

Diagnosing Urological Malignancy in Primary Care

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Urological Cancers

Today I want to focus on:

- The **key urological malignancies** relevant to primary care
- **Red flag symptoms** that should trigger urgent referral
- Common **diagnostic pitfalls**
- How to **risk-stratify patients effectively**

The Big Five Urological Cancers

Cancer Type	Approx. New Cases per Year (Ireland)	Notes
Prostate cancer	~4,000 cases annually	Most common cancer in men in Ireland; ~1 in 6 men will be diagnosed in their lifetime. (Irish Cancer Society)
Bladder cancer	~490 cases annually	More common in men; incidence increases with age. (beaconurology.ie)
Kidney cancer	~630–700 cases annually	Most cases occur over age 40. (Irish Cancer Society)
Testicular cancer	<i>Data not routinely reported on main Irish public figures but historically small (~100–200) cases</i>	
Penile Cancer	<i>Data not routinely reported on main Irish public figures but historically small (~50-60) cases</i>	

Visible haematuria is cancer until proven otherwise



URGENT REFERRAL

- Cystoscopy
- CT Urogram



Bladder
cancer



UTUC



Renal
cancer

NVH definition

BAUS/NICE:

2 out of 3 occasions, NO urine infection

2+ or 3+ on dipstick urinalysis
PPV , does not need confirm microscopy

Trace or 1+, confirm on micro
and 10 RBC/ microlitre is reg
significant



line dipstick should prompt
bic evaluation.

blood cells per high-
d (RBC/HPF) on a properly
sample.

Rapid Access Haematuria Pathway

Prioritise assessment and diagnostics for **visible haematuria** efficiently

AIM:

Provide same-day or rapid access for clinical review, imaging and cystoscopy

Symptom	Priority / Target Timeline
Visible, painless haematuria (adults or children)	Urgent (< 28 days)
Microscopic haematuria in adults > 50 years	Urgent (< 28 days)
Microscopic haematuria in adults < 50 years	Semi-urgent (< ~13 weeks)
Females \geq 40 with recurrent/persistent UTI + haematuria	Semi-urgent (< ~13 weeks)

Dipstick Vs Microscopy

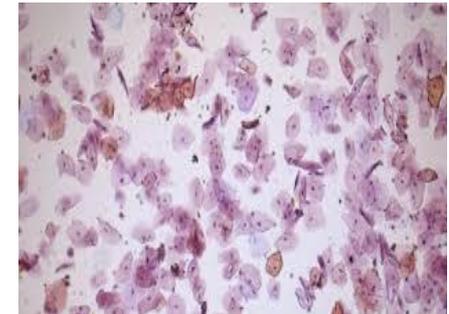
Dipstick sensitivity >90%

- Poor specificity however
- 1+ on dipstick = 10-40 RBC/hpf



Microscopy

- >3 RBC/hpf
- False negative with Delayed samples and cell lysis



Haematuria Clinic Referral Guidelines UK 2015

Refer people using a suspected cancer pathway referral (for an appointment within 2 weeks) for bladder cancer if they are:

- aged 45 and over and have:
 - **unexplained** visible haematuria without urinary tract infection **or**
 - visible haematuria that persists or recurs after successful treatment of urinary tract infection, **or**
- aged 60 and over and have unexplained non-visible haematuria **and** either dysuria or a raised white cell count on a blood test. **[new 2015]**

Consider **non-urgent** referral for bladder cancer in people aged 60 and over with recurrent or **persistent** unexplained urinary tract infection. **[new 2015]**

