Atherosclerotic cardiovascular disease risk assessment and management

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1 Background information

Quick info:
The purpose of this care map is to define the appropriate assessment and management of people at risk of ASCVD. The objective is to reduce inappropriate prescribing and referral of patients presenting to any provider organisation in Qatar. It is intended that the guideline will be used primarily by physicians in both primary/generalist and secondary/specialist care settings.

Scope
Aspects of care covered within this care map include:

• All of the following in adults (age 18 years and older):
  • Primary and secondary prevention of ASCVD.
  • Discussion of interventions – lipid lowering, antihypertensive and antiplatelet therapies.
  • Discussion of lifestyle interventions including diet, physical activity, smoking, alcohol, and psychological issues.

Aspects of care not covered within this care map:

• Inpatient and outpatient cardiac rehabilitation following a cardiac event.
• Risk assessment and management of ASCVD in pregnancy.
• Detailed management of:
  • Hypertension.
  • Dyslipidaemia.
  • Smoking cessation.

Definitions
ASCVD:
• The ACC/AHA guidelines define clinical ASCVD as ACS, or a history of myocardial infarction, stable or unstable angina, coronary or other arterial revascularization, stroke, transient ischaemia attack, or peripheral arterial disease presumed to be of atherosclerotic origin [1].

Premature coronary artery disease is defined as a coronary event occurring before the age of [1]:

• 55 years in a male.
• 65 years in a female.

ACS is typically caused by the rupture or erosion of an atherosclerotic plaque within the wall of a coronary artery with subsequent formation of an arterial thrombus [2].

ACS includes the following conditions [3]:

• STEMI;
• NSTEMI; and
• Unstable angina.

Hypertension is defined as follows [4]:

• Stage 1 hypertension [4]:
  • Clinic BP is between 140/90 and 159/99 mmHg; and
  • Subsequent daytime average ABPM, or average of HBPM, is between 135/85 and 149/94 mmHg.

• Stage 2 hypertension [4]:
  • Clinic BP is between 160/100 and 179/109 mmHg; and
  • Subsequent ABPM daytime average or HBPM average is between 150/95 and 179/109 mmHg.

• Stage 3 hypertension (Severe hypertension) [4]:
  • Clinic SBP is 180 mmHg or higher; or
  • Clinic DBP is 110 mmHg or higher.

Epidemiology
The current prevalence of ASCVD in Qatar is not known, however in 2013, 12.9 % of registered deaths in Qatar, were recorded as being related to cardiovascular disease [5]:

• In the Qatari population, CVD-related deaths were 12.2%.
• In the non-Qatari population, CVD-related deaths were 13.2%.

The 2012 Qatar the STEPwise survey showed the following prevalences for key ASCVD risk factors in the survey population [6]:


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• Raised BP in 32.9%:
  • Females - 37.7%.
  • Males – 28%.
• Raised total cholesterol in 21.9%:
  • Females - 24.6%.
  • Males -19.1%.
• Raised blood glucose (blood glucose greater than or equal to 110 mg/dl) as well as those with history of receiving medication for diabetes was 16.7%:
  • Males - 17.6%.
  • Females - 15.9%.
• Smoking was 16.4%.
  • Males - 31.9%.
  • Females - 1.2%.
• Low level of physical activity was 45.9%:
  • Females - 54.2%.
  • Males - 37.4%.
• Obesity (BMI ≥30 kg/m²) was 41.4%:
  • Females - 43.2%.
  • Males - 39.5%.

Risk factors
Non-modifiable risk factors include [7-10]:
  • Age:
    • ASCVD predominantly affects people aged 50 years and over.
  • Gender [9,10]:
    • Men have a higher prevalence of coronary artery disease than women until the age of 75 years.
  • Family history of premature ASCVD.
  • Ethnicity.

Modifiable risk factors include [7,8,11]:
  • Smoking.
  • Impaired glucose metabolism or diabetes mellitus.
  • Dyslipidaemia.
  • Hypertension.
  • Sedentary lifestyle.
  • Unhealthy dietary habits.
  • Excess alcohol intake.
  • Psychosocial stress.
  • Obesity.

