TB/HIV Treatment Cascade

Overview

• TB stats (global and in South Africa)
• TB/HIV treatment cascade
• An overview the patient flow at a PHC
• Targets for the South African NDoH
• Impact of Xpert MTB/RIF
Tuberculosis

- MDG goal to halt and reverse TB globally has been achieved
  - 2.2% drop in new TB cases between 2010 and 2011
  - 41% decrease in mortality since 1990 (target was 50% by 2015)
- However, global burden still high
- A national epidemic in S.A.
  - Incidence now at 993/100 000 population
- TB/HIV co-infection rates
  - Globally = 13%
  - South Africa = 65%
- TB is leading cause of mortality among HIV positive individuals

Estimated TB incidence rates, 2011

Estimated HIV prevalence in new TB cases, 2011

TB/HIV treatment cascade

• Delivery of services to persons co-infected with TB and HIV at the various steps in the continuum of care
  – Diagnosis
  – Retention in care
  – Outcomes

• Not all TB can be integrated into HIV programs and vice versa
  – From R.S.A stats, at least 35% of TB patients do not have HIV (WHO Global TB Report-2012)
  – But all TB patients must be tested for HIV and all HIV positive people must be screened for TB

• Helps to understand patient flow regarding these 2 services

• Helps to identify barriers and gaps to service delivery, and therefore strategize plans to overcome these obstacles
What happens to a person visiting a PHC because they feel sick (for example having TB symptoms)?

A process map
Patient comes into PHC

Pick up their folder from reception

Wait to be seen (meantime health education given by a counselor)

Clinical assessment
Given 2 sputum bottles (1 to produce sputum then and the other to bring following morning

Patient comes into PHC

Pick up their folder from reception

Wait to be seen (meantime health education given by a counselor)

Patient comes in after 2-3 days to receive results

Patient brings 2nd sputum next morning and asked to come back after 2-3 days for results

If no Sxs, HIV+, consider IPT

If Sxs, HIV+, follow algorithm for smear negative TB

Counseled on the results

AFB-

Counseled and offered HIV test if status unknown

HIV-

Counsel and ask to repeat test after 6 weeks/start TB Rx

HIV+

(CTX given)

Start TB Rx

Sputum for monitoring at 2 or 3 months

Complete TB Rx (smears to be collected)

Start TB Rx

ART work up/start TB Rx

If Sxs, HIV+, follow algorithm for smear negative TB

AFB+

Start TB Rx

Sputum for monitoring at 2 or 3 months

Complete TB Rx (smears to be collected)
Smear Negative TB

No previous TB or less than 4 weeks of TB treatment
Send 2 sputum specimens for smear microscopy:
- 1st “spot” specimen taken at the health facility under supervision
- 2nd early morning specimen

HIV- negative or HIV status unknown

- AFB+
  - AFB+
    - Treat as TB
    - Provide full course of treatment

- AFB+
  - AFB-
    - Provide antibiotics.
    - If no improvement:
      - Send 3rd specimen for sputum smear and culture
      - Do chest x-ray

- AFB-
  - AFB-
    - Treat as TB
    - Provide full course of treatment
    - Consider other diagnosis.
    - Review TB culture result.

HIV positive

- AFB+
  - AFB+
    - Treat as TB
    - Provide full course of treatment
    - Send 3rd specimen for smear and culture
    - Do chest x-ray.

- AFB+
  - AFB-
    - Treat as TB
    - Provide full course of treatment
    - Consider other diagnosis.
    - Review TB culture result.

- AFB-
  - AFB-
    - Treat as TB
    - Provide full course of treatment
    - If no improvement:
      - Send 3rd specimen for sputum smear and culture
      - Do chest x-ray.

- AFB-
  - AFB-
    - Treat as TB
    - Aim to provide full course of treatment.
    - Review clinical picture and progress when culture result available for smear negative cases.

- AFB-
  - and
    - TB on chest x-ray
    - Medical officer decision to treat on clinical grounds
    - No TB on chest x-ray
    - Consider other diagnosis.
    - Review TB culture result.

- AFB-
  - and
    - TB on chest x-ray
    - Medical officer decision to treat on clinical grounds
    - No TB on chest x-ray
    - Consider other diagnosis.
    - Review TB culture result.
TB Diagnosis using Xpert MTB/RIF

**TB SUSPECTS**
TB and DR-TB contacts, non-contact symptomatic individuals, re-treatment after relapse, failure and default
Collect one sputum specimen at the health facility under supervision

- **GXP positive**
  - Rifampicin susceptible
    - Treat as TB
      - Start on Regimen 1
      - Send one specimen for microscopy
      - Follow up with microscopy
  - Rifampicin resistant
    - Treat as MDR-TB
      - Refer to MDR-TB Unit
      - Collect one specimen for microscopy, culture and DST for Rifampicin, Isoniazid, fluoroquinolone and Aminoglycoside
      - Follow up with microscopy and culture

