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# Impact of Covid-19 on incidence, survival and mortality of kidney cancer in Northern Ireland

(A comparison between April-December of 2020 and 2018-2019)

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## Further information

Further information is available at: [www.qub.ac.uk/research-centres/nicr](http://www.qub.ac.uk/research-centres/nicr)

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## Acknowledgements

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NICR uses data provided by patients and collected by the health service as part of their care and support.

The incidence, prevalence and survival statistics in this publication are designated as official statistics signifying that they comply with the Code of Practice for Official Statistics.



## INCIDENCE

During the April-December period when Covid-19 was present the number of cases of kidney cancer diagnosed decreased by 32.1% (76 patients) from 237 per year in 2018 - 2019 to 161 in 2020.

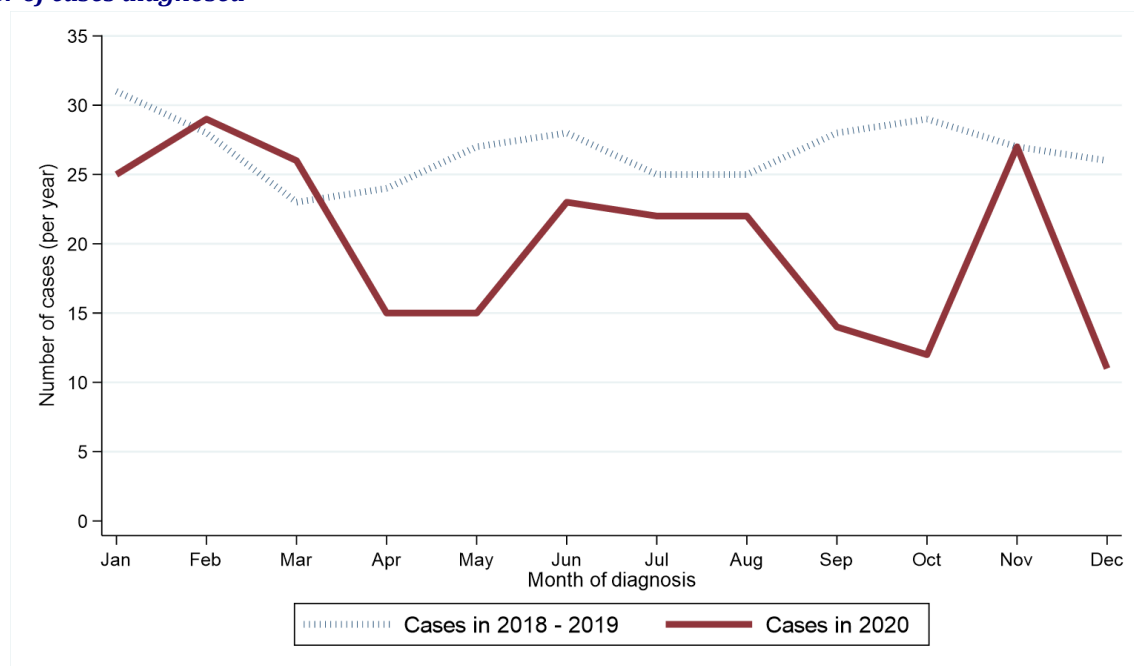
**Table 1: Number of kidney cancer cases diagnosed in 2018-2020 by month and year of diagnosis**

Period of diagnosis	Annual total	Month diagnosed											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	318	31	28	23	24	27	28	25	25	28	29	27	26
2020	241	25	29	26	15	15	23	22	22	14	12	27	11

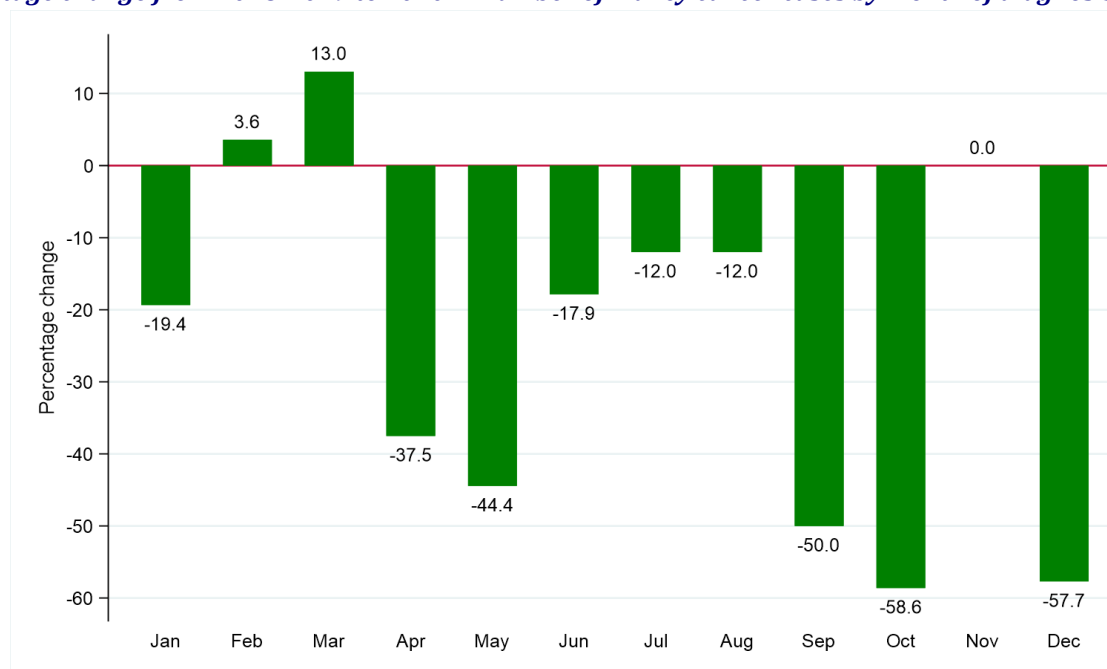
\* Average cases per year rounded to the nearest integer. Row sums may thus differ slightly from the total.

