Haematuria
Surgery > Urology > Haematuria

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1. Care map information

Scope:
- assessment, management, referral, and monitoring of adult patients with haematuria (visible and non-visible)
- covers primary care settings

Out of scope:
- assessment and management of haematuria in children under age 15 years
- specific management of underlying causes of haematuria

Definition:
- haematuria is the presence of red blood cells in urine and can be either:
  - visible haematuria (VH):
    - pink or red coloured urine (or cola coloured in cases of acute glomerulonephritis)
    - also referred to as macroscopic haematuria or gross haematuria
  - non-visible haematuria (NVH):
    - usually detected incidentally by dipstick urine examination or microscopy also referred to as microscopic haematuria

When ordering Computed Tomography Kidneys, Ureters, Bladder (CTKUB)

Consider risks of ionising radiation:

The risk from diagnostic radiation is primarily an increased risk of cancer. The International Commission of Radiation Protection (ICRP) has determined that the risk of a fatal cancer is 5%/Sievert (a Sievert is a measurement of absorbed radiation).

Everyone experiences background radiation of about 0.003 Sieverts a year (3 millisieverts). Radiation doses are given as an effective dose which is the actual dose adjusted for the cancer risk from the tissues that have been irradiated. This varies tremendously in diagnostic radiology from 0.001millisievert (msv) for a finger X-ray (less than a day of background Radiation) to 30msv or more for some CT, interventional or some Nuclear Medicine studies (maybe more than 10 years of background radiation).

To put this in perspective, a plain abdominal X-ray is about 1msv and carries a risk of 1 in 20,000 of causing a fatal cancer. A non-contrast renal calculus CT scan might be 5msv, a risk of 1 in 4000 of causing a fatal cancer, and a 3 phase contrast renal tract CT scan looking for a renal or urolothelial cancer might be 10msv, a risk of 1 in 2000 of causing a fatal cancer.

The other point to remember is that risk varies with age; with risk of irradiating a young adult probably 10 times that of irradiating a person in their seventies or eighties. Hence the caution in doing CT scans in young people. These risks are cumulative with any past radiation.

2. Information resources for patients and carers

Te Ara Whānau Ora Brochure:
- Te Ara Whānau Ora Brochure

3. Updates to this care map

Date of first publication: December 2013
Date of republication: June 2016
This care map has been updated in line with consideration to evidenced based guidelines. Below summarises changes made to the pathway following review:

- the structure of the map has been simplified
- ultrasound is no longer a first line investigation

### 4. Hauora Māori

Māori are a diverse people and whilst there is no single Māori identity, it is vital practitioners offer culturally appropriate care when working with Māori whānau. It is important for practitioners to have a baseline understanding of the issues surrounding Māori health.

This knowledge can be actualised by (not in any order of priority):

- acknowledging Te Whare Tapa Wha (Māori model of health) when working with Māori whānau
- asking Māori clients if they would like their whānau or significant others to be involved in assessment and treatment
- asking Māori clients about any particular cultural beliefs they or their whānau have that might impact on assessment and treatment of the particular health issue (Cultural issues)
- consider the importance of whānaungatanga (making meaningful connections) with their Māori client / whānau
- knowledge of Whānau Ora, Te Ara Whānau Ora and referring to Whānau Ora Navigators where appropriate
- having a historical overview of legislation that has impacted on Māori well-being

**For further information:**

- Hauora Māori
- Central PHO Maori Health website

### 5. Pasifika

**Pacific Cultural Guidelines (Central PHO) 6MB file**

**Our Pasifika community:**

- is 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 here in order to help you work with Pasifika patients more effectively

The main Pacific nations in New Zealand are:

- Samoa, Cook Islands, Fiji, Tonga, Niue, Tokelau and Tuvalu

Acknowledging The FonoFale Model (pasifika model of health) when working with Pasifika peoples and families.

Acknowledging general pacific guidelines when working with Pasifika peoples and families:

- Cultural protocols and greetings
- Building relationships with your pasifika patients
- Involving family support, involving religion, during assessments and in the hospital
- Home visits
- Contact information

**Pasifika Health Service - Better Health for Pasifika Communities:**

- the Pasifika Health Service is a service provided free of charge for:
6. Haematuria – clinical presentation

Patients presenting with haematuria (visible or non-visible) may or may not present with associated symptoms.

Presenting features can include:
- flank pain
- lower urinary tract symptoms e.g:
  - dysuria
  - frequency
  - urgency
  - hesitancy
  - nocturia
- haematuria may only be microscopic

Consider:
- stones - see Renal Colic pathway
- obstruction
- urinary tract infection (UTI)
- tumours other than transitional cell carcinoma (TCC)

Red Flag:
Beware macroscopic haematuria: associated with higher incidence of tumour/malignancy.

Non-visible haematuria:
- typically an incidental finding discovered in patients presenting with lower urinary tract symptoms (LUTS) or upper urinary tract symptoms
- may also be asymptomatic
- typically detected via urine dipstick examination or urine microscopy

To qualify for asymptomatic and non-visible (incidental) haematuria, three dipsticks need to be completed. Lab results will identify asymptomatic and non-visible (incidental) haematuria (will take a week to get results).
Has to be persistent over 6 weeks (3 dipstick tests).

Initial dipstick test undertaken:
- retest 2 weeks later
- third test 6 weeks later; at this stage if dipstick still positive refer as below.

