Improved Asthma Symptom Control Program

Clinical Protocol

Patients who are ineligible for the Improved Asthma Symptom Control Program:

- Patients who are planning a pregnancy or pregnant
- Patients who are aged under 16 years or over 64 years
- Patients who are involved in competitive sport and subject to anti-doping policies
- Patient with previous diagnosis of severe asthma or restrictive lung disease
- Patients receiving specialist treatment for asthma or another respiratory condition (e.g., by a specialist respiratory physician currently, or within the previous 12 months) without a written referral from the treating specialist(s) for the Program
- Patients with uncontrolled asthma, despite current treatment consistent with step 4 pharmacotherapy (medium dose ICS+LABA therapy or low dose ICS+LABA+LAMA)
- Patients who have ever been hospitalised for asthma or have had an asthma-related emergency department visit within the previous 12 months
- Patients with asthma-related anaphylaxis
- Patients who have any of the following:
    - COPD
    - Complex, established cardiovascular disease, including pulmonary hypertension and cor pulmonale
    - Diabetes mellitus
    - Chronic kidney disease.

Warning signs at patient presentation that necessitate urgent referral to emergency medical care or a medical practitioner:

- Patients in respiratory distress (e.g., unable to complete a whole sentence in one breath)
- Patients with chest tightness or discomfort during/after exercise, without other symptoms of asthma.

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How to use this document

This clinical protocol details how patients in the Improved Asthma Symptom Control Program should be managed, including referral to other health services and medical practitioners, pharmacological interventions, and protocol-based/structured prescribing of specific medicines for the management of Asthma.

The following pages provide detailed information that corresponds to the numbered phases in the Improved Asthma Symptom Control Program algorithm (refer to Figure 1).

When applying the information contained within this clinical protocol, pharmacists are advised to exercise professional discretion and judgement. The clinical protocol does not override the responsibility of the pharmacist to make decisions appropriate to the circumstances of the individual, in consultation with the patient and/or their carer.

Key points

- The purpose of the Improved Asthma Symptom Control Program (the Program) is to provide an accessible, community-based health care service program to identify and improve symptom management for adolescents and adults aged between 16 and 65 years, with mild to moderate asthma.
- Asthma should be investigated in patients with the following symptoms (that may vary in intensity and over time):
    - episodic dyspnoea
    - wheeze
    - cough
    - chest tightness or discomfort [1, 2].
- Exercise-induced bronchoconstriction (EIB) results from a temporary narrowing of the lower airways after vigorous exercise and is a subset of asthma [1, 2].
- Signs and symptoms of EIB include cough, wheeze, chest tightness or discomfort, breathlessness and excessive mucus production that typically appear 5-10 minutes after exercise commences [3].
- The fundamental causes of asthma are not well understood; however, strong risk factors are a genetic predisposition and environmental exposure to airborne particles and inhaled substances, including viral respiratory infections, indoor and outdoor allergens and tobacco smoke [2, 4].
- There is no standard criteria or gold standard diagnostic test for asthma [2]. Diagnosis is based on the patient history and symptoms, physical examination and reversible airflow limitation (using spirometry) [1, 2].
- The symptoms of asthma are usually reversible and can be managed and controlled with general measures, including a healthy lifestyle and stepwise drug therapy [1]. The aim of asthma treatment is to:
    - relieve and control symptoms
    - prevent exacerbations and acute asthma
    - improve and maintain lung function and quality of life
    - reduce the risk of adverse asthma outcomes [5].
- Stepwise treatment for asthma aims to achieve good asthma control and minimise the risks of asthma with the lowest effective dose of preventer medicines [2]. Patients at a low risk of flare ups who have stable and well controlled asthma for two to three months taking pharmacotherapy consistent with steps 2 to 4 may be considered for step-down therapy if it is safe to do so [2].
- The prevalence of asthma among Aboriginal and Torres Strait Islander people is higher when compared to the total population; approximately 16% of Aboriginal and Torres Strait Islander people have asthma, compared to 11% of the Australian

population [4]. Asthma is also more prevalent in those living in outer regional areas and those living in the lowest socio-economic areas [4].

- Patients with asthma, particularly older age groups, appear to be more predisposed to a wide range of other comorbidities than patients without asthma, including arthritis, back problems, mental health and behavioural conditions, chronic obstructive pulmonary disease (COPD), cardiovascular disease, kidney disease, osteoporosis, diabetes and cancer [6].
- Optimal management of asthma involves a multidisciplinary and collaborative team-based approach and as such communication and clinical handover with other care providers is essential for patients with existing asthma.

Refer when

During the Program, patients must be referred to a medical practitioner for ongoing management if:

- They have symptoms and features that favour both asthma and COPD
- They have spirometry results that do not demonstrate reversible airflow limitation or expiratory airflow limitation
- They have clinical features or symptoms suggestive of a respiratory condition other than asthma, or another condition within Appendix 2 that is not suitable for management under the Program
- They have or develop any alarm signs and symptoms including haemoptysis, unexplained weight loss, recurrent pneumonia or oedema
- They are taking medicine consistent or equivalent with step 5 pharmacotherapy, or have symptoms that cannot be controlled at step 4
- They experience a severe acute flare or life-threatening acute asthma.