**Figure 1: Number of kidney cancer cases diagnosed in 2018-2020 by month and year of diagnosis**

**(a) Number of cases diagnosed**



**(b) Percentage change from 2018-2019 to 2020 in number of kidney cancer cases by month of diagnosis**



## GENDER

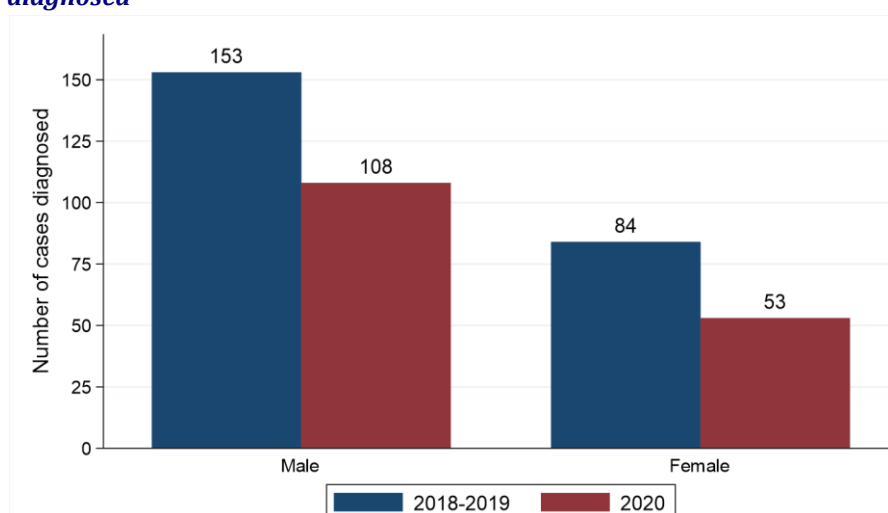
Excluding the first quarter of each year among males the number of cases of kidney cancer diagnosed decreased by 29.4% from 153 per year in 2018 - 2019 to 108 in 2020. Between the same two time periods the number of cases among females decreased by 36.9% from 84 per year to 53. The change in case distribution by gender between 2018 - 2019 and 2020 was not statistically significant.

**Table 2: Number and proportion of kidney cancer cases diagnosed in April-December of 2018-2020 by gender and period of diagnosis**

Gender	Period of diagnosis (Apr-Dec)		Percentage change
	2018-2019*	2020	
<b>Male</b>	153 (64.6%)	108 (67.1%)	-29.4% (45 patients)
<b>Female</b>	84 (35.4%)	53 (32.9%)	-36.9% (31 patients)
<b>All persons</b>	237	161	-32.1% (76 patients)

\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 2: Kidney cancer cases diagnosed in April-December of 2018-2020 by gender and period of diagnosis**  
(a) Number of cases diagnosed



(b) Percentage change from 2018-2019 to 2020 in number of kidney cancer cases by gender



## AGE

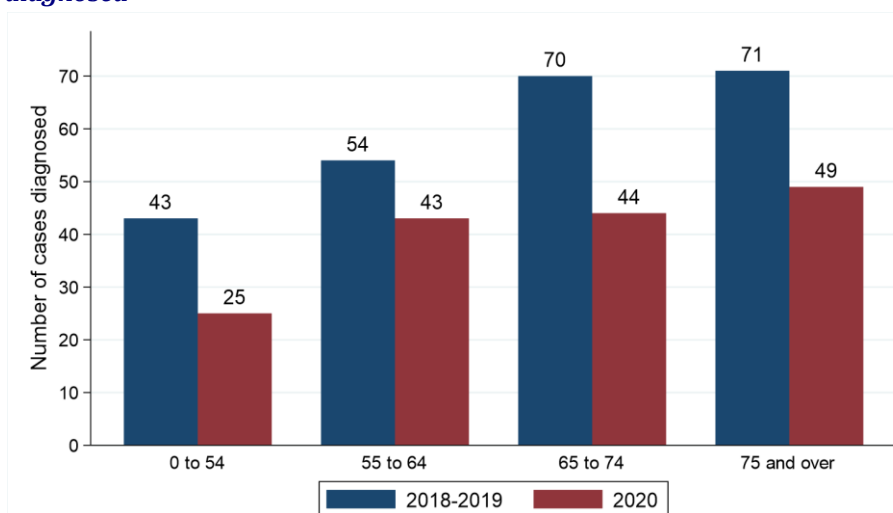
Excluding the first quarter of each year among people aged 0 to 54 the number of cases of kidney cancer diagnosed decreased by 41.9% from 43 per year in 2018 - 2019 to 25 in 2020. Between the same two time periods, the number of cases among people aged 55 to 64 decreased by 20.4% from 54 per year to 43. The change in case distribution by age between 2018 - 2019 and 2020 was not statistically significant.

**Table 3: Number and proportion of kidney cancer cases diagnosed in April-December of 2018-2020 by age and period of diagnosis**

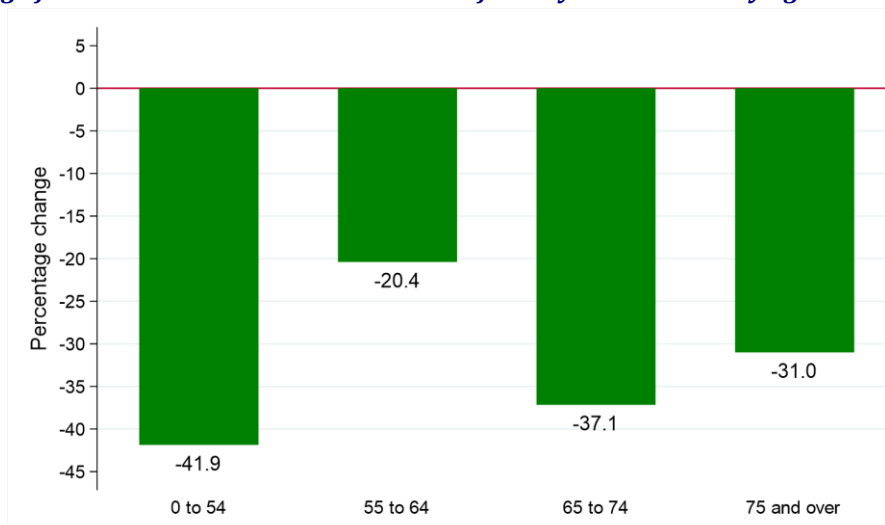
Age group	Period of diagnosis (Apr-Dec)		Percentage change
	2018-2019*	2020	
0 to 54	43 (18.1%)	25 (15.5%)	-41.9% (18 patients)
55 to 64	54 (22.8%)	43 (26.7%)	-20.4% (11 patients)
65 to 74	70 (29.5%)	44 (27.3%)	-37.1% (26 patients)
75 and over	71 (30.0%)	49 (30.4%)	-31.0% (22 patients)
All ages	237	161	-32.1% (76 patients)

\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 3: Kidney cancer cases diagnosed in April-December of 2018-2020 by age and period of diagnosis**  
(a) Number of cases diagnosed



(b) Percentage change from 2018-2019 to 2020 in number of kidney cancer cases by age at diagnosis



## HEALTH AND SOCIAL CARE TRUST

Excluding the first quarter of each year among residents of Northern HSCT the number of cases of kidney cancer diagnosed decreased by 49.3% from 75 per year in 2018 - 2019 to 38 in 2020. Between the same two time periods the number of cases among residents of South Eastern HSCT decreased by 2.2% from 45 per year to 44. The change in case distribution by HSCT between 2018 - 2019 and 2020 was not statistically significant.

