

# HealthPathways

Clinical guidelines as a social movement



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# At the patient level



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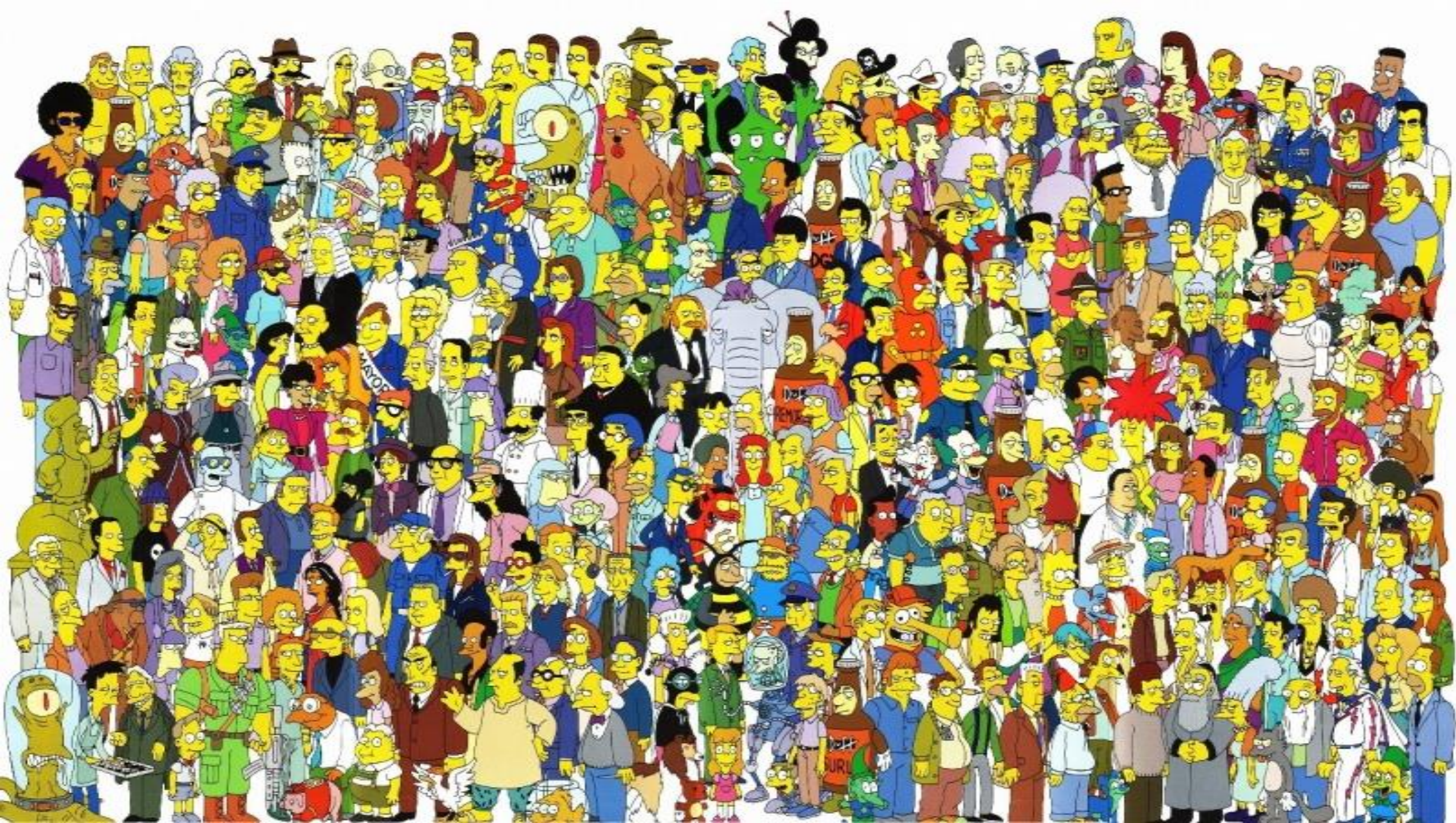






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# Canterbury HOSPITAL HEALTHPATHWAYS

## ! Health Alert

For the latest information about support and services following the Christchurch terror attacks, see [Responding to Events in Christchurch](#).

[Measles](#) outbreak in Canterbury – [notify](#) all cases on clinical suspicion.

See [Canterbury Primary Response Group](#) and [Public Health Updates](#).

## Pathway Updates

*NEW – 16 April*

[Intravenous Cannulation in Children](#)

*Updated – 8 April*

[Alcohol and Drug Specialised Requests](#)

*NEW – 8 April*

[Lumbar Puncture in Children](#)

 CLINICAL EMERGENCIES

 USING HEALTHPATHWAYS

 COMMUNITY HEALTHPATHWAYS

 HEALTHINFO



[Anaphylaxis in Adults](#)[Cardiac Arrest in Adults](#)[Chest Pain](#)[Early Care of Trauma](#)[Hyperthermia](#)[Hypothermia](#)[Intracranial Haemorrhage on Warfarin](#)[Massive Transfusion in Adults](#)[NZ Early Warning Score](#)[Sepsis in Adults](#)[Shock](#)[Shortness of Breath](#)[Svncone](#)[Home](#) / [Acute Care](#) / [Acute Presentations](#) / Intracranial Haemorrhage on Warfarin

