Chronic obstructive pulmonary disease - suspected

Background information

Updates to this care map

Key recommendations of the care map

Abbreviations used in this care map

Clinical presentation

History

Examination

RED FLAG!
Suspected cancer

Differential diagnosis

Go to asthma in adults - suspected

Diagnosis of ACOS

Treatment of ACOS

Initial investigations for COPD

Spirometry

Other initial investigations

Additional investigations

Assessment of severity

Diagnosis of COPD

Consider referral

Refer to specialist as appropriate

Updates to this care map

Key recommendations of the care map

Abbreviations used in this care map

Clinical presentation

History

Examination

RED FLAG!
Suspected cancer

Differential diagnosis

Go to asthma in adults - suspected

Diagnosis of ACOS

Treatment of ACOS

Initial investigations for COPD

Spirometry

Other initial investigations

Additional investigations

Assessment of severity

Diagnosis of COPD

Consider referral

Refer to specialist as appropriate
1 Background information

Quick info:

**Objective and purpose of the care map**
The purpose of this care map is to define the appropriate diagnosis and management of COPD in adults. The objective is to reduce inappropriate investigation, prescribing, and referral of patients presenting to provider organisations in Qatar.

**Scope**
Aspects of care covered within this care map include:

- Early detection, assessment, diagnosis, and management of COPD in adults.
- Management in primary and secondary care, and criteria for specialist referral.
- Principles of palliative care in COPD.

Aspects of care not covered within this care map are:

- Children and adolescents.
- Prescribing and advice for smoking cessation.
- Detailed management of patients deemed appropriate for palliative care.

**Definitions**

COPD is a disease of the lung characterised by airway obstruction, which is [1-4]:

- Usually progressive.
- Not fully reversible.
- Does not change over several months.
- Due to a combination of airway and parenchymal damage.
- Usually associated with a chronic inflammatory response in the airways and the lung to noxious particles or gases.

Airway obstruction is defined as a post-bronchodilator FEV$_1$/FVC ratio of <0.7 [3].

ACOS is characterised by [2]:

- Persistent airflow limitation with several features associated with asthma and others associated with COPD.

An exacerbation of COPD is defined as [2,3]:

- A sustained worsening of symptoms from a usual stable state, beyond normal daily variations.
- Acute in onset.
- Requires a change in regular medication.

Respiratory failure is defined as [3]:

- Failure to maintain adequate gas exchange – characterised by abnormalities of arterial blood gas tensions.
- PaO$_2$ < 8.0 kPa (60 mmHg), with or without PaCO$_2$ > 6.7 kPa (50 mmHg).

**Epidemiology**
The incidence and prevalence of COPD in Qatar is not known at present. However, the 2012 Qatar STEPwise Survey found the prevalence of smoking amongst respondents was 16.4% [5]:

- 31.9% in males.
- 1.2% in females.

In Qatar in 2013, 6.2% of deaths were due to respiratory causes [5]:

- 8.5% of deaths in the Qatari population.
- 4.9% of the deaths in the non-Qatari population.

**Risk factors for COPD**
Risk factors include [2,3,6,7]:

- Male gender.
- Smoking:
  - Amongst people who smoke cigarettes, there is a greater:
    - Prevalence of respiratory symptoms and lung function abnormalities.
    - Annual decline in FEV$_1$.
    - COPD mortality rate than non-smokers.
Chronic obstructive pulmonary disease - suspected

Medicine > Thoracic medicine > Chronic obstructive pulmonary disease (COPD)

- Occupational exposure, e.g. dusts from organic or inorganic substances, chemical agents, and fumes.
- Increasing age.
- Lower socioeconomic status.
- Alpha-1-antitrypsin deficiency – accounts for < 1% of cases.
- Environmental factors, e.g. air pollution from burning of wood, biomass fuels, coal or incense (e.g. bukhoor) [R-GDG].

References:
Please see the care map's Provenance.

2 Updates to this care map

Quick info:
Date of publication: 19-Mar-2017
Please see the care map's Provenance for additional information on references, contributors, and the editorial process.

3 Key recommendations of the care map

Quick info:
The key recommendations of this care map are:

**Diagnosis** [6]:
- The number of premature deaths from COPD can be reduced through early accurate diagnosis and appropriate treatment.
- There is a strong association with hospital admissions for exacerbations and the stage at which COPD is diagnosed.

