NKCA
National Kidney Cancer Audit

NATCAN
National Cancer Audit Collaborating Centre

National Kidney Cancer Audit

State of the Nation Report 2024

Appendix and Glossary

Contents

Acknowledgements

The National Kidney Cancer Audit (NKCA) is part of the National Cancer Audit Collaborating Centre (NATCAN), a national centre of excellence to strengthen NHS cancer services by looking at treatments and outcomes for people diagnosed with cancer in multiple cancer types across England and Wales. NATCAN is commissioned by the Healthcare Quality Improvement Partnership (HQIP) on behalf of NHS England and the Welsh Government as part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP).

Clinical leadership of the National Kidney Cancer Audit is provided by representatives from the British Association of Urological Surgeons (BAUS) and British Uro-Oncology Group (BUG). The audit is a collaboration between the Clinical Effectiveness Unit (CEU) at the Royal College of Surgeons of England (RCS), BAUS and BUG. We would like to thank British Association of Urological Surgeons and British Uro-Oncology Group for their continued professional guidance and for raising awareness amongst urological and uro-oncological colleagues.

The NKCA's Clinical Reference Group (CRG) is formed of members representing patient groups and professionals. We would like to thank the Chair of the group, Dr Lisa Pickering, along with CRG members for sharing their clinical and policy expertise and experience, and for providing valuable feedback throughout the different stages of the audit.

We would also like to thank all urologists, uro-oncologists along with their clinical and non-clinical teams at NHS Trusts in England and Local Health Boards in Wales who collected and submitted data for the audit. Your support is vital to enable the NKCA evaluate the care that men receive following a diagnosis of kidney cancer in England and Wales and whether this care reflects national standards of care.

The NKCA compares NHS services in England and Wales and provides these results to underpin quality improvement activities. We are grateful to the National Cancer Registration and Analysis Service (NCRAS) which is part of the National Disease Registration Service, NHS England (NHSE) and the Wales Cancer Network, Public Health Wales for supporting routine cancer data submissions from Trusts and Local Health Boards and for supplying data for this report.

We would also like to thank all members of the newly formed NKCA Patient and Public Involvement (PPI) Forum, Action Kidney Cancer, and Kidney Cancer UK, for working with us to ensure that the voice of people who have had a kidney cancer diagnosis is central to the direction of the NKCA. A lay report summarising the key results will be developed in consultation with the NKCA PPI Forum and published in October 2024.

Supplementary tables

Patient characteristics tables

Table A1. Patient characteristics for people newly diagnosed with kidney cancer in England over the period of 1 January 2019 - 31 December 2021.

Data variable	England	
	N	%
Time period covered	*1 Jan 2019 - 31 Dec 2021*	
No. of people with new diagnosis of kidney cancer	28,229	
Age		
<45	1,382	5%
45-54	3,370	12%
55-64	6,147	22%
65-74	8,238	29%
75-84	6,599	23%
>85	2,493	9%
Total	28,229	100%
Missing	*0*	*(0%)*
Gender (Self-stated gender at diagnosis)		
Male	18,110	64%
Female	10,119	36%
Total	28,229	100%
Missing	*0*	*(0%)*
Performance status*		
0	6,464	58%
1-2	4,048	36%
≥3	705	6%
Total	11,217	100%
Missing	*17,012*	*(60%)*
Number of co-morbidities (Charlson score)		
0	14,576	52%
1	8,090	29%
≥2	5,563	20%
Total	28,229	100%
Missing	*0*	*(0%)*
Stage		
I	10,713	50%
II	1,445	7%
III	4,440	21%
IV	4,851	23%
Total	21,449	100%
Missing	*6,780*	*(24%)*