# Intracranial Haemorrhage on Warfarin

This pathway covers reversal of warfarin-related coagulopathy in patients with intracranial haemorrhage while on warfarin. See also:

- [Intracerebral Haemorrhage](#)
- [Bleeding or Overdose on Warfarin](#)

There is a different process for patients with:

- Oral thrombin inhibitors (dabigatran) related intracranial haemorrhage. See [Bleeding on Dabigatran](#).
- [Other life-threatening bleeds while on warfarin](#) ✓

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## Background

[About intracranial haemorrhage in patients on warfarin](#) ✓

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## Assessment





## Canterbury

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Chest Pain

Early Care of Trauma

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Hypothermia

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## Intracranial Haemorrhage on Warfarin

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- [Other life-threatening bleeds while on warfarin](#) ^

**Other life-threatening bleeds while on warfarin**

- Reversal of warfarin coagulopathy for other life threatening bleeds, e.g. [upper gastrointestinal bleeding](#) or trauma, might have specific clinical criteria for reversal, e.g. endoscopic findings or clinical manifestations of shock. Seek advice from relevant senior medical staff.
- The process of reversal using Prothrombinex, FFP and phytomenadione (vitamin K) is the same as this pathway describes and can be used for any life threatening bleeds where reversal is deemed appropriate.
- See [Bleeding or Overdose on Warfarin](#).



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Syncope

## Intracranial Haemorrhage on Warfarin

## Assessment

1. Arrange [immediate CT head](#) ✓.
2. To prevent any delays in administering intravenous reversal of coagulopathy:
  - Do not wait for the results of an INR. Reversal is required even if INR is in the sub-therapeutic range (INR 1.5 or above).
  - Before CT head, arrange [Prothrombinex VF and fresh frozen plasma \(FFP\)](#) ✓.

**Note:** Prosthetic heart valves are not a contraindication to reversal in this situation as the risk of thrombotic events during this short term reversal appears very low.

3. Reversal should not be given until CT confirmation of intracranial bleed. In the rare circumstances that a CT cannot be done and reversal is deemed appropriate and urgent, discuss with the consultant.

## Management

### Immediate warfarin reversal

1. As soon as intracranial haemorrhage is confirmed by CT Head, call the ED, ward or ICU and ask them to:





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Syncope

## Intracranial Haemorrhage on Warfarin

- Before CT head, arrange [Prothrombinex VF](#) and fresh frozen plasma (FFP) .

**Prothrombinex-VF and fresh frozen plasma (FFP)**

Obtain Prothrombinex-VF and fresh frozen plasma for patients on warfarin with life-threatening bleeding (including intracranial bleeding):

1. Complete the [Blood Components Form \(QMR022B\)](#) . Clearly write "Life threatening bleed in patient on warfarin".
2. Include required dose of Prothrombinex-VF, based on the patient's estimated weight (50 units/kg).
3. Request 1 unit (approximately 300 mL) fresh frozen plasma (FFP). If bleeding is not yet confirmed, e.g. awaiting CT head, write on the form "Do not thaw until bleed has been confirmed".
4. Send in the Lamson tube, or arrange sample delivery, to the Blood Bank and [inform them via phone](#).

An emergency supply of Prothrombinex-VF is available at:

- [Burwood Hospital](#) 
- [Ashburton Hospital](#) 

**Note:** Prosthetic heart valves are not a contraindication to reversal in this situation as the new



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## Intracranial Haemorrhage on Warfarin

life-threatening bleeding (including intracranial bleeding):

1. Complete the [Blood Components Form \(QMR022B\)](#) . Clearly write "Life threatening bleed in patient on warfarin".

BLOOD COMPONENTS / BLOOD PRODUCTS								QMR022B			
<b>Canterbury</b> District Health Board Te Pori Hauora o Waitaha Use to record transfusion of Blood Components/Blood Products. (For Resuspended Red Cells see QMR022A) <small>(Fill in patient details on each patient label - up)</small>				Patient's Full Name _____ Patient's NHS Number _____ Patient's Date of Birth _____ Ward _____ Consultant _____				<b>Blood Group</b> ABO _____ RH _____ _____ signed			
<b>Use this to request these types of products:</b> <ul style="list-style-type: none"> <li>• Platelets</li> <li>• Cryoprecipitate</li> <li>• Fresh Frozen Plasma (FFP)</li> <li>• Biotin</li> <li>• Albumin</li> <li>• Fibrinogen P</li> <li>• Hepatitis Immunoglobulin</li> <li>• Intravenous Immunoglobulin</li> </ul>				<ul style="list-style-type: none"> <li>• Monoclonic-VF</li> <li>• Normal Immunoglobulin</li> <li>• Prothrombinex VF</li> <li>• Anti-D Immunoglobulin</li> <li>• Tetanus Immunoglobulin</li> <li>• Thrombocyt</li> <li>• Zoster Immunoglobulin</li> <li>• C1 Esterase Inhibitor</li> </ul>				<b>ADMINISTRATION CHECKS</b> Prior to any blood/blood products being issued, IV line must be signed as patent. Signatures of two authorised personnel are required against each check: Check 3: Consent - QMR022A is completed. Check 4: Patient ID - written against QMR022B and QMR004B and Blood Component/Product label. Check 5: Blood Component/Blood Product Label - against QMR022B for Name, NHS No, Blood Group, Unit/Bag No. & Expiry date on the container. Also check for any change of colour or consistency.			
Requested by:	IV Line Patient	Patient's Current Location	Product Requested	Dose	Date	Issued by:	Batch Number	Signature of two staff members: Check 3: Consent    Check 4: Patient ID    Check 5: B1 Bag Label		Time Transfusion Started	
<b>• LIFE THREATENING BLEED ON WARFARIN •</b>											
Dr A			Prothrombinex VF	50 UKg =	_____ unit						
Dr A			FFP	1	Unit						
(Do not thaw until bleed has been confirmed)											