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

ASCVD risk assessment:
- For the primary prevention of ASCVD, a systematic strategy should be used in a primary care setting to identify people who are likely to be at high risk [8].
- The ACC/AHA Pooled Cohort Equations should be used to estimate 10-year ASCVD risk in appropriate individuals with and without diabetes [1,14].

Secondary prevention of ASCVD:
- Unless contraindicated, offer a high-intensity statin to all patients with pre-existing ASCVD for secondary prevention [1,7,8].
- Offer antihypertensive treatment to all hypertensive patients aged over 18 years with established ASCVD [19].
- Unless contraindicated, start antiplatelet therapy in all patients with established ASCVD [2,14,15]

Primary prevention of ASCVD:
- Lifestyle advice should be given independently of any drug treatment [15].
- Unless contraindicated, offer a moderate intensity statin to the following patients [1,17]:
  - Patients aged 40-75 years who have a 10-year risk of ASCVD using the ACC/AHA Pooled Cohort Equations of ≥ 7.5%.
  - Patients aged ≥ 50 years with chronic kidney disease stage 3-5 or those of any age with other manifestations of chronic kidney disease (e.g. albuminuria or polycystic kidney disease). See the ‘Chronic Kidney Disease’ care map for further information.
  - Patients aged 40-75 years with type 2 diabetes mellitus with a 10-year risk of ASCVD using the ACC/AHA Pooled Cohort Equations of < 7.5%.
- Unless contraindicated, offer a high intensity statin to the following patients [1,8]:
  - All patients aged ≥ 21 years with an LDL-C level of ≥ 4.9 mmol/L.
  - Patients aged 40-75 years with type 2 diabetes mellitus who have a 10-year risk of ASCVD using the ACC/AHA Pooled Cohort Equations of ≥ 7.5%.
  - Adults with type 1 diabetes who:
    - Are older than age 40 years; or
    - Have had diabetes for more than 10 years; or
    - Have established nephropathy; or
    - Have other ASCVD risk factors.
- Consider starting antihypertensive therapy if the following apply [14,19]:
  - Stage 1 hypertension is diagnosed; and:
  - 10-year ASCVD risk, using the ACC/AHA Pooled Cohort Equations is ≥ 7.5%; or
  - Target organ damage, renal disease or diabetes mellitus are present.
  - Stage 2 or Stage 3 hypertension is diagnosed.

Antiplatelet therapy in primary prevention of ASCVD:
- In primary prevention of ASCVD, antiplatelet therapy should not be routinely prescribed due to the increased risk of haemorrhage, relative to the benefit [7,14,24][L1, RGA1].
- Aspirin and other antiplatelets are also not routinely recommended for patients with type 1 or type 2 diabetes mellitus in the absence of established ASCVD [7,14,23,24].
- NB: Aspirin may however be considered for primary prevention in diabetic patients with a high risk of ASCVD, but the decision to use antiplatelets must be balanced against the risk of bleeding [R-GDG].

Lipid-lowering treatment targets:
- If the patient was started on high-intensity statin therapy [1,7][R-GDG]:
  - Aim for a reduction in LDL-C of ≥ 50% from the untreated baseline level; or
  - An absolute level of LDL-C of < 1.8 mmol/L (if the baseline is unknown).
- If the patient was started on moderate-intensity statin therapy [1,7][R-GDG]:
  - Aim for a reduction in LDL-C of 30%-50% from the untreated baseline level; or
  - An absolute level of LDL-C of < 2.6 mmol/L (if the baseline is unknown).
For patients without diabetes mellitus, aim to achieve a clinic BP of [19]:

• < 140/90 mmHg in people aged < 80 years.
• < 150/90 mmHg in people aged > 80 years.

For patients with either type 1 or type 2 diabetes mellitus, aim to achieve a clinic BP of [22,23]:

• < 140/90 mmHg; or
• < 130/80 mmHg if the patient has albuminuria or additional risk factors for ASCVD.

