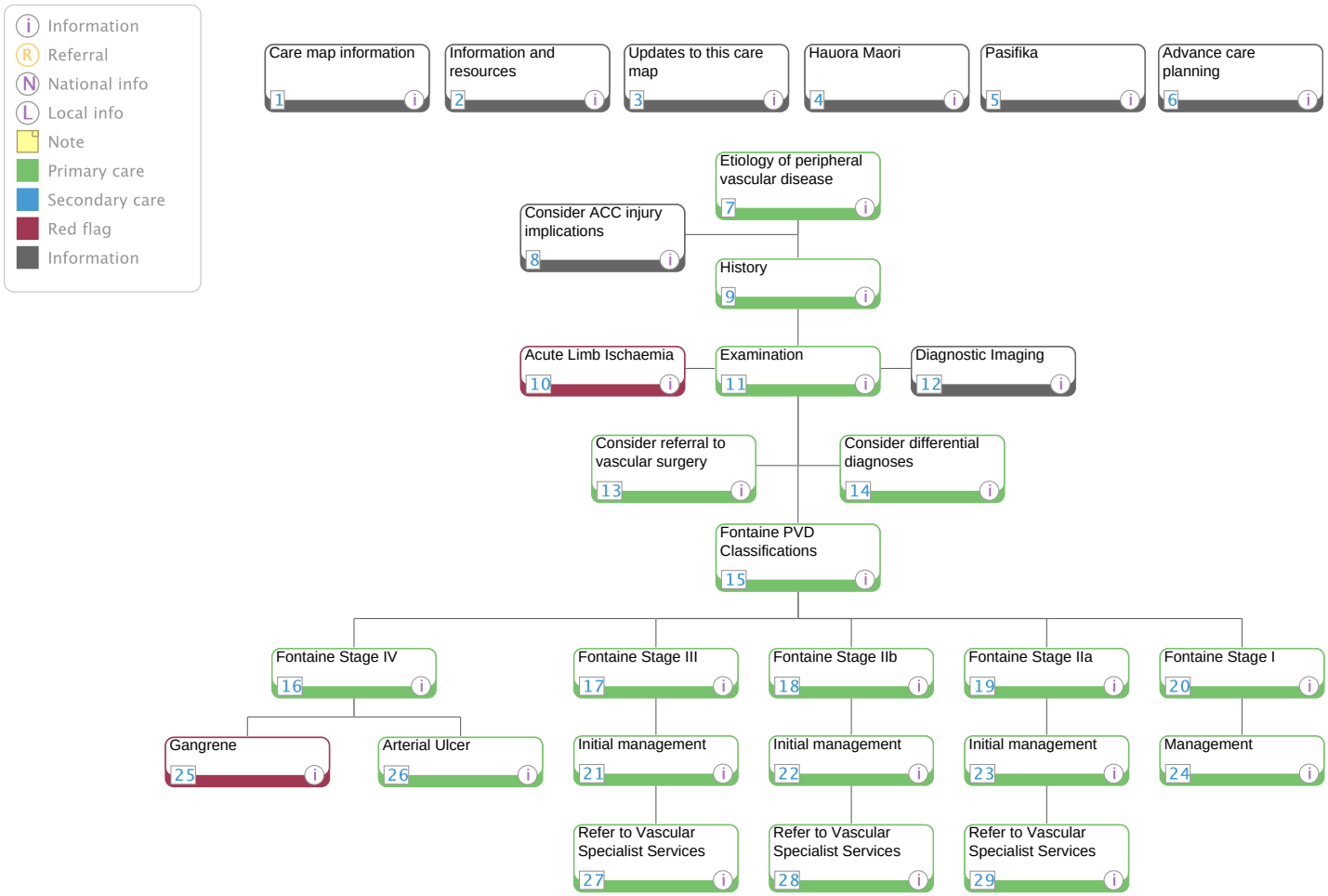
Peripheral vascular disease

Surgery > Vascular surgery > Peripheral vascular disease



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Peripheral vascular disease

1 Care map information

Quick info:

Peripheral vascular disease (PVD) is caused by atherosclerotic obstruction of the lower-extremity arteries. It is often under-diagnosed and under-treated. People with peripheral vascular disease have a 3 to 6 fold increased risk of mortality from a cardiovascular event (five year CVD risk > 20% NZ Primary care handbook) and require aggressive risk factor control.