- **GXP positive**
  - Rifampicin unsuccessful
    - Collect one specimen for culture and LPA or culture and DST (for R and H)
    - Treat with antibiotics and review after 5 days
    - Do chest x-ray
    - LPA/ DST results
      - Resistant to R and H/ R only
        - Poor response
          - To antibiotics
          - Clinically TB
          - TB on chest x-ray
          - Consider other diagnosis
          - Refer for further investigation
        - Good response
          - No further follow up
          - Advise to return when symptoms recur
      - Poor response
        - To antibiotics
        - Clinically TB
        - TB on chest x-ray
        - Consider other diagnosis
        - Refer for further investigation

- **GXP negative**
  - Treat as TB
    - Start on Regimen 1
    - Collect one specimen for microscopy
    - Culture & DST / LPA
    - Refer to MDR-TB

- **GXP unsuccessful**
  - Collect one sputum specimen for a repeat GXP
  - Treat with antibiotics
  - Good response
    - No further follow up
    - Advise to return when symptoms recur
  - Poor response
    - Consider other diagnosis
    - Refer for further investigation

- **HIV positive**
  - Collect one specimen for culture and LPA or culture and DST (for R and H)
  - Treat with antibiotics
  - Poor response
    - To antibiotics
    - Clinically TB
    - TB on chest x-ray
    - Consider other diagnosis
    - Refer for further investigation
  - Good response
    - No further follow up
    - Advise to return when symptoms recur

- **HIV negative**
  - Collect one specimen for culture and LPA or culture and DST (for R and H)
  - Treat with antibiotics
  - Poor response
    - To antibiotics
    - Clinically TB
    - TB on chest x-ray
    - Consider other diagnosis
    - Refer for further investigation
  - Good response
    - No further follow up
    - Advise to return when symptoms recur
We have seen the steps....

Complicated??

Maybe......

So what do we want???

To achieve our targets..
R.S.A Targets

Test all TB patients for HIV
(100%)
• Initiate ART in all that are eligible
  All TB/HIV co-infected eligible
• Check for smear conversion before continuation phase
  (>80%)
  not always evaluated
• Ensure minimal defaulter rate
  (<5%)
• Ensure Rx completion and check smear before discharging
  (>80%)
• Always rule out smear negative TB before labeling a patient as not having TB
Where are we (R.S.A) at?

TB incidence and notifications

Where are we (R.S.A) at?

TB treatment success rate

Where are we (R.S.A) at?

TB/HIV

What has been the impact of having XPERT MTB/RIF?
TB SUSPECTS
TB and DR-TB contacts, non-contact symptomatic individuals, re-treatment after relapse, failure and default
Collect one sputum specimen at the health facility under supervision

GXP positive
Rifampicin susceptible
- Treat as TB
  - Start on Regimen 1
  - Collect one specimen for microscopy
  - Follow up with microscopy

GXP positive
Rifampicin resistant
- Treat as MDR-TB
  - Refer to MDR-TB Unit
  - Collect one specimen for microscopy, culture and DST for Rifampicin, Isoniazid, fluoroquinolone and Aminoglycoside
  - Follow up with microscopy and culture

GXP positive
Rifampicin unsuccessful
- Treat as TB
  - Start on Regimen 1
  - Collect one specimen for microscopy, culture and DST / LPA
  - Review culture results

GXP negative
- HIV positive
  - Treat with antibiotics
  - LPA/ DST results
    - Resistant to R
      - Advise to return when symptoms recur
    - Resistant to H/ R only
      - No further follow up
      - Advise to return when symptoms recur
  - Good response
  - Poor response
    - Consider other diagnosis
    - Refer for further investigation

GXP unsuccessful
- Collect one sputum specimen for a repeat GXP

TB Diagnosis using Xpert MTB/RIF

Collect one specimen for microscopy

Collect one specimen for culture and LPA or culture and DST (for R and H)
- Treat with antibiotics and review after 5 days
- Do chest x-ray

LPA/ DST results
- Resistant to R
- Resistant to H/ R only

Poor response
- Consider other diagnosis
- Refer for further investigation

Good response
- No further follow up
- Advise to return when symptoms recur

Follow up with microscopy

Collect one specimen for culture and LPA or culture and DST (for R and H)
- Treat with antibiotics and review after 5 days
- Do chest x-ray

HIV negative
- Treat with antibiotics
- LPA/ DST results
  - Resistant to R
    - Advise to return when symptoms recur
  - Resistant to H/ R only
    - No further follow up
    - Advise to return when symptoms recur

Poor response
- Consider other diagnosis
- Refer for further investigation

Follow up with microscopy and culture

Treat as TB
- Start on Regimen 1
- Review culture results

Treat as MDR-TB
- Refer to MDR-TB Unit
• Early diagnosis
• Early treatment
• ↓ initial defaulter rate
• Less transmission
• DR-TB detected early

_Ultimately leading to..._
• Low incidence
• Low prevalence
• TB free communities
POC XPERT MTB/RIF?

Things to consider

• Same visit Rx initiation for those found to be positive
• Sustainability
• Logistical issues e.g. power and water supply
• Cost effectiveness
• Validity of results and machine maintenance

POC use of Xpert is feasible at the PHC level but must be accompanied by financial, operational and logistical support

(Clouse et al, Sept 2012)