Data variable	England	
	N	%
Time period covered	*1 Jan 2019 - 31 Dec 2021*	
T stage		
T1	13,059	58%
T2	2,329	10%
T3	6,284	28%
T4	688	3%
Total	22,360	100%
Missing	*5,869*	*(21%)*
N stage		
N0	18,232	90%
N1	1,982	10%
Total	20,214	100%
Missing	*8,015*	*(28%)*
M stage		
M0	16,982	79%
M1	4,632	21%
Total	21,614	100%
Missing	*6,615*	*(23%)*
Ethnicity		
Asian or Asian British	904	3%
Black, Black British, Caribbean or African	580	2%
Mixed or multiple ethnic groups	160	1%
White	24,589	92%
Other	417	2%
Total	26,650	100%
Missing	*1,579*	*(6%)*
Indices of multiple deprivation (IMD) of LSOA		
1 (least deprived)	5,770	20%
2	6,004	21%
3	5,824	21%
4	5,436	19%
5 (most deprived)	5,195	18%
Total	28,229	100%
Missing	*0*	*(0%)*

LSOA, Lower Layer Super Output Areas.

*Performance status: 0 = Able carry out all normal activity without restriction; 1 = Restricted in physically strenuous activity, but able to walk and do light work; 2 = Able to walk and capable of all self care, but unable to carry out any work. Up and about more than 50% of waking hours; 3 = Capable of only limited self care, confined to bed or chair more than 50% of waking hours; 4 = Completely disabled. Cannot carry on any self care. Totally confined to bed or chair.

Table A2. Patient characteristics for people newly diagnosed with kidney cancer in Wales over the period of 1 January 2022 - 31 December 2022.

Data variable	Wales	
	N	%
Time period covered	*1 Jan 2022 - 31 Dec 2022*	
No. of people with new diagnosis of kidney cancer	490	
Age		
<45	18	4%
45-54	44	9%
55-64	111	23%
65-74	144	29%
75-84	132	27%
>85	41	8%
Total	490	100%
Missing	*0*	*(0%)*
Sex		
Male	310	65%
Female	169	35%
Total	479	100%
Missing	*11*	*(2%)*
Performance status*		
0	161	47%
1-2	142	41%
≥3	41	12%
Total	344	100%
Missing	*146*	*(30%)*
Number of co-morbidities (Charlson score)		
0	280	57%
1	133	27%
≥2	77	16%
Total	490	100%
Missing	*0*	*(0%)*
Stage		
I	162	43%
II	41	11%
III	95	25%
IV	76	20%
Total	374	100%
Missing	*116*	*(24%)*
T stage		
T1	168	46%
T2	54	15%
T3	116	32%

Data variable	Wales	
	N	%
Time period covered	*1 Jan 2022 - 31 Dec 2022*	
T4	26	7%
Total	364	100%
Missing	*126*	*(26%)*
N stage		
N0	278	84%
N1	52	16%
Total	330	100%
Missing	*160*	*(33%)*
M stage		
M0	247	79%
M1	67	21%
Total	314	100%
Missing	*176*	*(36%)*
Ethnicity		
All other ethnic groups combined**	8	3%
White	277	97%
Total	285	100%
Missing	205	*(42%)*
Indices of multiple deprivation (IMD) of LSOA		
1 (least deprived)	86	19%
2	86	19%
3	108	24%
4	100	22%
5 (most deprived)	74	16%
Total	454	100%
Missing	*36*	*(7%)*

LSOA, Lower Layer Super Output Areas.

*Performance status: 0 = Able carry out all normal activity without restriction; 1 = Restricted in physically strenuous activity, but able to walk and do light work; 2 = Able to walk and capable of all self care, but unable to carry out any work. Up and about more than 50% of waking hours; 3 = Capable of only limited self care, confined to bed or chair more than 50% of waking hours; 4 = Completely disabled. Cannot carry on any self care. Totally confined to bed or chair.

** All other ethnic groups combined includes, Asian or Asian British, Black, Black British, Caribbean or African, Mixed or multiple ethnic groups and Other ethnicity groups. Individual ethnic groups were collapsed due to small numbers.