Scope

Peripheral vascular disease across the disease continuum from asymptomatic people to people with arterial ulcers/gangrene.

Out of scope

Venous conditions, carotid disease, diabetic foot ulcer, abdominal aortic aneurysm.

Etiology

Most commonly caused by atherosclerosis. BMJ Best Practice lists rarer causes of claudication

Prevalence

Increases with age.

- 50 – 59 years prevalence PVD 3 – 5%
- 60 – 69 years prevalence PVD 5%
- 70 – 79 years prevalence PVD 10%
- > 80 year 20 – 25%

This Pathway should be used only for people in which it will influence the person's management. It is to be used as a guide and doesn't replace clinical judgement.

2 Information and resources

Quick info:

Information for patients:

- Cardiovascular risk assessment and management: NZ Primary care handbook
- Fact Sheet: Centres for Disease Control and Prevention

Language translation assistance:

HBDHB Interpreting Service. To make an appointment (charges may apply):

- phone 06 878 8109 ext 5805 or
- email interpreting@hawkesbaydhb.govt.nz

These websites may help with simple words and phrases:

- Babelfish
- Google translate

Language Line. Professional interpreters are available, free of charge, for telephone-based sessions (44 languages are supported):

- Phone 0800 656 656
- Monday - Friday 9am - 6pm
- Saturday 9am - 2pm

Bookings are not usually necessary. For longer consultations (for example, a nurse consultation for a newly diagnosed person) it is best to make a booking at least 24 hours in advance by calling the above number or emailing language.line@dia.govt.nz and providing your contact details and a summary of the service you require (time and date of the meeting, language, approximate length of the appointment, gender of interpreter (if relevant).

3 Updates to this care map

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This care map was published by Hawkes Bay District. A printed version of this document is not controlled so may not be up-to-date with the latest clinical information.

Quick info:

Date of publication: September 2016
Date of review and republication: February 2018
Next review due: February 2020

This care map has been developed in line with consideration to evidenced based guidelines.

For further information on contributors and references please see the Pathway's Provenance Certificate.

4 Hauora Maori

Quick info:

Maori are a diverse people and whilst there is no single Maori identity, it is vital practitioners offer culturally appropriate care when working with Maori whanau. It is important for practitioners to have a baseline understanding of the issues surrounding Maori health. This knowledge can be actualised by (not in any order of priority):

- considering the importance of introductions ('whanaungatanga') - a process that enables the exchange of information to support interaction and meaningful connections between individuals and groups. This means taking a little time to ask where this person is from or to where they have significant connections
- asking Maori people if they would like their whanau or significant others to be involved in assessment and treatment
- asking Maori people about any particular cultural beliefs they or their whanau have that might impact on assessment and treatment of the particular health issues

Maori health services

HBDHB contracts Maori health providers to deliver community based nursing and social support services. Practitioners should discuss, where appropriate, information about relevant Maori health services. A referral to one of these providers may assist Maori people to feel more comfortable about receiving services following discussions.

