Tayside TB Referral Pathway: Initial Diagnosis

Any of the following:

- New Diagnosis
- Likely Diagnosis
- Planned Treatment Start

Any patients not under care of ID/Resp will be allocated a responsible team on referral

Details required

- Patient name and CHI
- Responsible Consultant
- Any renal or liver impairment
- Location
- Weight
- Planned drug regimen and duration

Email details to ID email inbox
tay.id@nhs.scot and
david.connell@nhs.scot
Details will be sent to following teams:

Microbiology Team:
To be made aware about likely diagnosis

Infection Prevention & Control: to be made aware of any inpatients

Health Protection Team:
Where contact tracing will be initiated.
If DOT agreed, please refer to public health document

Responsible clinician will be asked to print and sign the standard prescription script*

*ask Antimicrobial Pharmacy Team for up to date copies if required

Patient will be added to next TB MDT:
consider any risks for Enhanced Case Management & Directly Observed Therapy (DOTs)

Antimicrobial Pharmacists:
Interaction/dosing advice if required, add to patient list, facilitate prescription depending on dispensing site

Initial investigations required in all cases:

- Bloods (FBC, liver function tests, U&Es, HIV, Hep B, Hep C)
- Perform eye screening and record this on the dictation template

NOTE: TB Framework for Scotland Key Performance Indicator: diagnosis to treatment within 7 days

Tayside TB Pathway: prescribing information for standard TB prescribing regimens

Please note: this is for reference only and TB prescribing and monitoring is usually performed by specialist services (Infectious Diseases, Respiratory and Antimicrobial Pharmacy teams) but can be prescribed in Primary Care under direction of specialist

If concern regarding a possible TB case, please discuss with ID/Respiratory team

Standard pulmonary TB drug regimen: duration 6 months in total
(2 months 'Initiation Phase' followed by 4 months 'Continuation Phase')
For active TB of the central nervous system: duration 12 months in total
(2 months 'Initiation Phase' followed by 10 months 'Continuation Phase')

For people with active TB of the lymph nodes, do not routinely extend treatment beyond 6 months for newly enlarged lymph nodes of sinus formation, or for residual enlargement of the lymph nodes or sinuses[1]

Initiation Phase 2 months

Modify the treatment regimen according to drug susceptibility testing – see p2 below

1. **Rifampicin**
2. **Isoniazid**
3. **Pyrazinamide**
4. **Ethambutol**

Combined as Voractiv (see below) or Rifater + Ethambutol

+ Pyridoxine given with any isoniazid containing regimens

STANDARD DAILY DOSES VORACTIV:	STANDARD DAILY DOSES RIFATER:	IF COMBINATION PRODUCTS NOT SUITABLE:
30-39kg 2 tabs (<30kg d/w pharmacist) 40-54 kg 3 tabs 55-70 kg 4 tabs 71-92 kg 5 tabs >92kg discuss with pharmacist + Pyridoxine 10mg daily	< 40 kg 3 tabs 40-49 kg 4 tabs 50-64 kg 5 tabs > 65 kg 6 tabs + Ethambutol: 15mg/kg rounded to nearest 100mg + Pyridoxine 10mg daily	Rifampicin <50kg 450mg daily, > 50kg 600mg daily + Isoniazid 300mg daily + Pyrazinamide <50kg 1.5g daily, >50kg 2g daily + Pyridoxine 10mg daily + Ethambutol 15mg/kg rounded to nearest 100mg

Continuation Phase 4 months

Modify the treatment regimen according to drug susceptibility testing – see p2 below.
May require longer duration of treatment depending on site of infection.