**Spirometry:**
- Is essential for the assessment of patients with suspected COPD [2,3].
- Should be made available to all primary care clinics and all outpatient clinics where COPD patients are managed [R-GDG].

**Management of stable COPD:**
- The management of COPD should be delivered by a multidisciplinary service [3][L3, RGA2].
- When managing a patient with COPD, consider all of the following [3]:
  - Health and preventative measures.
  - Pharmacological treatment.
  - Pulmonary rehabilitation.
  - Oxygen therapy.
  - Surgery.
  - Palliative care.

**Pharmacological treatment:**
- Use a short-acting bronchodilator using the most appropriate device (e.g. inhaler, spacer, or nebuliser) as needed for the relief of symptoms [3][L1, RGA1].
- Long-acting bronchodilators should be offered to patients with confirmed, stable COPD who continue to have respiratory symptoms [9][L1, RGA1]:
  - Offer one of the following [3][L1, RGA1]:
    - LABA alone; or
    - LAMA alone; or
    - Both a LABA and a LAMA in a combination inhaler.
- If patient remains breathless or has frequent exacerbations, consider [3]:
  - LAMA plus LABA; with an ICS.
  - LAMA and LABA plus an ICS in a combination inhaler [3][L1, RGA1].
  - Consider referral to a pulmonologist for specialist advice if triple therapy is being considered [R-GDG].
  - Consider mucolytics in patients with chronic productive cough and continue if there is symptomatic improvement [3][L1, RGA1].
• Consider theophylline in patients who have already tried long-acting bronchodilators but who are unable to use inhaled therapy [3][L2, RGA2]:
  • Only offer theophylline after consultation with a pulmonologist [3].
• Consider a phosphodiesterase-4 inhibitor in addition to triple inhaler therapy in cases where chronic bronchitis is the predominant feature with a history of exacerbations [2,9].
  • Only offer after consultation with a pulmonologist [R-GDG].

**Pulmonary rehabilitation:**

• Should be offered to patients with COPD [9][L1, RGA1], including those who have:
  • Had a recent hospitalisation for an acute exacerbation [3][L1, RGA1].
  • Self-reported exercise limitation [16][L2].

**LTOT:**

• Is indicated in [2,3,4,17,20]:
  • Patients with PaO\textsubscript{2} ≤ 7.3 kPa (55 mmHg) when stable; or
  • PaO\textsubscript{2} ≤ 8 kPa (60 mmHg) when stable, plus one of the following [2,3,20][L1]:
    • Secondary polycythaemia – haematocrit ≥ 55%.
    • Nocturnal hypoxaemia.
    • Peripheral oedema.
    • Pulmonary hypertension.

**Long term NIV:**

• Long-term NIV at a specialist centre should be considered for the following [3,18,20]:
  • Patients with chronic hypercapnic respiratory failure in whom assisted (invasive or non-invasive) ventilation was required during an exacerbation.
  • Patients who are hypercapnic (PaCO\textsubscript{2} > 6 kPa (45 mmHg)) or acidotic (blood pH < 7.35) whilst on LTOT.
  • Patients with chest wall or neuromuscular disease causing hypercapnic respiratory failure:
    • Additional LTOT may be required in case of hypoxaemia not corrected with NIV.

**Management of acute exacerbations of COPD:**

• Increase frequency of bronchodilator therapy [3].
• Consider starting treatment with oral corticosteroids [3][L1, RGA1].
• Start oral antibiotics if indicated [2,9,21][L1, RGA1].
• Commence oxygen therapy using a 28% Venturi mask at 4 L/min in pre-hospital care and aim to maintain SpO\textsubscript{2} at 88-92%.
• Consider IPPB in patients experiencing acute exacerbations who are too tired or weak to clear secretions through effective coughing [4].
• Non-invasive ventilation:
  • Should be considered [2,9,24,25]:
    • For all patients with an acute exacerbation of COPD with respiratory acidosis (arterial pH ≤ 7.35 and/or PaCO\textsubscript{2} ≥ 6 kPa (45 mmHg)).
    • Within the first 60 minutes of hospital arrival if respiratory acidosis persists despite treatment.
    • To support weaning from invasive mechanical ventilation and earlier extubation of patients with COPD [9][L1, RGA1].
• Consider mechanical ventilation for patients [3]:
  • Who do not respond adequately to NIV and require intubation and ventilation.
  • As the first-line management option for patients with multiple organ system impairment or reduced level of consciousness.