**Table 4: Number and proportion of kidney cancer cases diagnosed in April-December of 2018-2020 by Health and Social Care Trust and period of diagnosis**

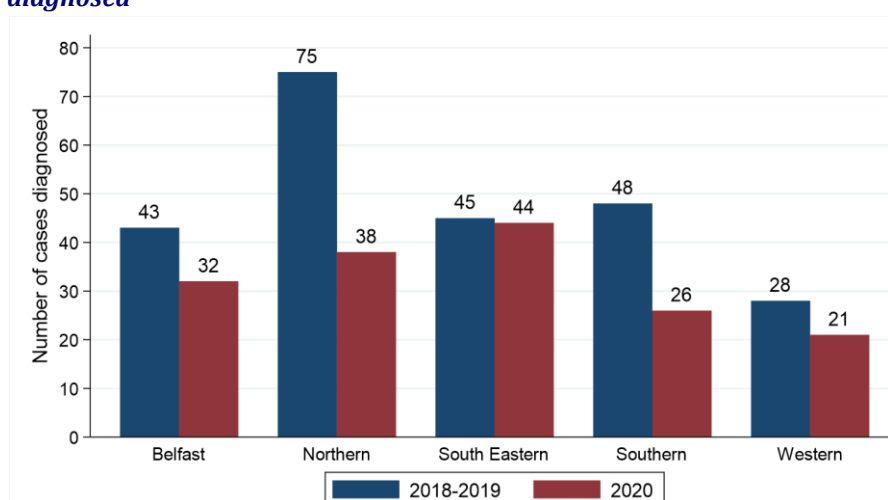
Health and Social Care Trust	Period of diagnosis (Apr-Dec)		Percentage change
	2018-2019*	2020	
Belfast HSCT	43 (18.1%)	32 (19.9%)	-25.6% (11 patients)
Northern HSCT	75 (31.6%)	38 (23.6%)	-49.3% (37 patients)
South Eastern HSCT	45 (19.0%)	44 (27.3%)	-2.2% (1 patients)
Southern HSCT	48 (20.3%)	26 (16.1%)	-45.8% (22 patients)
Western HSCT	28 (11.8%)	21 (13.0%)	-25.0% (7 patients)
Northern Ireland	237	161	-32.1% (76 patients)

\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

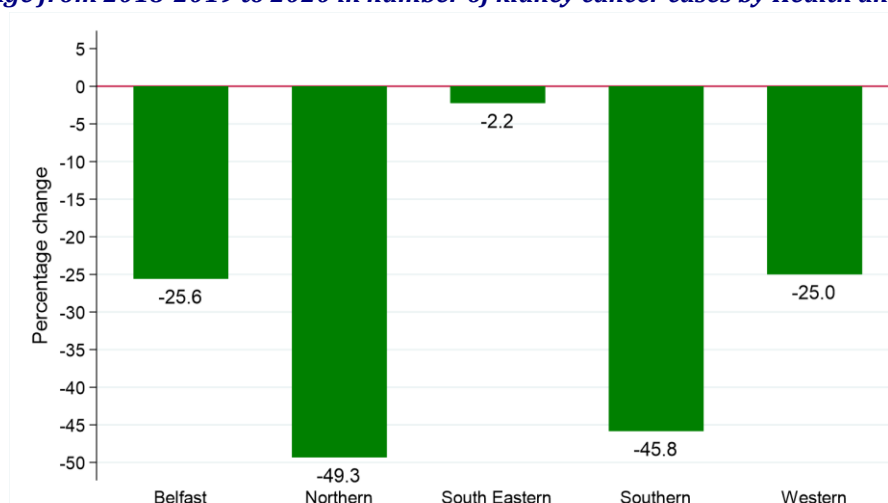
Note: Cases with unknown Health and Social Care Trust are included in totals

**Figure 4: Kidney cancer cases diagnosed in April-December of 2018-2020 by Health and Social Care Trust and period of diagnosis**

**(a) Number of cases diagnosed**



**(b) Percentage change from 2018-2019 to 2020 in number of kidney cancer cases by Health and Social Care Trust**



## DEPRIVATION

Excluding the first quarter of each year among residents of the most deprived areas the number of cases of kidney cancer diagnosed decreased by 42.9% from 42 per year in 2018 - 2019 to 24 in 2020. Between the same two time periods the number of cases among residents of the least deprived areas decreased by 40.4% from 52 per year to 31. The change in case distribution by deprivation quintile between 2018 - 2019 and 2020 was not statistically significant.

**Table 5: Number and proportion of kidney cancer cases diagnosed in April-December of 2018-2020 by deprivation quintile and period of diagnosis**

