TE AHO O TE KAHU
CANCER CONTROL AGENCY

COVID-19 and cancer services

Working report on the impact of COVID-19 on cancer services for the period ending August 2021

Released October 2021

ACKNOWLEDGEMENTS

With thanks to the technical support from the Ministry of Health Data Management team.

With thanks to members of the COVID-19 Data Response Advisory Group: Professor Diana Sarfati, Alex Dunn, Dr John Fountain, Dr Elinor Millar, John Manderson, Michelle Mako, Dr Shaun Costello, Michelle Liu, Dr Liz Dennett, Gabrielle Nicholson, Dawn Wilson, Jan Smith, Cushla Lucas. Angela Pidd, Christine Fowler, Dr Nina Scott, Dr Scott Macfarlane, Heidi Watson, Associate Professor Bridget Robson, Dr Jason Gurney, Dr Chris Jackson, and Richard Hamblin.

CONTENTS

SUMMARY OF FINDINGS

Impact of COVID-19 on cancer diagnosis and treatment

Cancer treatment services continued during the 2021 COVID-19 lockdown. There was some disruption to diagnostic procedures and a provisional decrease in the number of cancer registrations in August 2021. The overall impact of the August lockdown on the trend for the year to date appears to be minimal, but caution is needed as disruptions to services may not be fully seen in the timeframe of this report. To date, the extent of disruptions to cancer services appears to be less for Māori than non-Māori.

Background and data

- The purpose of this report is to provide a rapid assessment of the impact of COVID-19 on cancer services during the 2021 COVID-19 Delta outbreak. It includes data up until 31 August 2021.
- The report focuses on the aspects of the cancer care pathway for which we have readily available data and does not capture all aspects of cancer care.
- The previous COVID-19 and Cancer reports, published in 2020, compared 2020 data directly with 2019 data. Given the disruption to health services in 2020, this report uses an average of observed numbers seen in 2018/19 as the comparator for numbers seen in 2021. For the purposes of this report, we have not added an adjustment for changes in incidence over time.
- It is important to note that New Zealand went into Alert Level 4 lockdown two weeks into August 2021, so any disruption to services may not be fully seen in the timeframe of this report. Te Aho o Te Kahu will continue to monitor the impact of COVID-19 and lockdown on cancer services, particularly in the Auckland region.

Cancer diagnosis

Registrations

- Provisionally, there have been 193 fewer cancer registrations in August 2021 compared to August 2018/19 (a 9% decrease); however, this varied by ethnicity, with a 4% increase in registrations for Māori.
- The decrease in registrations in August 2021 was most notable for skin, prostate and colorectal cancer.
- The decrease in registrations in August has had minimal impact on the trend for the year to date, with a 5% increase in the total number of cancer registrations in 2021 compared to 2018/19.

Diagnostics

- **Gastrointestinal endoscopies:** there was a 34% decrease in gastrointestinal endoscopies performed in August 2021 compared to August 2018/19. The decrease in endoscopies was seen across all ethnic groups but was smaller for Māori (26%) compared to non-Māori/non-Pacific (35%). Overall, for the year to date there has been a 12% increase in the number of gastrointestinal endoscopies performed in 2021 compared to 2018/19.
- **Bronchoscopies:** there was a 44% decrease in the number of bronchoscopies performed in August 2021 compared to August 2018/19. Overall, there has been 5% fewer bronchoscopies performed for

the year to date compared to same time period in 2018/19. This decrease was similar for Māori (2%) and for non-Māori/non-Pacific (4%).

Cancer Treatment

Surgery

- Curative cancer surgeries (for prostate, lung and colorectal cancer) continued during August 2021. Overall, for the year to date the number of surgeries in 2021 has been in line with the number of surgeries in 2018/19 and 2020.

Chemotherapy and radiotherapy

- **Medical oncology:** attendances for medical oncology first specialist assessments (FSAs) remained stable during the August lockdown, with an increase in FSAs for both Māori and Pacific peoples in August 2021 compared to August 2018/19. Attendances for IV chemotherapy remained largely stable over August 2021. There has been an overall 8% increase in the number of attendances for the year to date in 2021 compared to the same time period in 2018/19, with a larger increase for Māori (28%) and Pacific peoples (32%) than for non-Māori/non-Pacific (3%).
- **Radiation oncology:** Attendances for radiation oncology FSAs remained stable during the August lockdown, with an increase in FSAs for both Māori and Pacific peoples in August 2021 compared to August 2018/19. For the year to date, despite an increase in radiation oncology FSAs there has been a decrease in attendances for radiotherapy in 2021 compared to 2018/19. The decrease in attendances for radiotherapy has been seen throughout the year and likely reflects increased utilisation of hypofractionation. The decrease in attendances in 2021 is less notable for Māori, which may reflect stage at diagnosis, with hypofractionation more likely to be utilised for early-stage cancer.
- **Haematology:** Attendances for haematology FSAs and IV chemotherapy remained relatively stable during the August lockdown. For the year to date there has been an overall 5% increase in the number of haematology attendances for IV chemotherapy for the year to date compared to the same time period in 2018/19.

INTRODUCTION

Background

In 2020, Te Aho o Te Kahu released a series of reports outlining the impact of COVID-19 on cancer services in New Zealand[1]. These reports showed that cancer treatment services – surgery, medical oncology, radiation oncology and haematology – continued during the COVID-19 pandemic. Following an initial drop in new cancer registrations during the April 2020 lockdown, the number of cancer registrations in 2020 increased steadily in the following months and, by the end of September, had caught up to the number seen in 2019.

As the COVID-19 situation and disruptions to health care settled, Te Aho o Te Kahu stopped regular COVID-19 and cancer reporting at the end of 2020. With the re-emergence of COVID-19 in the community in August 2021 and the return of lockdown restrictions, Te Aho o Te Kahu have re-instated monitoring related to COVID-19 in September 2021.

Purpose

This is the first report looking at the impact of COVID-19 on cancer services during the 2021 COVID-19, Delta outbreak. It includes data up until the end of August 2021. The aim of this work is to rapidly collate evidence on any delays to cancer diagnosis and treatment to support policy development and recovery and response planning.

The report focuses on the aspects of the cancer care pathway for which we have readily available data and does not capture all aspects of the care. Critical aspects of cancer care, including access to primary health care, radiology and palliative care, are not measured in this report.

Data and analysis

The data in this report come from Ministry of Health national data collections. Each section of the report includes information on where the data is from and any limitations associated with the data. Numbers in this report may not match the previous report exactly, due to delayed coding/submission of data. Te Aho o Te Kahu are actively working with district health boards (DHBs) to improve the accuracy and completeness of national collections data within the context of cancer.

It is important to note that the purpose of the analysis is to rapidly measure the impact of COVID-19 and the recovery on cancer services, and the analysis does not consider pre-existing unmet need. The report also makes direct comparisons between 2021 and previous years and does not consider any increase in cancer diagnoses over time.

Comparator for this report

The previous COVID-19 and Cancer reports, published in 2020, compared 2020 data directly with 2019 data. Given the disruption COVID-19 caused to health services in 2020, 2020 was not considered an appropriate comparator. To improve the stability of the baseline for comparison, an average of observed numbers in 2018 and 2019 is used as a comparator for numbers seen in 2021 in this report. All graphs include data from 2021, 2020 and an average from 2018/19.

[1] Reports available here: https://teaho.govt.nz/reports/cancer-care

Key dates

Key dates in relation to COVID-19, up until the end of August 2021, that may be of use when reviewing the report include:

- 17 August 2021: all of New Zealand moves to Alert Level 4
- 31 August 2021: all of New Zealand south of Auckland moves to Alert Level 3, Auckland and Northland remain at Alert Level 4.

Key dates in relation to COVID-19 in 2020 include:

- 23 March 2020: all of New Zealand moves to Alert Level 3
- 26 March 2020: all of New Zealand moves to Alert Level 4
- 28 April 2020: all of New Zealand moves to Alert Level 3
- 14 May 2020: all of New Zealand moves to Alert Level 2
- 9 June 2020: all of New Zealand moves to Alert Level 1
- 12 August 2020: Auckland moves to Alert Level 3, the rest of New Zealand moves to Alert Level 2
- 31 August 2020: Auckland moves to Alert Level 2.5, the rest of New Zealand stays at Alert Level 2
- 22 September 2020: all regions, except Auckland, move to Alert Level 1
- 24 September 2020: Auckland moves to Alert Level 2, without extra restrictions on travel and gatherings
- 8 October 2020: all of New Zealand moves to Alert Level 1.

Ongoing reporting

Te Aho o Te Kahu will continue to monitor the impact of COVID-19 and lockdown on cancer services, particularly in the Auckland region, with the next report (looking at data to the end of September) released in November 2021.

CANCER REGISTRATIONS

Notes on data

- The data in this report come from laboratory reports to the New Zealand Cancer Register (NZCR). This means that cancers diagnosed without haematology or pathology, for example radiology alone, will not be counted in this analysis. Further information on these data is included in Appendix 1.
- Data included in this report are provisional, and exact numbers will change as data are finalised. Data were extracted from NZCR on 8 October 2021.
- 'Date' is date of diagnosis on the NZCR – usually the date the specimen was taken from the person and sent to the laboratory. Analyses include all new provisional and registered cancer events based on pathology and haematology reports.

Key points

- Provisionally, there have been 193 fewer cancer registrations in August 2021, compared to August 2018/19 (a 9% decrease). However, this has had minimal impact on the trend for the year to date, with a 5% increase in the number of cancer registrations in 2021 compared to 2018/19.
- There was an increase in cancer registrations in August 2021 compared to August 2018/19 for Māori (a 4% increase) and a 12% decrease for European/other.
- The increase in cancer registrations for the year to date was seen across all ethnic groups, with a larger increase for Asian (21%), Māori (9%) and Pacific peoples (6%), than for European/Other (4%).
- The decrease in registrations in August 2021 was most notable for skin, prostate and colorectal cancer.