**References:**

Please see the care map's Provenance.

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4 **Abbreviations used in this care map**

**Quick info:**
The abbreviations used in this guideline are as follows:

**ACOS**
Asthma-COPD overlap syndrome

ABG
Arterial blood gas

AMP
Adenosine monophosphate

BMI
Body mass index

CAT
COPD Assessment Test

CBC
Complete blood count

COPD
Chronic obstructive pulmonary disease

CT
Computed tomography

ECG
Electrocardiogram

FEV₁
Forced expiratory volume in 1 second

FVC
Forced vital capacity

GOLD
Global Initiative for Chronic Obstructive Lung Disease

ICS
Inhaled corticosteroid

ICU
Intensive care unit

IPPB
Intermittent positive pressure breathing

IV
Intravenous route

LABA
Long-acting beta2-agonist

LAMA
Long-acting muscarinic antagonist

LTOT
Long term oxygen therapy

MoPH
Ministry of Public Health of Qatar

MRC
Medical Research Council

NIV
Non-invasive ventilation

PaCO₂
Partial pressure of carbon dioxide dissolved in arterial blood

PaO₂
Partial pressure of oxygen dissolved in arterial blood

PCV13
13-valent pneumococcal conjugate vaccine

PEF
Peak expiratory flow

PPSV23
Clinical presentation

Quick info: Patients with early stage COPD may be asymptomatic or present with minimal symptoms [3]. Even if asymptomatic, airflow limitation may be present [3].

The clinical presentation of COPD includes the following, which varies from day-to-day and individually [2,3]:

- Chronic and progressive breathlessness on exertion:
- Cough:
  - May be intermittent initially but later is present every day, often throughout the day, and may be non-productive.
- Sputum production.
- Wheeze.

Patients may also present with complications and/or comorbidities associated with COPD, including [2,3]:

- Frequent respiratory infections.
- Bronchiectasis.
- Anaemia.
- Polycythaemia.
- Cardiovascular disease:
  - Cor pulmonale.
  - Atrial fibrillation.
  - Hypertension.
  - Heart failure.
- Obstructive sleep apnoea.
- Abnormal BMI.
- Osteoporosis.
- Metabolic syndrome and diabetes.
- Gastro-oesophageal reflux disease.
- Depression and anxiety.
- Impaired cognitive function.
- Pulmonary hypertension.
- Respiratory failure.
- Lung cancer – a 2.8-fold increase in mild-moderate patient, with a history of smoking.

Co-morbidities may be independent of COPD or related by cause or risk factors [2].

References:
Please see the care map’s Provenance.
Quick info:
A comprehensive patient history should assess the following [2,3,9]:

- Symptoms, including:
  - Chronic and progressive breathlessness on exertion.
  - Cough.
  - Sputum production.
  - Wheeze.
  - Weight loss.
  - Ankle swelling.
  - Fatigue.
  - Chest pain.
  - Haemoptysis:
    - Uncommon in COPD and should raise the possibility of a differential diagnosis.
  - NB: Symptoms such as haemoptysis, cough, fatigue, shortness of breath, chest pain, weight loss, and appetite loss may also present in lung cancer [8].
- Previous exacerbations or hospitalisation for respiratory disorders.
- Exposure to risk factors, e.g. smoking and number of pack years, type of occupation, or environmental exposures.
- Identification of associated comorbidities (see the ‘Clinical presentation’ care point for further information).
- Family history of COPD or other chronic respiratory disease.
- Family history of alpha1-antitrypsin deficiency.
- Impact on patient's life, e.g.:
  - Limitation of activity and effort intolerance.
  - Missed work and socioeconomic impact.
  - Effect on family routines.
  - Feeling of anxiety or depression.
  - Sexual activity.
  - Available family and social support.

References:
Please see the care map's Provenance.

7 Examination

Quick info:
Physical signs of airflow limitation are usually not present until there is significant impairment of lung function [2,3].

On physical examination, the following signs may be present [2,3]:

- Cyanosis.
- Cachexia.
- Pursed-lip breathing.
- Use of accessory muscles of respiration.
- Hyperinflated chest:
  - Reduced crico-sternal distance.
- Wheeze or quiet breath sounds.
- Paradoxical movement of the lower ribs (Hoover's sign).
- Reduced cardiac dullness on percussion.
- Signs of cor pulmonale:
  - Peripheral oedema.
  - Raised jugular venous pressure.
  - A systolic parasternal heave.
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- Loud pulmonary second heart sound.
- Tricuspid regurgitation in pulmonary arterial hypertension.

