

UNEXPLAINED
BREATHLESSNESS?



Check RIGHT HEART

ACT RIGHT NOW

Pulmonary hypertension (PH) is a haemodynamic and pathophysiological disorder found in multiple clinical conditions.¹ One type of PH – called pulmonary arterial hypertension (PAH) – is deadly if left untreated, and diagnosis is often delayed.^{2,3}

KEY FACTS

Patients can wait **2.5 YEARS** on average for a PAH diagnosis from the onset of symptoms.^{3,4}

By this time, **≥50 %** of pulmonary circulation may already be compromised.⁵

Symptoms can be **EASILY MISTAKEN** for other conditions such as asthma.^{1,4}

PH SYMPTOMS ARE NON-SPECIFIC AND INCLUDE **BREATHLESSNESS, FATIGUE, ANGINA AND SYNCOPÉ.**^{1,6}

FIND YOUR NEAREST PH EXPERT CENTRE

If you suspect PH, urgently refer your patient to a PH expert centre for further investigation.

VICTORIAN PULMONARY HYPERTENSION AND HEART LUNG TRANSPLANT UNIT

IV EPO

The Alfred Hospital

55 Commercial Road
Melbourne VIC 3004

T 03 9076 2473
F 03 9076 5701



VICTORIAN PAH EXPERT CENTRES

IV EPO

Austin Hospital

145 Studley Road
Heidelberg VIC 3084

T 03 9496 5573
F 03 9459 6220

Footscray Hospital

160 Gordon Street
Footscray VIC 3011

T 03 8345 6490
F 03 9318 6856

Granada Medical Centre

Suite 2, Level 1, 88 Myers Street
Geelong, VIC 3220

T 03 5229 5099
F 03 4206 7767

Royal Children's Hospital

50 Flemington Road
Parkville VIC 3052

T 03 9345 5718
F 03 9345 6001



Royal Melbourne Hospital

300 Grattan Street
Parkville VIC 3052

T 03 9342 7708
F 03 9342 8493

St Vincent's Hospital

41 Victoria Parade
Fitzroy VIC 3065

T 03 9231 3983
F 03 9231 3841

TASMANIAN PAH EXPERT CENTRES

IV EPO

Royal Hobart Hospital

48 Liverpool Street
Hobart TAS 7000

T 03 6166 8620
F 03 6234 2852



IV EPO, intravenous epoprostenol centre.

IF YOU DETECT PH, IT COULD BE PAH

This guide can help you identify and refer patients at increased risk of PAH through three simple steps.

STEP 1

IDENTIFY PATIENTS AT RISK

STEP 2

DETECT PH

STEP 3

CREATE A REFERRAL

1. IDENTIFY PATIENTS AT RISK

Early diagnosis of PAH is crucial, with intervention at this point likely to delay disease progression and improve patient outcomes.^{1,6} Symptoms such as unexplained breathlessness require investigation.⁷

DO YOUR PATIENTS LIVE WITH ANY OF THESE SYMPTOMS?

- ✓ Unexplained dyspnoea
- ✚ PLUS any of the following
- ✓ Syncope
- ✓ Fatigue
- ✓ Weakness
- ✓ Chest pain
- ✓ Oedema
- ✓ Haemoptysis
- ✓ Abdominal distension
- ✓ Dry cough
- ✓ Exercise-induced nausea/vomiting