Results

Table 1: Number of provisional cancer registrations and percentage change in 2021 compared to the 2018/19 average, by month and cumulative year to date, by ethnicity

	June			July			August			Cumulative January-August		
	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change
Māori	232	262	13%	221	215	-3%	216	225	4%	1,708	1,870	9%
Pacific peoples	81	106	32%	88	90	3%	73	75	3%	663	704	6%
Asian	106	145	37%	104	125	20%	116	116	0%	801	967	21%
European/Other	1,509	1,795	19%	1,600	1,666	4%	1,705	1,500	-12%	12,694	13,158	4%
Total population	1,927	2,308	20%	2,013	2,096	4%	2,109	1,916	-9%	15,866	16,699	5%

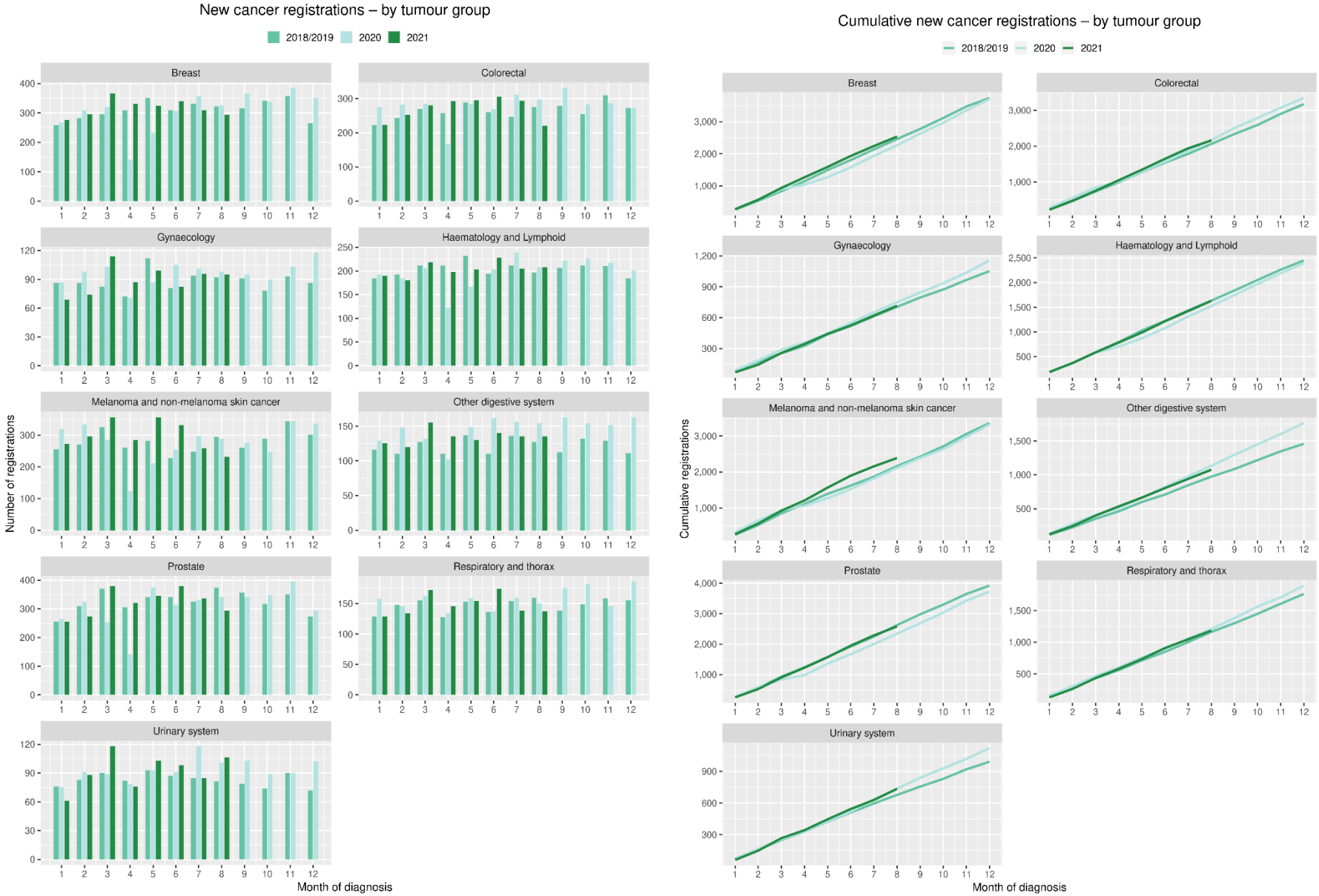
Figure 1: Number of cancer registrations by month, 2018/19 average, 2020 and 2021, total population and by ethnicity

Table 2: Number of provisional cancer registrations and percentage change in 2021 compared to the 2018/19 average, by month and cumulative year to date, by tumour group

	June			July			August			Cumulative January-August		
Tumour group	**2018/19**	**2021**	**% change**	**2018/19**	**2021**	**% change**	**2018/19**	**2021**	**% change**	**2018/19**	**2021**	**% change**
Breast	310	340	10%	332	309	-7%	322	294	-9%	2,458	2,536	3%
Colorectal	260	305	18%	247	293	19%	275	220	-20%	113	120	7%
Gynaecology	81	82	2%	94	96	2%	92	95	3%	2,060	2,160	5%
Haematology and Lymphoid	194	228	18%	212	205	-3%	197	208	6%	704	716	2%
Melanoma and non-melanoma skin	228	331	45%	249	259	4%	294	232	-21%	1,631	1,630	0%
Other digestive system	110	140	27%	136	135	-1%	127	135	7%	2,164	2,389	10%
Prostate	341	379	11%	326	336	3%	374	294	-21%	972	1,075	11%
Respiratory and thorax	136	174	28%	154	138	-10%	160	137	-14%	2,624	2,583	-2%
Urinary system	87	98	13%	85	85	0%	81	106	32%	1,161	1,184	2%
Breast	310	340	10%	332	309	-7%	322	294	-9%	2,458	2,536	3%

*This analysis uses provisional data for the 2021 registrations, some cancers may initially be classified as 'non-specified' and subsequently be re-classified into one of the cancer groups as more information becomes available.

Figure 2: Number of cancer registrations by month, 2018/19 average, 2020 and 2021, by tumour group



GASTROINTESTINAL ENDOSCOPY

Notes on data

- Gastrointestinal endoscopy data were extracted from the National Non-Admitted Patient Collection (outpatient) and National Minimum Dataset (inpatient) on 24 September 2021.
- Includes colonoscopies and gastroscopies for all indications – not just cancer.
- Technical information: gastroscopies (Purchase Unit Code: MS02005), colonoscopies (Purchase Unit Code: MS02007), combined gastroscopies and colonoscopies (Purchase Unit Code: MS02014).

Key points

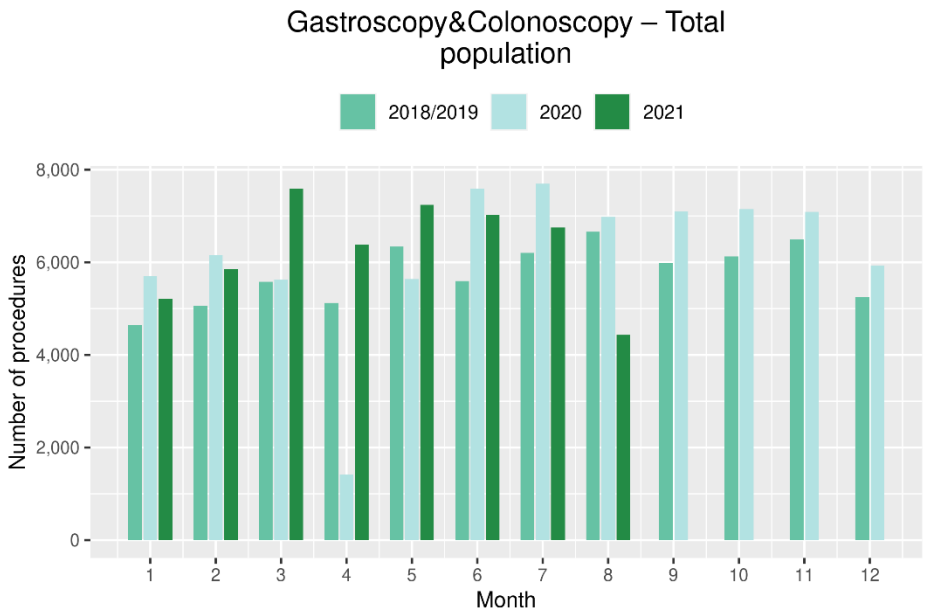
- There was a decrease in gastrointestinal endoscopies performed in August 2021, aligning with the COVID-19 lockdown.
- The decrease in endoscopies was seen across all ethnic groups but was smaller for Māori (26%) compared to non-Māori/non-Pacific (35%).
- Overall, for the year to date there has been an increase in the number of gastrointestinal endoscopies performed in 2021 compared to 2018/19.

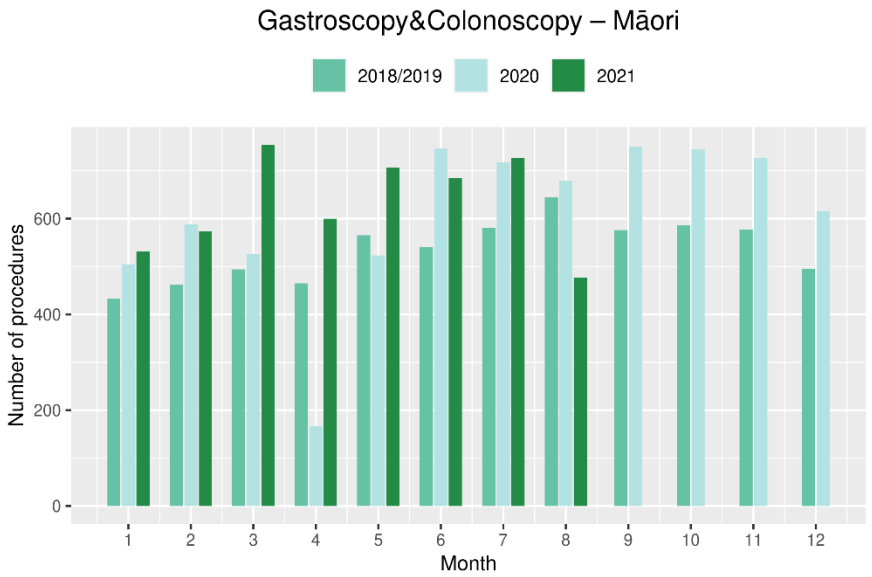
Results

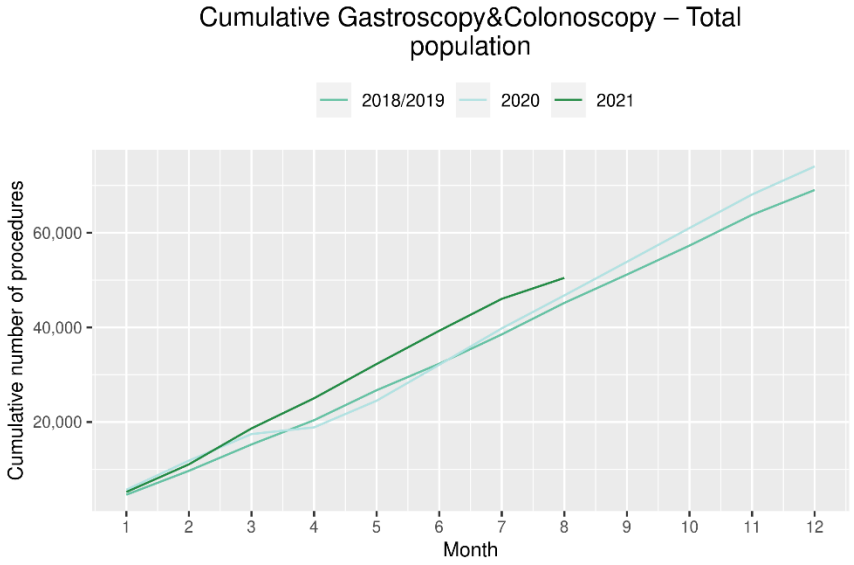
Table 3: Number of colonoscopy and gastroscopy procedures and percentage difference in 2021 compared to 2018/2019 average, by month (June, July, August) and cumulative year to date, by ethnicity