For detailed discussion of the management of related conditions, refer to the following MOPH Care Maps:

4 Abbreviations used in this care map

Quick info:
The abbreviations used in this care map are as follows:

- **ABPM**: Ambulatory blood pressure monitoring
- **ACC/AHA**: American College of Cardiology / American Heart Association
- **ACS**: Acute coronary syndrome
- **ASCVD**: Atherosclerotic cardiovascular disease
- **BMI**: Body mass index
- **BP**: Blood pressure
- **CBT**: Cognitive behavioural therapy
- **CVD**: Cardiovascular disease
- **DBP**: Diastolic blood pressure
- **ESC**: European Society of Cardiology
- **HBPM**: Home blood pressure monitoring
- **LDL-C**: Low density lipoprotein cholesterol
- **NSTEMI**: Non-ST-segment elevation myocardial infarction
- **SBP**: Systolic blood pressure
- **STEMI**: ST-segment elevation myocardial infarction

6 ASCVD risk factor assessment

Quick info:
ASCVD risk assessment [7,8,12]:

• Multiple risk factors contribute to the patient’s overall risk of an ASCVD event.
• Management aims to reduce this overall risk by addressing modifiable risk factors.
• Risk assessment should determine the patient's overall risk of a future ASCVD event.
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References:
Please see the care map’s Provenance.

7 Identifying people for formal ASCVD risk assessment

Quick info:
For the primary prevention of ASCVD, a systematic strategy should be used in a primary care setting to identify people who are likely to be at high risk [8]:

• Identify people who are at risk of ASCVD through an assessment of risk factors recorded in the medical record.
• Perform a formal ASCVD risk assessment on those identified.
• NB: Opportunistic assessment can also be used to identify ASCVD risk in the patient population, but should not be the main strategy [R-GDG].

Risk estimation tools should not be used for the following groups of patients who are already at high risk [1,8,13]:

• Primary dyslipidaemia.
• Type 1 diabetes mellitus – ASCVD risk assessment should be based on the patient’s age and the duration since diagnosis.
• Chronic kidney disease stages 3-5 (refer also to the ‘Chronic kidney disease’ care map).
• Patients aged over 75 years.
• Patients with established cardiovascular disease.

References:
Please see the care map’s Provenance.

8 Perform a formal ASCVD risk assessment

Quick info:
Assessment of ASCVD risk [1,8,11,13,14]:

• Risk is not static and should be repeated every 4-6 years from the age of 40, until either treatment has been started or ASCVD has become established.

Risk assessment tools [1,14]:

• The ACC/AHA Pooled Cohort Equations should be used to estimate 10-year ASCVD risk in appropriate individuals with and without diabetes.
• NB: The tool can only provide an approximate value of ASCVD risk – interpretation of risk scores should always reflect informed clinical judgement.

When communicating to the patient about their risk assessment and treatment:

• Offer patients information on [8]:
  • Their risk of ASCVD.
  • The benefits and harms of either intervention or failure to intervene.
• Offer information in a form that:
  • Presents individualised risk and benefit scenarios.
  • Presents the risk of events numerically.
  • Uses appropriate diagrams and text.
• Offer decision aids:
  • To help patients understand and participate in medical decisions.
  • Include visual representations of risk information, and may include booklets, DVDs, interactive computer programmes, tapes, and web-based products.

If the patient's ASCVD risk is at a level where intervention is recommended but they decline the offer of treatment, advise them that their CVD risk should be reassessed in the future and record their choice in their medical notes [8].

References:
Please see the care map’s Provenance.
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Quick info:
Patients at low risk of ASCVD include those [1,14]:
• Aged < 75 years without clinical ASCVD; and
• With a calculated ASCVD risk score of < 7.5% over 10 years.
For patients with a ASCVD risk of < 7.5% [1,7,8,14,16]:
• Use clinical judgement to decide on whether to consider the patient high risk on the basis of other factors not included in the risk calculator.
• Perform a risk assessment of people aged over 40 years, every 4-6 years.
• Provide lifestyle advice to all patients:
  • The intensity of lifestyle intervention should increase with increasing risk.
  • The caregiver and patient should share decision-making, and include the person’s spouse and family, to enable active involvement in lifestyle change and medication adherence.
In patients aged over 40 years, without clinical ASCVD and in whom medication has not been started, perform an ASCVD risk assessment using the Pooled Cohort Equations, every 4-6 years [1,14].
NB: Any significant changes in family history or knowledge of family history might necessitate a repeat of risk assessment [7].
If the patient’s ASCVD risk is at a level where intervention is recommended but pharmacological treatment is declined, advise that their ASCVD risk should be reassessed again in the future and record their choice in their medical notes [8].
References:
Please see the care map’s Provenance.