Central Hawke's Bay:
Central Health
Cnr Herbert & Ruataniwha Streets, Waipukurau
Phone: 06 858 9559 Fax: 06 858 9229
Email: reception@centralhealth.co.nz
Referral Form

Hastings:
Te Taiwhenua o Heretaunga
821 Orchard Road, Hastings 4156
Phone: 06 871 5350 Fax: 06 871 535
Email: taiwhenua.heretaunga@ttoh.iwi.nz
Referral Form

Kahungunu Health Services (Choices)
500 Maraekakaho Road, Hastings
Phone: 06 878 7616
Email: kahungunu@paradise.net.nz
Referral Form

Napier:
Te Kupenga Hauora
5 Sale Street, Napier
Phone: 06 835 1840
Email: info@tkh.org.nz
Referral Form

***Wairoa**:*
Kahungunu Executive (no website)
65 Queen Street, Wairoa 4108
Phone: 06 838 6835 Fax: 06 838 7290
Email: kahu-exec@xtra.co.nz

Secondary care Maori Health Services:
Hawke's Bay DHB - Te Wahanga Hauora Maori Health Services
Phone: 06 878 8109 ext. 5779, 06 878 1654 or 0800 333 671 Email: admin.maorihealth@hawkesbaydhb.govt.nz

Further Information
Practitioners should be versed in the knowledge of:

- historical overview of legislation that impacted on Maori well-being
- Maori models of health, such as Te Whare Tapa Wha and Te Wheke when working with Maori whanau
- national Maori Health Strategies:
  - **Mai Maori Health Strategy 2014-2019 -** Full file or Summary diagram
  - **He Korowai Oranga**: Maori Health Strategy - sets the Government's overarching framework to achieving the best health outcomes for Maori
- local Hawke's Bay health sector's strategies and initiatives for improving Maori health and wellbeing
- Medical Council of New Zealand competency standards

Cultural Competency Training
Training is available through the Hawke's Bay DHB to assist you to better understand Maori culture and to better engage with Maori people. Contact the coordinator
Email: education@hbdhb.govt.nz to request details of the next courses.

5 Pasifika

Quick info:
Pacific people value their culture, language, families, education and their health and wellbeing. Many Pacific families have a religious affiliation to a local church group.
The Pacific people are a diverse and dynamic population:

- more than 22 nations represented in New Zealand
- each with their own unique culture, language, history, and health status
- share many similarities which we have shared with you in order to help you work with Pacific people more effectively
- for many families language, cost and access to care are barriers

Pacific ethnic groups in Hawke's Bay include Samoa, Cook Islands, Fiji, Tonga, Niue, Tokelau, Kiribati and Tuvalu. Samoan and Cook Island groups are the largest and make up two thirds of the total Pacific population. There is a growing trend of inter-ethnic relationships and New Zealand born Pacific populations.
Acknowledge The FonaFale Model (Pacific model of health) when working with Pacific people and families.
General guidelines when working with Pacific people and families (information developed by Central PHO, Manawatu):

- Cultural protocols and greetings
- Building relationships with your Pacific people
- Involving family support and religion during assessments and in the hospital
- Home visits

Hawke's Bay-based resources:

- HBDHB interpreting service website **or** phone 06 8788 109 ext. 5805 (no charge for the hospital; charges may apply for community-based translations) **or** contact coordinator at interpreting@hbdhb.govt.nz
- Pacific Navigation Services Ltd Phone: 027 971 9199
- services to assist Pacific people to access healthcare (SIA)

- Improving the Health of Pacific People in Hawke's Bay - Pacific Health action Plan

Ministry of Health resources:

- Ala Mo'ui Pathways to Pacific Health and wellbeing 2014-2018
- Primary Care for Pacific people: a Pacific and health systems approach
- Health education resources in Pacific languages (links to a web page where you can download resources)

6 Advance care planning

Quick info:

Advance Care Planning:

Advance Care Planning is a voluntary process of discussion and shared planning for future health care. It involves the person who is preparing the plan, and usually involves family/whanau and health care professionals.

Advance Care Plan:

An Advance Care Plan is the outcome of Advance Care Planning. It is formulated by the person and sets out their views about care towards the end of their life. It may also include views about medical care and a wide range of other matters. An Advance Care Plan may include an Advance Directive.

Advance Directive:

An Advance Directive is a statement a person makes about their medical care in the future and becomes effective if a person ceases to be competent to make decisions for themselves. An Advance Directive is legally binding if made in appropriate circumstances.