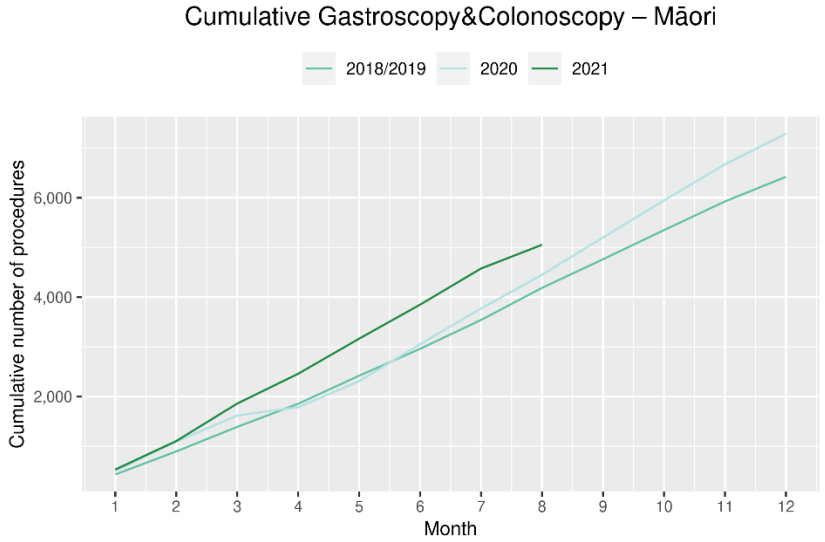
	June			July			August			Cumulative January-August		
	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change
Māori	541	685	27%	581	727	25%	645	477	-26%	4,186	5,054	21%
Pacific peoples	200	272	36%	230	248	8%	240	171	-29%	1,608	1,898	18%
Non-Māori/non-Pacific	4,852	6,062	25%	5,392	5,776	7%	5,775	3,780	-35%	39,387	43,513	10%
Total population	5,593	7,019	26%	6,202	6,751	9%	6,659	4,428	-34%	45,180	50,465	12%

Figure 3: Number of gastrointestinal endoscopy procedures by month, 2018/19 average, 2020 and 2021, total population and Māori









BRONCHOSCOPY

Notes on data

- Bronchoscopy data were extracted from National Non-admitted Patient Collection (outpatient) and National Minimum Dataset (inpatient) on the 24 September 2021.
- Includes bronchoscopies for all indications – not just cancer
- Technical information: bronchoscopies (Purchase Unit Code - MS02003).

Key points

- There was a 44% decrease in the number of bronchoscopies performed in August 2021 compared to August 2018/19.
- Overall, there has been 5% fewer bronchoscopies performed for the year to date compared to same time period in 2018/19. This decrease was smaller for Māori (2%) and non-Māori/non-Pacific (4%), than for Pacific peoples (23%, noting given smaller numbers this represents 17 fewer bronchoscopies over eight months).

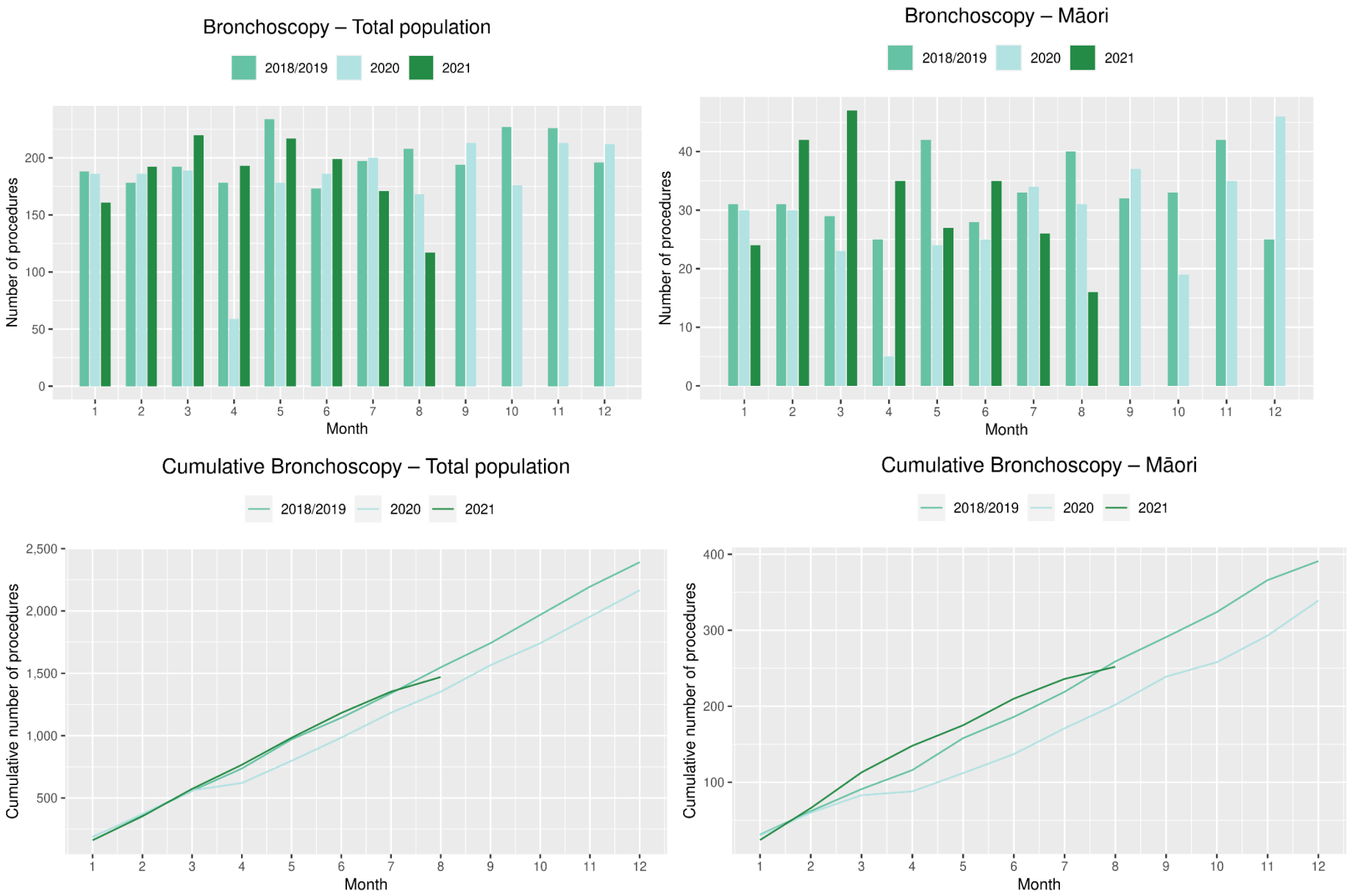
Results

Table 4: Number of bronchoscopies and percentage difference in 2021 compared to 2018/2019 average, by month (June, July, August) and cumulative year to date, by ethnicity

	June			July			August			Cumulative January-August		
	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change
Māori*	-	-	-	-	-	-	-	-	-	257	252	-2%
Pacific peoples*	-	-	-	-	-	-	-	-	-	75	58	-23%
Non-Māori/Non-Pacific	135	155	15%	155	139	-10%	154	95	-38%	1,214	1,160	-4%
Total population	173	199	15%	197	171	-13%	208	117	-44%	1,546	1,470	-5%

*Due to small numbers, monthly figures have not been included for Māori and Pacific Peoples

Figure 4: Number of bronchoscopies by month, 2018/19 average, 2020 and 2021, total population and Māori



COMBINED CURATIVE CANCER SURGERY

Notes on data

- This report includes data on curative surgery for colorectal, lung and prostate cancer. These cancers were chosen because Te Aho o Te Kahu already has a pre-validated list of surgical procedure codes for these cancers, agreed on as part of the quality performance indicator work programme. These three cancers are therefore used as case studies for cancer surgery more generally. The surgical procedure codes are listed in Appendix 4.
- The data were extracted from the National Minimum Dataset on 24 September 2021.

Key points

- There was a small (4%) decrease in the number of curative cancer surgeries (prostate, lung and colorectal) performed in August 2021 compared to August 2018/19. However, for the year to date there has been a 3% increase in these surgeries compared to the same time period in 2018/19.
- The increase in surgery for the year to date is most notable for Māori (32% increase) and Pacific people (40% increase, nothing that due to small numbers this represents 31 additional surgeries over eight months).