Haematuria Referral Guidelines AUA 2025

Risk Category	Definition / Criteria	Recommended Referral
Gross (Visible) Hematuria	Any visible blood in urine regardless of microscopic findings	Urgent referral + complete evaluation , with cystoscopy and upper tract imaging , high malignancy risk. Strong expert consensus supports evaluation even if only single episode. (Dr.Oracle)
Low / Negligible-Risk Microhematuria	Meets all below: • Women age <60 yrs OR men age <40 yrs • Never or <10 pack-yrs smoking • 3-10 RBC/HPF on microscopy • No other GU cancer risk factors (e.g., chemical exposures, cyclophosphamide, family history)	No immediate urology referral usually required . Options: • Repeat UA in ~6 mo for persistence. • Discuss (shared decision) lower-intensity evaluation (e.g., renal US) if preferred. Urology referral considered if persistent or new symptoms develop. (AAFP)
Intermediate-Risk Microhematuria	Meets any : • Women age 60 yrs OR men age 40-59 yrs • Smoking 10-30 pack-yrs • 11-25 RBC/HPF on microscopy • Previously low risk with persistent hematuria on repeat UA	Refer for urological evaluation . • Cystoscopy recommended. • Renal imaging (ultrasound preferred initially; CT urography often considered, especially if risk factors present). (AAFP)
High-Risk Microhematuria	Meets any : • Age ≥60 yrs (men or women) • Smoking >30 pack-yrs • >25 RBC/HPF on microscopy • History of gross hematuria • Significant risk factor for GU cancer present (e.g., occupational exposures)	Urgent urology referral + full evaluation . • Cystoscopy and upper tract imaging (CT urography) strongly recommended. • Consider also cytology or other biomarkers in select cases. (AAFP)

PLATI

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Show Outline



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The IDENTIFY study: the investigation and detection of urological neoplasia in patients referred with suspected urinary tract cancer – a multicentre observational study

Sinan Khadhour , Kevin M. Gallagher, Kenneth R. MacKenzie, Taimur T. Shah, Chuanyu Gao, Sacha Moore, Eleanor F. Zimmermann, Eric Edison, Matthew Jefferies ... [See all authors](#) ▾

First published: 14 May 2021 | <https://doi.org/10.1111/bju.15483> | Citations: 25

PubMed indexed collaborators members are presented in [Appendix](#).

SECTIONS



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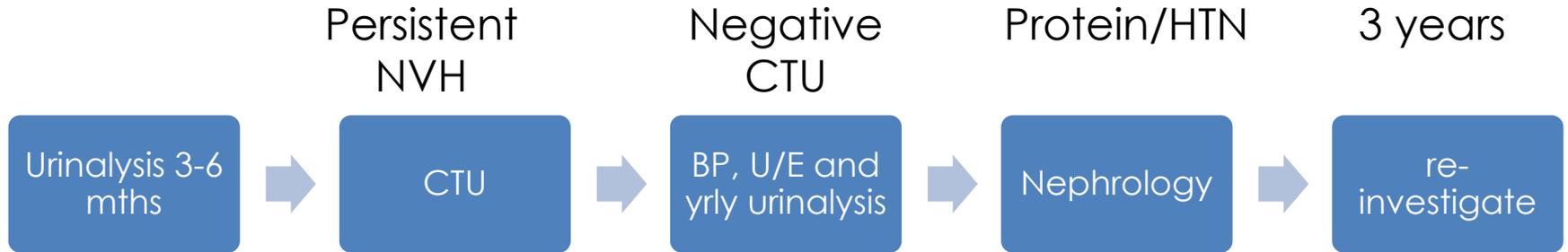