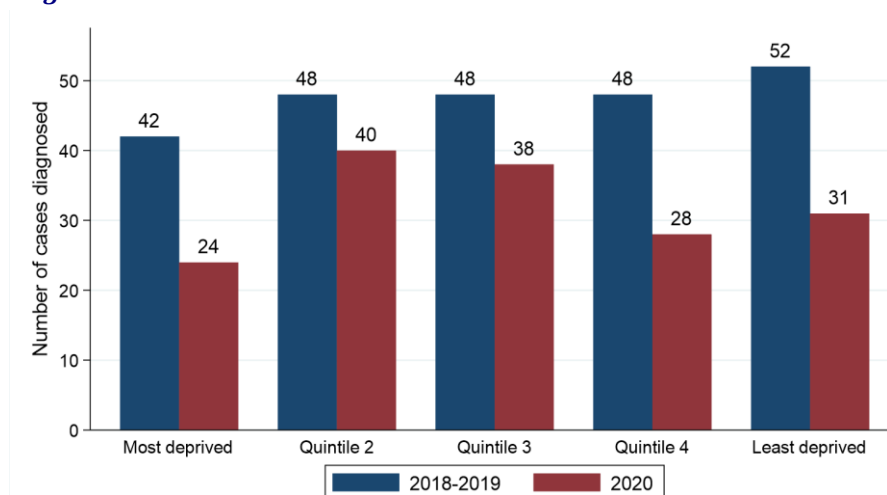
Deprivation quintile	Period of diagnosis (Apr-Dec)		Percentage change
	2018-2019*	2020	
<b>Most deprived</b>	42 (17.7%)	24 (14.9%)	-42.9% (18 patients)
<b>Quintile 2</b>	48 (20.3%)	40 (24.8%)	-16.7% (8 patients)
<b>Quintile 3</b>	48 (20.3%)	38 (23.6%)	-20.8% (10 patients)
<b>Quintile 4</b>	48 (20.3%)	28 (17.4%)	-41.7% (20 patients)
<b>Least deprived</b>	52 (21.9%)	31 (19.3%)	-40.4% (21 patients)
<b>Northern Ireland</b>	237	161	-32.1% (76 patients)

\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

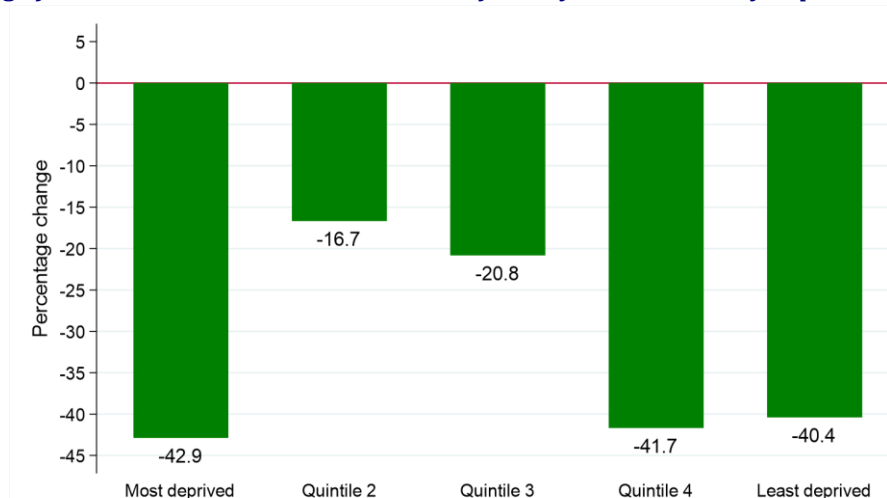
Note: Cases with unknown deprivation quintile are included in totals

**Figure 5: Kidney cancer cases diagnosed in April-December of 2018-2020 by deprivation quintile and period of diagnosis**

**(a) Number of cases diagnosed**



**(b) Percentage change from 2018-2019 to 2020 in number of kidney cancer cases by deprivation quintile**



## **BASIS OF DIAGNOSIS**

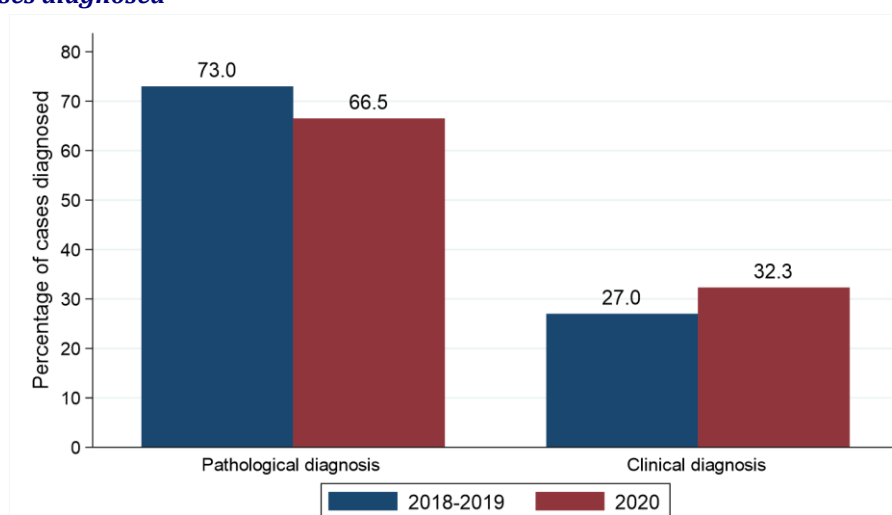
Excluding the first quarter of each year the number of kidney cancer cases diagnosed pathologically decreased by 38.2% from 173 per year in 2018 - 2019 to 107 in 2020, while the number of cases diagnosed clinically decreased by 18.8% from 64 per year to 52. The change in case distribution by basis of diagnosis between 2018 - 2019 and 2020 was not statistically significant.

**Table 6: Number and proportion of kidney cancer cases diagnosed in April-December of 2018-2020 by basis and period of diagnosis**

Basis of diagnosis	Period of diagnosis (Apr-Dec)		Percentage change
	2018-2019*	2020	
<b>Pathological diagnosis</b>	173 (73.0%)	107 (66.5%)	-38.2% (66 patients)
<b>Clinical diagnosis</b>	64 (27.0%)	52 (32.3%)	-18.8% (12 patients)
<b>Death certificate only</b>	1 (0.4%)	0 (0.0%)	-100.0% (1 patients)
<b>Unknown</b>	1 (0.4%)	2 (1.2%)	+100.0% (1 patients)
<b>All groups</b>	237	161	-32.1% (76 patients)

\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 6: Kidney cancer cases diagnosed in April-December of 2018-2020 by basis and period of diagnosis**  
(a) Proportion of cases diagnosed



(b) Percentage change from 2018-2019 to 2020 in number of kidney cancer cases by basis of diagnosis