OR

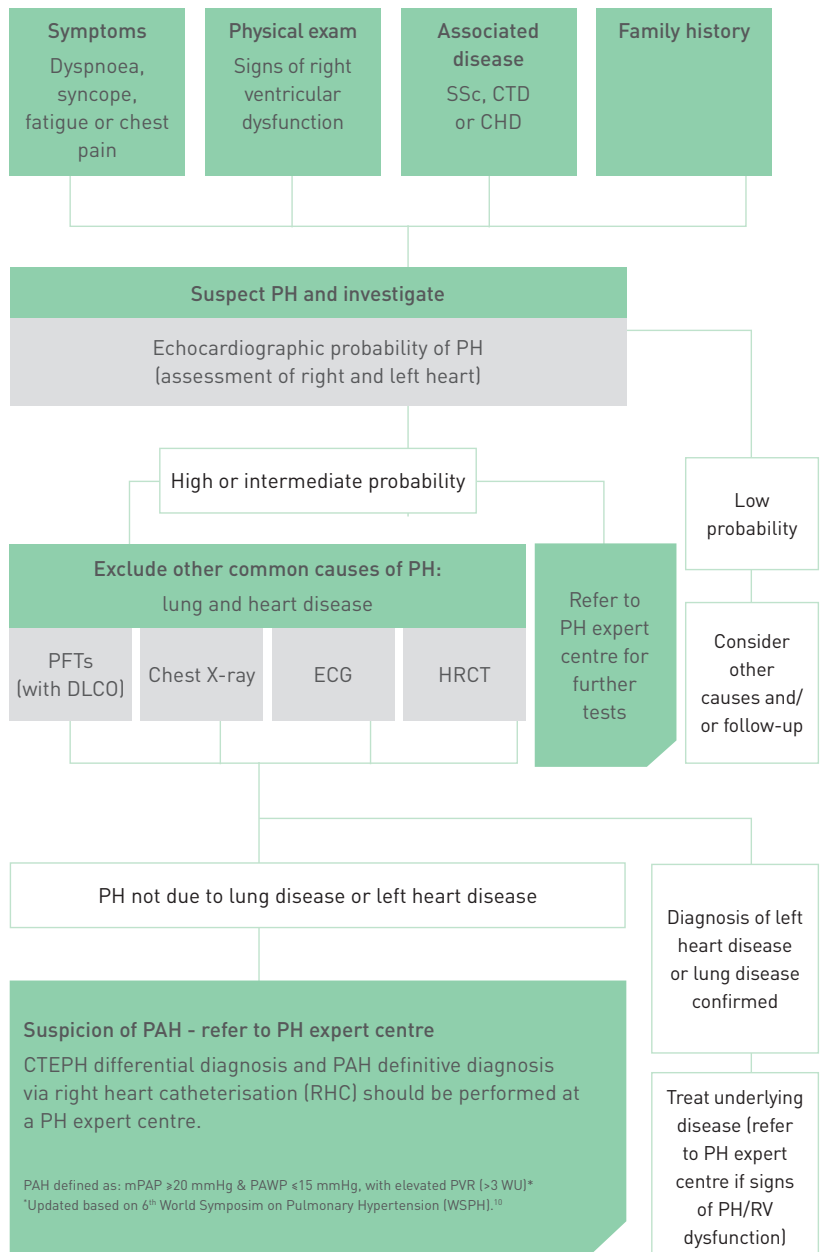
DO YOUR PATIENTS LIVE WITH ANY OF THESE CONDITIONS?

- ✓ CTD including SSc & SLE*
- ✓ CHD
- ✓ HIV
- ✓ PoPH/Cirrhosis
- ✓ History of amphetamine use
- ✓ Family history of PAH

*Patients with SSc should be screened annually for PAH.⁸

INVESTIGATING PH IN PATIENTS AT RISK

Algorithm for assessment of suspected PH and referral to a PH expert centre^{1,9}



Adapted from Galie N et al. 2016¹ and Frost A et al. 2019.⁹

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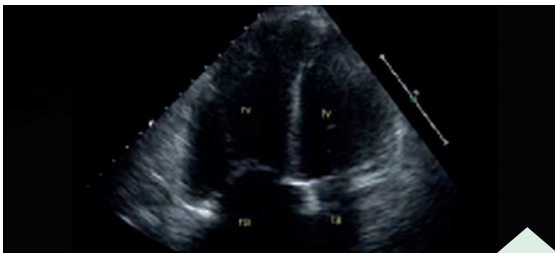
CREATE A REFERRAL