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## Intracranial Haemorrhage on Warfarin


## Management

### Immediate warfarin reversal

1. As soon as intracranial haemorrhage is confirmed by CT Head, call the ED, ward or ICU staff and ask them to:
  - Reconstitute the required dose of [Prothrombinex VF](#) , which should have arrived by now, in preparation for administration. If the CT is normal, the Prothrombinex can be returned unused.

#### Prothrombinex VF

 [Prothrombinex-VF](#) rapidly reverses the coagulopathy within 15 minutes.

- When reconstituting Prothrombinex-VF, do not shake the vials. For full reconstitution instructions, see the blood resource folder or Canterbury DHB – [How to Administer Prothrombinex VF – Quick Guide](#) .
  - If life-threatening bleeding (including intracranial bleeding), give intravenously at a rate of 10 mL/min. For all other indications, use standard rate of 3 mL/min.
- 
- Tell the [Blood Bank](#) to prepare and send the FFP.
  - Draw up 5 mg of phytomenadione (vitamin K) for IV administration.





## How to administer Prothrombinex VF - Quick Guide

### Presentation

- Prothrombinex<sup>®</sup>-VF is supplied as a 500 IU vial containing 500 IU of factor IX, 500 IU of factor II and 500 IU of factor X. Each single pack contains one vial of product, one 20 mL vial of Water for Injections and one Mix2Vial filter transfer set.

### ABO Compatibility

- Compatibility is not relevant for manufactured (fractionated) plasma product transfusion

### Storage and Infusion

- See the [Mix2Vial System](#) for instructions on reconstitution of the vial (may take up to ten minutes to reconstitute).
- Allow the vials to reach room temperature (between 20°C and 30°C) before reconstituting. Infuse promptly.
- Do not refrigerate Prothrombinex<sup>®</sup>-VF once it has been reconstituted.
- Multiple vials of the same product may be pooled together.
- Draw up into a syringe and administer via a syringe pump or by IV bolus.
- Note!** Administering Prothrombinex<sup>®</sup>-VF to patients who are not warfarinised substantially increases the risk of thromboembolism
- See the [Mix2Vial page](#) for instructions on spiking the bottle

### Precautions

- Read manufacturer's instructions carefully.
- Always observe for turbidity / particulate material (floaters).
- Pumps use is acceptable.



### Warfarin reversal apps

An app for reversing warfarin and guiding your perioperative anticoagulation now available in the Apple iTunes and Android Play stores (free). Scan or click on the QR code.





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## Intracranial Haemorrhage on Warfarin

## 3. Administer reversal as quickly as possible:

- Stop warfarin.
- Give [Prothrombinex VF](#) ✓ 50 units/kg IV, immediately on its arrival.
- Give FFP 1 unit (approximately 300 mL) on its arrival from the Blood Bank.
- Give [NZF phytomenadione](#) (vitamin K) IV 5 mg immediately. Phytomenadione (vitamin K) takes 6 to 24 hours to be effective.

4. [Monitor reversal](#) ✓.

## Other acute management

## 1. Manage according to location of bleeding (including acute blood pressure management, where appropriate):

- [Intracerebral haemorrhage](#), also known as intraparenchymal haemorrhage
- [Subarachnoid haemorrhage](#)
- [Subdural haemorrhage](#)

## 2. Ensure ABCs are maintained.

3. Ensure adequate [analgesia](#).4. If the patient has been intubated for airway protection, request [ICU admission](#).5. If for neurosurgical intervention, arrange [acute neurosurgical admission](#).

## Canterbury

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## Intracranial Haemorrhage on Warfarin

6. Otherwise, request [acute general medicine admission](#).
7. Longer term management of anticoagulation:
  - Requires an individual assessment of the risks and benefits of restarting warfarin or not.
  - Most should not restart warfarin. However, it is dependent on indications for anticoagulation, location and severity of bleed, comorbidities, age, and concurrent medications.

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## Request

- To request Prothrombinex and FFP, contact the [Blood Bank](#).
- If coagulation screen immediately after treatment is still abnormal, contact the Transfusion Medicine Specialist via the [Blood Bank](#) or seek [acute haematology advice](#).
- If the patient has been intubated for airway protection, request [ICU admission](#).
- If for neurosurgical intervention, arrange [acute neurosurgical admission](#).
- If not for neurosurgical intervention, request [acute general medicine admission](#) for ongoing management.

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## Information







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# At the health system level



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# Our Beginnings...

In 2007, we had a fragmented system



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# But we had a shared vision...