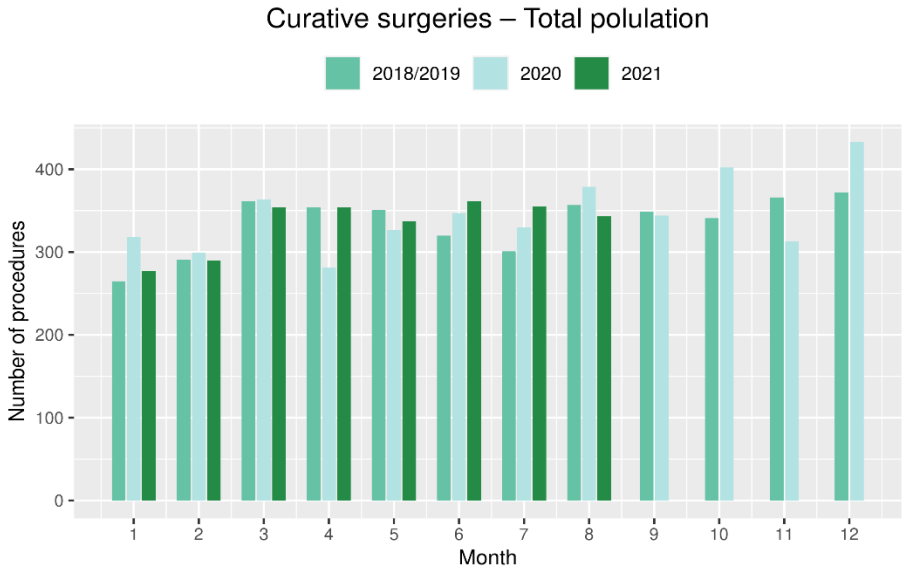
Results

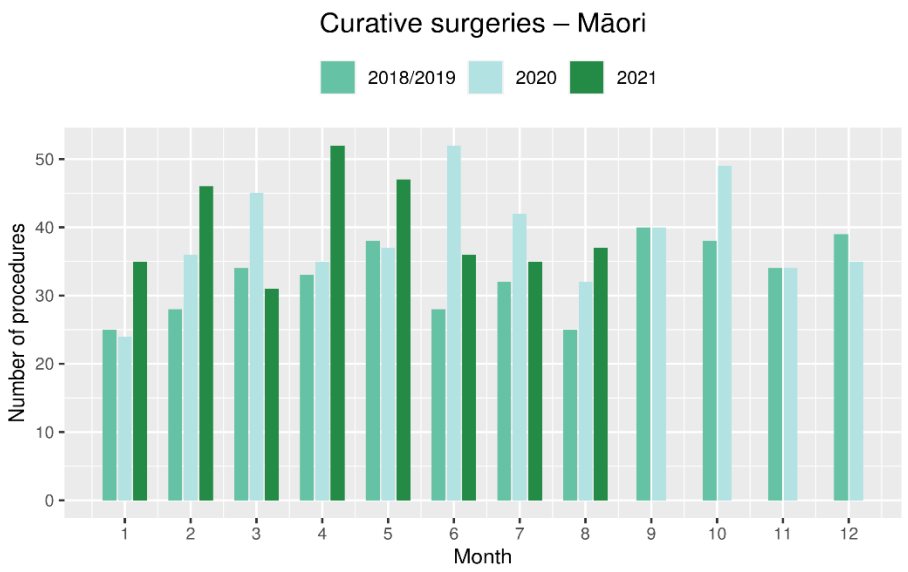
Table 5: Number of curative cancer surgeries (prostate, colorectal, lung) and percentage difference in 2021 compared to 2018/2019 average by month (June, July, August) and cumulative year to date, by ethnicity

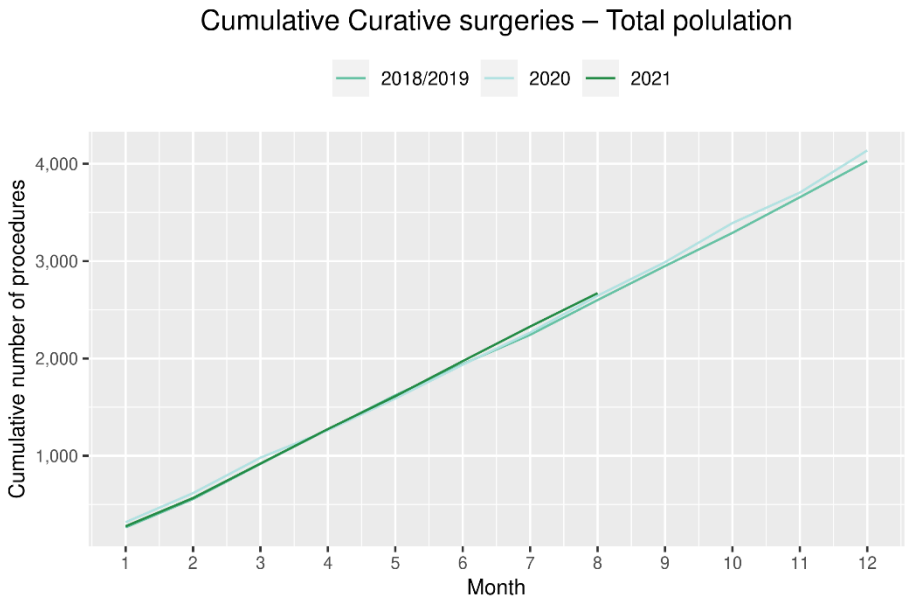
	June			July			August			Cumulative January-August		
	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change
Māori	28	36	29%	32	35	11%	25	37	48%	242	319	32%
Pacific peoples*	-	-	-	-	-	-	-	-	-	78	109	40%
Non-Māori/Non-Pacific	281	308	10%	259	302	17%	319	296	-7%	2,279	2,243	-2%
Total population	320	361	13%	301	355	18%	357	343	-4%	2,599	2,671	3%

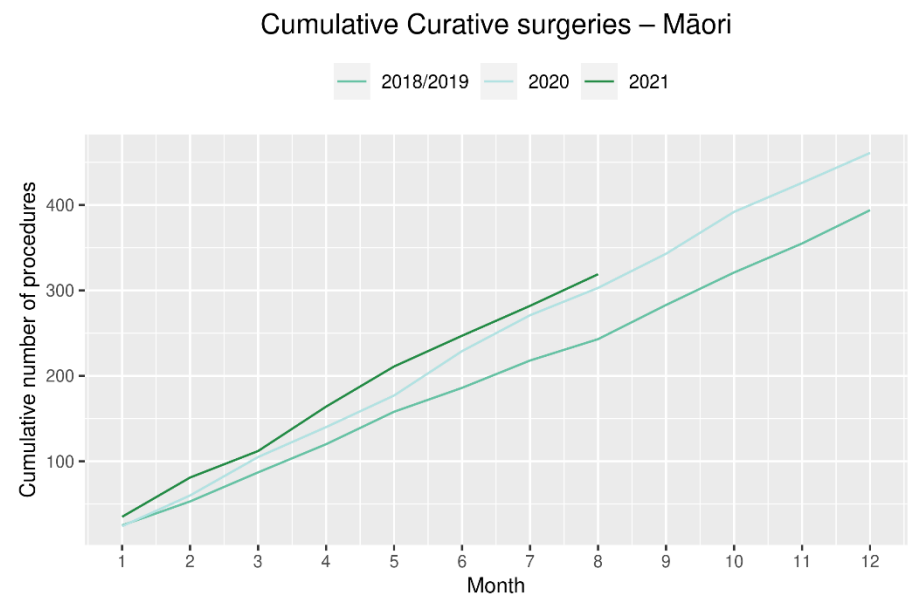
*Due to small numbers, monthly figures have not been included for Pacific peoples

Figure 5: Number of curative cancer surgeries (prostate, colorectal, lung) by month, 2018/19 average, 2020 and 2021, total population and Māori









COLORECTAL CANCER SURGERY

Notes on data

- The surgical procedure codes used for analysing colorectal cancer are listed in Appendix 4.
- The data were extracted from the National Minimum Dataset on 24 September 2021.

Key points

- There has been a similar number of curative colorectal cancer surgeries performed in 2021 as were performed in 2018/19, with the number of surgeries performed in August 2021 the same as August 2018/19.
- In general, people with colorectal cancer would expect to receive surgery within a month on colonoscopy, meaning a decrease in colorectal cancer surgeries may be seen in the coming months following the decrease in gastrointestinal endoscopies seen in August 2021 (see Figure 3)

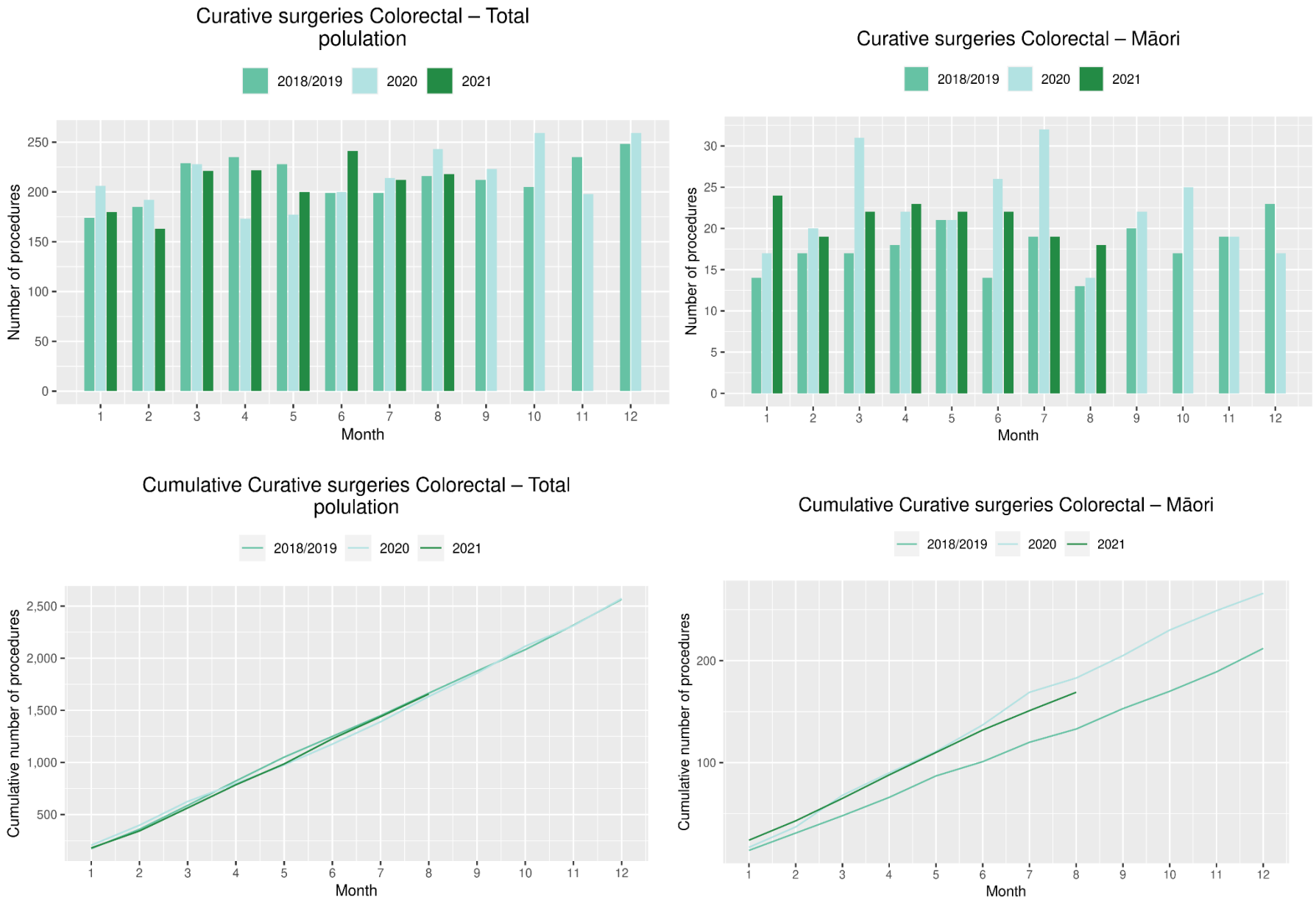
Results

Table 6: Number of curative colorectal cancer surgeries and percentage difference in 2021 compared to 2018/2019 average, by month (June, July, August) and cumulative year to date, by ethnicity

	June			July			August			Cumulative January-August		
	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change
Māori*	-	-	-	-	-	-	-	-	-	131	169	30%
Pacific peoples*	-	-	-	-	-	-	-	-	-	48	62	31%
Non-Māori/Non-Pacific	178	205	15%	175	185	6%	196	194	-1%	1,485	1,426	-4%
Total population	199	241	21%	199	212	7%	216	218	1%	1,663	1,657	0%

*Due to small numbers, monthly figures have not been included for Pacific peoples

Figure 6: Number of curative colorectal cancer surgeries by month, 2018/19 average, 2020 and 2021, total population and Māori



LUNG CANCER SURGERY

Notes on data

- A list of the surgical procedure codes used for analysis are included in Appendix 4.
- The data were extracted from the National Minimum Dataset on 24 September 2021.
- The number of lung cancer surgeries performed each month is relatively small, so caution is needed when comparing data by month.

