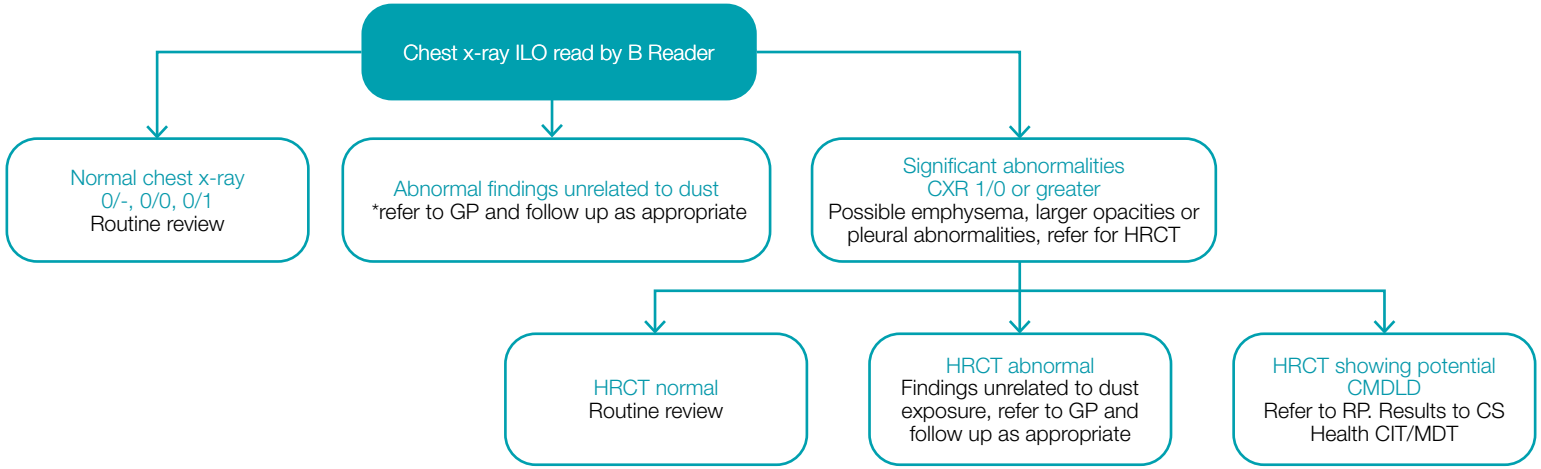
Coal Services

Clinical pathways for coal mine dust lung disease monitoring

These pathways are designed for approved medical practitioners (AMPs) to use with coal mine workers not already known to have coal mine dust lung disease (CMDLD), or currently under investigation for possible disease.

The coal mine worker is assessed under 3 pathways: chest x-ray, clinical findings and symptoms and spirometry. Positive findings under any pathway in isolation, or with others, can result in further investigation.

If an AMP has any doubts in regards to the management of a case, the AMP must contact the CS Health Clinical Investigation Team (CIT) to discuss.



AMP	Approved medical practitioner
CIT	Clinical Investigation Team
CMDLD	Coal mine dust lung disease
GP	General practitioner
HRCT	High-resolution computed tomography scan
MDT	Multi Disciplinary Team
RP	Respiratory physician