Supplementary figures

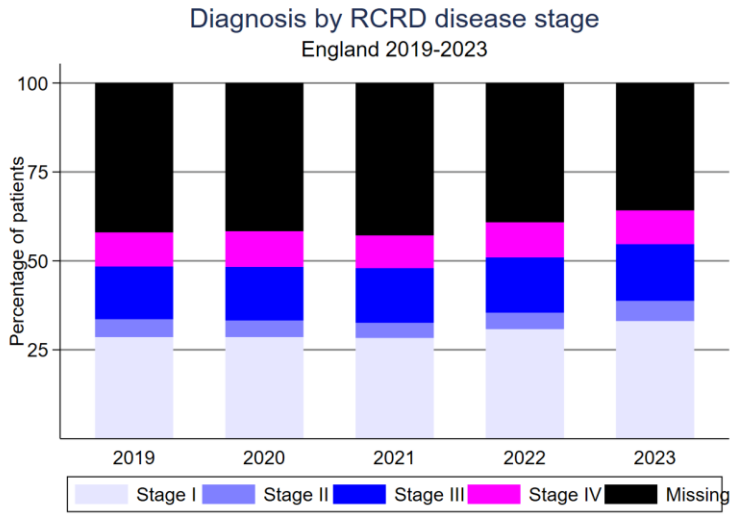

Figure A1. Diagnosis by RCRD disease stage in England 2019 - 2023

Footnote: 2023 data includes patients diagnosed until 31st Oct 2023.

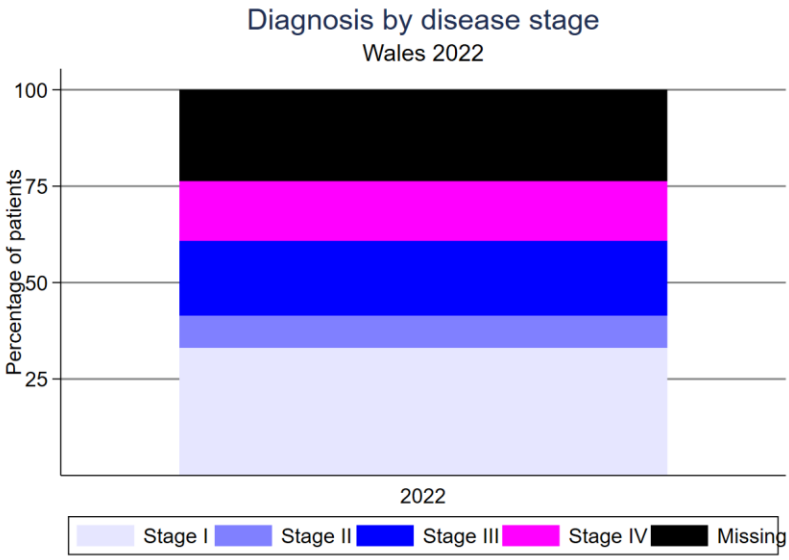

Figure A2. Diagnosis by disease stage in Wales in 2022

TNM (Tumour Node Metastasis) definitions

Table A3. TNM Stage adapted from UICC TNM 8 - UICC TNM staging for kidney cancer and EAU RCC Guidelines - TNM staging for kidney cancer

T – Primary tumour	
T0	No Evidence of primary tumour
T1a	Tumour less than or equal to 4cm
T1b	Tumour more than 4cm but less than or equal to 7cm
T2a	Tumour more than 7cm but less than or equal to 10cm
T2b	Tumour more than 10cm but limited to the kidney
T3	Tumour extends into major veins or perinephric tissues but not into ipsilateral adrenal gland and not beyond Gerota fascia
T4	Tumour invades beyond Gerota fascia (including contiguous extension into the ipsilateral adrenal gland)
N- Regional Lymph Nodes	
N0	No regional lymph node metastasis
N1	Metastasis in regional lymph node(s)
M – Distant metastasis	
M0	No distant metastasis
M1	Distant metastasis