Key points

- There was a decrease in curative lung cancer surgeries in August 2021 compared to August 2018/19 (13 fewer surgeries).
- Overall, for the year to date there has been a similar number of lung cancer surgeries performed in 2021 compared to 2018/19, and an increase in the number of surgeries for Māori (14%, 10 more surgeries).

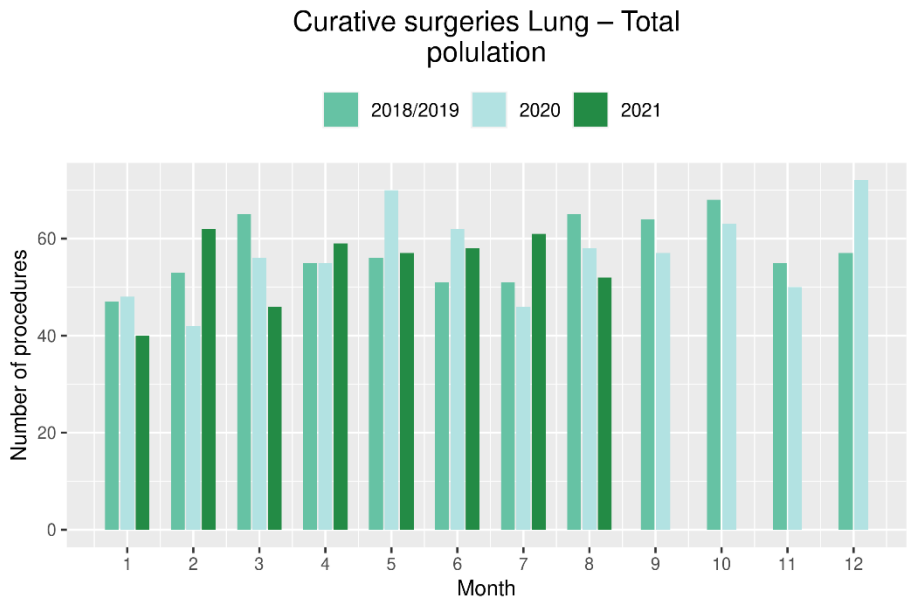
Results

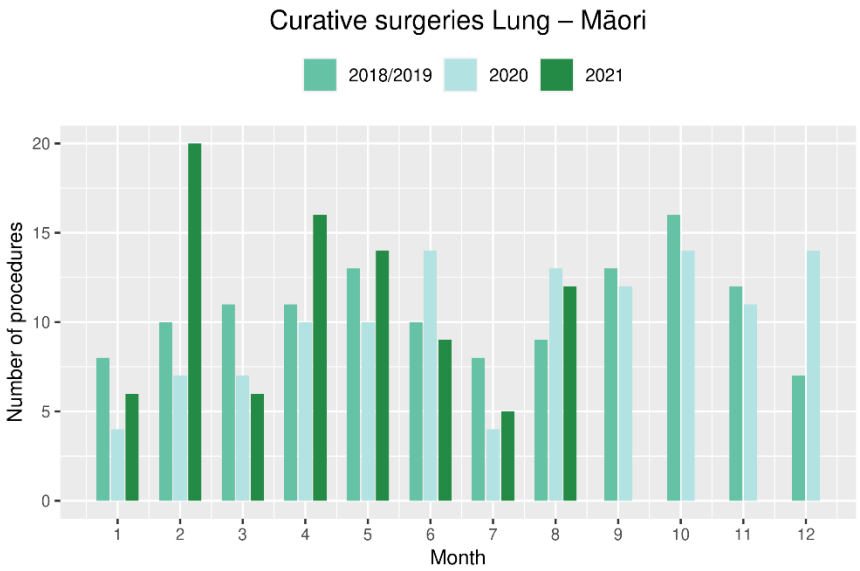
Table 7: Number of curative lung cancer surgeries and percentage difference in 2021 compared to 2018/2019 average, by month (June, July, August) and cumulative year to date, by ethnicity

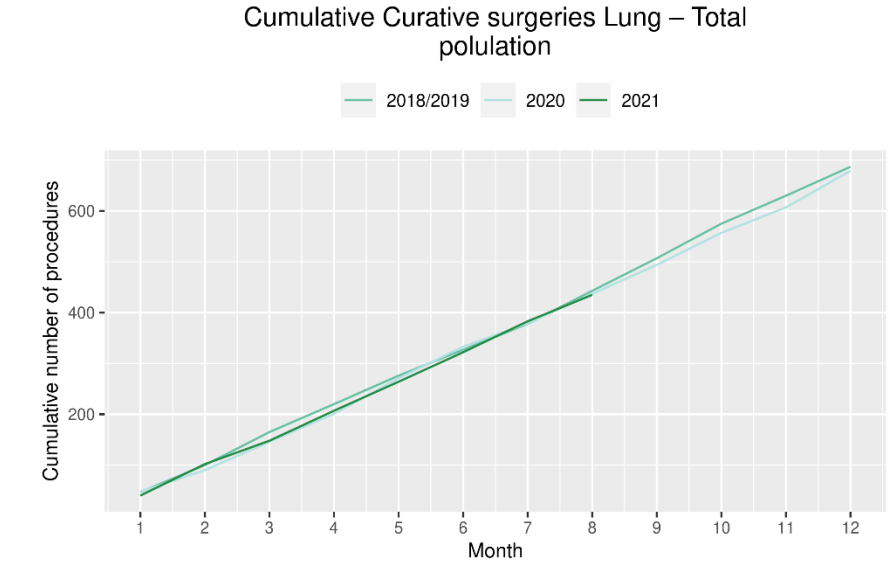
	June			July			August			Cumulative January-August		
	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change
Māori*	-	-	-	-	-	-	-	-	-	78	88	14%
Pacific peoples*	-	-	-	-	-	-	-	-	-	20	23	18%
Non-Māori/Non-Pacific	38	47	24%	41	51	26%	53	38	-28%	345	324	-6%
Total population	51	58	14%	51	61	21%	65	52	-20%	442	435	-1%

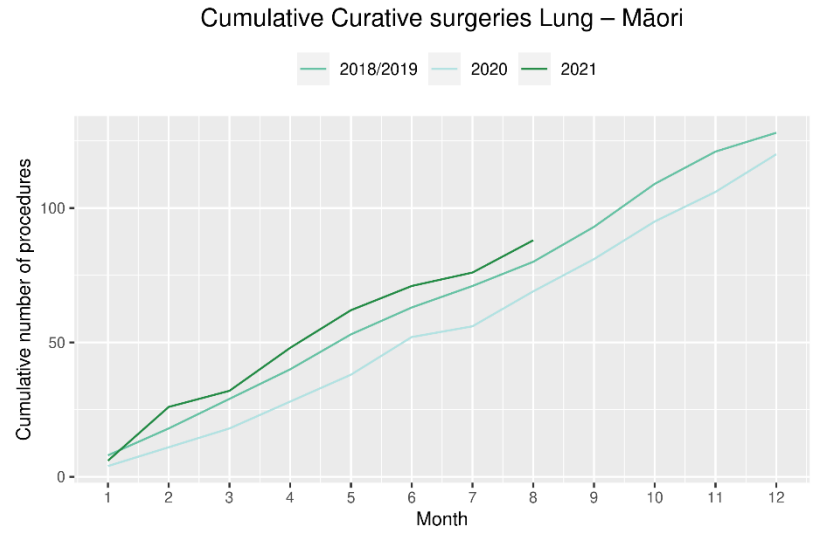
* Due to small numbers, monthly figures have not been included for Māori and Pacific peoples

Figure 7: Number of curative lung cancer surgeries by month, 2018/19 average, 2020 and 2021, total population and Māori









PROSTATE CANCER SURGERY

Notes on data

- A list of the surgical procedure codes used for analysis are included in Appendix 4.
- The data was extracted from the National Minimum Dataset on 24 September 2021.
- The volumes for prostate surgery are higher in this report than previously reported due to the inclusion of data from a private provider (that provides public surgery).
- The number of curative prostate cancer surgeries performed each month is relatively small, so caution is needed when comparing data by month.

Key points

- There impact of COVID-19 and August lockdown is not seen for prostate surgery volumes, with a similar number of surgeries performed in August 2021 compared to August 2018/19 and for the year to date.