TOOLS

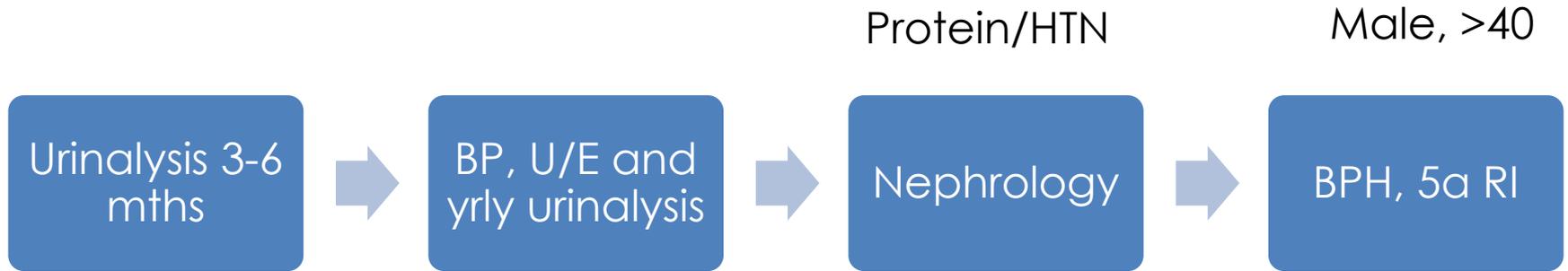


SHARE

NVH and Negative Flexible Cystoscopy/Ultrasound

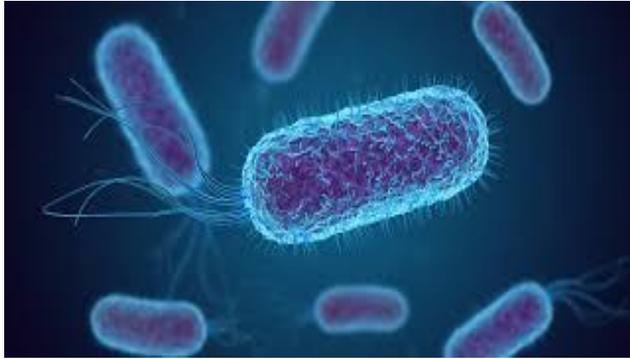


Persistent VH and Negative Flexible Cystoscopy/CT

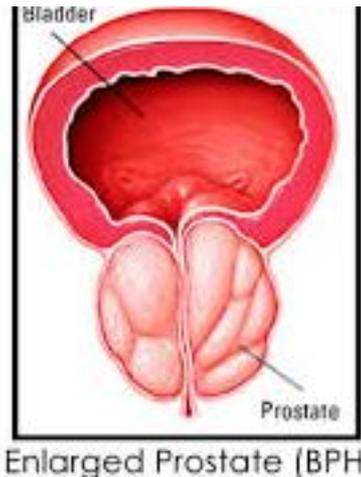


Consider renal arteriography, retrograde ureteropyelogram, cystoscopy/bx

Beware



If VH persists or recurs post treatment – refer
Beware the persistent UTI in elderly



Bladder Cancer

Typical presentation

- Painless visible haematuria (most common)
- Irritative LUTS:
 - Frequency
 - Urgency
 - Nocturia
- Recurrent “UTIs” in older patients, particularly women

Red flags in primary care

- Age >45 with visible haematuria
- Recurrent urinary symptoms **without proven infection**
- Persistent dysuria with negative cultures

Common missed presentation

Older women treated repeatedly for UTIs without culture-proven infection.



Prostate Cancer: Beyond the PSA

PSA: useful but imperfect

- Normal PSA **does not exclude cancer**
- Elevated PSA **does not equal cancer**

Red flags

- Abnormal digital rectal examination:
 - Hard, irregular, or asymmetric prostate
- PSA significantly raised for age
- Rapid PSA rise, change in PSA kinetics
- Bone pain, especially back/hip pain in older men

Symptoms (often late)

- LUTS (often indistinguishable from benign disease)
- Bone pain, weight loss, anaemia

Identify men who need assessment

- **Age ≥ 50** (or ≥ 45 if high risk)
- **First-degree relative** with prostate cancer
- **Black African or Caribbean ethnicity**
- Strong patient preference after informed discussion
- Symptoms are usually a late sign – advanced cancer

Raised age related PSA and non-suspicious DRE

Under 50 years of age	$\geq 2\mu\text{g/L}$
50-59	$\geq 3\mu\text{g/L}$
60-69	$\geq 4\mu\text{g/L}$
70+	$\geq 5\mu\text{g/L}$

When to refer urgently (2-week pathway)