Competency and Advance Care Planning:

Competent people have the right to make autonomous decisions that as medical professionals we may regard as imprudent, and sometimes such decisions are a reflection of the person's longstanding personality, beliefs or lifestyle. This right is described in the Health and Disability Consumers Rights Acts.

According to ACP - A Guide for the NZ Health Care Workforce - "in the context of ACP, competency relates to an individual's ability to make a decision regarding their own health care (that is, competence at decision-making or decision-capacity). At a minimum, decision making capacity requires the ability to understand and communicate, to reason and deliberate, and the possession of a set of values".

Helpful websites:

- The code of rights
- Advance care planning guide Ministry of Health
- Advance care planning resources

7 Etiology of peripheral vascular disease

Quick info:

Peripheral vascular disease (PVD):

- people may present at primary care with variable features depending on the stage and severity of disease, from intermittent claudication through to gangrene foot
- people with either known or unknown prior PVD may also present with acute ischaemia of a limb or digit
- people with PVD are high risk for cardiovascular events(five-year risk assumed clinically >20%). See NZ Primary care handbook for more information

References:

[1] Rooke TW, Hirsch AT, Misra Set al. 2011 ACCF/AHA focused update of the guideline for the management of patients with peripheral arterial disease (Updating the 2005 guideline). J Am Coll Cardiol 2011; 58: 2020-2045.

[2] Scottish Intercollegiate Guidelines Network (SIGN). Diagnosis and management of peripheral arterial disease. A national clinical guideline. SIGN Publication no. 89. Edinburgh: SIGN; 2006.

8 Consider ACC injury implications

Quick info:

Complete necessary documentation as per usual ACC requirements.

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9 History

Quick info:

Symptoms suggestive of peripheral vascular disease (PVD):

- unexplained leg pain at rest or on exertion (claudication distance) may be worse at night or if leg is elevated [1]:
  - thigh and buttock pain may suggest obstruction in the common iliac artery; involvement of these arteries can present as bilateral claudication and impotence
- relatively cold and pale limb [1,2]
- poor healing following injury to the limb
- may display trophic skin changes due to poor blood supply, e.g. scarring, pitting or ulceration and ultimately gangrene and necrosis

Ask about:

- history of non healing wounds in a diabetic person
- previous history of vascular problems or coronary or cerebrovascular disease
- family history of vascular problems
- assess peripheral arterial disease (PAD) and cardiovascular disease (CVD) risk factors
- effect of symptoms on lifestyle

References:

[1] Rooke TW, Hirsch AT, Misra Set al. 2011 ACCF/AHA focused update of the guideline for the management of patients with peripheral arterial disease (Updating the 2005 guideline). J Am Coll Cardiol 2011; 58: 2020-2045.

[2] Scottish Intercollegiate Guidelines Network (SIGN). Diagnosis and management of peripheral arterial disease. A national clinical guideline. SIGN Publication no. 89. Edinburgh: SIGN; 2006.

[3] National Institute for Health and Clinical Excellence (NICE). Lower limb peripheral arterial disease. Clinical guidance 147 London: NICE; 2012.

10 Acute Limb Ischaemia

Quick info:

Acute limb ischaemia is caused by a sudden decrease of blood flow to the limb resulting in the potential threat to the viability of the extremity.

The 6 classical features in the affected limb are:

- pain
- pallor
- perishing cold
- pulseless
- paralysis
- paraesthesia

Transfer to hospital for consideration of urgent thrombolysis/embolectomy and contact ED co-ordinator 06 8788109 ext 2661 or direct dial 06 8781619 ext 2661.

On discharge, consider CPO Hospital Discharge funding. See Health HB portal for information (log in required).