10 Patients at high risk of ASCVD

Quick info:
Patients without established clinical ASCVD who at increased risk of ASCVD, should be considered for pharmacological treatment. This group includes [1,8,14]:
• Patients with ASCVD risk of ≥ 7.5% over 10 years - calculated using the ACC/AHA Pooled Cohort Equations; or
• High-risk groups which include the following [8,11]:
  • Primary dyslipidaemia.
  • Type 1 diabetes mellitus – ASCVD risk assessment should be based on the patient’s age and the duration since diagnosis.
  • Chronic kidney disease stages 3-5 (refer also to the ‘Chronic kidney disease’ care map).
  • Patients with an LDL-cholesterol (LDL-C) of ≥ 4.9 mmol/L.
• Patients aged over 75 years.
Lifestyle modification is necessary in all patients at increased risk of ASCVD [15]. Some patients may require additional pharmacological treatment in order to manage modifiable risk factors to acceptable levels [8]. Advice and treatment should take into account the patient's needs, preferences and circumstances [8].
If the patient's ASCVD risk is at a level where intervention is recommended but they decline the offer of treatment, advise them that their CVD risk should be reassessed in the future and record their choice in their medical notes [8].
References:
Please see the care map’s Provenance.

12 Antiplatelet therapy

Quick info:
In primary prevention of ASCVD, antiplatelet therapy should not be routinely prescribed due to the increased risk of haemorrhage, relative to the benefit [7,14,24][L1, RGA1].
Aspirin and other antiplatelets are also not routinely recommended for patients with type 1 or type 2 diabetes mellitus in the absence of established ASCVD [7,14,23,24]. However, the ADA recommends initiating low-dose aspirin use for the primary prevention of ASCVD in adults aged ≥50 years who have a 10-year ASCVD risk of a ≥ 10%, using the ACC/AHA Pooled Cohort Equations.
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Patients must not be at increased risk for bleeding, have a life expectancy of at least 10 years and be willing to take low-dose aspirin daily for at least 10 years [23].

Aspirin may therefore be considered for primary prevention in diabetic patients with a high risk of ASCVD, but the decision to use antiplatelets must be balanced against the risk of bleeding [R-GDG].

References:
Please see the care map’s Provenance.

13 Antihypertensive therapy

Quick info:
In the absence of established ASCVD, consider starting antihypertensive therapy if the following apply [14,19]:

- Stage 1 hypertension is diagnosed; and:
  - 10-year ASCVD risk using the ACC/AHA Pooled Cohort Equations is ≥ 7.5%; or
  - Target organ damage, renal disease or diabetes mellitus are present.
- Stage 2 or Stage 3 hypertension is diagnosed.

For patients without diabetes mellitus
Aim to achieve a clinic BP of [19][L1, RGA1]:

- < 140/90 mmHg in people aged less than 80 years.
- < 150/90 mmHg in people aged 80 years and older.

For people monitored with ABPM or HBPM, e.g. those identified as having a 'white coat' effect, target average blood pressure during waking hours should be [19]:

- < 135/85 mmHg in people aged less than age 80 years.
- < 145/85 mmHg in people aged 80 years and older.

NB: The ESC recommends lowering the target threshold to 130-139/80-85 mmHg for patients with established ASCVD [20]. The SPRINT Trial [21] recommends lower target blood pressure ranges, however, further post study data is required prior to its adoption into these guidelines [R-GDG].

For patients with either type 1 or type 2 diabetes mellitus
Aim to achieve a clinic BP of [22,23]:

- < 140/90 mmHg; or
- < 130/80 mmHg if the patient has albuminuria or additional risk factors for ASCVD.

Monitor BP every 1-2 months and intensify therapy until BP is consistently within target range. Continue to reinforce lifestyle advice [23]. If BP is consistently attained at the target level, monitor the patient's BP at every clinic visit and check for adverse effects including risks of hypotension [23].

Refer to the 'The Diagnosis and Management of Hypertension in Adults' care map for further information on investigation and management.