## STAGE

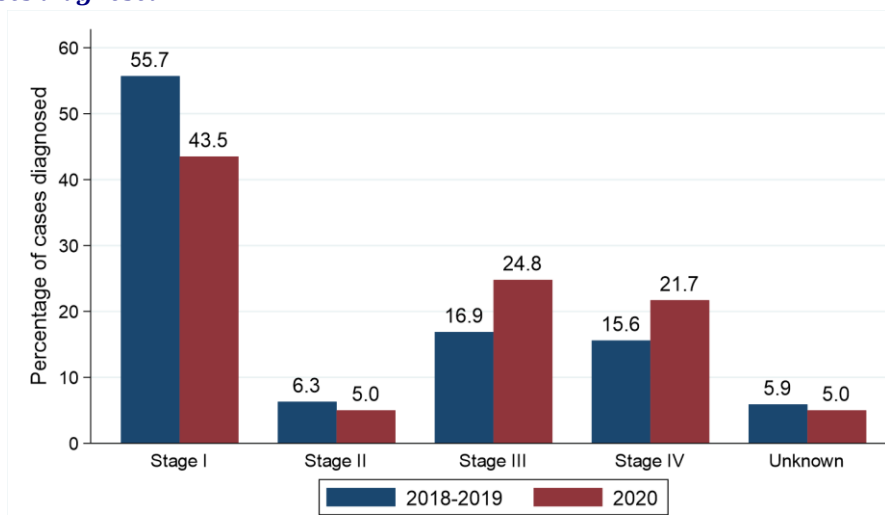
Excluding the first quarter of each year the number of kidney cancer cases diagnosed at Stage I decreased by 47.0% from 132 per year in 2018 - 2019 to 70 in 2020. Between the same two time periods the number of cases diagnosed at Stage IV decreased by 5.4% from 37 per year to 35. The change in case distribution by stage at diagnosis between 2018 - 2019 and 2020 was statistically significant ( $p = 0.033$ ).

**Table 7: Number and proportion of kidney cancer cases diagnosed in April-December of 2018-2020 by stage at diagnosis and period of diagnosis**

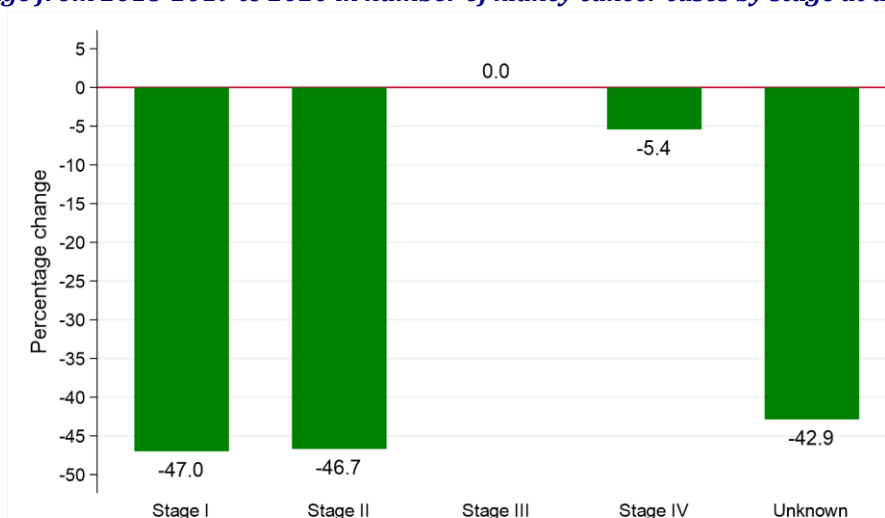
Stage at diagnosis	Period of diagnosis (Apr-Dec)		Percentage change
	2018-2019*	2020	
Stage I	132 (55.7%)	70 (43.5%)	-47.0% (62 patients)
Stage II	15 (6.3%)	8 (5.0%)	-46.7% (7 patients)
Stage III	40 (16.9%)	40 (24.8%)	0.0% (0 patients)
Stage IV	37 (15.6%)	35 (21.7%)	-5.4% (2 patients)
Unknown	14 (5.9%)	8 (5.0%)	-42.9% (6 patients)
All stages	237	161	-32.1% (76 patients)

\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 7: Kidney cancer cases diagnosed in April-December of 2018-2020 by stage and period of diagnosis**  
(a) Proportion of cases diagnosed



(b) Percentage change from 2018-2019 to 2020 in number of kidney cancer cases by stage at diagnosis





## METHOD OF HOSPITAL ADMISSION

Excluding the first quarter of each year the number of cases of kidney cancer where the patient had an emergency admission recorded as the most recent hospital admission type up to 30 days prior to diagnosis increased by 23.1% from 26 per year in 2018 - 2019 to 32 in 2020. The change in case distribution by hospital admission type between 2018 - 2019 and 2020 was statistically significant ( $p = 0.002$ ).

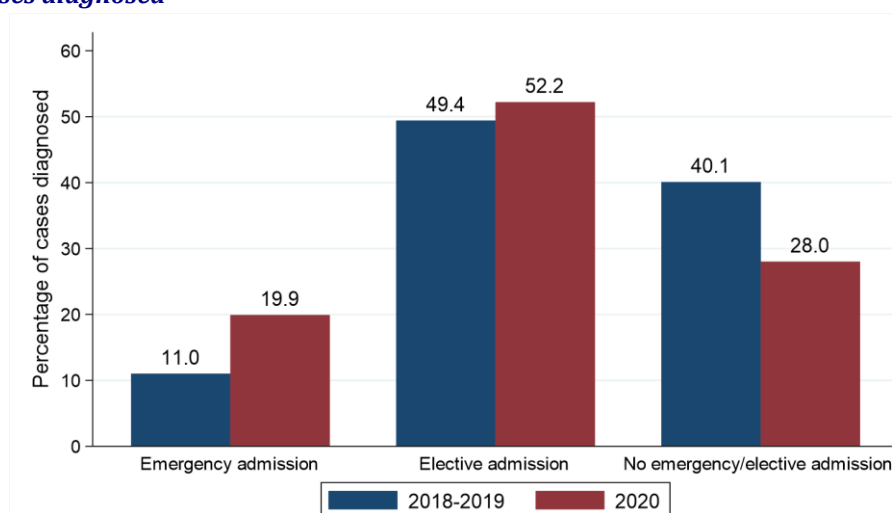
**Table 8: Number and proportion of kidney cancer cases diagnosed in April-December of 2018-2020 by method of admission to hospital and period of diagnosis**

Method of admission to hospital	Period of diagnosis (Apr-Dec)		Percentage change
	2018-2019*	2020	
Emergency admission	26 (11.0%)	32 (19.9%)	+23.1% (6 patients)
Elective admission	117 (49.4%)	84 (52.2%)	-28.2% (33 patients)
No emergency/elective admission recorded	95 (40.1%)	45 (28.0%)	-52.6% (50 patients)
All persons	237	161	-32.1% (76 patients)