T3+ and/or 10cm+ and/or N1 M0 RCC	Tumour extends into major veins or perinephric tissues or invades beyond Gerota fascia and/or tumour more than 10cm in size and/or metastasis in regional lymph node(s) with no distant metastasis
T2-3NxM0 RCC	Tumour is more than 7cm in size or tumour extends into major veins or perinephric tissues with no distant metastasis
T1b-3NxM0 RCC	Tumour is more than 4cm in size or tumour extends into major veins or perinephric tissues with no distant metastasis
T1aN0M0 RCC	Tumour is less than or equal to 4cm in size with no regional lymph node metastasis and no distant metastasis

Glossary

Radical Nephrectomy
The surgical removal of an entire kidney to treat kidney cancer. The adrenal gland which is a small triangular shaped gland located on top of each kidney is left behind if not involved with the kidney cancer. It produces hormones to help regulate metabolism.

Partial Nephrectomy
The surgical removal of part of the kidney which contains the kidney cancer. The goal is to remove the diseased portion while preserving as much of the healthy kidney tissue as possible.

Thermal Ablation
Thermal ablation is the used to treat small kidney cancers by using extreme heat or cold to destroy cancer cells. Radiofrequency Ablation (RFA): Uses high-energy radio waves to generate heat that destroys cancer cells. Microwave ablation (MWA): Uses microwave energy to generate heat and destroy cancer cells. Cryoablation: Uses extreme cold to freeze and kill cancer cells.

Nephron Sparing Treatment
Can be used to describe both partial nephrectomy and thermal ablation, as both involvement treatment of the kidney cancer while preserving the healthy kidney tissue.

Renal Biopsy
A procedure where small piece of kidney tissue is removed for examination under a microscope to determine the presence of kidney cancer and help guide treatment.

Metastatic Disease
When cancer has spread from its initial site of development in the kidney (the primary site) to distant sites of the body (the metastatic site(s)). The diagnosis is usually made by imaging tests.

Systemic Therapy
Systemic therapy is anti-cancer drug therapy. This includes novel targeted therapies (i.e. Pembrolizumab, Nivolumab, Ipilimumab, Cabozantinib, Axitinib, Lenvatinib) for kidney cancer.

Radiotherapy
The use of radiation to destroy cancer cells. Since cancer cells grow and divide quickly, radiation disrupts their growth, leading to their destruction. There are different types of radiotherapy, including stereotactic ablative radiotherapy (SABR) and external beam radiotherapy (EBRT). SABR uses high doses of radiation delivered in fewer sessions and can be used to treat kidney cancer in selected situations. EBRT can be used to treat kidney cancer when it has spread to other parts of the body.

Staging/stage

The anatomical extent of a cancer. This indicates whether a cancer is only present in the kidney/primary site (localised disease) or whether it has spread to other areas of the body (metastatic spread). It is usually denoted by the TNM staging process where “T” represents the local stage, “N” the presence of lymph node involvement and “M” represents the presence of metastatic disease.

T1 is divided into T1a and T1b depending on how big the cancer is:

- T1a means the cancer measures 4cm or less
- T1b means the cancer measures between 4cm and 7cm

T2 is divided into T2a and T2b depending on size:

- T2a means the cancer measures between 7cm and 10cm
- T2b means the cancer measures more than 10cm but completely inside the kidney

T3 is divided into T3a, T3b and T3c depending on whether the cancer has grown into surrounding tissues or main blood vessels:

- T3a means the cancer has grown into the nearby tissues or the renal vein.
- T3b means the cancer has grown into the vena cava, but hasn't spread above the diaphragm (sheet of muscle that separates chest and abdominal cavity, which helps us breathe)
- T3c means the cancer has grown into the vena cava and spread above the diaphragm. Or has grown into the wall of the vena cava.

T4 means the cancer has spread beyond the layer of tissue around the kidney (fascia). It might have spread into the adrenal gland above the kidney.
N0 means that the nearby lymph nodes do not contain cancer cells
N1 means there are cancer cells in lymph nodes near the kidney
M0 means the cancer has not spread to other parts of the body
M1 means the cancer has spread to other parts of the body such as the lungs