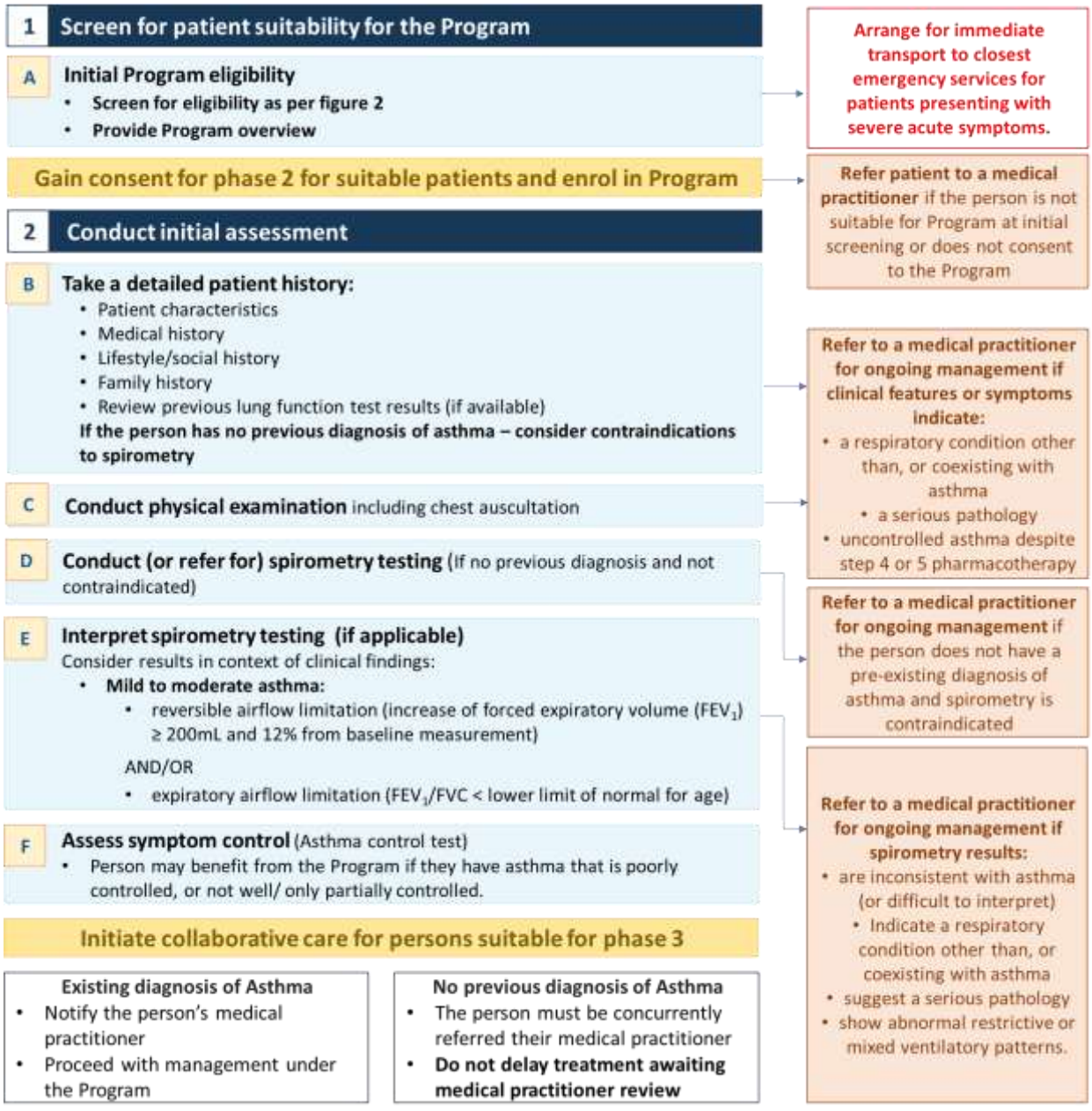
Overview of the Improved Asthma Symptom Control Program

There are two entry points for patients who are appropriate for enrolment in the Program:

- Patients **without previous diagnosis** of asthma may be enrolled in the program and commence management concurrent to referral to a medical practitioner for further review and collaborative care. Do not delay treatment while awaiting medical practitioner review.
- Patients **with an existing diagnosis** of mild to moderate asthma may be enrolled in the program and commence management provided the patient's usual medical practitioner is notified and updates are provided following each occasion of care.
- The Program (refer to Figure 1) is based on information provided in the Therapeutic Guidelines and the Australian Asthma Handbook [2], and involves:
- **identification and standardised assessment** of patients with symptoms of mild to moderate asthma
- **development of an Asthma Action Plan** with accompanying education, counselling, and skills training for self-management of symptoms
- **management of mild-moderate asthma**

- **monitoring of symptoms and referral** for multidisciplinary team care (including to a medical practitioner).

Figure 1 Overview of the Improved Asthma Symptom Control Program [1, 2]



See over page

3 Develop and implement management plan

G General measures

- **Mild to moderate asthma:**
  - **Avoidance of triggers**
  - **Smoking cessation (if applicable)**
  - **Lifestyle factors**
    - Smoking cessation
    - Weight management
    - Exercise and physical activity

H Pharmacotherapy

- **Stepwise pharmacotherapy for mild to moderate asthma:**
  - Step 1 – 4 as per Therapeutic Guidelines (1)
- **Acute asthma flares**

I Confirm management plan is appropriate

J Communicate agreed management plan

Communicate with person's usual medical practitioner to enable collaborative care (with person's consent):

- Provide a copy of the Asthma Action Plan Program Lifestyle Prescription (appendix 7) that includes:
  - level of symptom control (ACT score or other assessment)
  - new pharmacotherapy or changes to existing pharmacotherapy for asthma
  - next scheduled review appointment.

4 Ongoing management and monitoring

K Clinical review

- **1-2 months** after management is first commenced/new pharmacotherapy is initiated, including step up or step down
- **3 months** for patients with stable pharmacotherapy and asthma (with no increase in symptom frequency or severity)
- **As soon as possible (unscheduled):**
  - if there is a deterioration in condition
  - if adverse effects are experienced
  - after any acute asthma flare

At each review appointment (either scheduled or unscheduled):

- review and update patient history
- assess level of symptom control
- review the patient's suitability to continue participating in the Program
- review and reinforce inhaler technique and adherence to pharmacotherapy
- update the Asthma Action Plan and reinforce general measures
- consider pharmacotherapy step up or step down
- ensure patient has enough medication until next scheduled review
- provide referrals for multidisciplinary care.

The patient's suitability for the Program may change at any point.

Refer to a medical practitioner for ongoing management if the person:

- develops alarm symptoms or findings
- develops new or worsening clinical features or symptoms, including symptoms not adequately managed with pharmacotherapy at step 4
- Has a severe or life-threatening acute flare.