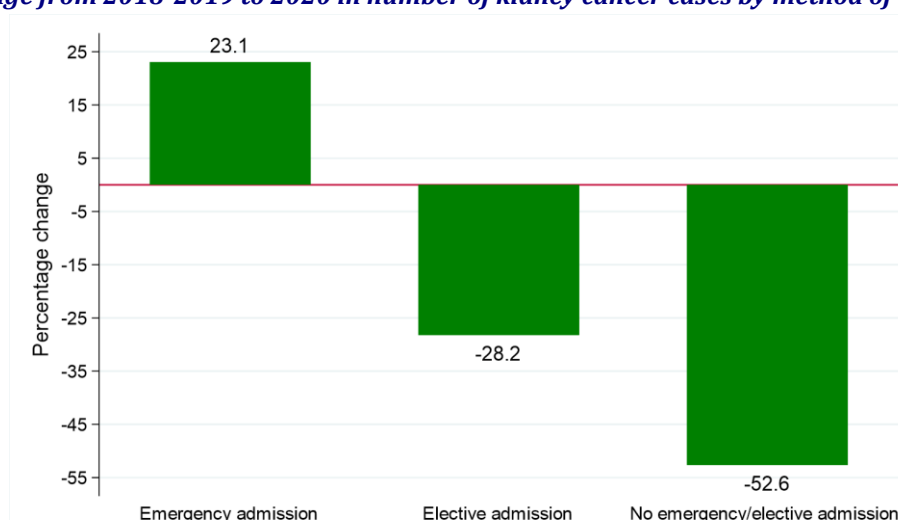
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 8: Kidney cancer cases diagnosed in April-December of 2018-2020 by method of admission to hospital and period of diagnosis**

**(a) Proportion of cases diagnosed**



**(b) Percentage change from 2018-2019 to 2020 in number of kidney cancer cases by method of admission to hospital**



## TREATMENT

Excluding the first quarter of each year the number of kidney cancer cases where the patient was treated with surgery (within six months of diagnosis) decreased by 38.5% from 130 per year for those diagnosed in 2018 - 2019 to 80 for those diagnosed in 2020. The resulting change in the proportion receiving surgery from 54.9% in 2018 - 2019 to 49.7% in 2020 was not statistically significant.

Between the same two time periods the number of cases where the patient was treated with chemotherapy (within six months) increased by 30.8% from 13 per year to 17. The resulting change in the proportion receiving chemotherapy from 5.5% in 2018 - 2019 to 10.6% in 2020 was statistically significant ( $p = 0.027$ ).

The number of kidney cancer cases where the patient was treated with radiotherapy (within six months of diagnosis) decreased by 7.7% from 13 per year for those diagnosed in April-December of 2018 - 2019 to 12 for those diagnosed in April-December of 2020. The resulting change in the proportion receiving radiotherapy from 5.5% in 2018 - 2019 to 7.5% in 2020 was not statistically significant.

The proportion of patients receiving none of surgery, chemotherapy or radiotherapy (within six months of diagnosis) who were diagnosed in April-December 2020 was 44.1%. This compared to 39.2% of those diagnosed in 2018 - 2019. This change was not statistically significant.

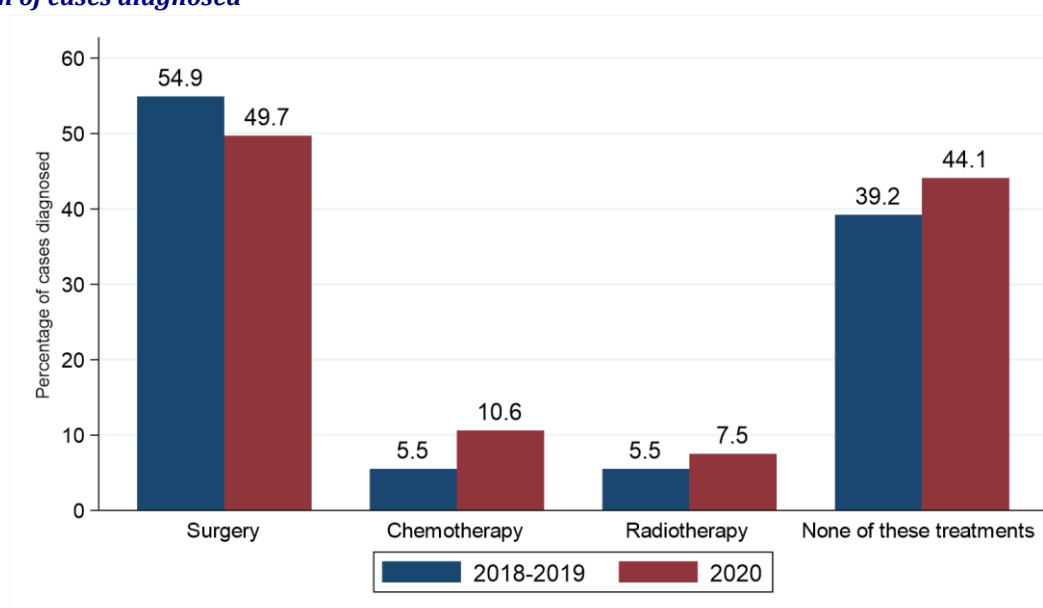
**Table 9: Number and proportion of kidney cancer cases diagnosed in April-December of 2018-2020 by treatment type and period of diagnosis**

Treatment type	Period of diagnosis (Apr-Dec)		Percentage change
	2018-2019 average	2020	
<b>Surgery</b>	130 (54.9%)	80 (49.7%)	-38.5% (50 patients)
<b>Chemotherapy</b>	13 (5.5%)	17 (10.6%)*	+30.8% (4 patients)
<b>Radiotherapy</b>	13 (5.5%)	12 (7.5%)	-7.7% (1 patients)
<b>None of these treatments</b>	93 (39.2%)	71 (44.1%)	-23.7% (22 patients)