Signs suggestive of hypercapnia include [2,3]:
- Bounding pulse.
- Flapping tremor.
- Impaired consciousness.

NB: Finger clubbing is not a characteristic feature of COPD – if present, it should prompt assessment to exclude lung cancer, mesothelioma, bronchiectasis, or idiopathic pulmonary fibrosis [8,10,11].

References:
Please see the care map’s Provenance.

8 RED FLAG! Suspected cancer

Quick info:
The following symptoms may also present in lung cancer, eg [8]:
- Haemoptysis.
- Cough.
- Fatigue.
- Shortness of breath.
- Chest pain.
- Weight loss.
- Appetite loss.

References:
Please see the care map’s Provenance.

9 Differential diagnosis

Quick info:
The differential diagnosis of COPD includes the following [2,3,10]:
- Asthma.
- ACOS.
- Congestive cardiac failure.
- Bronchiectasis.
- Carcinoma of the bronchus.
- Interstitial lung disease.
- Recurrent pulmonary embolism.
- TB.
- Obliterative bronchiolitis.
- Diffuse panbronchiolitis.
- Bronchopulmonary dysplasia.

References:
Please see the care map’s Provenance.

11 Diagnosis of ACOS

Quick info:
ACOS [2]:


This care map was published by Qatar. A printed version of this document is not controlled so may not be up-to-date with the latest clinical information.
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- Is characterised by persistent airflow limitation with several features associated with asthma and other features associated with COPD.
- Can have worse outcomes than either asthma or COPD alone.

Diagnosis of ACOS [2]:
- Clinical history may include:
  - Symptoms of chronic or recurrent cough, sputum production, dyspnoea, or wheeze.
  - Frequent acute lower respiratory tract infections.
  - History of smoking.
  - Personal history of asthma and/or atopy.
  - Family history of asthma and/or atopy.
  - Exposure to environmental hazards, e.g. airborne pollutants.
- Physical examination may demonstrate:
  - Normal examination findings.
  - Evidence of hyperinflation and other features of chronic lung disease or respiratory insufficiency.
  - Abnormal auscultation (wheeze and/or crackles).
- Chest radiograph:
  - May be normal, particularly in early stages.
  - Abnormalities may include:
    - Hyperinflation.
    - Airway wall thickening.
    - Air trapping.
    - Hyperlucency.
    - Bullae – or other features of emphysema.

References:
Please see the care map's Provenance.

12 Treatment of ACOS

Quick info:
Initial treatment of ACOS is as follows [2]:
- If asthma symptoms predominate (or there is uncertainty of the diagnosis), treat as asthma until further investigations are completed:
  - ICS in low or moderate dose according to symptoms.
  - A LABA should be continued or added.
  - NB: Do not treat with a LABA without an ICS.
- If COPD symptoms predominate [2][L2]:
  - Start symptomatic treatment with bronchodilators or combination treatment but not an ICS alone.

Treatment of ACOS should also include [2][L2]:
- Smoking cessation.
- Pulmonary rehabilitation.
- Vaccinations.
- Treatment of comorbidities.

References:
Please see the care map's Provenance.

14 Spirometry

Quick info:
Spirometry [2,3]:

- Is essential for the assessment of patients with suspected COPD:
  - It confirms chronic airflow limitation but is of limited value in distinguishing between asthma with fixed airway obstruction, COPD, and ACOS.
  - Performed in patients who are over 40 years old, are current or ex-smokers, and have a chronic cough.
    - Consider performing spirometry at an earlier age if alpha\(_1\)-antitrypsin deficiency or other risk factors are present [R-GDG].
  - Should be made available to all primary care clinics and all outpatient clinics where COPD patients are managed [R-GDG].
  - Perform after the administration of an adequate dose of an inhaled bronchodilator in order to minimise variability.
  - The presence of a post-bronchodilator FEV\(_1\)/FVC ratio of < 0.7 confirms the presence of airflow limitation [2,3][L3, RGA2].
  - Severity of airflow limitation is measured by post-bronchodilator FEV\(_1\).
- Measurements should be evaluated by comparison with reference values based on [2,3][L3, RGA2]:
  - Age.
  - Height.
  - Weight.
  - Sex.
  - Race.
  - PEF measurement may underestimate the severity of obstruction.
  - If FEV\(_1\) is \(\geq\) 80% of the predicted normal, COPD should only be diagnosed if respiratory symptoms are present, e.g. breathlessness or cough.