Communicate with person's usual medical practitioner to enable collaborative care (with person's consent):

- Advise of changes to Asthma Action Plan
- Person no longer suitable for Program - Refer for ongoing management

5 Completion of the Program

Patients who leave the Program for any reason

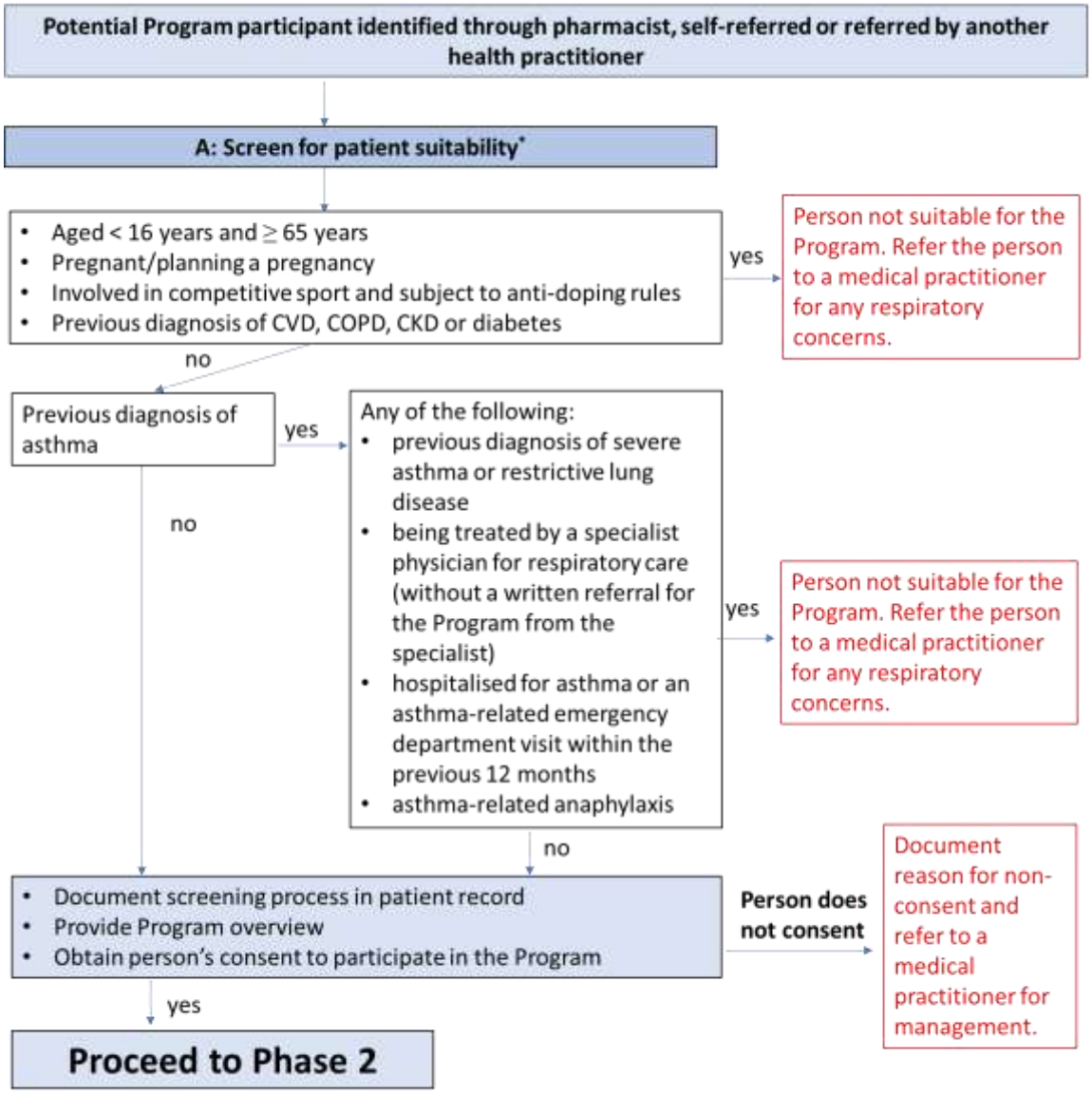
Refer the patient back to their medical practitioner with a comprehensive clinical handover at Program completion.

Phase 1: Screen for patient suitability

A. Brief screening

Screen patients who have self-referred or been referred by another health practitioner to the Program, patients who request advice regarding respiratory symptoms or patients who request related medicines including provision of Schedule 3 salbutamol and terbutaline [7]. Refer to Figure 2 and Figure 3.