11 Examination

Quick info:

Physical examination [3]:

First exclude sudden acute limb ischaemia (often caused by an embolism) – the 6 classical features in the affected limb are:

- pain
- pallor
- perishing cold
- pulseless
- paralysis
- paraesthesia

Continue with examination

- check pulses bilaterally: femoral, popliteal, dorsalis pedis, post tibial
- perform abdominal palpitation to check for an aortic aneurysm
- compare legs for possible signs of PVD: skin changes, hair loss, cold, pallor, scarring, Buerger's sign (+ve test = elevated foot become pale with dependent rubor), ulceration, gangrene
- ankle Brachial Pressure Index if available

References

[3] National Institute for Health and Clinical Excellence (NICE). Lower limb peripheral arterial disease. Clinical guidance 147 London: NICE; 2012.

12 Diagnostic Imaging

Quick info:

Imaging in PVD is through specialist secondary care services only.

Radiology services do **NOT** accept PVD imaging requests from primary care.

13 Consider referral to vascular surgery

Quick info:

Consider referral to vascular surgery for:

- people with suspected intermittent claudication (stage II) when [2]:
  - there is uncertainty about the diagnosis
  - primary care is either not able to measure ankle brachial pressure index (ABPI) or is not confident of the ABPI results
  - primary care lacks the resources or expertise to initiate and monitor treatment
  - there is significant co-morbidity complicating the diagnosis
  - risk factors cannot be controlled to recommended targets
- all people with an affected quality of life (QoL) and clinical signs of peripheral arterial disease (PAD) [2]
- people with [2]:
  - rest pain
  - ABPI below 0.5
  - skin change and ulceration
- all young people, to exclude rare diagnoses or nerve entrapment syndromes [2]

Reference:

[2] Scottish Intercollegiate Guidelines Network (SIGN). Diagnosis and management of peripheral arterial disease. A national clinical guideline. SIGN Publication no. 89. Edinburgh: SIGN; 2006.

14 Consider differential diagnoses

Quick info:

Differential diagnoses include [2]:

- abdominal aortic aneurysm (AAA) is strongly associated with peripheral arterial disease (PAD) – management of AAA is outside the scope of this care map
- deep vein thrombosis (DVT) – see 'Deep Vein Thrombosis' pathway
- mechanical back pain with radiation to buttocks and/or legs
- arthritis of the hip
- muscle strain
- compartment syndrome (usually following acute limb ischaemia/trauma)
- cellulitis
- varicose or neuropathic ulceration
- Raynaud's disease or syndrome
- thrombophlebitis
- spinal stenosis (claudication-type pain relieved by squatting down)
- nerve entrapment syndromes
- Buerger's disease
- vasculitis

References:

[2] Scottish Intercollegiate Guidelines Network (SIGN). Diagnosis and management of peripheral arterial disease. A national clinical guideline. SIGN Publication no. 89. Edinburgh: SIGN; 2006.

15 Fontaine PVD Classifications

Quick info:

Fontaine classification score is an internationally recoginsed tool for grading peripheral vascular disease[4].

Stage I –no symptoms
Stage IIa – Intermittent claudication after more than 200 meters of pain free walking
Stage IIb – Intermittent claudication after less than 200 meters of walking (moderate to severe)
Stage III – Rest pain
Stage IV – Necrosis/gangrene

References:

[4] Fontaine R, Kim M, Kieny R; Kim; Kieny (1954). "Die chirugische Behandlung der peripheren Durchblutungsstörungen. (Surgical treatment of peripheral circulation disorders)". Helvetica Chirurgica Acta (in German) 21 (5/6): 499–533

16 Fontaine Stage IV

Quick info:

Stage IV – Necrosis/gangrene.

The following requires urgent transfer to Emergency Department:

- critical ischaemia with gangrene or necrosis
- blackened lesion with spreading infection and worsening pain

Transfer to hospital and contact ED co-ordinator 06 8788109 ext 2661 or direct dial 06 8781619 ext 2661.

On discharge, consider CPO Hospital Discharge funding. See Health HB portal for information (log in required).