References:
Please see the care map’s Provenance.

14 Lipid management

Quick info:
The decision on whether to start statin therapy should be made after an informed discussion between the clinician and patient about the risks and benefits of statin treatment [7].

Consider the following, particularly for older people (over 75 years) [8]:

- Potential benefits from lifestyle modifications.
- Informed patient preference.
- Comorbidities.
- Polypharmacy.
- General frailty.
- Life expectancy.
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Statin therapies are classified as either low, moderate, or high intensity, and are used according to the patient’s history or risk of ASCVD, see the attached table [1].

Unless contraindicated, offer a moderate intensity statin to the following patients [1,17]:

- Patients aged 40-75 years who have a 10-year risk of ASCVD using the ACC/AHA Pooled Cohort Equations of ≥ 7.5%.
- Patients aged ≥ 50 years with chronic kidney disease stage 3-5 or those of any age with other manifestations of chronic kidney disease (e.g. albuminuria or polycystic kidney disease). See also the ‘Chronic kidney disease’ care map for further information.
- Patients aged 40-75 years with type 2 diabetes mellitus with a 10-year risk of ASCVD using the ACC/AHA Pooled Cohort Equations of < 7.5%.

Unless contraindicated, offer a high intensity statin to the following patients [1,8]:

- All patients aged ≥ 21 years with an LDL-C level of ≥ 4.9 mmol/L.
- Patients aged 40-75 years with type 2 diabetes mellitus who have a 10-year risk of ASCVD using the ACC/AHA Pooled Cohort Equations of ≥ 7.5%.
- Adults with type 1 diabetes who:
  - Are older than age 40 years; or
  - Have had diabetes for more than 10 years; or
  - Have established nephropathy; or
  - Have other ASCVD risk factors.

Refer to the ‘Assessment and Management of Dyslipidaemia’ care map for further information on investigation and management.

References:
Please see the care map’s Provenance.

15 Lifestyle management

Quick info:
Lifestyle advice should be given independently of any drug treatment [15].

References:
Please see the care map’s Provenance.

16 Smoking

Quick info:
Smoking is a strong and independent risk factor for ASCVD and smoking cessation benefits smokers of all ages [7,8,11][L1, RGA1]:

- Offer support and advice to patients who want to stop smoking.
  - Offer referral to an intensive support service.
  - If the patient is unable or unwilling to accept referral, offer pharmacotherapy for smoking cessation.
    - Combining pharmacotherapy, with behavioural intervention support, is the most effective approach in reducing use of and exposure to tobacco [16][L1, RGA1].
    - In case of secondary prevention, caution is recommended when prescribing varenicline if there is a history of ASCVD.
  - Advise minimising exposure to passive smoking [7,11][L1, RGA1].
  - Consumption of tobacco in forms other than smoking should also be discouraged [8].

References:
Please see the care map’s Provenance.

17 Management of Tobacco Dependency

Quick info:
This pathway is currently under development.

18 Weight management


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Quick info:

Weight management:
- Offer overweight and obese patients appropriate advice and support to work towards achieving and maintaining a healthy weight [25].
- Base weight loss targets on the patient’s comorbidities and risks, rather than their weight alone [26][L2, RGA2]:
  - For patients with mild symptoms or functional impairment resulting from obesity (Edmonton Obesity Stage 0-1) [27]:
    - A 5-10% weight loss is required for CVD and metabolic risk reduction [R-GDG].
  - For patients with established clinical ASCVD, type 2 diabetes mellitus, moderate symptoms, or functional disability (Edmonton Obesity Stage 2 or more) [27]:
    - A greater than 10% weight loss will often be required to obtain a sustained improvement in comorbidities [R-GDG].
  - NB: Patients from certain ethnic groups, such as South-East Asians, are more likely to have related comorbidities at a lower BMI [26][L2, RGA2].