Figure 2 Screening for eligibility



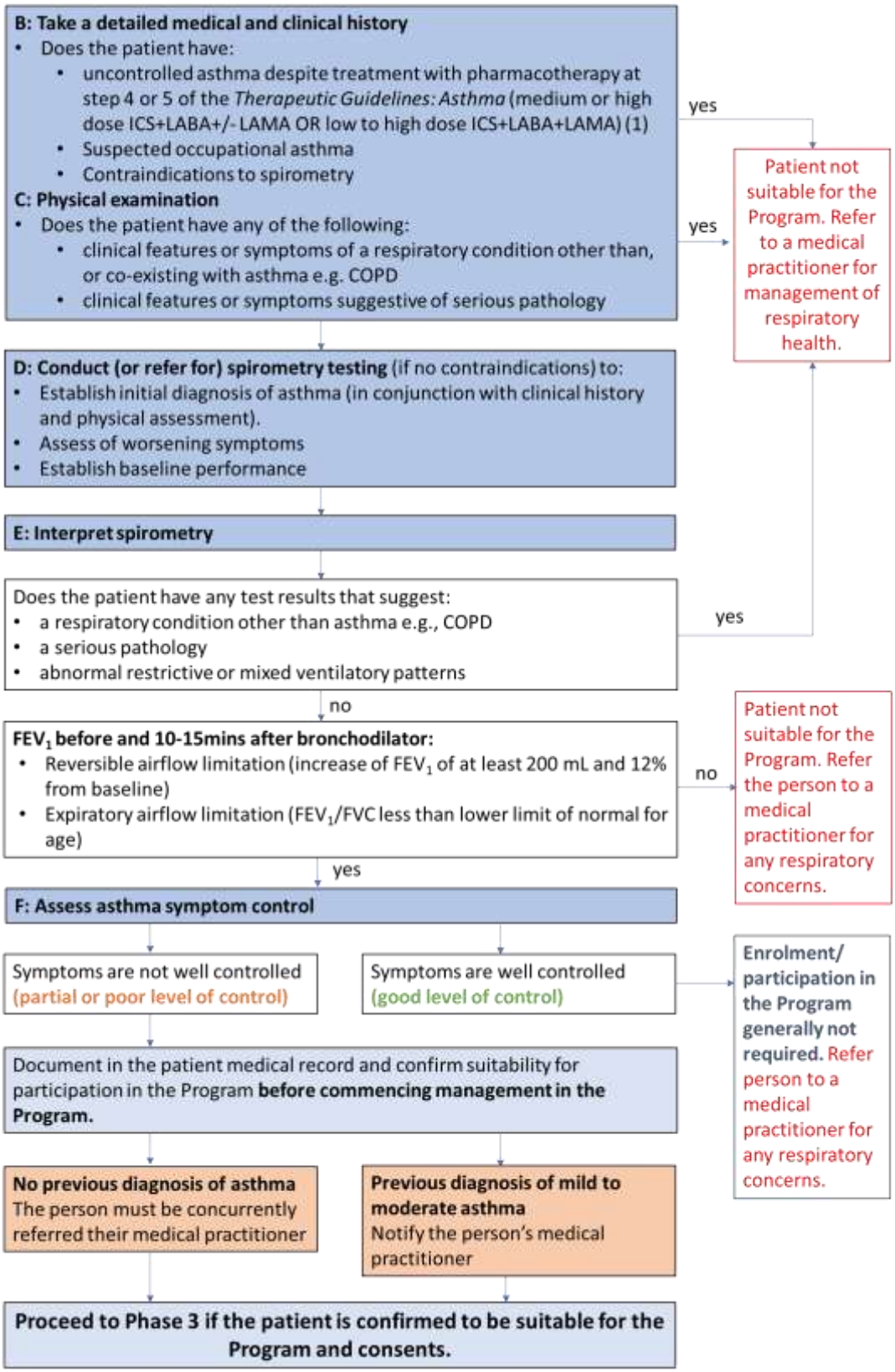
** Ask the patient to provide a copy of their most recent Asthma Action Plan (if they have one) to assist with screening and initial assessment if they are eligible for the Program.*

1. **Ask the initial screening questions to assess the patient's eligibility and suitability for the Program.**
2. **Provide an overview of the Program, including:**
    - possible timeframes for involvement including the number of appointments and testing required, including the costs of appointments and testing
    - how the patient's medicines may be managed and how medicine costs may differ when prescribed by a pharmacist or medical practitioner
    - other interventions that may be recommended as part of the Program e.g., smoking cessation and weight management
    - that the patient may leave the Program at any time, through either opting out or becoming ineligible, and/or be referred to a medical practitioner.
3. **Gain informed consent from the patient for participation, as per the Pilot Handbook.**
4. **Document all findings in patient record and refer as required.**

Phase 2: Initial assessment

Take a detailed patient medical and clinical history, conduct a physical examination and spirometry testing (if indicated), and assess asthma control. Refer to Figure 3.

Figure 3 Improved Asthma Symptom Program Initial Assessment Algorithm



B. Patient history

Sufficient information should be obtained to assess the patient's condition, suitability for participation in the program, and the safety and appropriateness of any recommendations and medicines for the patient.

Responses to the previous screening questions in Phase 1 should be used to inform the patient history:

- age
- pregnancy and lactation status
- previous diagnosis of asthma and history of acute flares
- underlying or associated conditions and comorbidities that require referral to a medical practitioner for comprehensive and ongoing management:
    - COPD
    - complex, established cardiovascular disease, e.g.:
        - pulmonary hypertension, cor pulmonale, congenital heart disease, rheumatic heart disease, heart failure, arrythmias, atrial fibrillation, peripheral arterial disease, heart block, pericarditis, valvular disease, angina, cardiomyopathy and cardiomegaly, aortic aneurysm, ischaemic heart disease
        - history of acute coronary syndrome, stroke or other cerebrovascular disease, deep vein thrombosis, pulmonary embolism, cardiothoracic surgery
    - diabetes mellitus
    - chronic kidney disease.

Additional information required:

- Aboriginal and Torres Strait Islander status
- if previous diagnosis of asthma:
    - date of diagnosis and last review
    - current (or most recently prescribed) treatment and most recent asthma action plan (if applicable)
- onset, presence, pattern and severity of respiratory symptoms (refer to appendix 1 and 3):
    - frequency and time of day
    - impact on daily activities including sleep and exercise
    - triggers, aggravating and precipitating factors (refer to appendix 4)
    - relieving factors e.g., short-acting beta agonist (SABA) inhaler use
- other underlying or associated conditions and comorbidities (refer to appendix 2 for conditions that can impact on asthma control and/or complicate treatment)
- other relevant medical conditions, including systemic and/or chronic conditions and those that may be contraindications to spirometry (refer to conduct (or refer for) spirometry testing)
- 'alarm signs', symptoms and findings that require further investigation e.g., unexplained weight loss, recurrent pneumonia, haemoptysis, oedema

- personal and/or family history of asthma, atopic dermatitis and/or allergic rhinitis
- all current and recently commenced medication (including prescribed medicines, vitamins, herbs, other supplements and over-the-counter medicines)
- drug and non-drug allergies/adverse drug events
- smoking status and history, consider tobacco, cannabis, vaping, passive smoking
- diet/nutrition status
- level of physical activity
- recreational drug and alcohol use
- vaccination status, specifically covid, influenza, pneumococcal and pertussis.

Asthma-COPD overlap

COPD and asthma may coexist; patient with a history of asthma are at increased risk of developing COPD and patient with COPD often report a history of asthma [8].