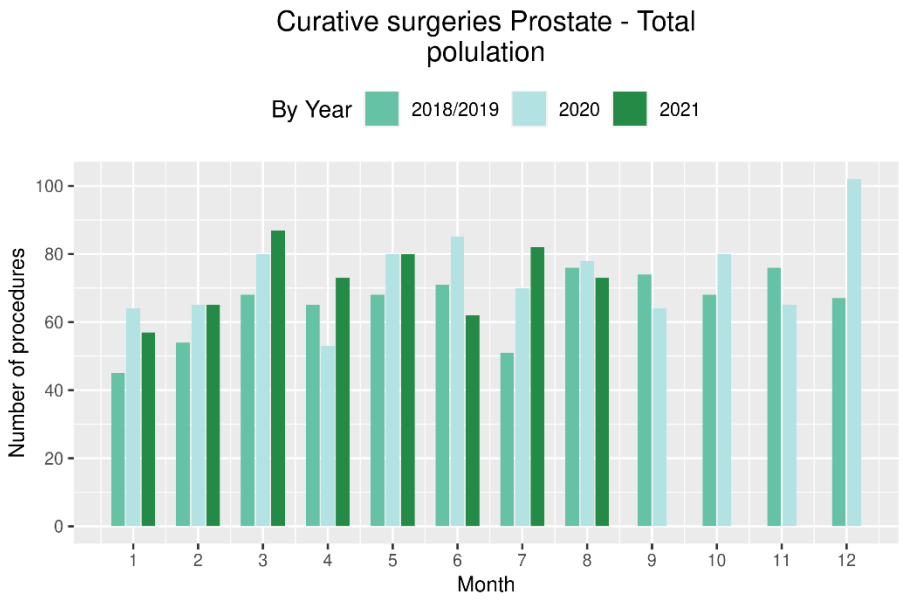
Results

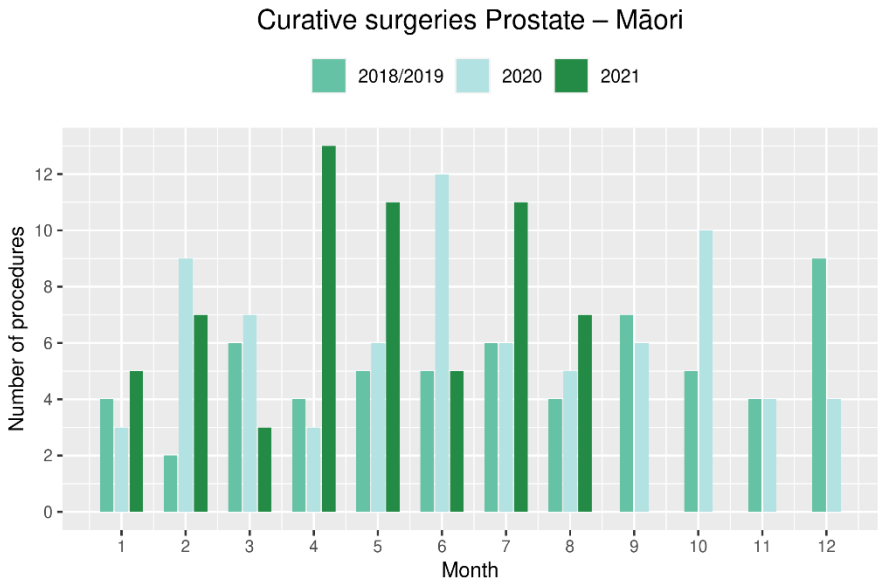
Table 8: Number of curative prostate cancer surgeries and percentage difference in 2021 compared to 2018/2019 average by month (June, July, August) and cumulative year to date

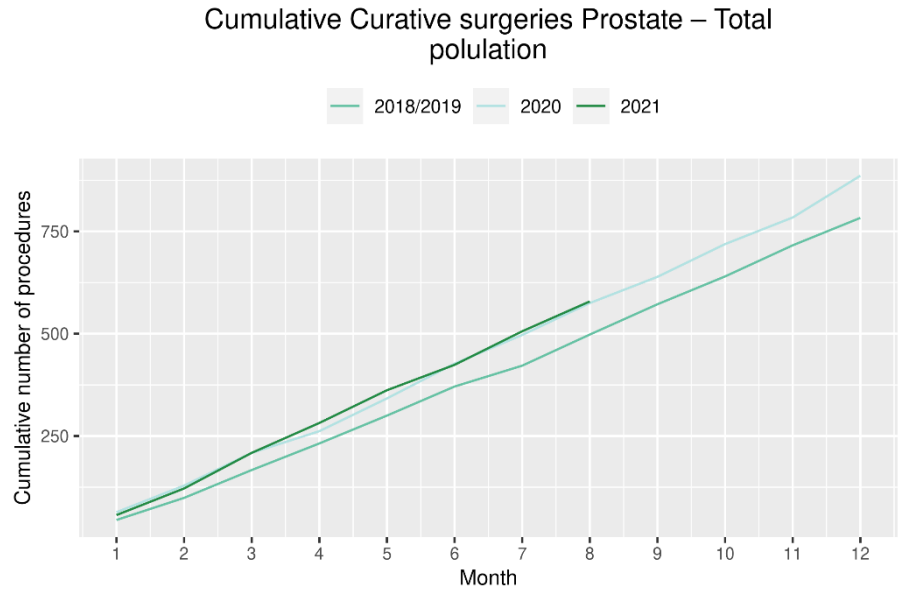
	June			July			August			Cumulative January-August		
	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change
Total population*	71	62	-12%	51	82	61%	76	73	-3%	495	579	17%

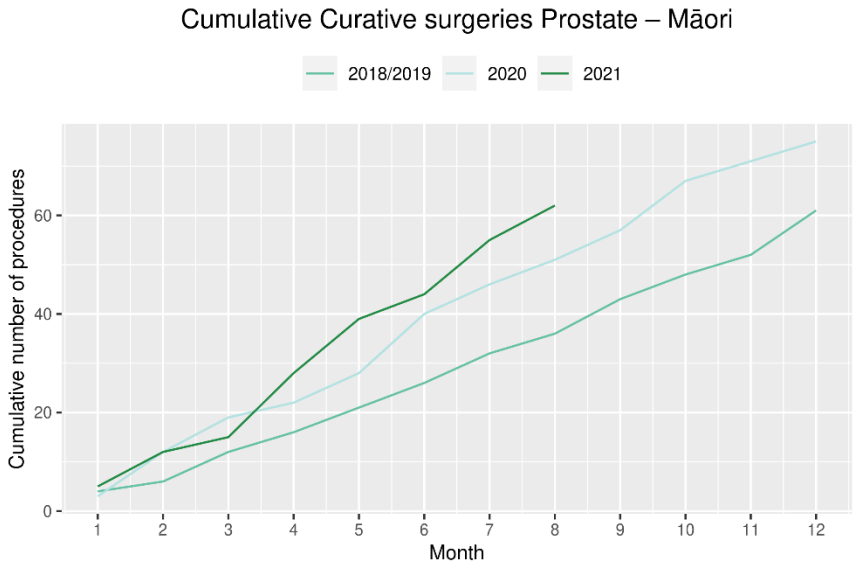
*Due to the small number of surguries performed each month calculations have only been included for the total population

Figure 8: Number of curative prostate cancer surgeries by month, 2018/19 average, 2020 and 2021, total population and Māori









MEDICAL ONCOLOGY

Notes on data

- Extracted from National non-admitted patient collection (Outpatient collection) on 24 September 2021.
- First specialist assessment (FSA) reflects counts of first attendance for specialist medical oncology assessment.
- Intravenous (IV) chemotherapy reflects appointments for outpatient and inpatient IV chemotherapy for non-haematological indications.
- Technical information: medical oncology FSA (PUC M50020) and IV chemotherapy (PUC MS02009).

Key points

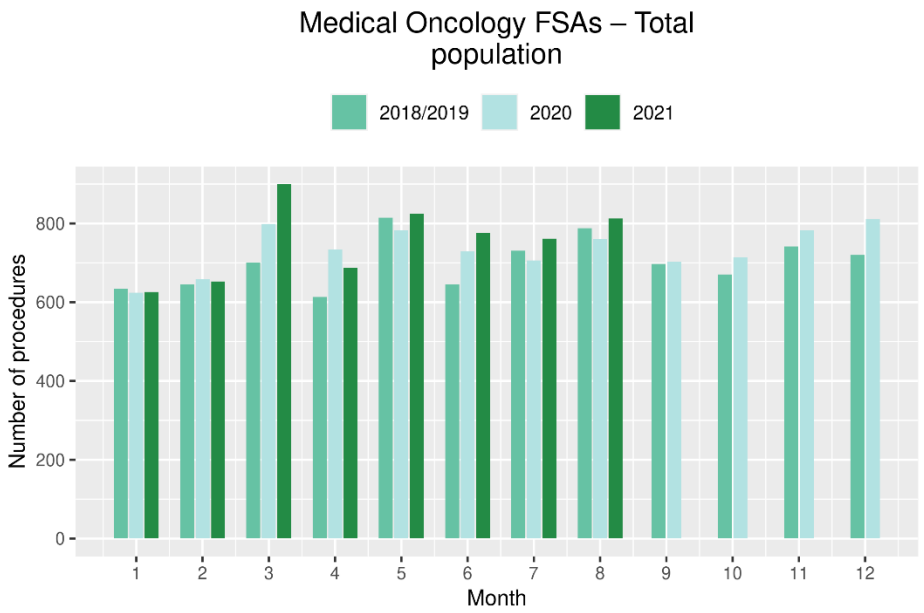
- Attendances for medical oncology FSAs remained stable during the August lockdown, with an increase in FSAs for both Māori and Pacific peoples in August 2021 compared to August 2018/19.
- Attendances for IV chemotherapy remained largely stable over August 2021. There has been an overall 8% increase in the number of attendances for the year to date in 2021 compared to the same time period in 2018/19, with a larger increase for Māori (28%) and Pacific peoples (32%) than for non-Māori/non-Pacific (3%).