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# An approach to achieving system change

- The burning platform
- A dedicated group of change agents
- Work groups
- **Pathway development**
- Education
- Cross system communication
- Audit and data



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# System change

- HealthPathways as an outcome
- HealthPathways as a vehicle



Handwritten notes on a whiteboard, organized by role (HP, Re, Ed, NP, R) and topic:

- HP**
  - decision re urgent or not eg angina
  - good GP access to investigations but
  - waiting times not available.
  - pericarditis
  - referral acknowledged but no time given
  - little phone written advice - potential for this & some done
  - hard to expedite referral - time
  - lack of clear fu guidance & could do more fu.
  - communication from & to GP.
  - instructions don't get done in GP.
  - an. no! sub-spec cardiology may cause issues
  - testing can be inappropriate & A by delays
- Re**
  - clarity needed around use
  - practice has changed.
  - confusion re private v public
  - limited cardiac rehab & trans
  - clear guidance needed on AMI
  - ambulance guidelines
  - cost of ambulance means people with
  - inconsistent triage of referrals
  - send patients to ED due to delay
  - rapid access chest pain clinic
  - occasional late referrals - quality of
  - missed meds at discharge
- Ed**
  - requests from other 2<sup>nd</sup> ser
  - need to get trust of recu
  - quality of notes in GP.
- NP**
  - registrar letters can be u
  - need to get trust of recu
  - confusion re private v public
  - limited cardiac rehab & trans
  - clear guidance needed on AMI
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  - cost of ambulance means people with
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- R**
  - circles from ED
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  - registrar letters can be u
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# Canterbury COMMUNITY HEALTHPATHWAYS

## ! Health Alert

Pharmac have widened [funded access to ceftriaxone](#) in primary care as the first line treatment of suspected [meningococcal disease](#). See [Public Health Updates](#).

## Pathway Updates

*Updated – 25 January*  
[Meningococcal Disease](#)

*Updated – 4 December*  
[Prolonged Jaundice in Babies](#)

 USING  
HEALTHPATHWAYS

 HOSPITAL  
HEALTHPATHWAYS

 HEALTHINFO



# Canterbury HOSPITAL HEALTHPATHWAYS

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*Updated – 8 April*

[Alcohol and Drug Specialised Requests](#)

*NEW – 8 April*

[Lumbar Puncture in Children](#)

*NEW – 26 March*



CLINICAL EMERGENCIES



USING HEALTHPATHWAYS



COMMUNITY HEALTHPATHWAYS



HEALTHINFO



ALLIED HEALTHWAYS





# The HealthPathways family

- HHP for hospital health professionals
- CHP for General Practice teams
- Other siblings;
  - HealthInfo
  - Allied HealthWays



HOSPITAL  
HEALTHPATHWAYS



COMMUNITY  
HEALTHPATHWAYS



HEALTHINFO



ALLIED HEALTHWAYS



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CLINICAL EMERGENCIES



USING HEALTHPATHWAYS



COMMUNITY HEALTHPATHWAYS



HEALTHINFO



ALLIED HEALTHWAYS





# Acute Exacerbation of COPD

For the assessment and management of non-acute COPD, see Community HealthPathways – [COPD](#). See also:

- [Non-invasive Positive Pressure Ventilation \(NIV\)](#)
- [Supported Discharge](#)

## Red Flags

- ▶ **Pneumothorax**
- ▶ **Severe pneumonia**
- ▶ **Severe acute heart failure**

## Background



## PARALLEL PAGES ?

[Acute Exacerbation of COPD](#)

## ABOUT THIS PAGE

Contributors →

Page information →

Topic ID: 166216



## Acute Exacerbation of COPD

### Discharge Planning


1. Start discharge planning on admission.
  - Consider involving services for early [supported discharge](#):
    - Acute Demand Management Services for the first 3 days before longer term services are available.
    - Home based rehabilitation or plan of care (CREST).
  - Identify when the [patient may be ready for discharge](#) ✓.
  - Discuss with the patient's general practitioner and develop a plan for management at home, as per the management section of ✱ [COPD](#).
2. Also consider:
  - Oxygen supplementation if the patient meets the criteria – see [Home Oxygen](#).
  - ✱ [Community pulmonary rehabilitation](#) if the patient has not previously attended this (check Health Connect South).
3. Arrange ✱ [spirometry in the community](#) on discharge.
4. Suggest the patient sees their general practitioner one week after discharge to:
  - Review severity status and long term management.
  - Reassure that recovery to reach baseline may take around 30 days.
  - Review medications and [inhaler technique](#) [↗](#).