Clinical features that can aid in differentiation between asthma and COPD are shown in Appendix 3.

Check referral points

C. Physical examination

Pharmacists should perform a physical examination including chest auscultation and an inspection of the upper respiratory tract for patients who have not been previously diagnosed with asthma.

When conducting the physical examination, pharmacists should look for:

- widespread wheeze heard during chest auscultation
    - Expiratory wheeze is suggestive of asthma but not definitive; it may also be present in patients with COPD, respiratory infection, obesity and other conditions.
    - Crackles on chest auscultation suggest another diagnosis (possibly co-existing with asthma) [2].
- signs of allergic rhinitis in the upper respiratory tract
- signs or atopic dermatitis [1, 2].

The results of the physical examination may be normal in patients with asthma; however asthma should not be ruled out without conducting spirometry in patients who have not been previously diagnosed [2].

D. Conduct (or refer for) spirometry

Spirometry is required for patients with suspected asthma who have not been previously diagnosed and is recommended for patients with an existing diagnosis who are experiencing new or worsening symptoms [2].

Spirometry is recommended after symptoms stabilise (in 3 to 6 months) to establish the patient's personal best as the basis for future comparison [2].

While other methods of lung function testing can also be used to assist in the identification and management of asthma, spirometry is considered the best method for confirming variable expiratory airflow limitation and assessing asthma control [2].

Spirometry alone is not a definitive diagnostic tool and results should be considered with other factors; lung function tests have significant false positive/negative results and should not be relied upon as the sole diagnostic tool [1, 2].

Spirometry

Pharmacists may conduct the spirometry in the community pharmacy setting in accordance with the National Asthma Council Australia Spirometry Handbook for Primary Care 2022 (the Spirometry Handbook), if they have been appropriately trained and have the appropriate equipment detailed in the Spirometry Handbook, or they may refer to another local practitioner or service that performs lung function testing.

Spirometry should be conducted in accordance with the Spirometry Handbook, including:

- pre-appointment and pre-test preparation of the patient
- performance and completion of the tests
- identifying abnormal ventilatory patterns
- clinical interpretation of spirometry both pre and post-bronchodilator [9].

Spirometry is generally safe; however, because it involves maximal effort, patients may experience transient breathlessness, cough, syncope, chest pain, oxygen desaturation and/or incontinence [9].

In some cases, spirometry is contraindicated or not recommended at a specific point in time due to risk to the patient or increased likelihood of inaccurate and unrepeatable results, as detailed in the Spirometry Handbook [9].

- If the contraindication to spirometry is not likely to resolve with time, the patient must be referred to a medical practitioner for management.
- If the contraindication is temporary/transitory in nature, the patient may undertake spirometry when it is safe to do so [9].

Resources for conducting spirometry

- National Asthma Council Australia 2022 Spirometry Handbook for Primary Care [9]
- Therapeutic Guidelines: Pulmonary Function Testing (Spirometry) [10]
- American Thoracic Society and European Respiratory Society Technical Statement: Standardization of Spirometry 2019 Update [11].

E. Interpret spirometry testing

Interpret spirometry testing in accordance with Therapeutic Guidelines: Pulmonary function testing (Spirometry) and Appendix 5 [10].

Check referral points

F. Assess symptom control

Asthma symptom control can be assessed using the Therapeutic Guidelines: Asthma Assessing asthma symptom control in adults and adolescents, refer to Appendix 6 for classification of symptom control [1]. The patient's level of symptom control should be assessed and documented throughout the Program.

Collaborative care

Patient **without previous diagnosis** of asthma may be enrolled in the program and commence management concurrent to referral to a medical practitioner for further review and collaborative care. Do not delay treatment while awaiting medical practitioner review.

Patient **with an existing diagnosis** of mild to moderate asthma may be enrolled in the program and commence management provided the patient's usual medical practitioner is notified and updates are provided following each occasion of care.

If the patient was referred into the Program by a medical practitioner, they may proceed directly to phase 3 if they are eligible.

Relevant diagnostic information should be shared with the patient's medical practitioner, with the patient's consent, to avoid duplication.

Phase 3: Develop and implement a management plan

Optimal management of asthma involves a multidisciplinary and collaborative team-based approach which includes:

- avoidance of triggers and minimisation of risk factors
- education and counselling to enable self-management
- pharmacotherapy
- regular symptom monitoring and review [1, 2].

Each patient within the Program should have the following developed, consistent with the Therapeutic Guidelines, Australian Medicines Handbook and Australian Asthma Handbook [1, 2, 5]:

- an individualised Asthma Action Plan (or existing plan updated), using a validated template, such as the National Asthma Council Australia Asthma Action Plan
- an accompanying individualised lifestyle prescription detailing non-pharmacological management/ general measures (see template in appendix 7).

G. General measures

Non-pharmacological general measures for the management of asthma are equally as important as pharmacotherapy [1].

In suitable patients with variable asthma control, consider advising on the use of a peak expiratory flow (PEF) meter [2].

Avoidance of triggers

Patients should be counselled on the importance of avoiding triggers and other environmental risk factors, including allergens, airborne and environmental irritants (including occupational factors), medications associated with asthma exacerbations (e.g., NSAIDS for patients with aspirin-exacerbated respiratory disease) and dietary triggers or allergens [1].

Lifestyle factors

Smoking cessation (if applicable)

Smoking cessation is an important and beneficial measure to prevent or limit lung damage and reduce mortality [2].

Detailed guidance for pharmacist supporting smoking cessation is contained in the Smoking Cessation Clinical Practice Guideline.

Weight management

There is evidence that for patients with obesity, weight loss may assist in the control of asthma symptoms [2].

With the patient's consent, patients requesting assistance with weight management may be:

- concurrently referred to a medical practitioner
- managed by a pharmacist as part of standard pharmacist care
- managed within the Pilot as per the Management of Overweight and Obesity Clinical Practice Guideline.

Exercise and physical activity

Physical activity may improve asthma symptoms and management, as well as improve quality of life. It may possibly improve exercise capacity, bronchial hyperreactivity and exercise induced bronchospasm [1].