17 Fontaine Stage III

Quick info:

Stage III – Rest pain.

Signs and symptoms:

- resting leg pain
- decreased or absent foot pulses
- if available - ankle brachial pressure index (ABI) of <0.5

18 Fontaine Stage IIb

Quick info:
Stage IIb – Intermittent claudication after less than 200 meters of walking (moderate to severe).

Signs and symptoms:

- intermittent claudication pain when walking less than 200 metres
- decreased or absent foot pulses
- if available, ankle brachial pressure index (ABI) of <0.5

19 Fontaine Stage IIa

Quick info:
Stage IIa – Intermittent claudication after more than 200 meters of pain free walking. Not affecting lifestyle.

This stage takes into account the fact that people usually have a very constant distance at which they have pain.

Signs and symptoms:

- intermittent claudication pain when walking more than 200 metres
- decreased or absent foot pulses
- if available, ankle brachial pressure index (ABI) of <0.9

20 Fontaine Stage I

Quick info:
Stage I –no symptoms.

Asymptomatic. people who are *for the most part* asymptomatic but have subtle and non-specific symptoms such as paresthesias.

21 Initial management

Quick info:
People with PVD are high risk for cardiovascular events(five-year risk assumed clinically >20%).

Management should be in accordance with Ministry of Health Primary care guidelines for Cardiovascular conditions. See NZ Primary care handbook.

All people with peripheral vascular disease should have:

- low dose aspirin and/or other anticoagulant/antiplatlet medication
- statins
- diabetes screening and management as applicable
- blood pressure review and management as applicable
- smokefree advice and management as applicable
- pain management

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Advise to keep walking through pain as able (consider referral to Green Prescription of a formal exercise programme if needed).

For further information on medications, see
NZ Primary care handbook.

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- pain management

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For further information on medications, see
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- statins
- diabetes screening and management as applicable
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- smokefree advice and management as applicable
- pain management

Advise to keep walking through pain as able (consider referral to Green Prescription of a formal exercise programme if needed).

For further information on medications, see
NZ Primary care handbook.

24 Management

Quick info:
People with PVD are high risk for cardiovascular events(five-year risk assumed clinically >20%).

Management should be in accordance with Ministry of Health Primary care guidelines for Cardiovascular conditions. See NZ Primary care handbook.

All people with peripheral vascular disease should have:

- low dose aspirin and/or other anticoagulant/antiplatlet medication
- statins
- diabetes screening and management as applicable
- blood pressure review and management as applicable
- smokefree advice and management as applicable
- pain management

Advise to keep walking through pain as able (consider referral to Green Prescription of a formal exercise programme if needed).

25 Gangrene

Quick info:

The following requires urgent transfer to Emergency Department:

- critical ischaemia with gangrene or necrosis
- blackened lesion with spreading infection and worsening pain

Transfer to hospital and contact ED co-ordinator 06 8788109 ext 2661 or direct dial 06 8781619 ext 2661.

On discharge, consider CPO Hospital Discharge funding. See Health HB portal for information (log in required).

26 Arterial Ulcer

Quick info:

An arterial ulcer may need to be seen acutely and requires urgent transfer to Emergency Department if any signs of gangrene or systemic infection.

If not acutely unwell, person should be referred for an outpatient Vascular assessment if the following sign and symptoms are present:

- constant leg pain
- deteriorating ulceration
- no leg pulses
- if available - ankle brachial pressure index (ABI) of <0.5.

Refer for outpatient assessment through e-referral process to Vascular Surgery at HBDHB. Expected timeframe for outpatient review is 3 weeks.

If concerned and/or unsure, contact vascular surgeon through the Regional hospital main switchboard 06 8788109.

For further information on the difference between arterial and venous leg ulcers and ulcer management, see DermNetNZ.

27 Refer to Vascular Specialist Services

Quick info:

Refer for outpatient assessment through e-referral process to Vascular Surgery at HBDHB.