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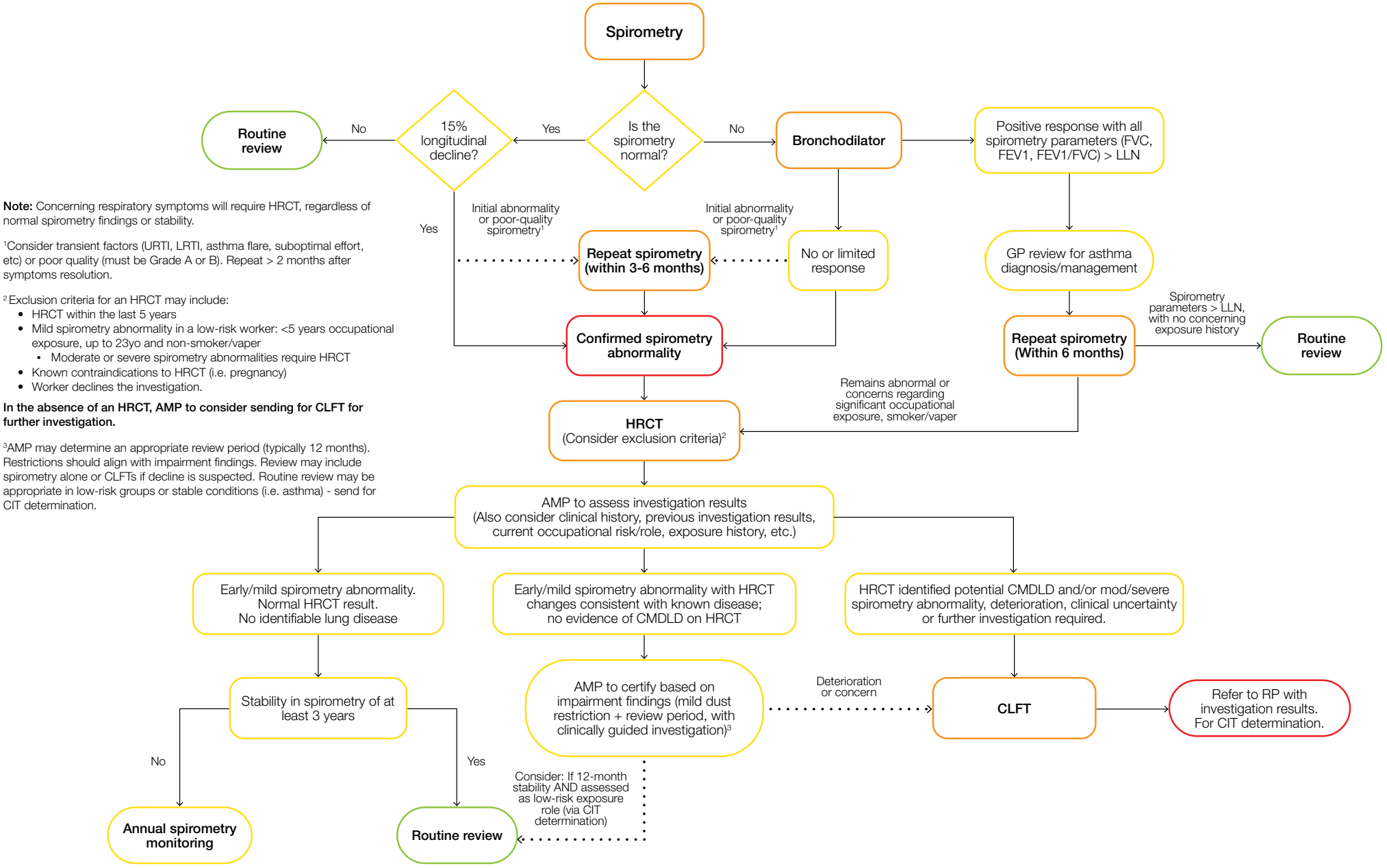

Note: Concerning respiratory symptoms will require HRCT, regardless of normal spirometry findings or stability.

[1]Consider transient factors (URTI, LRTI, asthma flare, suboptimal effort, etc) or poor quality (must be Grade A or B). Repeat > 2 months after symptoms resolution.

[2] Exclusion criteria for an HRCT may include:

- HRCT within the last 5 years
- Mild spirometry abnormality in a low-risk worker: <5 years occupational exposure, up to 23yo and non-smoker/vaper
  - Moderate or severe spirometry abnormalities require HRCT
- Known contraindications to HRCT (i.e. pregnancy)
- Worker declines the investigation.

In the absence of an HRCT, AMP to consider sending for CLFT for further investigation.

[3]AMP may determine an appropriate review period (typically 12 months). Restrictions should align with impairment findings. Review may include spirometry alone or CLFTs if decline is suspected. Routine review may be appropriate in low-risk groups or stable conditions (i.e. asthma) - send for CIT determination.

Supporting notes

1. Radiology
    a. Radiology must comply with the requirements of Order 43.
    b. The AMP must ensure that incidental findings, mild or serious, are followed up appropriately with consideration given to any effect on work or follow-up.
    c. High-resolution computed tomography scans (HRCT) for existing NSW coal mine workers can be booked through CS Health.
    d. Any indication of potential respiratory disease on radiology must be investigated.
    e. HRCT must be consistent with any requirements under Order 43, as may be updated from time to time.
    f. Results requiring assessment by a respiratory physician should be handled as per note 6 below.