Patients with asthma should be encouraged to undertake physical activity in line with their age group in the Physical activity and exercise guidelines for all Australians as part of overall asthma management [1, 2].

Complementary medicine

At present, there is no convincing evidence to support the use of complimentary medicines for the management of asthma. Pharmacists should ensure that patients who choose to use complementary medicines, do so in conjunction with prescribed asthma therapy and their usual medications [1, 2].

H. Pharmacotherapy

Pharmacotherapy for the Program involves the following components where appropriate:

- maintenance management of mild-moderate asthma
- management and treatment of acute asthma flares.

The aim of stepped adjustment of pharmacotherapy is to establish the lowest dose that maintains asthma symptom control and prevents exacerbations.

Stepwise pharmacotherapy for asthma maintenance management within the Program is outlined in figure 5.

Patients entering the program with an existing drug regimen

When managing patients who enter the Program already on a drug regimen, the pharmacist should ask for the patient's most recent Asthma Action Plan (if they have one) and consider whether the current (or most recently prescribed) regimen is:

- concordant with relevant guidelines [1, 2]
- appropriate for the patient's symptoms and medical history
- optimised for the patient, including inhaler technique and adherence.

When modifying drug regimens within the Program that have been prescribed by another health practitioner, pharmacists should attempt to make changes in collaboration with the original prescriber or the patient's current medical practitioner (whichever is most appropriate).

Pharmacists may modify or de-prescribe pharmacotherapy, particularly if:

- the patient's response is inadequate (within appropriate clinical timeframes)
- the patient is experiencing intolerable/unmanageable adverse effects
- the medicine is not used for the treatment of another condition (e.g., corticosteroids).

Pharmacotherapy for maintenance management of mild-moderate asthma

Pharmacotherapy for maintenance management of mild to moderate asthma within the Program must be in accordance with the Therapeutic Guidelines: Respiratory – Maintenance management of asthma in adults and adolescents [1].

Check referral points

Additional considerations

The entry point to the stepwise pathway should be individualised to the patient's previous medical and medication history.

- Most adults and adolescents with asthma have mild symptoms that can be well controlled using step 2 therapy [1]. the majority of patients can commence treatment with as-needed low dose ICS-formoterol (an option in step 1) or regular daily low dose ICS with as-needed SABA (an option in step 2) [12].
- If the patient has troublesome asthma symptoms on most days of the week, or is waking from asthma at least once per week, consider commencing at step 3 [12].

- Patients with poor or partial symptom control presenting with an acute flare (that does not require immediate referral to a medial practitioner) may commence at step 4 therapy [12].
- Alternatively, patients with poor symptom control or with a nonurgent but persistent increase in symptoms may benefit from a short course of oral prednis(ol)one, which can prevent progression to an acute exacerbation [13].
- A prescription for prednis(ol)one should be provided and dispensed for patients to keep at home to self-manage worsening asthma.

When commencing any drug therapy, patients should be advised to return if they experience adverse effects, an increase in symptom frequency or type, more severe symptoms or an acute flare.

Pharmacists should ensure the patient's prescription(s) (including repeats) generally only allow for a sufficient quantity of medicine to be supplied for the period until the patient's next scheduled review.

Inhaler considerations

The choice of drug and device should consider patient preference and their ability to use the device correctly, including inspiratory effort, cognition, and dexterity [2].

Where possible, the number of different devices should be limited to avoid confusion [2].

Pharmacists should demonstrate the correct use of the patient's prescribed device (which differs between brands) and review inhaler technique regularly.

Where possible, compatible inhalers should be used in conjunction with a spacer device.

Further resources for consumers and health professionals are available in the National Asthma Council of Australia information paper for health professionals – Inhaler technique for people with asthma or COPD [14].

Stepping up/down pharmacotherapy

Recommendations to step up/down pharmacotherapy must be in accordance with the Therapeutic Guidelines: Asthma (Principles for stepped adjustment) [1].

Before stepping up therapy, pharmacists should confirm that the patient is eligible for the Program and that stepping up pharmacotherapy is appropriate for their presentation.

Stepping down can be considered if the patient's asthma is stable and has been well controlled for at least 2 to 3 months [2].

Before recommending stepping down pharmacotherapy, pharmacists should assess and manage the patient's risk factors for acute flares.

- Ceasing ICS preventer therapy is associated with a risk of acute flares, however a closely monitored withdrawal of therapy may be trialled for patients who remain well controlled on minimum therapy [1].
- Provide advice on restarting ICS preventer therapy should asthma control deteriorate.
- If withdrawal of preventer therapy is appropriate, pharmacists should discuss the risks with the patient and ensure they still have ready access to reliever therapy (either SABA or low-dose budesonide+formoterol) [1].

All patients should be advised to step up therapy again if their condition worsens after stepping down.

Management and treatment of acute asthma flares

All patients should be counselled on how to recognise an acute asthma flare, including the signs and symptoms that indicate the need for emergency medical care, and how to manage acute asthma flares according to the National Asthma Council Australia's First Aid for Asthma chart [15], and the Therapeutic Guidelines: Acute asthma (first aid for acute asthma for patients and community members) [1]. This should be included in the patient's Asthma Action Plan.

In addition to previously hospitalisation for asthma, risk factors for life-threatening acute asthma include:

- frequent SABA use (more than one cannister per month)
- maintenance management with ≥ 3 medicine classes
- poor lung function
- confirmed food allergy
- current or recent requirement for oral corticosteroid
- rural or remote location
- adverse psychosocial or behavioural factors including (but not limited to) poor adherence to treatment regimens, psychiatric illness and social isolation [1].

The management of acute asthma flares (excluding life-threatening acute asthma flares), including rapid severity assessment and pharmacotherapy are as per the Therapeutic Guidelines: Acute asthma[1] [1].

All participants should return to the Program pharmacist for a review of their Asthma Action Plan after an acute asthma flare, even if it was mild and self-managed.