2. DETECT PH

Echocardiography has become the first-line diagnostic and screening tool for PH.^{1,9,11} **A comprehensive echocardiogram that looks at the right heart as well as the left should always be performed as part of a patient's work-up**, as it can provide evidence raising the suspicion of PH and build a case for definitive diagnosis at a PH expert centre that performs right heart catheterisation.¹

ECHOCARDIOGRAPHY (ECHO) SHOULD ALWAYS BE PERFORMED when PH is suspected and may be used to infer a diagnosis.¹

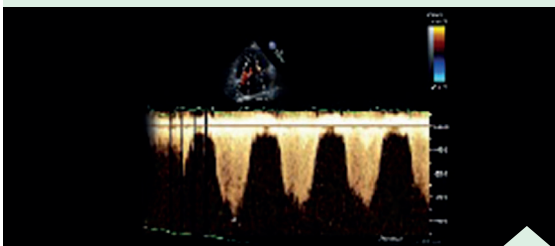
PH with evidence of cardiomegaly and enlarged pulmonary arteries:



Obvious PH by ECHO



Subtle PH by ECHO



Tricuspid regurgitant jet by stress ECHO

NEXT STEPS WHEN ECHOCARDIOGRAM RAISES A HIGH OR INTERMEDIATE PROBABILITY OF PH

There are several other key investigations you can perform to raise suspicion of PH and help identify and classify its cause. Note that right heart catheterisation (RHC) is required to confirm a diagnosis of PAH, and should be performed by a PH expert centre.¹



TO FIND OUT ABOUT FURTHER INVESTIGATIONS,

[VISIT SUSPECTPH.COM.AU](https://www.suspectph.com.au)

CALCULATING RIGHT VENTRICULAR SYSTOLIC PRESSURE (RVSP)

RVSP is a derived parameter that is considered equal to systolic pulmonary artery pressure (sPAP) in most patients (in absence of pulmonary outflow obstruction).¹²

$$RVSP=4V^2 + RAP$$

V=velocity of tricuspid jet (m/s);
RAP=right atrial pressure

"When combined with the existing evidence, our findings now suggest that those presenting with estimated RVSPs >30.0 mmHg, no matter the eventual disease, should be carefully evaluated clinically, and where appropriate, further investigation should be undertaken to unmask disease that may benefit from disease-specific therapy."

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3: CREATE A REFERRAL

Prompt diagnosis and treatment at a PH expert centre offers the best chance to delay disease progression and may improve patient outcomes for patients with PAH.¹

Right heart catheterisation (RHC) is required for a definitive diagnosis of PAH. As RHC is technically demanding and can be associated with some serious complications, it should only be done at a PH expert centre.¹

IF YOU SUSPECT PH, URGENTLY REFER YOUR PATIENT TO A PH EXPERT CENTRE FOR FURTHER INVESTIGATION

FIND A PH EXPERT CENTRE AT [SUSPECTPH.COM.AU](https://suspectph.com.au)

Abbreviations

CHD: congenital heart disease; **CTD:** connective tissue disease;
CTEPH: chronic thromboembolic pulmonary hypertension;
DLCO: diffusing capacity of the lung for carbon monoxide;
ECG: electrocardiography; **ECHO:** echocardiogram; **HIV:** human immunodeficiency virus; **HRCT:** high-resolution computed tomography; **mPAP:** mean pulmonary artery pressure; **PAH:** pulmonary arterial hypertension; **PAWP:** pulmonary arterial wedge pressure; **PFTs:** pulmonary function tests; **PH:** pulmonary hypertension; **PoPH:** portopulmonary hypertension;
PVR: pulmonary vascular resistance; **RAP:** right atrial pressure;
RHC: right heart catheterisation; **RV:** right ventricle; **RVP:** right ventricular pressure; **RVSP:** right ventricular systolic pressure;
Ssc: systemic sclerosis; **SLE:** systemic lupus erythematosus.

References

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