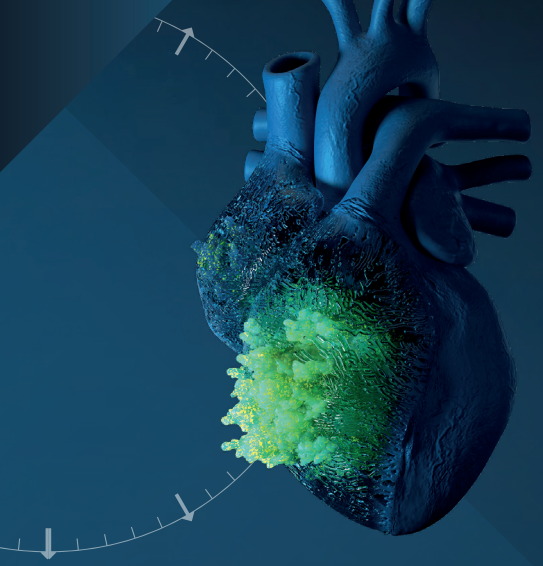


UNEXPLAINED BREATHLESSNESS?

→

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 SYNCOPE.[1,6]

FIND YOUR NEAREST PH EXPERT CENTRE

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

PULMONARY HYPERTENSION AND HEART LUNG TRANSPLANT UNIT			IV EPO
The Prince Charles Hospital 627 Rode Road, Chermside QLD 4032	Dr John Feenstra Dr Michael Trotter Kerri-Lee Driver (Nurse) Jenny Obazuaye (Nurse)	T 07 3139 4511	✓

QUEENSLAND PAH EXPERT CENTRES			IV EPO
Queensland Paediatric Cardiac Services Raymond Terrace, South Brisbane QLD 4101	Dr Scott Fox Paula Dickin (Nurse)	T 07 3068 2790 T 07 3068 2362 F 07 3068 2779	✓
Royal Brisbane and Women's Hospital Butterfield Street, Herston QLD 4006	Dr Chris Zappala Dr Rob Boots Zuzana Doneley (Nurse)	T 07 3647 0104 F 07 3646 5651	✓
Cairns Hospital 165 Esplanade, Cairns North QLD 4870	Dr James Brown Dr Stephen Vincent	T 07 4226 6240 F 07 4226 6241	
53 Fulham Road Practice 53 Fulham Road, Pimlico QLD 4812	Dr John Binder Dr Rebecca Byrnes	T 07 4728 6122 F 07 4728 6133	
Gold Coast University Hospital 1 Hospital Blvd, Southport QLD 4215	Dr Siva Sivakumaran Dr Jane Basham Melanie Harris (Nurse)	T 07 5687 0000 F 07 5687 4497	
Mater Public/Private Hospital Brisbane 301 Vulture Street, South Brisbane QLD 4101	Dr Mugurel Nicolae Dr Mark Dooris Dr Rob Carroll Wendy Senior (Nurse)	T 07 3163 8567 F 07 3163 3482	
The Princess Alexandra Hospital Pulmonary Hypertension Clinic 199 Ipswich Road, Woolloongabba QLD 4102	Dr Greg Keir Dr Claire Ellender Dr Sudhir Wahi Judy Ross (Nurse)	T 07 3176 2466 F 07 3176 6170	
Queensland Respiratory Services Suite 24, Level 2, 30 Chasely Sreet Auchenflower QLD 4066	Dr Chris Zappala	T 07 3371 0500	
Sunshine Coast University Hospital 6 Doherty Street, Birtinya QLD 4575	Dr James Anderson Nikkola Sergeant (Nurse)	T 07 5202 7754	
Sunshine Coast University Private Hospital 3 Doherty Street, Birtinya QLD 4575	Dr Mark Johnson	T 07 5414 1100	
Wesley Hospital Pulmonary Hypertension Unit Suite 70, Level 3, 30 Chasely Sreet Auchenflower QLD 4066	Dr John Feenstra Rebekka Beaumont (Nurse)	T 07 3876 9033	