- **PSA above age-specific threshold**
- **Abnormal DRE**
- **PSA rising rapidly** (PSA velocity)
- **Strong clinical suspicion** despite borderline PSA
- **Bone pain + raised PSA** (possible metastatic disease)

Renal Cancer Presentation

RCC presentation

- 2/3 are incidental findings on abdominal imaging
- Classical triad of haematuria, loin pain and mass is seen in ~10%
- Others – paraneoplastic syndromes (polycythaemia, hypercalcaemia, hypoglycaemia)
 - Varicocele (acute - left sided tumours)

Causes of RCC

Genetic

- VHL (3p25) mutation in >80% CCRCC
- Others – c-Met (PRCC)
FH (HLRCC)
Folliculin (BHD)

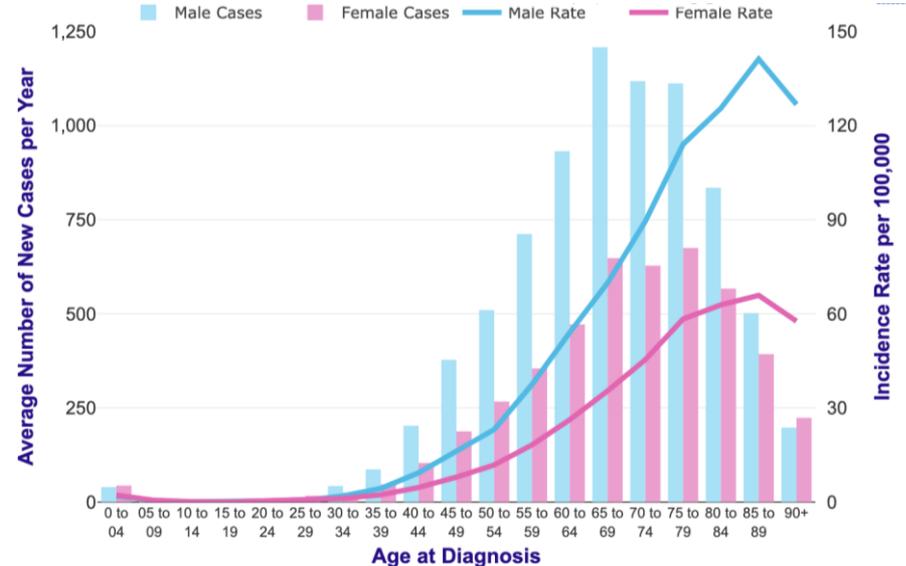
Environmental

- Tobacco
- Obesity
- Renal failure – dialysis, HTN
- Polycystic and horseshoe kidneys



RCC Epidemiology

- 14000 new cases/year in UK
- 73000 new cases/year in USA
- 300,000 gobally
- 5000 deaths/year in UK
- Doubled since 1990's
- Incidence increasing 2% per year
- Mortality rate staying the same
 - 52% survival at 10 years



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Size matters: Nephron Sparing Treatment (NEST) for Small Renal Masses: A Feasibility Cohort-embedded Randomised Controlled Trial Comparing Percutaneous Cryoablation and Robot-assisted Partial Nephrectomy

Majority of
30% benign
Only 20% r
Active sur
Role for bic
Ablation V

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» Abstract

Show Outline

There is a paucity of high-level evidence on small renal mass (SRM) management, as previous classical randomised controlled trials (RCTs) failed to meet accrual targets. Our objective was to assess the feasibility of recruitment to a cohort-embedded RCT comparing cryoablation (CRA) to robotic partial nephrectomy (RPN). A total of 200 participants were recruited to the cohort, of whom 50 were enrolled in the RCT. In the CRA intervention arm, 84% consented (95% confidence interval [CI] 64–95%) and 76% (95% CI 55–91%) received CRA; 100% (95% CI 86–100%) of the control arm underwent RPN. The retention rate was 90% (95% CI 79–96%) at 6 mo. In the RPN group 2/25 (8%) were converted intra-operative to radical nephrectomy. Postoperative complications (Clavien-Dindo grade 1–2) occurred in 12% of the CRA group and 29% of the RPN group. The median length of hospital stay was shorter for CRA (1 vs 2 d; $p = 0.019$). At 6 mo, the mean change in renal function was -5.0 ml/min/1.73 m² after CRA and -5.8 ml/min/1.73 m² after RPN. This study demonstrates the feasibility of a cohort-embedded RCT comparing CRA and RPN. These data can be used to inform multicentre trials on SRM management.