1. **Rifampicin**
2. **Isoniazid**

Combined as Rifinah (see below)

+ Pyridoxine given with any isoniazid containing regimens

STANDARD DAILY DOSES RIFINAH:	IF COMBINATION PRODUCT NOT SUITABLE:
≥50kg = RIFINAH 300 X 2 TABLETS DAILY <50kg = RIFINAH 150 X 3 TABLETS DAILY *Rifinah - to accommodate pack size it is acceptable for each month supply requested to dispense one original pack (28 day supply) + Pyridoxine 10mg daily	Rifampicin <50kg 450mg daily, > 50kg 600mg daily + Isoniazid 300mg daily + Pyridoxine 10mg daily

Drug Resistant TB

Resistant to ONE drug, without nervous system involvement[1,3]:

Drug Resistance	Initial Phase	Continuation Phase
Isoniazid	*Preferred option:*	
	Rifampicin, ethambutol, pyrazinamide, levofloxacin For 6 months total	
	Alternative option:	
	Rifampicin, pyrazinamide, ethambutol For 2 months	Rifampicin, ethambutol For 7 months (up to 10 months for extensive disease)
Pyrazinamide	Rifampicin, isonizid (with pyridoxine), ethambutol For 2 months	Rifampicin, isonizid (with pyridoxine) For 7 months
Ethambutol	Rifampicin, isonizid (with pyridoxine), pyrazinamide For 2 months	Rifampicin, isonizid (with pyridoxine) For 4 months
Rifampicin	As for multidrug resistant TB	As for multidrug resistant TB

Multidrug Resistant/Rifampicin Resistant TB

Consultant to submit form to UK MDR TB panel

THINK INTERACTIONS!

Please consider drug interactions with anti-tuberculosis medication. There are many interactions with common medications and caution should be taken when starting a patient on anti tuberculosis medication or adding/changing medication when a patient is currently on anti-tuberculosis treatment.

For patients of child bearing potential, check method of contraception – depot medroxyprogesterone acetate (DPMA) and intra-uterine devices (Cu-IUD/LNG-IUS) are not affected by rifampicin. All other hormonal methods of contraception and emergency contraception are affected (including implants) so barrier contraception should be recommended while on rifampicin and for 4 weeks after stopping.

Drug interactions can be checked through:

BNF:
https://bnf.nice.org.uk/interaction/

or Stockley's Interaction Checker:
https://www.medicinescomplete.com/#/interactions/stockley

Another helpful resource is TB Drug Monographs:
http://www.tbdrugmonographs.co.uk/

Antimicrobial Pharmacist email:
Tay.antibioticpharm@nhs.scot

Tayside TB Pathway: Monitoring

Monitoring Considerations:

- **All patients LFTs at 2 weeks**
- **Monitor liver function tests closely if:**
  - **abnormal LFTs**
  - **alcohol or drug misuse**
  - **Hepatitis B/ Hepatitis C/ HIV**
  - **malnourished**
- **Therapeutic Drug Monitoring (TDM) if concerns re absorption/interactions - d/w pharmacist**

Key checks at 2 months:

- **Check LFTs at this time**
- **Are they clinically better?**
- **Are they smear negative? Sensitivities from reference lab?**
- **Continuation prescriptions should be prepared in advance if possible, or at follow up appointment (see below for standard continuation script)**

Communication with Primary Care and updating clinical records:

Please use OPIC ('communication to GP' form on clinical portal) when seeing patients and starting/changing medications.
This will be used to update patient's information and GPs/other clinicians and teams.
When using OPIC please specify what medications have been dispensed/changed and ask that the patients primary care record be update. Please be careful with wording, ensure it is clear if the prescription has been supplied via hospital pharmacy.

When dictating clinical letters for patients diagnosed with TB, please use the example template below, in order to provide more cohesive information for GPs/other clinicians and teams:

Diagnosis :
Estimated treatment duration:

Weight:
Site:
Smear:
Culture:
Sensitivities:
BBV:

TB Treatment

Standard recommended regimen (weight based)		
Initial phase	Start date DD/MM/YY	Rifater plus Ethambutol (2 months) plus pyridoxine
Continuation phase	Start date DD/MM/YY	Rifinah (4 months) plus pyridoxine

Amount of treatment prescribed at this appointment	Next appointment	Required monitoring prior to next appointment
months	DD/MM/YY	

Initial eye screening result Date:	Snellen test: Colour vision discrimination tests:

Free text

Cc Kirsteen Hill, Antimicrobial Pharmacist and Margaret Ramsay, Senior Specialist Nurse Health Protection Directorate of Public Health

Tayside TB Pathway: Drug induced hepatitis and reintroduction [1,2]

ALT/AST raised but < 2 X normal → **Repeat LFTs at 2 weeks: If levels have fallen, repeat tests only required if symptomatic**

ALT/AST > 2 X normal → **Check LFTs weekly for 2 weeks, then every 2 weeks until normal**

ALT/AST > 3 X upper limit of normal, in presence of symptoms
Or
ALT/AST > 5 X upper limit of normal, in the absence of symptoms

IN ALL CASES SEEK SPECIALIST ADVICE

- For patients with life or organ threatening disease i.e. CNS disease discuss with consultant and consider if appropriate to continue current treatment
- For all other patients stop hepatotoxic medication including Isoniazid, Rifampicin and Pyrazinamide
- As resolution of the hepatitis may be prolonged, consider treating with alternative anti-tuberculosis medications with regular monitoring of LFTs in particular if patient is:
  - infectious
  - or has life or organ threatening disease and hepatotoxic medication has had to be stopped e.g. liver failure
- Suggested liver sparing alternative regimen:
  - Ethambutol
  - Amikacin or streptomycin (note: streptomycin not routinely kept in hospital pharmacy)
  - +/- levofloxacin or moxifloxacin (note: moxifloxacin can cause hepatitis)
- Check/consider hepatitis screen (A, B and C, and if clinically indicated delta and hepatitis E)
- Once ALT/AST drops to less than 2 X the upper limit of normal and symptoms have significantly improved, first-line anti-tuberculosis medications can be restarted at full dose using a re-introduction regimen over no more than 10 days
  - Day 1: Ethambutol and Isoniazid (+ pyridoxine)
  - Day 4: Rifampicin
  - Day 7: Pyrazinamide

Tayside TB Pathway: Steroids for CNS TB

CNS TB:
At the start of an anti-TB treatment regimen, offer people with active TB of the central nervous system dexamethasone or prednisolone, initially at a high dose with gradual withdrawal over 4-8 weeks. An example of a suitable regimen is listed in table below [1]

	Stage [a]	
Dose by week	1	2 or 3
Week 1	0.3 mg/kg/day (IV Dexamethasone)	0.4 mg/kg/day (IV Dexamethasone)
Week 2	0.2 mg/kg/day (IV Dexamethasone)	0.3 mg/kg/day (IV Dexamethasone)
Week 3	0.1 mg/kg/day (oral Dexamethasone)	0.2 mg/kg/day (IV Dexamethasone)
Week 4	3 mg/day (oral Dexamethasone)	0.1 mg/kg/day (IV Dexamethasone)
Week 5	2 mg/day (oral Dexamethasone)	4 mg/day (oral Dexamethasone)
Week 6	1 mg/day (oral Dexamethasone)	3 mg/day (oral Dexamethasone)
Week 7	–	2 mg/day (oral Dexamethasone)
Week 8	–	1 mg/day (oral Dexamethasone)

[a] According to the modified British Medical Research Council criteria for disease severity:
Stage 1: Glasgow coma score of 15 without focal neurological deficits; alert and oriented.
Stage 2: Glasgow coma score of 14–11 or 15 with focal neurological deficits.
Stage 3: Glasgow coma score of 10 or less, with or without focal neurological deficits.
Abbreviation: IV, intravenous

(1) NICE. Tuberculosis NICE guideline 2016 (last updated 2024). (online) Available from: www.nice.org.uk/guidance/ng33/resources/tuberculosis-pdf-1837390683589

(2) British HIV association. BHIVA guidelines for the management of TB/HIV co-infection in adults 2018 (last updated 2023) (online) Available from: www.bhiva.org/wp-content/uploads/2024/10/BHIVA-TB-guidelines.pdf

(3) WHO operational handbook on tuberculosis. Module 4:Treatment. Drug resistant tuberculosis treatment. (online) Available from: https://www.who.int/publications/i/item/9789240006997

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