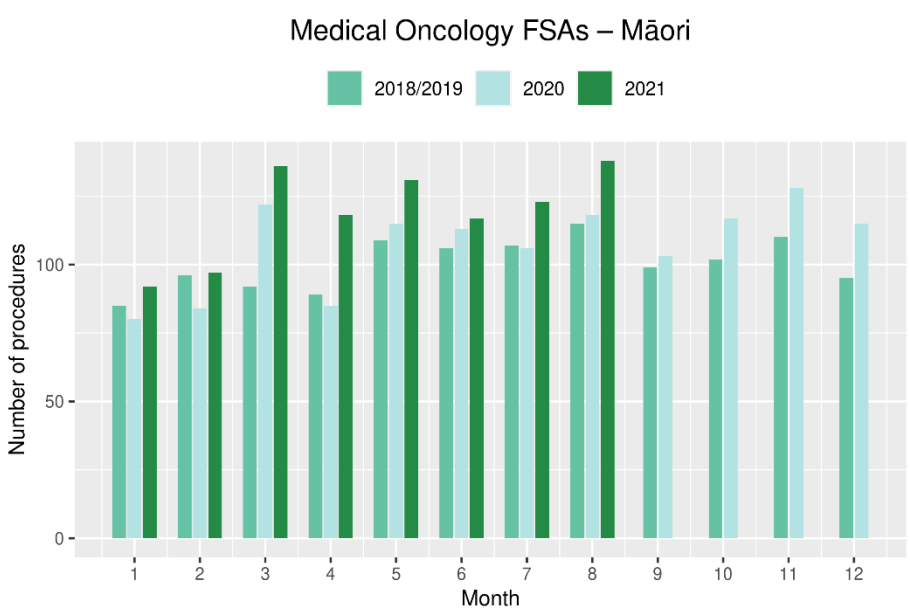
Results

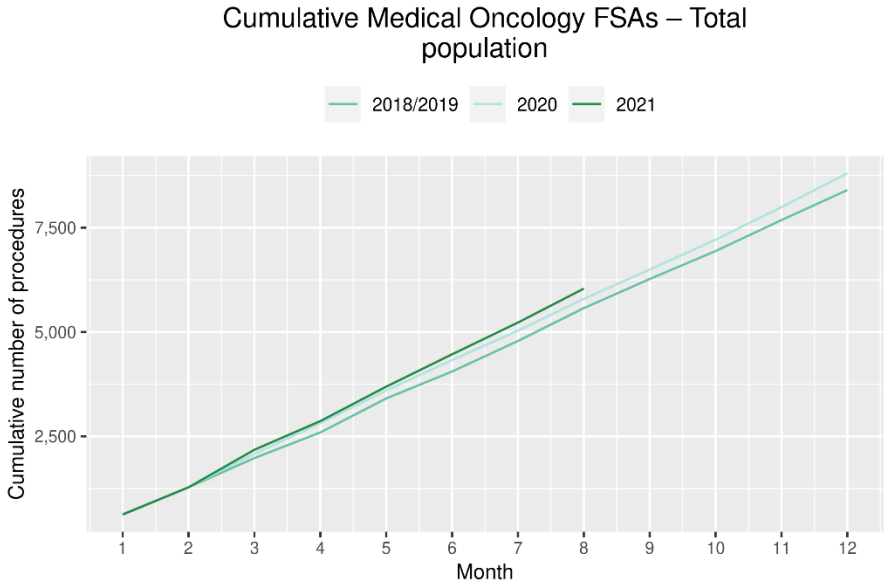
Table 9: Number of medical oncology first specialist assessments and percentage difference in 2021 compared to 2018/2019 average, by month (June, July, August) and cumulative year to date, by ethnicity

	June			July			August			Cumulative January-August		
	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change
Māori	106	117	11%	107	123	15%	115	138	21%	796	952	20%
Pacific peoples	31	37	19%	39	44	14%	43	51	19%	282	328	16%
Non-Māori/Non-Pacific	510	622	22%	586	594	1%	631	624	-1%	4,494	4,760	6%
Total population	646	776	20%	731	761	4%	788	813	3%	5,572	6,040	8%

Figure 9: Number of medical oncology first specialist assessments by month, 2018/19 average, 2020 and 2021, total population and Māori







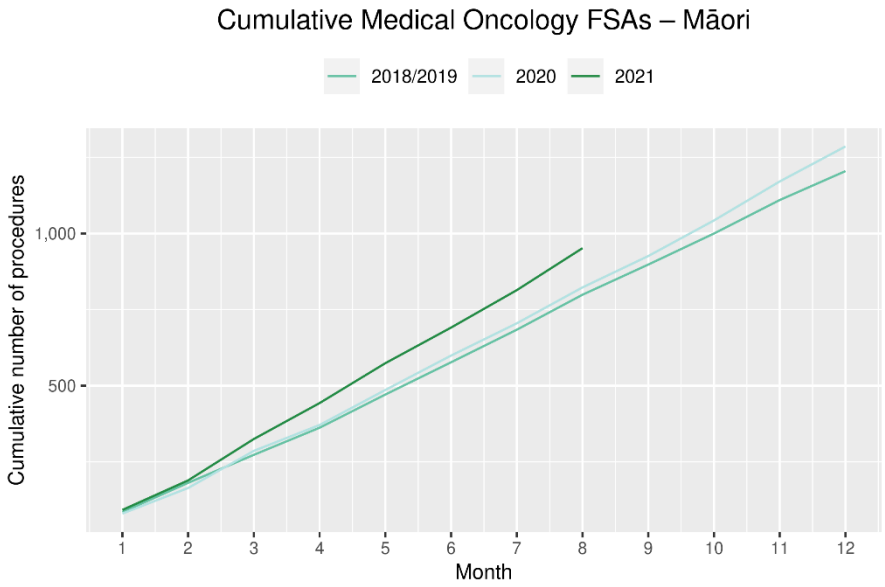


Table 10: Number of IV chemotherapy attendances and percentage difference in 2021 compared to 2018/2019 average, by month (June, July, August) and cumulative year to date, by ethnicity

	June			July			August			Cumulative January-August		
	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change
Māori	648	897	38%	784	920	17%	805	847	5%	5,611	7,181	28%
Pacific peoples	248	381	54%	266	379	42%	251	370	47%	2,095	2,764	32%
Non-Māori/Non-Pacific	4,106	4,567	11%	4,631	4,725	2%	4,761	4,276	-10%	35,040	36,193	3%
Total population	5,002	5,845	17%	5,681	6,024	6%	5,816	5,493	-6%	42,745	46,138	8%

Figure 10: Number of IV chemotherapy attendances by month, 2018/19 average, 2020 and 2021, total population and Māori

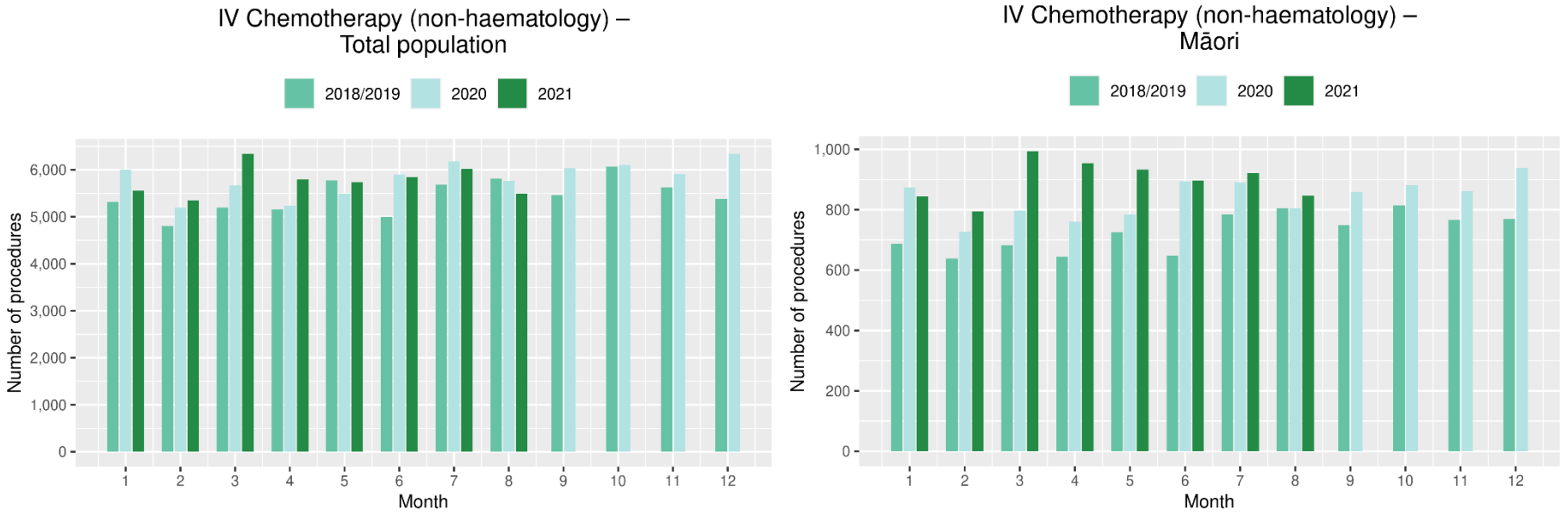
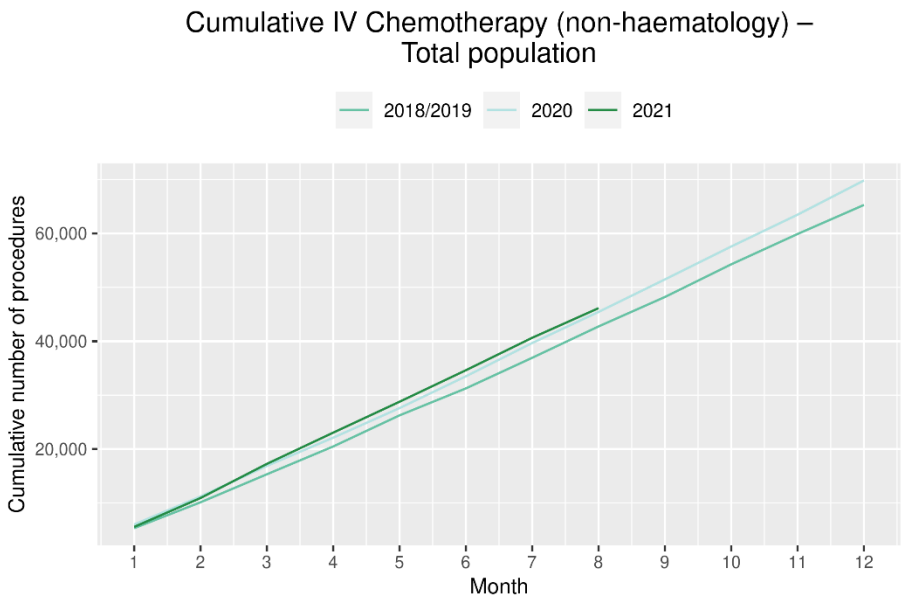
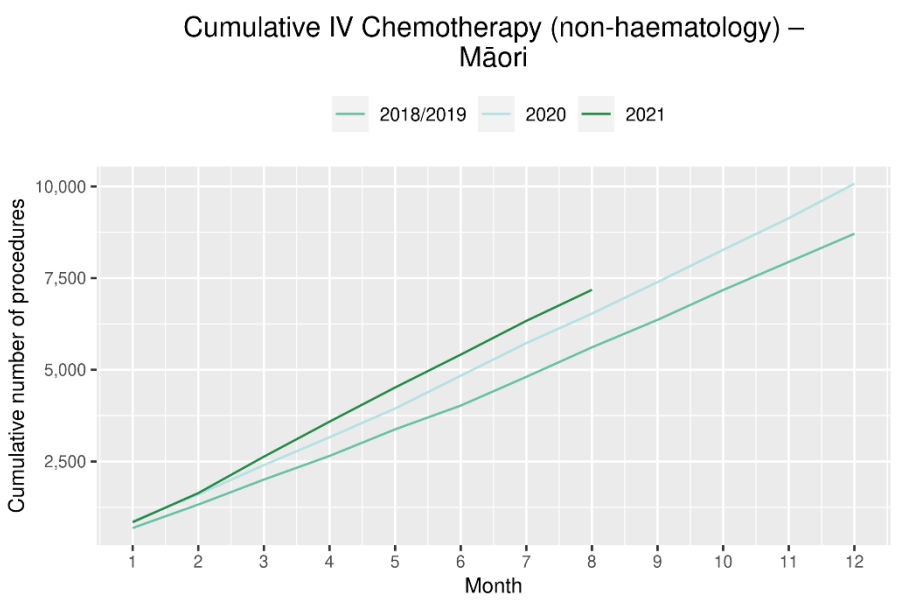