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

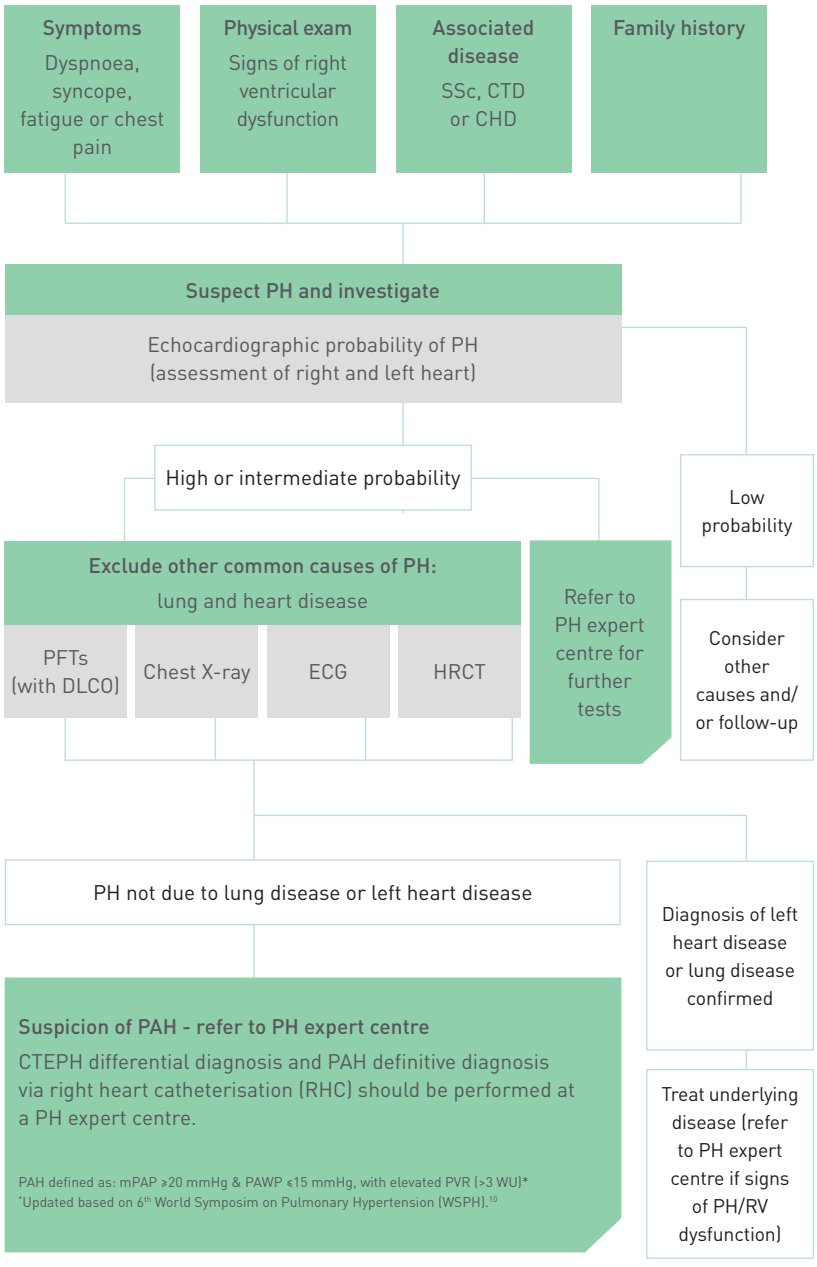
DO YOUR PATIENTS LIVE WITH ANY OF THESE CONDITIONS?

- ⟋ 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.* 2016[1] and Frost A *et al.* 2019.[9]

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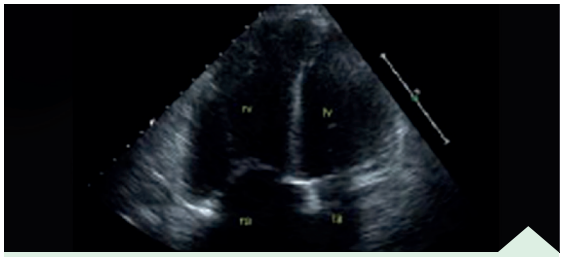
2. DETECT PH

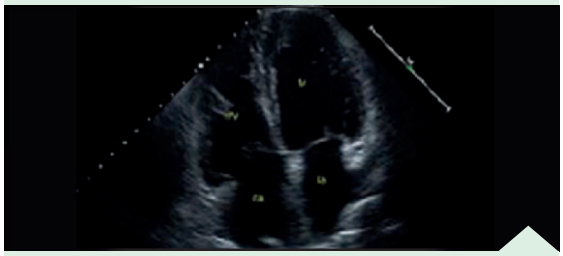
Echocardiography has become the first-line diagnostic and screening tool for PH.[1,9,11] **A comprehensive echocardiogram that looks at the right heart as well as the left should always be performed as part of a patient's work-up**, as it can provide evidence raising the suspicion of PH and build a case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

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."

- Strange G *et al. J Am Coll Cardiol* 2019.[13]

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

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**

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.

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