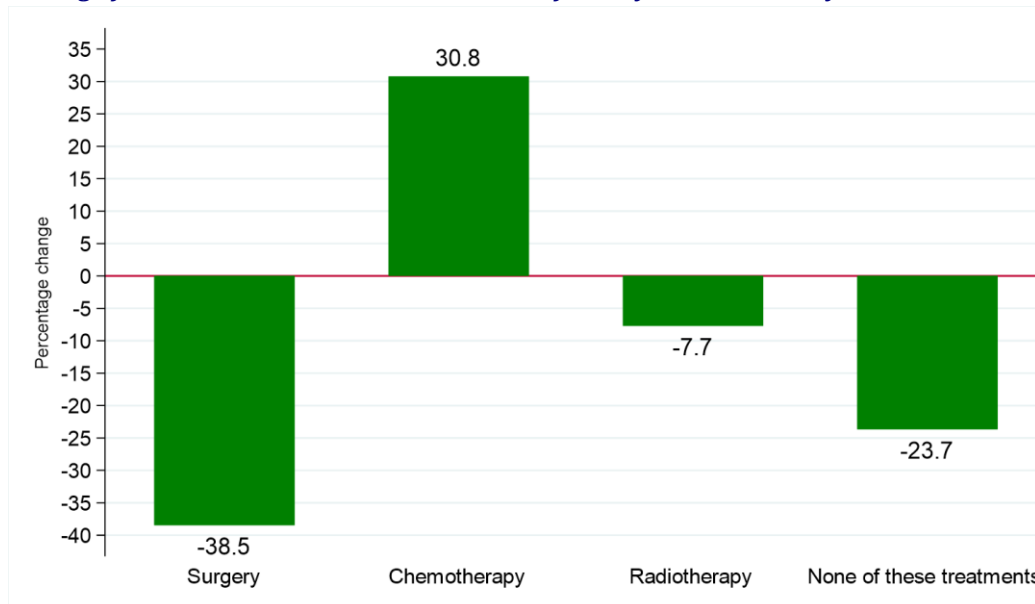
\* Statistically significant change

**Figure 9: Kidney cancer cases diagnosed in April-December of 2018-2020 by treatment received and period of diagnosis**

**(a) Proportion of cases diagnosed**



*(b) Percentage change from 2018-2019 to 2020 in number of kidney cancer cases by treatment received*



# SURVIVAL

Changes in survival are evaluated using two measures. Observed survival examines the time between diagnosis and death from any cause. It thus represents what cancer patients experience, however, due to the inclusion of non-cancer deaths (e.g. heart disease), it may not reflect how changes in cancer care impact survival from cancer. Thus changes in age-standardised net survival are also examined. This measure provides an estimate of patient survival which has been adjusted to take account of deaths unrelated to cancer. It also assumes a standard age distribution thereby removing the impact of changes in the age distribution of cancer patients on changes in survival over time. While this measure is hypothetical, as it assumes patients can only die from cancer related factors, it is a better indicator of the impact of changes in cancer care on patient survival.

## OBSERVED SURVIVAL

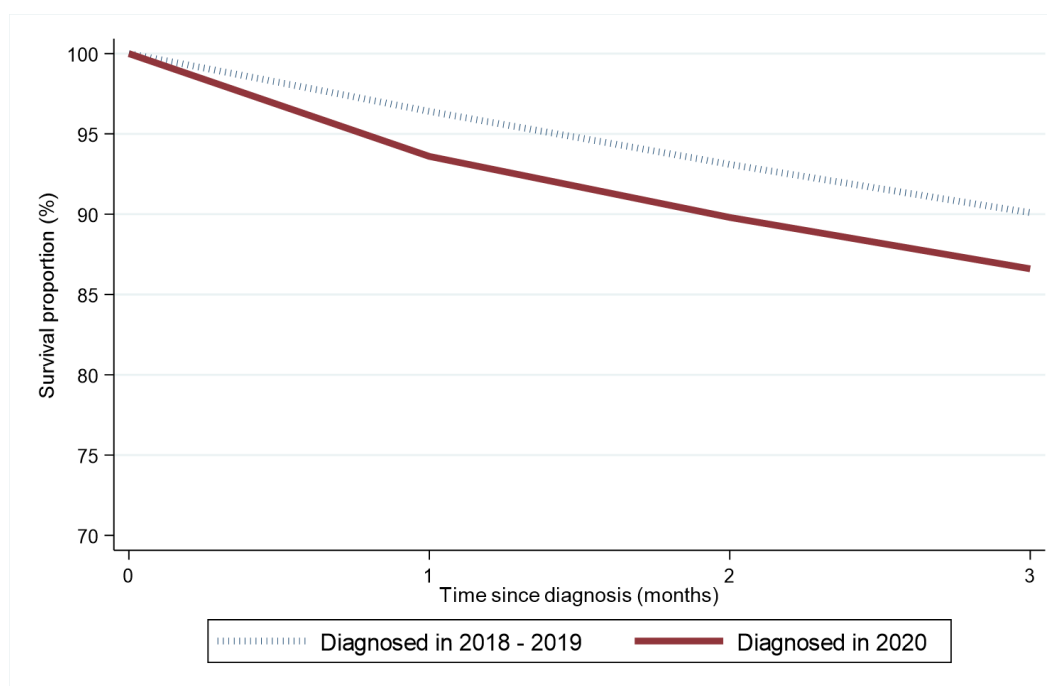
Survival among kidney cancer patients one month after diagnosis decreased from 96.4% among those diagnosed in April-December of 2018 - 2019 to 93.6% among those diagnosed in April-December of 2020. This change was not statistically significant. Between the same two diagnosis periods, three-month survival decreased from 90.1% to 86.6%. This change was not statistically significant.

**Table 10: Observed survival for patients with kidney cancer diagnosed in April-December of 2018-2020 by period of diagnosis**

Survival time	Period of diagnosis (Apr-Dec)	
	2018-2019	2020
<b>1 month</b>	96.4% (94.2% - 97.7%)	93.6% (88.5% - 96.5%)
<b>2 months</b>	93.1% (90.4% - 95.1%)	89.8% (83.9% - 93.6%)
<b>3 months</b>	90.1% (87.0% - 92.5%)	86.6% (80.2% - 91.1%)

*No statistically significant reductions*

**Figure 10: Observed survival for patients with kidney cancer diagnosed in April-December of 2018-2020 by period of diagnosis**



## DEATHS FROM COVID-19

During 2020 there were a total of 16 deaths from Covid-19 among kidney cancer patients diagnosed at any point since 1993. Among the patients who died of Covid-19, 2 were diagnosed with kidney cancer in 2020, while 3 were diagnosed in 2019.