#### PARALLEL PAGES ?

✱ [Acute Exacerbation of COPD](#)

#### ABOUT THIS PAGE

 Contributors [→](#)

 Page information [→](#)

 Topic ID: 166216



Asthma in Adults



Bronchiectasis

Chronic Cough in Adults

Community-acquired Pneumonia (CAP) in Adults

COPD



Acute Exacerbation of COPD

Advanced or End-stage COPD

Chronic Refractory Breathlessness Management Plan

Dyspnoea


Haemoptysis

Oxygen Therapy



## Acute Exacerbation of COPD

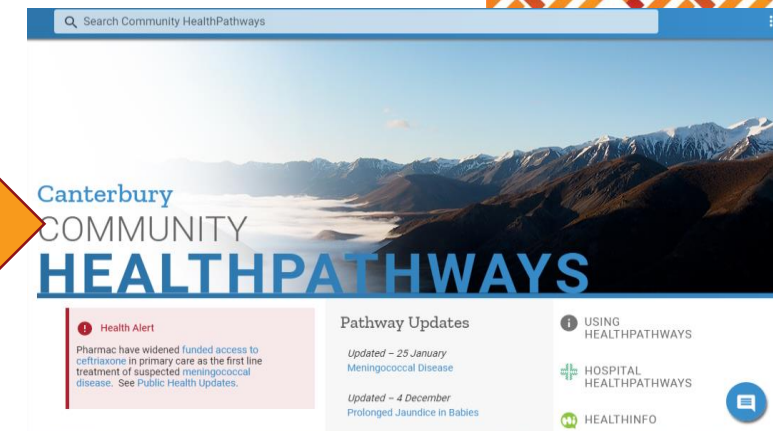
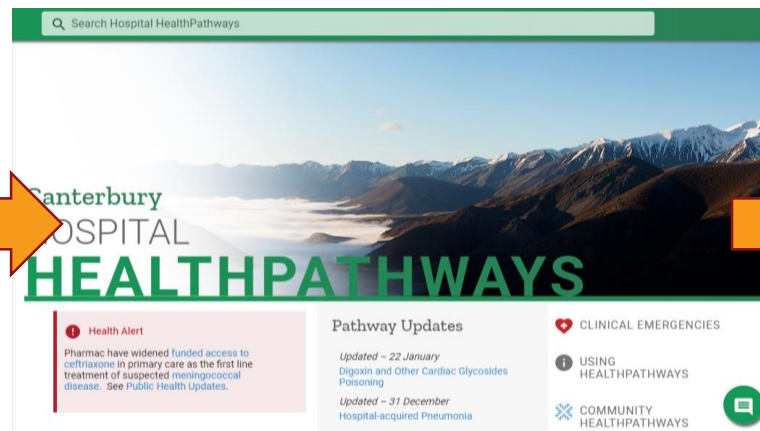
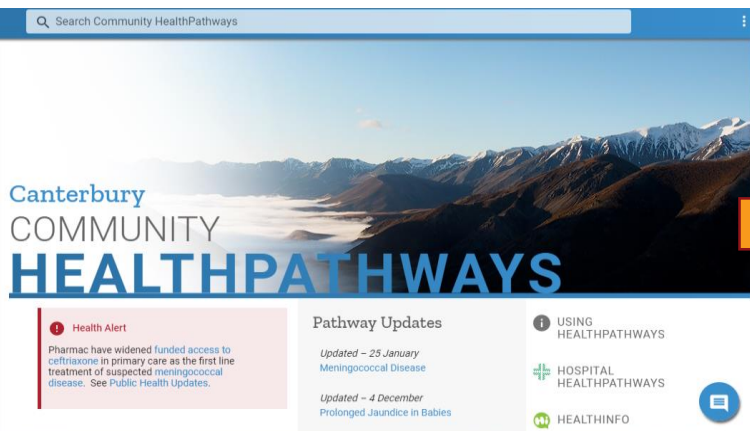
## Request

- Request [acute general medicine assessment](#) (or [acute respiratory assessment](#) if under the current care of a respiratory physician) if:
  - any red flags.
  - the patient cannot be managed at home despite community supports.
- If patient frequently attends hospital (more than 2 admissions per year), refer for [integrated respiratory nurse assessment](#).
- If there is uncertainty about management or referral, consider a phone discussion with the [community respiratory physician](#) .

## Information

[For health professionals](#) [For patients](#) 