References:
Please see the care map's Provenance.

15 Other initial investigations

Quick info:
Other initial investigations [2,3]:

- Pulse oximetry [3][L2].
- Chest radiograph:
  - At the time of initial diagnostic evaluation, all patients should have a chest radiograph performed to exclude other pathologies [2,3][L2].
- CBC:
  - All patients should have a CBC to identify [2,3][L2]:
    - Anaemia.
    - Polycythaemia.
    - Leukocytosis.
- BMI [3][L2, RGA1]:
  - Should be calculated on initial diagnostic evaluation.

References:
Please see the care map's Provenance.

16 Additional investigations

Quick info:
Consider performing the following additional investigations if indicated.

**Sputum culture:**
- Is performed to identify organisms if sputum is persistently present and purulent [3][L2].

**ARB:**
- Consider performing an ABG analysis [2,3]:
Chronic obstructive pulmonary disease - suspected

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- If SpO₂ is ≤ 94% on air, when the patient is stable, to stage the severity of COPD.
- If the patient’s condition is unstable.

**Spirometric reversibility testing** [3,12]:
- Is not routinely required for diagnosis or in planning initial bronchodilator or corticosteroid treatment.
- If differentiation of asthma from COPD is required, perform spirometric reversibility testing.
- Should be performed when the patient is clinically stable and free from respiratory tract infection.
- Patient should not have taken:
  - Inhaled short-acting bronchodilators in the previous 6 hours.
  - Long-acting bronchodilators in the previous 12 hours.
  - Sustained release theophylline in the previous 24 hours.
- Where diagnostic doubt remains, or both COPD and asthma are present, the following findings should be used to help identify asthma:
  - A ≥ 12% (or 200 mL) response in FEV₁ to bronchodilators.
  - NB: Oral corticosteroid reversibility tests do not predict response to ICS therapy. The tests should not be used to select patients for ICS therapy [3][L1, RGA1].

**CT thorax:**
- Is used to assess the following [3][L2]:
  - To investigate:
    - Symptoms that seem disproportionate to the spirometric impairment.
    - Abnormalities seen on a chest radiograph.
  - Suitability for surgery.

**TₖCO** [3]:
- TₖCO is performed to investigate symptoms that seem disproportionate to impairment at spirometry.
- TₖCO can help to differentiate between asthma and COPD.

**ECG and Echocardiogram** [3]:
- Performed to assess cardiac status if features of cor pulmonale or features of cardiac disease are present.

**Diagnostic sleep evaluation** [9][L2, RGA2]:
- A diagnostic sleep evaluation is suggested for patients with COPD and signs and symptoms of a sleep disorder.

**Alpha₁-antitrypsin levels** [3,6,9]:
- Should be tested in patients with early onset COPD, minimal smoking history, or a family history of early onset COPD.
- Relatives of patients identified as having alpha1-antitrypsin deficiency should be offered an assessment.

**References:**
Please see the care map's Provenance.

### 17 Assessment of severity

**Quick info:**
No single measure can give an adequate assessment of the true COPD severity in an individual [3].

Severity assessment has implications for therapy and relates to prognosis [3].

Severity assessment should be based on the following [3]:
- Degree of airway obstruction.
- Degree of disability.
- Frequency of exacerbations.
- The following prognostic factors:
  - FEV₁.
  - TₖCO.
  - Breathlessness – MRC scale (see below).
  - Health status.
Chronic obstructive pulmonary disease - suspected

- Exercise capacity, e.g. 6-minute walking test.
- BMI.
- PaO₂.
- Cor pulmonale.

The MRC dyspnoea scale is used to grade breathlessness as follows [3]:
- See table 9.2.2.

The GOLD stages classify the severity of airflow limitation according to the reduction in post-bronchodilator FEV₁ as a percentage of the predicted value [2,3,12]:
- See table 9.3.2.

References:
Please see the care map's Provenance.

18 Diagnosis of COPD

Quick info:
The number of premature deaths from COPD can be reduced through early accurate diagnosis and appropriate treatment [6].