NB genetic

Benign Renal Masses

12% masses 4-6cm are benign

WHO statement:

A definitive histopathological diagnosis of oncocytoma cannot be made on a needle-core biopsy, because chRCC can show intratumoural heterogeneity with areas very similar to oncocytoma.

Active surveillance (+oncocytic masses)

Expatriation of oncocytoma???

- indicated with large/symptomatic/diagnostic uncertainty

Patient choice – uncomfortable with long term surveillance

Hereditary Renal Cancer: Screening & Management Strategies

Families with 2 or more affected with RCC

Multifocal/bilateral tumours

Non-renal manifestations

Early age of onset (<46 years)

Clinical/histopathological diagnosis

Germline mutation analysis

Multi-disciplinary approach

Appropriate surgical intervention (early with HLRCC)

Testicular Cancer: Don't Miss the Young Man

Typical patient

- Age 15–45
- Otherwise fit and well

Red flags

- Painless testicular lump
- Testicular firmness or change in consistency
- Heaviness or dragging sensation

Important points

- Pain does **not exclude cancer**
- Epididymo-orchitis that **does not resolve** needs reassessment
- Ultrasound is quick and definitive

Most common solid malignancy in **young men aged 15–40**

Lifetime risk \approx **1 in 250** (highest in Northern Europe)

Excellent prognosis: $>95\%$ overall cure rate

Key risk factors:

- **Cryptorchidism** (even after orchidopexy)
- Prior testicular cancer (\uparrow risk in contralateral testis)
- Family history
- Testicular dysgenesis, infertility

Majority arise from **germ cell tumours ($\approx 95\%$)**

- **Germ cell tumours**
 - **Seminoma** (~55%)
 - **Non-seminomatous GCT (NSGCT)** (~45%): embryonal, yolk sac, choriocarcinoma, teratoma
- **Tumour markers** (check pre- and post-orchidectomy):
 - **AFP** → NSGCT only (never pure seminoma)
 - **β-hCG** → seminoma or NSGCT
 - **LDH** → tumour burden/prognosis
- Typical presentation:
 - **Painless testicular mass**
 - Dull ache, heaviness
 - Metastatic symptoms: back pain, cough, gynecomastia

Diagnosis, Spread & Management Principles

Diagnosis

- Urgent **scrotal ultrasound**
- Serum tumour markers
- **Radical inguinal orchidectomy** (diagnostic + therapeutic)

Spread

- Lymphatic: para-aortic nodes first
- Haematogenous: lungs, liver, brain

Management

- Seminoma: surgery \pm radiotherapy/chemotherapy
- NSGCT: surgery + platinum-based chemotherapy

Key counselling points

- Sperm banking before treatment
- Long-term survivorship and late effects

Penile Cancer

Rare, but often diagnosed late
Approx 50-60 cases per year in Ireland

Red flags

- Persistent penile ulcer or lesion
- Non-healing “rash”
- Bleeding or discharge
- Phimosis with suspicious changes

Key message

- If it doesn't heal in 3–4 weeks → refer
- Particularly important in uncircumcised men

Urgent referral if:

- Any visible haematuria (unexplained)
- Testicular lump
- PSA above age related guidelines or adverse kinetics
- Abnormal DRE suggestive of malignancy
- Suspicious penile lesion
- Persistent urinary symptoms with risk factors and no infection

- Re-review unresolved symptoms

Thank you