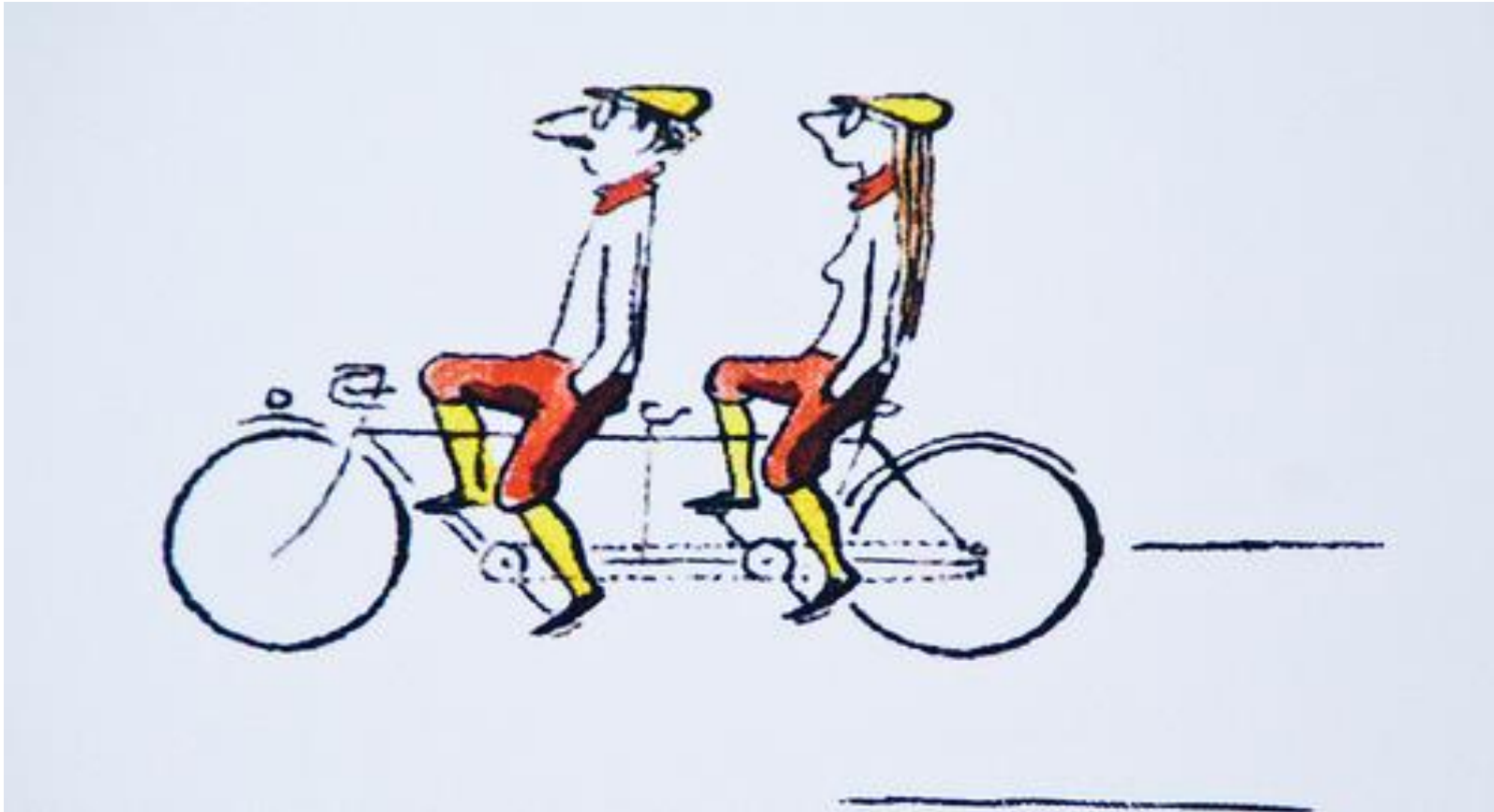
# It is joined up



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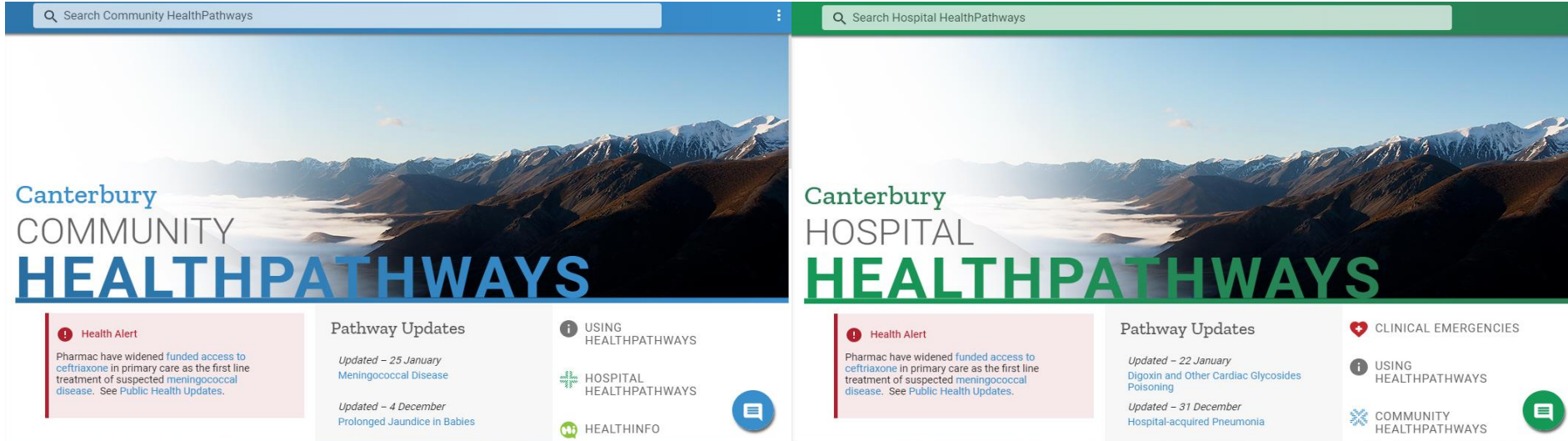
# HHP and CHP have an integrated work programme (and aligned with HI and AHW)



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They present the same information, but in a way most relevant for the audience and their context



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# At a global level



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## HealthPathways – joining things up within and among regions



**Patient numbers**



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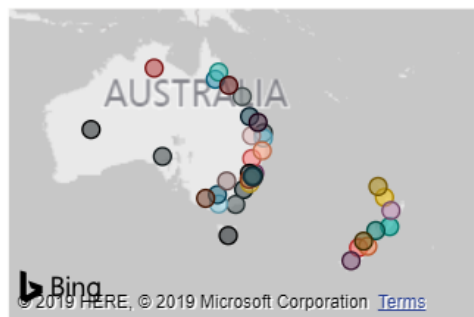
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# HealthPathways at a Glance