Late diagnosis has a strong association with hospital admissions for exacerbations [6].

There is no single diagnostic test for COPD [3]:
- Diagnosis depends on clinical judgement based on a combination of [3]:
  - Signs and symptoms.
  - Confirmation of the presence of airway obstruction using spirometry.

- The GOLD recommend considering a diagnosis of COPD in patients aged 40 years and older who present with the following [2,12]:
  - Dyspnoea that is:
    - Progressive.
    - Worse with exercise.
    - Persistent.
  - A chronic cough – may be intermittent and unproductive.
  - Chronic sputum production.
  - History of exposure to risk factors, particularly smoking.

Consider ACOS [2][L2]:
- Airflow limitation is persistent along with several features associated with asthma and other features associated with COPD.

References:
Please see the care map's Provenance.

19 Consider referral

Quick info:
Consider referral to a specialist, for any of the following [3,13]:
- To confirm diagnosis of COPD and optimise therapy if:
  - There is diagnostic uncertainty:
    - Symptoms disproportionate to lung function.
    - Unusual symptoms, e.g. haemoptysis.
  - The patient requests a second opinion.
  - There is onset of cor pulmonale.
- Assessment for [3][L2]:
  - Oxygen therapy.
  - Long-term nebuliser therapy.
Chronic obstructive pulmonary disease - suspected

Medicine > Thoracic medicine > Chronic obstructive pulmonary disease (COPD)

- Oral corticosteroid therapy.
- Pulmonary rehabilitation.
- Lung volume reduction surgery
- Lung transplant.
- Bullous lung disease.
- Rapid decline in FEV₁.
- Dysfunctional breathing.
- Patients younger than age 40 years or with a family history of alpha₁-antitrypsin deficiency.
- Patients with frequent exacerbations.

Patients who are referred do not always have to be assessed by a respiratory physician – a COPD team member with appropriate training and expertise can see patient [3][L2].

References:
Please see the care map's Provenance.
Chronic obstructive pulmonary disease

Provenance Certificate

Overview

This guideline document has been developed and issued by the Ministry of Public Health of Qatar (MOPH), through a process which aligns with international best practice in guideline development and localisation. The guideline will be reviewed on a regular basis and updated to incorporate comments and feedback from stakeholders across Qatar.

Whilst the MOPH has sponsored the development of the care map, the MOPH has not influenced the specific recommendations made within it.

This care map was approved on 19 Mar 2017.

For information on changes in the last update, see the information point entitled 'Updates to this care map' on each page of the care map.

Editorial approach

This care map has been developed and issued by the Ministry of Public Health of Qatar (MOPH), through a process which aligns with international best practice in guideline development and localisation. The care map will be reviewed on a regular basis and updated to incorporate comments and feedback from stakeholders across Qatar.

The editorial methodology, used to develop this care map, has involved the following critical steps:

- Extensive literature search for well reputed published evidence relating to the topic.
- Critical appraisal of the literature.
- Development of a draft summary guideline.
- Review of the summary guideline with a Guideline Development Group, comprised of practising physicians and subject matter experts from across provider organisations in Qatar.
- Independent review of the guideline by the Clinical Governance body appointed by the MOPH, from amongst stakeholder organisations across Qatar.

Explicit review of the care map by patient groups was not undertaken.

Whilst the MOPH has sponsored the development of the care map, the MOPH has not influenced the specific recommendations made within it.

Sources of evidence

The professional literature published in the English language has been systematically queried using specially developed, customised, and tested search strings. Search strategies are developed to allow efficient yet comprehensive analysis of relevant publications for a given topic and to maximise retrieval of articles with certain desired characteristics pertinent to a guideline.

For each guideline, all retrieved publications have been individually reviewed by a clinical editor and assessed in terms of quality, utility, and relevance. Preference is given to publications that:

1. Are designed with rigorous scientific methodology.
2. Are published in higher-quality journals (i.e. journals that are read and cited most often within their field).
3. Address an aspect of specific importance to the guideline in question.

Where included, the ‘goal length of stay’ stated within this guideline is supported by and validated through utilisation analysis of various international health insurance databases. The purpose of database analysis is to confirm the reasonability and clinical appropriateness of the goal, as an achievable benchmark for optimal duration of inpatient admission.