19  Diet

Quick info:
Provide support for patients to consume a diet associated with the lowest cardiovascular risk, based on the following principles [8,11,13,28,29][L1]:
- A fat intake of 30% or less than total energy intake.
- A saturated fat intake of 10% or less of the total energy intake.
- Replace saturated fats with monounsaturated and polyunsaturated fats.
- A cholesterol intake of < 300 mg per day.
- At least five portions of fruit and vegetables per day – legumes other than soy have been shown to decrease total and LDL-C.
- At least two portions of fish per week, including a portion of oily fish – pregnant women should limit their intake of oily fish to two portions a week, and avoid marlin, shark and swordfish.
- Do not routinely recommend omega-3 fatty acid supplements.
- Inform people who wish to consume food products containing stanols and sterols that they need to be eaten consistently to be effective [11][L1, RGA1].
- Individualised nutritional advice should be offered by a healthcare professional with specific expertise in nutrition.

References:
Please see the care map’s Provenance.

20  Alcohol

Quick info:
Alcohol consumption [11]:
- Advise men who drink alcohol to limit their alcohol intake to 3-4 units a day.
- Advise women who drink alcohol to limit their alcohol intake to 2-3 units a day.
- Advise against binge drinking.
- Instigate brief multi-contact interventions for hazardous drinkers to encourage reduction of drinking [5][L1, RGA1].

References:
Please see the care map’s Provenance.

21  Exercise

Quick info:
Advise patients of the following key points regarding exercise:
- To reduce sedentary behaviour [26,30][L2, RGA1].
- Encourage walking where possible, as no equipment or change of clothing is required [81]:
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- Increase number of steps gradually over several weeks.
- 10,000 steps per day is necessary for weight loss.
- Patients should be encouraged to use pedometers or fitness trackers to self-monitor their daily activity.
- To be physically active [26,30][L1, RGA1):
  - Moderate intensity exercise performed for at least 30 minutes ≥ 5 days per week, or vigorous intensity aerobic exercise done for at least 20 minutes ≥ 3 days per week is recommended for maintaining health and preventing disease.
  - To promote or maintain weight loss, 50-60 minutes per day or more of daily exercise is recommended.
  - Performance of intermittent exercise of at least 10 minutes in duration to accumulate the minimum duration recommendations above is an effective alternative to continuous exercise.
- Those with a BMI over 35 kg/m² and/or joint problems should consider moderate intensity non-weight bearing activities, e.g. [26][L2, RGA2]:
  - Cycling.
  - Swimming.
  - Water aerobics.
- Sedentary patients to build up to their physical activity targets over several weeks by [26][L2, RGA2]:
  - Starting with 10-20 minutes of physical activity every other day during the first one to two weeks of the programme.
- Those who wish to incorporate vigorous intensity physical activity [26][L2, RGA2]:
  - To introduce vigorous activity gradually after an initial 4-12 week period of moderate intensity activity.

References:
Please see the care map’s Provenance.

22 Psychological factors

Quick info:
Depression, social isolation, and lack of quality social support are risk factors for the development and prognosis of ASCVD, and should be taken into account [7]:
- Interventions may include [7]:
  - Individual or group counselling on psychosocial risk factors and coping with the illness.
  - Meditation or yoga.
  - Relaxation therapies.
  - CBT (in patients at increased risk of ASCVD or with established ASCVD).
- Consider referral to a clinical psychologist or therapist for patients who are resistant to change or present with more complex problems [15][L1, RGA2].

References:
Please see the care map’s Provenance.

23 Ongoing assessment

Quick info:
In patients aged over 40 years, without clinical ASCVD and in whom medication has not been started, perform an ASCVD risk assessment using the Pooled Cohort Equations, every 4-6 years [1,14].
NB: Any significant changes in family history or knowledge of family history might necessitate a repeat of risk assessment [7]. If the patient’s ASCVD risk is at a level where intervention is recommended but pharmacological treatment is declined, advise that their ASCVD risk should be reassessed again in the future and record their choice in their medical notes [8].

References:
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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.
Atherosclerotic cardiovascular disease risk assessment and management

References


Atherosclerotic cardiovascular disease risk assessment and management


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>Name</th>
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¹ Dr Ahmed Babiker attended the MOPH in his capacity as a Clinical Pharmacist and advisor on the availability of medications in Qatar.
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.

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- Ms Huda Amer Al-Katheeri, Acting Director & Project Executive.
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- Dr Ilham Omer Siddig, Guideline & Standardisation Specialist.
- Ms Maricel Balagtas Garcia, Guideline Standardisation Coordinator.
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