## NET SURVIVAL

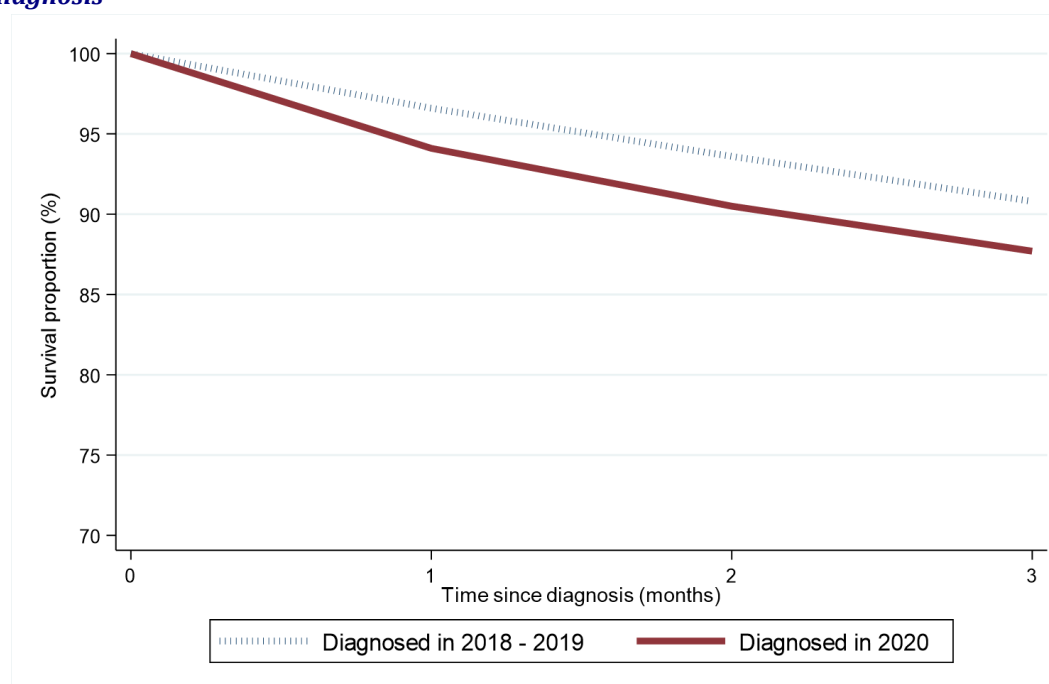
Age-standardised net survival (which takes account of deaths from other causes such as Covid-19) among kidney cancer patients one month after diagnosis decreased from 96.6% among those diagnosed in April-December of 2018 - 2019 to 94.1% among those diagnosed in April-December of 2020. This change was not statistically significant. Between the same two time periods, three-month age-standardised net survival decreased from 90.8% to 87.7%. This change was not statistically significant.

**Table 11: Age-standardised net survival for patients with kidney cancer diagnosed in April-December of 2018-2020 by period of diagnosis**

Survival time	Period of diagnosis (Apr-Dec)	
	2018-2019	2020
<b>1 month</b>	96.6% (94.9% - 98.3%)	94.1% (90.7% - 97.7%)
<b>2 months</b>	93.6% (91.4% - 95.8%)	90.5% (86.2% - 95.0%)
<b>3 months</b>	90.8% (88.2% - 93.5%)	87.7% (82.7% - 93.0%)

*No statistically significant reductions*

**Figure 11: Age-standardised net survival for patients with kidney cancer diagnosed in April-December of 2018-2020 by period of diagnosis**



## CANCER MORTALITY

During the April-December period when Covid-19 was present the number of deaths from kidney cancer increased by 14.5% from 83 per year in 2018 - 2019 to 95 in 2020.

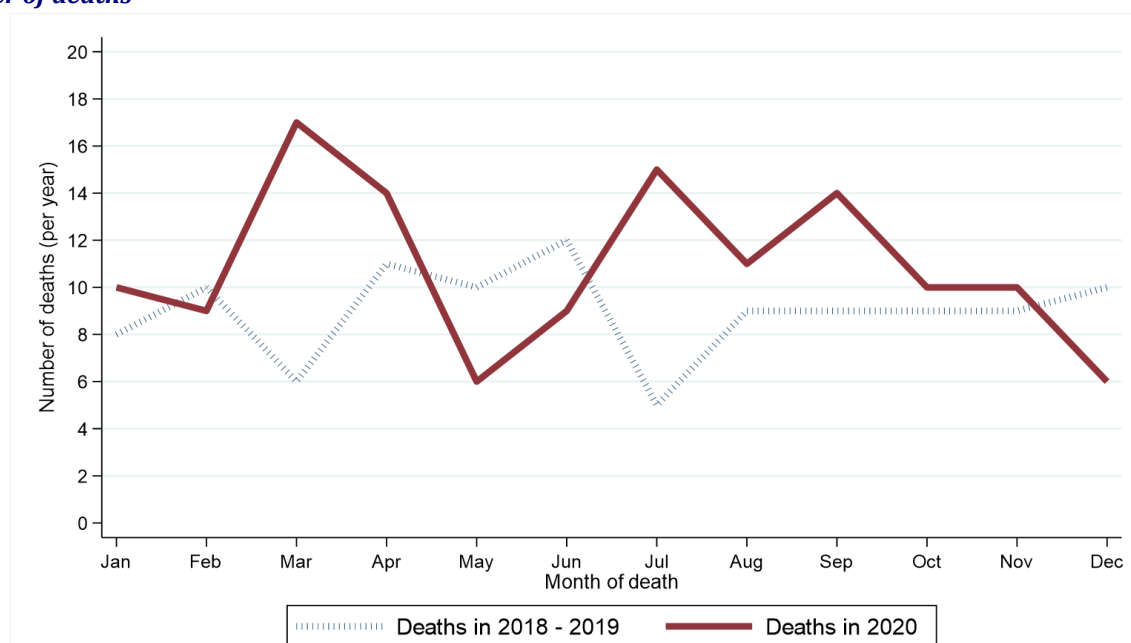
**Table 12: Number of kidney cancer deaths in 2018-2020 by month and year of death**

Period of death	Annual total	Month death occurred											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	106	8	10	6	11	10	12	5	9	9	9	9	10
2020	131	10	9	17	14	6	9	15	11	14	10	10	6

\* Average deaths per year rounded to the nearest integer. Row sums may thus differ slightly from the total.

**Figure 12: Number of kidney cancer deaths in 2018-2020 by month and year of death**

**(a) Number of deaths**



**(b) Percentage change from 2018-2019 to 2020 in number of kidney cancer deaths by month of death**

