxicity
AST & ALT <5 times the upper limit of normal	Mild
AST & ALT 5-10 times the normal limit	Moderate
AST or ALT >10 times the normal limit	Severe

- Rash
  - May be minor, limited area, or manifested as itching
- Drug Fever

Monitoring -Bacteriology

- Obtain 3 sputum specimens
  - 8-24 hours apart
  - Prior to treatment
  - At least 1 early morning specimen (Observed)
- Extrapulmonary
  - Collect 3 specimens
- At least every 2 weeks-collect 2-3 sputum specimens until three consecutive smears are negative
- Monthly-collect at least 1 specimen for culture until culture negative x 2 months

Bacteriologic Status

- Positive sputum cultures prior to treatment
  - Obtain specimens at least monthly until negative in two separate months
  - Perform monthly sputum AFB smears and cultures on MDR patients for entire course of treatment
  - A repeat CXR after 2 months of treatment is helpful to determine pt improvement

Bacteriologic Status-Cont.

- Negative sputum cultures prior to treatment
  - Repeat CXR at intervals based on clinical circumstances and differential diagnosis
  - If radiograph does not improve after patient has received 2 months of treatment, abnormality may be due to
    - Previous disease
    - Another reason

Important Reminder:

- At times, a patient with negative sputum AFB cultures will produce a positive AFB sputum smear. This smear's culture should be monitored to ensure that it is negative. If the culture is negative, this random positive AFB sputum smear is due to dead TB bacteria and as a result does not culture out MTB.

Bacteriologic Status-Cont.

- Cultures have **not** become negative after 3 months of therapy
  - Reevaluate for
    - Potential drug-resistant TB
    - Potential failure to adhere (pt cheeking or vomiting medications after DOT)
    - Possible low serum drug levels

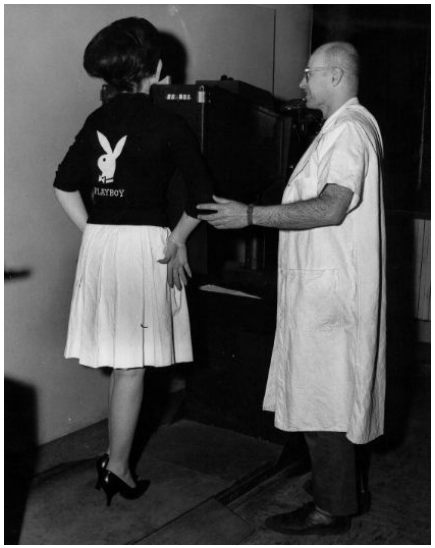
Bacteriologic Status-Cont.

- Cultures are still positive after 4 months of treatment
  - Consider as having failed treatment and manage accordingly
  - TB therapy will need to be extended since pt was culture positive after 2 months of therapy

Monitoring X-Rays

- Initial Chest radiograph at onset of treatment
  - Children <6 receive AP/Lat views
  - Anterior/Posterior and Lateral Views recommended for <18
  - Dr. Seaworth/Armitige

  request PA/Lat CXRs for all pts.
  - Pregnant
    - Abdomen shield



Radiographs

- Extra-pulmonary TB
  - Get baseline CXR to assess pulmonary involvement
- Culture negative
  - Repeat in 2 months for comparison to initial CXR
- Culture positive
  - Repeat at 2 months is useful
  - At completion of therapy and anytime during treatment as recommended by clinician

Radiographs

- Important to remember that sometimes chest x-rays get worse before they improve. This will probably worry the patient that they are not getting better. It is important to assure them that radiographs are just one measure of improvement, but there is also symptom and bacteriologic improvement.

Re-evaluating patients not responding to treatment

- Re-evaluating means repeating
  - Clinical assessment
    - Symptoms not improving
    - Symptoms worsening
  - Susceptibility test
  - CXR

Serum Drug Levels

- Each health department should contact their State health department for further instructions for serum drug levels

Support System

- Important for patient to have the support needed
  - Has proven effective in having a positive response to therapy

Summary

- Three methods to determine response
  - Clinical: gradual improvement → NO symptoms
  - Bacteriological: collected every month until conversion to negative; re-evaluate patient if sputum positive after 2 months or if sputum is positive after being negative
  - Radiographic

*NEVER add one drug at a time to a failing regimen

Summary

- TST or IGRA cannot be used to determine if patient is responding to treatment
- Treatment completion is defined by the number of doses taken within a specific time frame
- Length of treatment depends on drug susceptibility test results, site of disease, and response to therapy

References:

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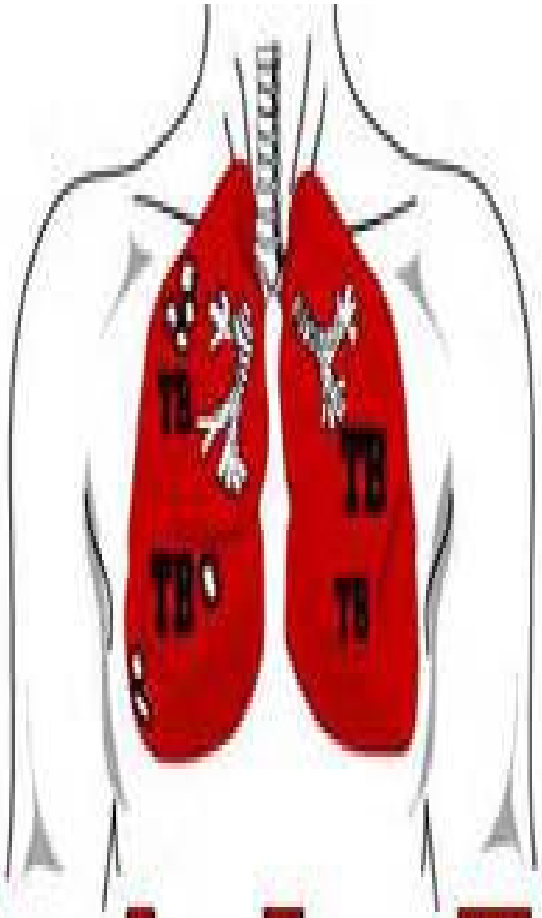

HEAR ACT LEARN TREAT TUBERCULOSIS


thank you
merci
gracias
danke
謝謝
ngiyabonga
teşekkür ederim
obrigado
dziękuję
bedankt
go raibh maith agat
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