Country Filter

- ☐ Australia
- ☐ New Zealand
- ☐ United Kingdom

Australia & NZ Regions



UK Regions



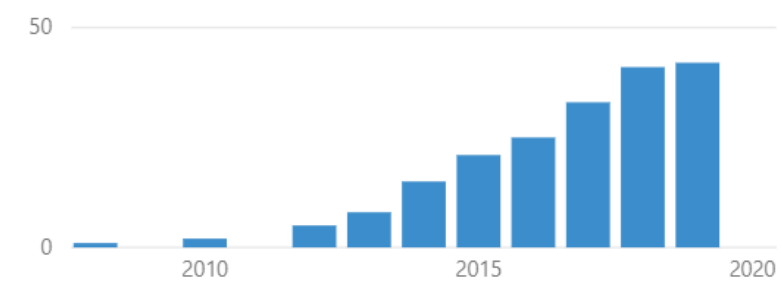
Total Regions

41

Total Patient Numbers

28M

Cumulative Number of Regions Over Time



Clinical Pathways Localised

10K

Pages Being Developed/Localised

3678

Page Reviews Completed

5151

Page Reviews in Progress

1480

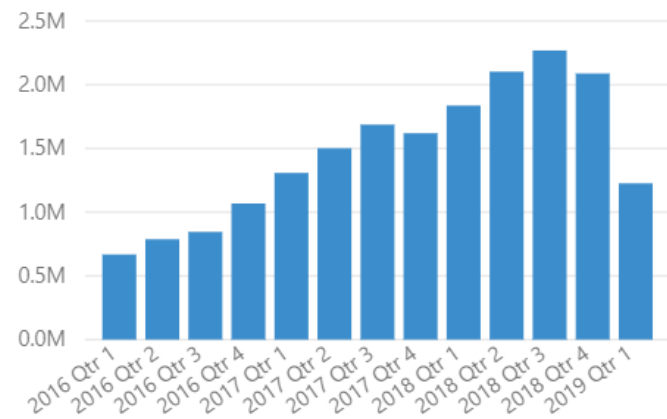
Services in HealthPathways Directory

19K

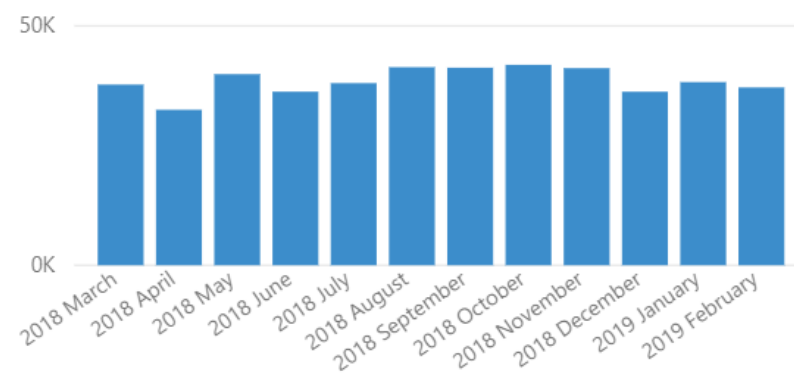
Total People Developing Pathways or Contributing Feedback

GPs	Specialists	Nurses	Allied Health
4514	3778	3703	2432

Total Website Page Views Since 2016



Total Website Users (estimate based on cookies)



Total Feedback Posts

778K

Page Views in Last 6 Months

19M





Select a region



## HEALTHPATHWAYS

[Base](#)

## AUSTRALIA

[ACT and NSW](#)[Brisbane North](#)[Brisbane South](#)[Central Coast](#)[Central Queensland](#)[Children's Health Queensland](#)[Darling Downs](#)[Far North Queensland](#)[Gippsland](#)[/ Medical / Haematology / Pulmonary Embolism \(PE\)](#)[Toggle Alternative Tables for Responsiveness](#)

## Pulmonary Embolism (PE)

### Background

[About pulmonary embolism \(PE\) ▼](#)

### Assessment

PE may present with very few clinical signs or symptoms. A high index of suspicion is warranted, as it can easily be missed.

#### 1. History:

- Ask about [symptoms ▼](#).
- Consider [risk factors ▼](#) for PE.

#### 2. Examination:

- Check blood pressure, heart rate, JVP, and oxygen saturation.