2. Spirometry
    a. Only approved health professionals can complete spirometry testing.
    b. The spirometry must comply with the 2022 Thoracic Society of Australia and New Zealand (TSANZ) Standards for the delivery of Spirometry for Resource Sector Workers.
    c. Bronchodilator responsiveness testing is indicated for FEV1, FVC or FEV1/FVC levels below the lower limit of normal.
    d. Only grade A or B spirometry is suitable for respiratory health monitoring purposes.
    e. Escalation triggers are based on pre-bronchodilator readings.

3. Further clinical investigation
    a. Results must be interpreted in the context of the medical and exposure history. Where there is a history of a recent respiratory illness, consider retesting within 3 to 6 months when there is a new finding of an abnormal result.
    b. A positive bronchodilator responsiveness test does not necessarily exclude disease from coal mine dust or other exposures and must be interpreted in the context of the medical and exposure history.
    c. Further clinical investigation is still indicated for significant respiratory symptoms, even when spirometry is normal.
    d. Complex lung function testing (CLFT) may be organised through CS Health for existing NSW coal mine workers, a TSANZ accredited respiratory function laboratory if available, respiratory physician or other health professional able to demonstrate spirometry and DLCO training suitable to Coal Services. Providers not accredited by TSANZ must provide evidence of currency of calibration for any equipment used.

4. Early or mild lung function impairment – meets all the criteria of one or more of the following:
    a. Rapid decline:
        i. longitudinal decline since baseline in percent predicted FEV1 or FVC ≥ 15% and
        ii. absolute FEV1 ≥ LLN.
    b. Isolated mild diffusion impairment:
        i. DLCO Z-score between -1.65 and -2.5 (approx. ≥ 60% of predicted and < LLN).

c. Early obstructive abnormality:
    i. absolute FEV1/FVC ratio < LLN, and
    ii. absolute FEV1 ≥ LLN, and
    iii. absolute FVC ≥ LLN.
d. Mild obstructive abnormality:
    i. absolute FEV1/FVC ratio < LLN, and
    ii. absolute FEV1 < LLN, and
    iii. FEV1 Z-score between -1.65 and -2.5 (approx. FEV1 ≥ 70% predicted), and
    iv. absolute FVC ≥ LLN.
e. Mild mixed obstructive abnormality/restrictive pattern:
    i. absolute FEV1/FVC ratio < LLN, and
    ii. absolute FEV1 < LLN, and
    iii. FEV1 Z-score between -1.65 and -2.5 (approx. FEV1 ≥ 70% predicted), and
    iv. absolute FVC < LLN.
f. Mild restrictive pattern:
    i. absolute FEV1/FVC ratio ≥ LLN, and
    ii. absolute FVC < LLN, and
    iii. absolute FEV1 normal or < LLN, and
    iv. FEV1 Z-score ≥- 2.5 (approx. FEV1 ≥ 70% predicted).

Notes:

> *confirmed restriction if absolute TLC < LLN*
> *non-specific ventilatory impairment if absolute TLC ≥ LLN*

5. Referral for CLFT is indicated for confirmed abnormalities on quality A or B spirometry that are moderate or severe, or where there are abnormalities on an HRCT that could be consistent with a CMDLD.
6. Cases assessed by external providers involving existing NSW coal mine workers requiring referral to a respiratory physician should be notified to the CS Health Clinical Investigation Team. In other cases, consideration should be given to referring to respiratory physicians on the TSANZ Register of Physicians for Resource Sector Workers' Health (TSANZ Register).
7. Any unexplained significant respiratory symptoms require investigation.
8. Variations to clinical pathways may be made where there are appropriate clinical indications. The reasons must be clearly documented.

Practical considerations and transitional arrangements

> New to NSW coal industry: must complete investigation pathways before medical clearance.
> Availability of CLFT and RP assessments may affect timing of assessments and may require restrictions in some cases before investigations are completed.
> Periodic: possible restrictions during investigation phase will depend on clinical findings and role.
> Existing NSW coal mine workers having pre-placement assessments may need restrictions consistent with published guidelines based on preliminary findings.