NB1: Prednis(ol)one is the first-line oral corticosteroid listed in the Therapeutic Guidelines for acute asthma[1]. A prescription for prednis(ol)one should be provided and dispensed for patients to keep at home in the event of an acute asthma flare. Patients should be advised to have a clinical review with the pharmacist or medical practitioner after self-initiating prednisolone for the management of worsening asthma symptoms.

Check referral points

I. Confirm management is appropriate

Pharmacists must consult the Therapeutic Guidelines, Australian Medicines Handbook and other relevant references to confirm the management plan is appropriate, including for:

- contraindications and precautions
- drug interactions
- pregnancy and lactation (patients who are planning a pregnancy or pregnant are not eligible for the Program)

J. Communicate agreed management plan

Comprehensive advice and counselling (including supporting written information when required) as per the Therapeutic Guidelines, Australian Medicines Handbook, Australian Asthma Handbook and other relevant references, should be provided to the patient regarding:

- individual product and medicine use (dosing and inhaler technique)
- how to manage adverse effects
- when to seek further care and/or treatment
- when to return to the pharmacist or other healthcare providers for clinical review.

It is the pharmacist's responsibility to ensure the suitability and accuracy of any resources provided to patients (and parents/caregivers if applicable) and compliance with all copyright conditions.

Collaborative care

The pharmacist should provide a copy of the patient's Asthma Action Plan to their usual medical practitioner (and any other health professionals involved in the patient's respiratory care). The communication should also include:

- relevant medical history, results of any spirometry testing conducted and level of symptom control
- changes to existing pharmacotherapy prescribed for asthma, or new pharmacotherapy (including for acute flares)
- a summary of advice provided to the patient including recommendations for multidisciplinary care and referrals
- the next scheduled review appointment.

Phase 4: Ongoing management and monitoring

K. Clinical review

All patients should undergo regular clinical review to participate in the Program, as per the Therapeutic Guidelines, outlined below:

- review patient 1-2 months after management is first commenced and/or new pharmacotherapy is initiated, including step up and step down of treatment
- review patient after 3 months of stable pharmacotherapy (with no increase in symptom severity or frequency) and consider stepping down therapy
- review patient as soon as possible:
    - if they experience increased severity and/or frequency of symptoms
    - if the patient is experiencing intolerable adverse effects
    - after any acute asthma flare.
- perform and review spirometry when the patient's symptoms stabilise after 3 to 6 months or implement a review of peak expiratory flow recordings [1, 2].

At each review appointment (scheduled or unscheduled), the pharmacist should:

- review and update the patient's history to reflect changes in the preceding period
- assess level of symptom control
- review the patient's inhaler technique and adherence to pharmacological and non-pharmacological treatment, including:
    - demonstration of appropriate inhaler technique. if a patient is unable to use a device correctly after continued instruction and demonstration, a different device should be tried
    - inspection of equipment to check for breakage or blockage
    - review of the benefits and adverse effects of pharmacotherapy.
- review and update the asthma action plan (if required) and consider whether the patient's pharmacotherapy needs to be stepped up or down, as per the therapeutic guidelines, and reinforce general measures
- ensure the patient has enough medicines and prescriptions until their next scheduled review
- provide referrals to the patient's multidisciplinary health team
- consider the patient's ongoing suitability to be managed in the program.

Ongoing collaboration during management

The pharmacist should advise the patient's medical practitioner when any changes are made to the patient's management plan throughout the Program. Communication should include:

- a copy of the current Asthma Action Plan, results of any spirometry testing conducted and lifestyle prescription
- a summary of any advice and counselling provided to the patient including any recommendations for multidisciplinary care and referrals
- the next scheduled review appointment.

Proactive, planned and/or unplanned review may also occur with the patient's usual medical practitioner at any time while the patient is enrolled in the Program.

Patients who are not suitable for further participation in the Program

The pharmacist must refer all patients (with their consent) who are no longer suitable for management within the Program or who do not wish to continue in the Program to a medical practitioner (refer to phase 5).

Phase 5: Completion of the Program

Patients may continue to participate in the Program as long as:

- their condition remains suitable to be managed in the Program
- they wish to remain in the Program and continue to consent
- they attend scheduled reviews.

If a patient leaves the program for any reason, the pharmacist should (with their consent) advise the patient's usual medical practitioner. An update should also be provided to other relevant members of the patient's collaborative care team.

Appendices

Appendix 1 – Clinical features to aid with identification of asthma

Clinical features to aid with identification of asthma in adolescents and adults [1, 2]	
Probability of asthma is increased	**Probability of asthma is decreased**

• more than 1 symptom of asthma (episodic dyspnoea, wheeze, cough, chest tightness or discomfort) that:
  ○ began in childhood
  ○ are worse at night and early morning
  ○ are triggered by exercise, laughter, exposure to allergens, cold air, change in temperature, viral infection or after taking medication (e.g., aspirin or beta-blockers)
  ○ are recurrent and seasonal
• personal and/or family history of asthma, atopic dermatitis and/or allergic rhinitis
• widespread wheeze on chest auscultation
• rapid response to a SABA
• lower than expected FEV_1 or peak expiratory flow.
	• cough is the only symptom
	• chronic sputum production
	• voice changes
	• light-headedness, dizziness and peripheral tingling
	• symptoms that only occur with viral or upper respiratory tract infections
	• sudden onset of symptoms
	• symptoms triggered by food
	• normal chest auscultation
	• no response to asthma treatment
	• history of heavy smoking history
	• occupational exposure to dust and fumes
	• waking in the night.

Appendix 2 – Conditions impacting on asthma control and/or treatment

Conditions that can impact on asthma control and/or complicate treatment [1]		Recommended management.
• rhinitis (allergic and non-allergic) • smoking and nicotine dependence	• gastro-oesophageal reflux • obesity	May continue with management under the Program. Condition may be treated as part of the Pilot or referred to a medical practitioner for management.
• COPD • diabetes	• cardiovascular disease	Not for management in conjunction with the Program. Referral to a medical practitioner required for ongoing management of respiratory health.
• obstructive sleep apnoea • chronic sinusitis	• mental health e.g., depression and anxiety • allergic conditions	May continue with management under the Program if an appropriate management plan is

• inducible laryngeal obstruction (voice disorders) • dysfunctional breathing e.g., hyperventilation	• hormonal changes • respiratory infections (including COVID), other respiratory conditions	in place for the condition. Refer patients to a medical practitioner for management where the condition is not appropriately managed, develops or worsens during the Program.