## Australia

ACT and NSW  
Brisbane North  
Brisbane South  
Central Coast  
Central Queensland  
Far North Queensland  
Gippsland  
HNE  
Illawarra Shoalhaven  
Mackay  
Melbourne  
Mid & North Coast  
Murray  
Murrumbidgee  
Nepean Blue Mountains  
South Australia  
South Western Sydney  
Sunshine Coast  
Sydney  
Sydney North  
Tasmania  
Townsville  
Western Australia  
Western Sydney  
Western Victoria  
Wide Bay

## New Zealand

3D (Lower North Island)  
Aoraki  
Auckland Region  
Canterbury  
Nelson-Marlborough  
Northland  
Southern  
West Coast

## United Kingdom

South Tyneside



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## Australia

ACT and NSW  
Brisbane North  
Brisbane South  
Central Coast  
Central Queensland  
Far North Queensland  
Gippsland  
HNE  
Illawarra Shoalhaven  
Mackay  
Melbourne  
Mid & North Coast  
Murray  
Murrumbidgee  
Nepean Blue Mountains  
South Australia  
South Western Sydney  
Sunshine Coast  
Sydney  
Sydney North  
Tasmania  
Townsville  
Western Australia  
Western Sydney  
Western Victoria  
Wide Bay

## New Zealand

3D (Lower North Island)  
Aoraki  
Auckland Region  
Canterbury  
Nelson-Marlborough  
Northland  
Southern  
West Coast

## United Kingdom

South Tyneside

Augmented by:

- Base HealthPathways site
- Regional groups
- Regional group Clinical Advisors
- Lead regions
- Reference sites



**The Canterbury Initiative**

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## Welcome to the HealthPathways Community

This website aims to inspire and facilitate collaboration between HealthPathways Teams across New Zealand, Australia, and the United Kingdom.



## HealthPathways

### 2018 CONFERENCE

NEWCASTLE, AUSTRALIA • 14-16 MAY 2018



*Collaborating Globally for Local Impact*







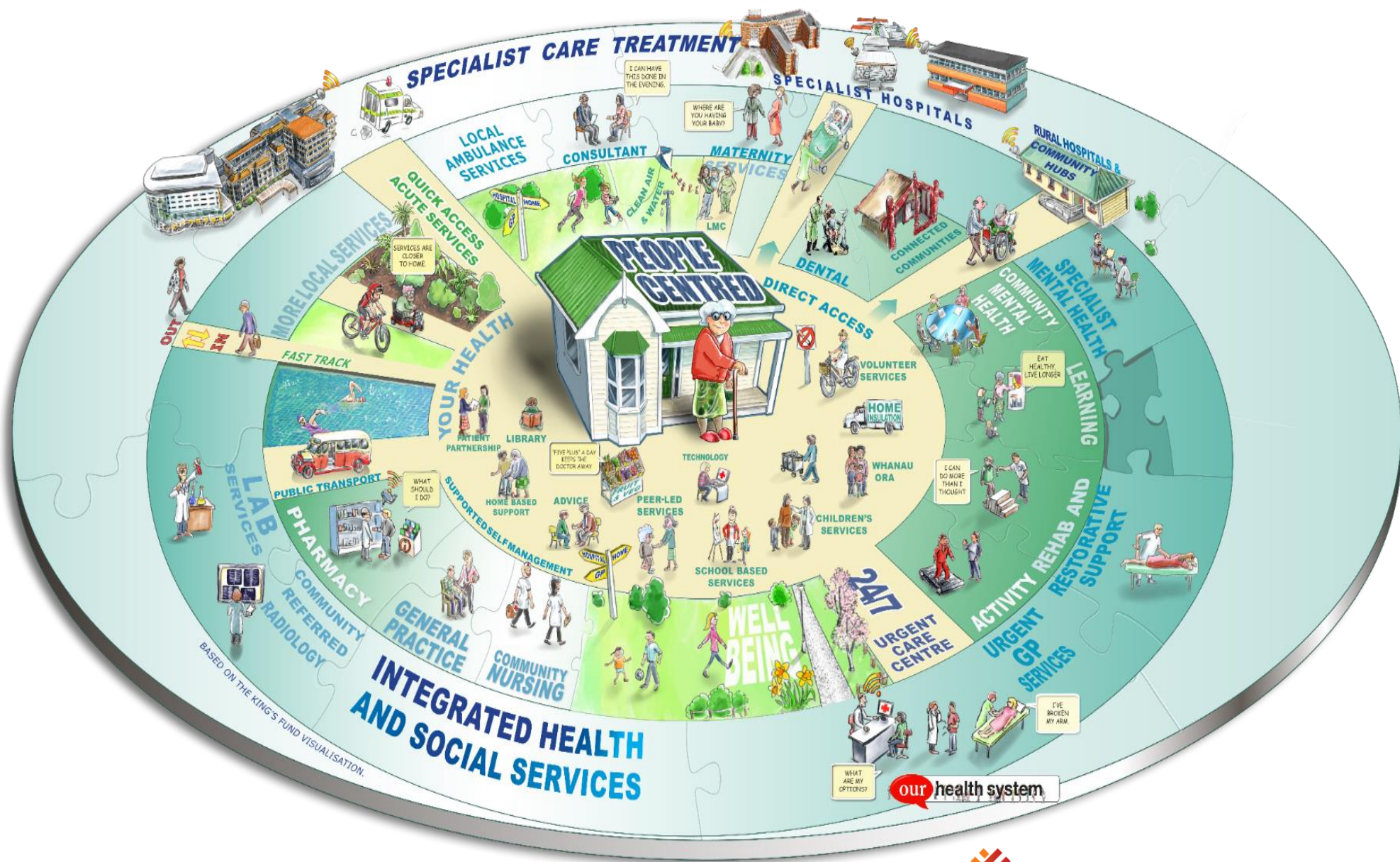




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# HealthPathways

Clinical guidelines as a social movement

michael.ardagh@cdhb.health.nz



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