Referrals MUST include fontaine information.

Expected timeframe for outpatient review is 6 weeks.

28 Refer to Vascular Specialist Services

Quick info:

Refer for outpatient assessment through e-referral process to Vascular Surgery at HBDHB.
Referrals MUST include fontaine information.
Expected timeframe for outpatient review is 6 weeks.

29 Refer to Vascular Specialist Services

Quick info:
Refer for outpatient assessment through e-referral process to Vascular Surgery at HBDHB.
Referrals MUST include fontaine information.
Expected timeframe for outpatient review is 10 weeks.

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Peripheral Vascular Disease Provenance Certificate
Review and Republish

Overview

This document describes the provenance of Hawke's Bay District Health Board's **Peripheral Vascular Disease** Pathway. It was developed November 2015 – March 2016 and first published in August 2016. A review of the Pathway was completed in November-December 2017, and was republished in February 2018. Further review is due in February 2020.

The Collaborative Clinical Pathways programme is one initiative stemming from the *Transform and Sustain* agenda. The main aims of CCP are to:

- → Identify opportunities to improve how health and disability care is planned and delivered within the district to improve patient access to a wider range of health services that are both closer to home and reduce avoidable hospital admissions.
- → Provide health professionals throughout the Hawke's Bay district with best practice, evidence-based clinical pathways that are available at the point of care.

Outcomes we expect to achieve include faster access to definitive care, improved health equity and outcomes, better value from publically-funded resources, and better patient experience through clear expectations, improved access and greater health literacy. These outcomes are clearly aligned to the NZ healthcare *Triple Aim* and *Better, Sooner, More Convenient* policy directions.

Editorial methodology

This Pathway was based on high-quality information and known Best Practice guidelines from New Zealand and around the world including Map of Medicine editorial methodology. It was developed by individuals with front-line clinical experience (see Contributors section of this document) and has undergone consultation to gain feedback and input from the wider clinical community.

Map of Medicine Pathways are constantly updated in response to new evidence. Continuous evidence searching means that Pathways can be updated rapidly in response to any change in the information landscape. Indexed and grey literature is monitored for new evidence, and feedback is collected from users year-round. The information is triaged so that important changes to the information landscape are incorporated into the Pathways through the quarterly publication cycle.

An update to this Pathway is scheduled for 12 months after first publication. However, feedback is welcomed at any time, with important updates added at the earliest opportunity within the Map of Medicine publishing schedule (the third Friday of each month).

References

This Pathway has been developed according to the Map of Medicine editorial methodology. Its content is based on high-quality guidelines and practice-based knowledge provided by contributors with front-line clinical experience. Feedback on this Pathway was received from stakeholders during a consultation process.

1	Rooke TW, Hirsch AT, Misra Set al. 2011 ACCF/AHA focused update of the guideline for the management of patients with peripheral arterial disease (Updating the 2005 guideline). J Am Coll Cardiol 2011; 58: 2020-2045.
2	Scottish Intercollegiate Guidelines Network (SIGN). Diagnosis and management of peripheral arterial disease. A national clinical guideline. SIGN Publication no. 89. Edinburgh: SIGN; 2006.
3	National Institute for Health and Clinical Excellence (NICE). Lower limb peripheral arterial disease. Clinical guidance 147 London: NICE; 2012.
4	Fontaine R, Kim M, Kieny R; Kim; Kieny (1954). "Die chirugische Behandlung der peripheren Durchblutungsstörungen. (Surgical treatment of peripheral circulation disorders)". Helvetica Chirurgica Acta (in German) 21 (5/6): 499–533

Contributors

The following individuals contributed to this care map:

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Map editing and facilitation

- Catherine Smart (Facilitator)
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The following individuals contributed to the review of this care map:

- Fiona Unac, Nurse Practitioner, Radiology and Vascular Services (Secondary Lead)
- Nine Smuts, General Practitioner (Primary Lead)

Disclaimers