Appendix 3 – Differentiation between COPD and asthma

Clinical features to aid with differentiation between COPD and asthma [8]		
Clinical features	**Suggestive of COPD**	**Suggestive of asthma**
Onset	• after age 40	• before age of 20
Airflow limitation and symptoms	• persistent airflow limitation • symptoms do not respond to asthma treatment e.g., weeks or months of inhaled corticosteroids [ICS]	• day-to-day variability in airflow limitation and symptoms • normal lung function between symptoms • symptoms worse at night or in the early morning • seasonal variability in symptoms • spontaneous improvement in symptoms.
Family history	• family history of COPD	• family history of asthma
Other	• heavy exposure to tobacco	N/a

Appendix 4 – Asthma triggers and irritants

Asthma triggers and irritants [2, 4]
• viral respiratory infections • indoor allergens (pet dander, dust mites in bedding, carpets, soft furnishings) • outdoor allergens (pollen, grass, mould) • tobacco smoking, other types of smoking or exposure to second-hand smoke • occupational exposure to chemical irritants e.g., agriculture and livestock farming, mining, food and drinks processing • air pollution • strong odours e.g., perfume • cold air or change in temperatures • thunderstorms • hormonal changes • pregnancy • physical exercise (consider frequency and intensity required for trigger) • certain medications e.g., aspirin and other non-steroidal anti-inflammatories (NSAIDs) and beta-blockers

- extreme emotions e.g., anger or fear.

Appendix 5 – Interpretation of spirometry

Interpretation of spirometry [16]

Spirometry findings that are consistent with asthma are:

- reversible airflow limitation – FEV_1 increase of at least 200 mL and 12% from baseline, measured 10-15 minutes after giving a SABA (e.g. 200-400 micrograms of inhaled salbutamol)

  AND/OR

- expiratory airflow limitation – reduced FEV_1 to FVC ratio [1].

NB1: A large increase of FEV_1 e.g., greater than 400 mL, is strongly supportive of a diagnosis of asthma.

Resources for interpreting spirometry

- Therapeutic Guidelines: Pulmonary function testing (Spirometry) [10]
- European Respiratory Society GLI calculator and Global Lung Initiative (GLI) 2012 dataset[2] [17].

NB2: Control values for lung function may need to be adjusted for ethnicity [9, 17].

Appendix 6 – Classification of asthma symptom control

Classification of asthma symptom control according to Therapeutic Guidelines: Assessing asthma symptom control in adults or adolescents [1, 2]

Good	Partial	Poor
All of the following features: ▪ daytime symptoms on 2 or fewer days per week ▪ need for SABA reliever on 2 or fewer days per week[3] ▪ no limitation of activities ▪ no symptoms during night or on waking	One or two of the following features: ▪ daytime symptoms on more than 2 days per week ▪ need for SABA reliever on more than 2 days per week[3] ▪ any limitation of activities ▪ any symptoms during night or on waking	Three or more of the following features: ▪ daytime symptoms on more than 2 days per week ▪ need for SABA reliever on more than 2 days per week[3] ▪ any limitation of activities ▪ any symptoms during night or on waking
Asthma Control Test (ACT) score ≥ 20 is considered well controlled asthma	An ACT score of 16-19 is considered not well-controlled asthma	An ACT score of ≤ 15 is considered to be poorly controlled asthma

NB1: Asthma symptom control is based on symptoms over the previous 4 weeks.

NB2: Assessment of asthma symptom control can be supplemented with a validated composite score such as the Asthma Control Test (ACT) (also known as the Asthma Score).

NB3: Not including SABA taken prophylactically before exercise; record this separately and consider when assessing management.

Appendix 7 – Program Lifestyle prescription to accompany Asthma Action Plan

Page 1

Queensland Community Pharmacy Scope of practice Pilot

Improved Asthma Symptom Control Program Lifestyle Prescription

Plan date:

Patient details

Name:		**Date of birth**	
Patient support person or parent/ carer	Name, relationship and phone number of someone who assists the patient with their home care		

Program pharmacy details

Pharmacist name		**Phone number**	
Pharmacy name and address		**Opening hours**	

Next Asthma Program appointment:	

Date of enrolment in the Asthma Program:			
My current FEV_1:	**Date:**	**Date of last vaccinations**	(list all applicable)
Current level of symptom control:	**Date:**	**Date next vaccinations are due**	(list all applicable)

Health care team

General practitioner and clinic:	Name, address and phone number	**Closest 24-hour emergency services:**	Name, address and phone number
Dietitian	Name, address and phone number	**Physiotherapist**	Name, address and phone number
Other services			

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Lifestyle prescription

My risk factors and triggers	• List identified risk factors and triggers and strategies to minimise and avoid exposure

Exercise plan	• Enter recommendations for physical activity for the patient's age and capability based on the national guidelines:
	  ○ Informal exercise e.g. building exercise into everyday activities
	  ○ Formal exercise e.g., walking (moderate intensity) for 30 minutes 5 days of the week strength building 2 days per week
	  ○ individualised guidance for building up to recommendations
	• If required: Referral to a GP, exercise physiologist, physiotherapist or other supports for safe exercise

Weight management	• Recommendation for weight loss or gain (if applicable)
	• Summary of nutritional advice for a balanced diet
	  ○ more of/ increase…
	  ○ less of/ limit…
	• Referral to Pilot overweight and obesity management program and/or other supports e.g., dietitian

Other management strategies	• If required: Smoking cessation ○ Refer to Pilot smoking cessation program and/or other supports e.g. Quitline or GP • If required: Referral to a GP, psychologist or other clinician for mental health support • If required: summary of advice regarding alcohol consumption

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