Dipstick test is enough on its own, without need for macroscopic

Visible haematuria:
- could present in otherwise healthy patients with no clinical features suggestive of underlying pathology
- painless asymptomatic visible haematuria is associated with a risk of urological malignancy in 20-25% of patients
- early specialist referral is advised because of the risk of serious underlying pathology
- could also be associated with:
  - complaints of pink or red coloured urine (or cola coloured in cases of acute glomerulonephritis)
  - upper and/or lower urinary tract symptoms (LUTS), such as:
    - dysuria
    - frequency
    - urgency
    - hesitancy
    - loin pain
  - features of other systemic or urological disease

7. Consider differential diagnosis

Consider differential diagnosis for discolouration of urine
- diet
- medication

8. RED FLAGS!

Consider red flags:
- elevated temperature - above 38.5 c
- haemodynamically unstable
- unable to pass urine
- trauma
- pyelonephritis

9. Urinary dipstick

Initial dipstick is mandatory.

11. Exclude and/or treat UTI’s

Recurrent urinary tract infections (UTI’s) may require further investigation. For more information, see the below pathways:
- lower UTI in females
- lower UTI in males
12. Investigations

Bloods:
- FBC (full blood count)
- electrolytes
- CRP (C-reactive protein)
- creatinine
- eGFR (estimated glomerular filtration rate)
- albumin
- calcium (stones)
- uric acid (stones)

Urine:
- albumin levels to calculate ACR (albumin creatinine ratio) to detect nephrology problems
- cytologies-a series of 3 consecutive urine cytologies (24 hours apart)

13. Exclude nephrological disease

Exclude nephrological disease:
- under 45 years with microscopic haematuria
- eGFR <60mls/min
- proteinuria more than 2 grams per day
- significant hypertension

Refer to nephrology if indicated.

15. Radiological investigations

Do not delay the referral of macroscopic haematuria cases pending radiology.

Risk factors suggesting increased risk of malignancy include:
- smoking (see Stop Smoking Support pathway)
- occupation for transitional cell carcinoma (TCC) e.g:
  - dye industry
  - rubber industry
  - hairdressers
  - printing industry
  - those exposed to aromatic hydrocarbons
- age:
  - >40 years
- squamous cell carcinoma rare but associated with chronic irritation, stones and schistosomiasis
18. Request CT IVU

Over 45 years with haematuria request 'Computerised Tomography (CT) Intravenous Urogram'

Contraindications:
- pregnancy
- eGFR <30mls/min
- myeloma

GP to mark on radiology request "Haematuria Pathway"
State the following on referral:
- creatinine/eGFR
- microscopic/macrossopic haematuria
- presence/absence of pain
- history of UTI
- any relevant past medical history e.g. gynae

Consider risks of ionising radiation:
- see 'background information' box

19. Request CT KUB

Under 45 years with haematuria request '3 phase Computed Tomography (CT) renal tract'

GP to mark on radiology request : "Haematuria Pathway "

State the following on referral:
- creatinine/eGFR
- microscopic/macrossopic haematuria
- presence/absence of pain
- history of UTI
- any relevant past medical history e.g. gynae

Consider risks of ionising radiation:
- see 'Care map information' box

20. Referral to Urology Clinic

Please provide results of:
- creatinine
- mid-stream urine (MSU)
- radiology results (if available)
- history and examination
- any risk factors

Do not delay the referral of macroscopic haematuria cases pending radiology.
Risk factors suggesting increased risk of malignancy include:

- smoking (see Stop Smoking Support pathway)
- occupation for transitional cell carcinoma (TCC) e.g:
  - dye industry
  - rubber industry
  - hairdressers
  - printing industry
  - those exposed to aromatic hydrocarbons
- age:
  - >40 years
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Overview

This document describes the provenance of MidCentral District Health Board’s Haematuria pathway. This pathway is regularly updated to include new, quality-assessed evidence, and practice-based knowledge from expert clinicians. Please see the Editorial Methodology section of this document for further information.

This localised pathway was last updated in June 2016.

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

One feature of the “Better, Sooner, More Convenient” (BSMC) Business Case, accepted by the Ministry of Health in 2010, was the development of 33 collaborative clinical pathways (CCP).

The purpose of implementing the CCP Programme in our DHB is to:

- Help meet the Better Sooner More Convenient Business Case aspirational targets, particularly the following:
  - Reduce presentations to the Emergency Department (ED) by 30%
  - Reduce avoidable hospital admissions to Medical Wards and Assessment Treatment and Rehabilitation for over-65-year-olds by 20%
  - Reduce poly-pharmacy in the over-65-year-olds by 10%
- Implement a tool to assist in planning and development of health services across the district, using evidence-based clinical pathways.
- Provide front line clinicians and other key stakeholders with a rapidly accessible check of best practice;
- Enhance partnership processes between primary and secondary health care services across the DHB.

To cite this pathway, use the following format:


Editorial methodology

This care map 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 has been checked by individuals with front-line clinical experience (see Contributors section of this document).

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.
References

This care map has been developed according to the Map of Medicine editorial methodology. The content of this care map is based on high-quality guidelines and practice-based knowledge provided by contributors with front-line clinical experience. This localised version of the evidence-based, practice-informed care map has been peer-reviewed by stakeholder groups and the CCP Programme Clinical Lead.


Contributors

MidCentral DHB’s Collaborative Clinical Pathway editors and facilitators worked with clinical stakeholders such as front-line clinicians and pharmacists to gather practice-based knowledge for its care maps.

The following individuals contributed to the update of this care map:

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