Evidence grading and recommendations

Recommendations made within this guideline are supported by evidence from the medical literature and where possible the most authoritative sources have been used in the development of this guideline. In order to provide insight into the evidence basis for each recommendation, the following evidence hierarchy has been used to grade the level of authoritativeness of the evidence used, where recommendations have been made within this guideline.

Where the recommendations of international guidelines have been adopted, the evidence grading is assigned to the underlying evidence used by the international guideline. Where more than one source has been cited, the evidence grading relates to the highest level of evidence cited:

- **Level 1 (L1):**
  - Meta-analyses.
  - Randomised controlled trials with meta-analysis.
  - Randomised controlled trials.
  - Systematic reviews.

- **Level 2 (L2):**
  - Observational studies, examples include:
    - Cohort studies with statistical adjustment for potential confounders.
    - Cohort studies without adjustment.
    - Case series with historical or literature controls.
    - Uncontrolled case series.
  - Statements in published articles or textbooks.

- **Level 3 (L3):**
  - Expert opinion.
  - Unpublished data, examples include:
    - Large database analyses.
    - Written protocols or outcomes reports from large practices.

In order to give additional insight into the reasoning underlying certain recommendations and the strength of recommendation, the following recommendation grading has been used, where recommendations are made:

- **Recommendation Grade A1 (RGA1):** Evidence demonstrates at least moderate certainty of at least moderate net benefit.
- **Recommendation Grade A2 (RGA2):** Evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care.
- **Recommendation Grade B (RGB):** Evidence is insufficient, conflicting, or poor and demonstrates an incomplete assessment of net benefit vs harm; additional research is recommended.
- **Recommendation Grade C1 (RGC1):** Evidence demonstrates a lack of net benefit; additional research is recommended.
- **Recommendation Grade C2 (RGC2):** Evidence demonstrates potential harm that outweighs benefit; additional research is recommended.
- **Recommendation of the GDG (R-GDG):** Recommended best practice on the basis of the clinical experience of the Guideline Development Group members.
References


Chronic obstructive pulmonary disease


Guideline Development Group members

The following table lists members of the Guideline Development Group (GDG) nominated by their respective organisations and the Clinical Governance Group. The GDG members have reviewed and provided feedback on the draft guideline relating to the topic. Each member has completed a declaration of conflicts of interest, which has been reviewed and retained by the MOPH.

<table>
<thead>
<tr>
<th>Guideline Development Group members</th>
<th>Name</th>
<th>Title</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
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Responsibilities of healthcare professionals

This care map has been issued by the MOPH to define how care should be provided in Qatar. It is based upon a comprehensive assessment of the evidence as well as its applicability to the national context of Qatar. Healthcare professionals are expected to take this guidance into account when exercising their clinical judgement in the care of patients presenting to them.

The guidance does not override individual professional responsibility to take decisions which are appropriate to the circumstances of the patient concerned. Such decisions should be made in consultation with the patient, their guardians, or carers and should consider the individual risks and benefits of any intervention that is contemplated in the patient’s care.
Acknowledgements

The following individuals are recognised for their contribution to the successful implementation of the National Guidelines project.

Healthcare Quality Management and Patient Safety Department of the MOPH:

- Ms Huda Amer Al-Katheeri, Acting Director & Project Executive.
- Dr Alanoud Saleh Alfehaidi, Guideline & Standardisation Specialist.
- Dr Ilham Omer Siddig, Guideline & Standardisation Specialist.
- Ms Maricel Balagtas Garcia, Guideline Standardisation Coordinator.
- Dr Rasmeh Ali Salameh Al Huneiti, Research Training & Education Specialist.
- Mr Mohammad Jaran, Risk Management Coordinator.

Hearst Health International:

- Dr Mehmood Syed, Middle East Clinical Director & Project Clinical Lead.
- Mr Michael Redmond, Clinical Programmes Manager.
- Ms Deepti Mehta, Editorial and Research Manager.
- Ms Rebecca Cox, Editorial and Research Team Leader.
- Ms Shuchita Deo, Lead Editorial Assistant.
- Ms Siobhan Miller, Editorial Assistant.
- Ms Fatima Rahman, Editorial Assistant.
- Ms Tahmida Zaman, Editorial Assistant.
- Ms Emma Ramstead, Information Specialist.
- Dr Amy Glossop, Clinical Editor.
- Dr Zara Quail, Clinical Editor.
- Dr Sabine Fonderson, Clinical Editor.