Figure 11: Cumulative number of attendances for IV chemotherapy, 2018/19 average, 2020 and 2021, total population and for Māori





RADIATION ONCOLOGY

Notes on data

- Extracted from National Non-admitted patient collection on 24 September 2021.
- First specialist assessment (FSA) reflects counts of first attendance for radiation oncology specialist assessment.
- Megavoltage attendance reflects appointments for planning/simulation and for treatment with radiation therapy on a linear accelerator.
- Technical information: radiation oncology FSA (PUC M50022), megavoltage attendances (Purchase Unit Code M50025)

Key points

- Attendances for radiation oncology FSAs remained stable during the August lockdown, with an increase in FSAs for both Māori and Pacific peoples in August 2021 compared to August 2018/19.
- For the year to date there has been an increase in radiation oncology FSAs; however, there has been a decrease in attendances for radiotherapy in 2021 compared to 2018/19. The decrease in attendances for radiotherapy has been seen throughout the year and likely reflects increased utilisation of hypofractionation[2]. The decrease in attendances in 2021 is less notable for Māori, which may reflect stage at diagnosis, with hypofractionation more likely to be utilised for early-stage cancer.

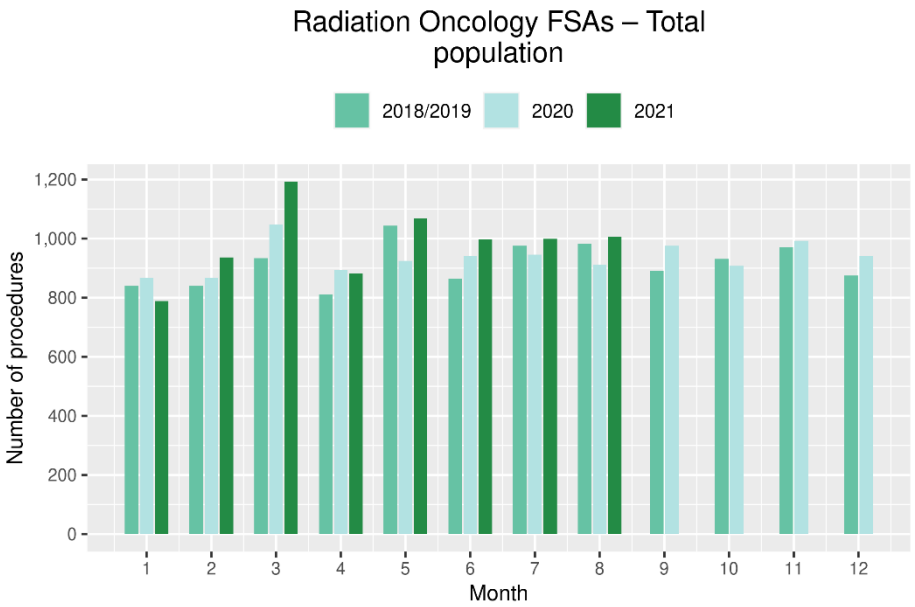
Results

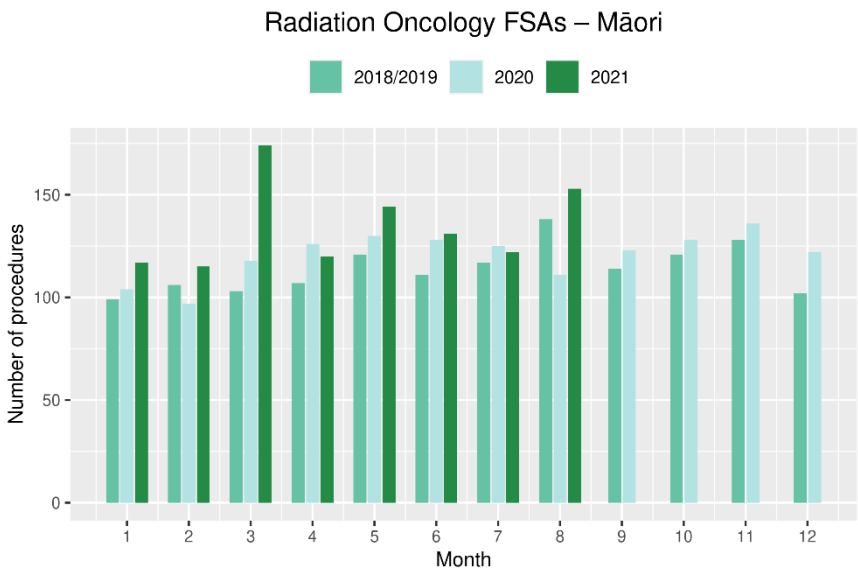
Table 11: Number of radiation oncology first specialist assessments and percentage difference in 2021 compared to 2018/2019 average, by month (June, July, August) and cumulative year to date, by ethnicity

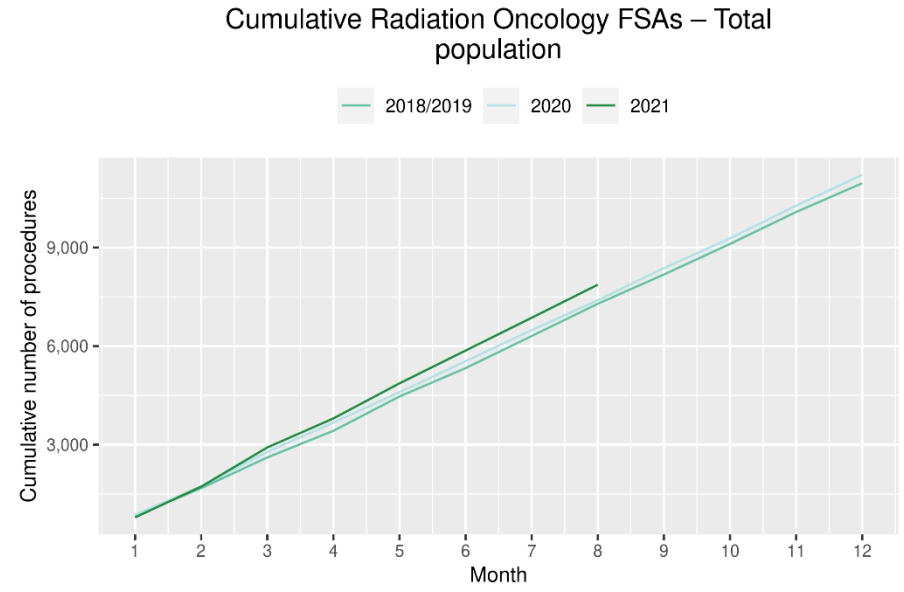
	June			July			August			Cumulative January-August		
	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change
Māori	111	131	18%	117	122	4%	138	153	11%	901	1,076	19%
Pacific peoples	51	49	-4%	48	42	-12%	50	55	11%	362	387	7%
Non-Māori/Non-Pacific	702	818	17%	812	835	3%	795	797	0%	6,027	6,407	6%
Total population	864	998	16%	976	999	2%	982	1,005	2%	7,289	7,870	8%

[2] Hypofractionation is a radiation treatment technique used to treat some cancers, whereby larger doses of radiation are given each treatment, meaning that patients require fewer sessions to complete their treatment. The technique is being increasingly used for some prostate and breast cancers.

Figure 12 Number of radiation oncology first specialist assessments by month, 2018/19 average, 2020 and 2021, total population and Māori







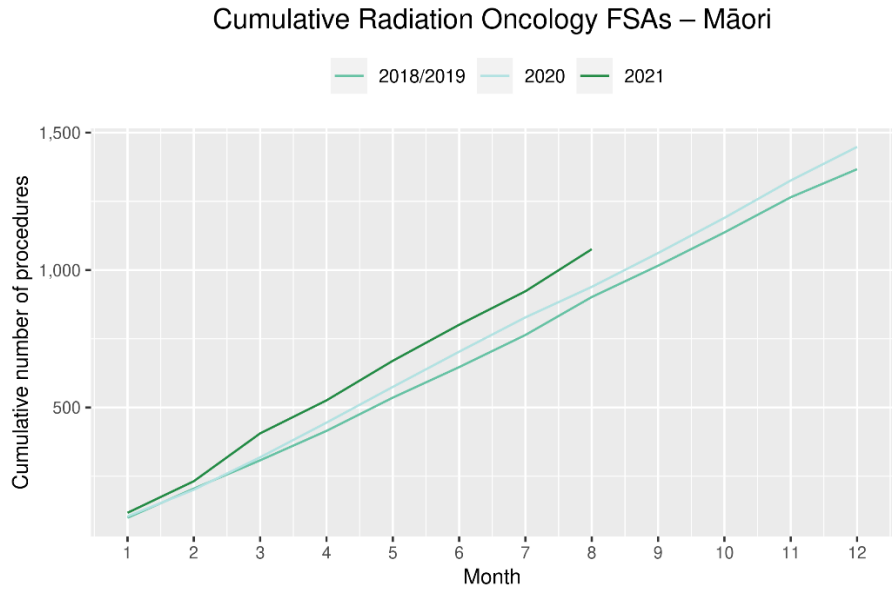


Table 12: Number of radiation oncology attendances and percentage difference in 2021 compared to 2018/2019 average, by month (June, July, August) and cumulative year to date, by ethnicity

	June			July			August			Cumulative January-August		
	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change
Māori	1,649	1,649	0%	1,924	1,719	-11%	1,869	1,807	-3%	13,640	13,806	1%
Pacific peoples	554	491	-11%	754	440	-42%	551	456	-17%	4,561	4,201	-8%
Non-Māori/Non-Pacific	10,162	9,395	-8%	10,729	9,740	-9%	10,488	9,436	-10%	83,918	76,847	-8%
Total population	12,365	11,535	-7%	13,407	11,899	-11%	12,907	11,699	-9%	102,119	94,854	-7%

Figure 13: Number of radiation therapy attendances by month, 2018/19 average, 2020 and 2021, total population and for Māori

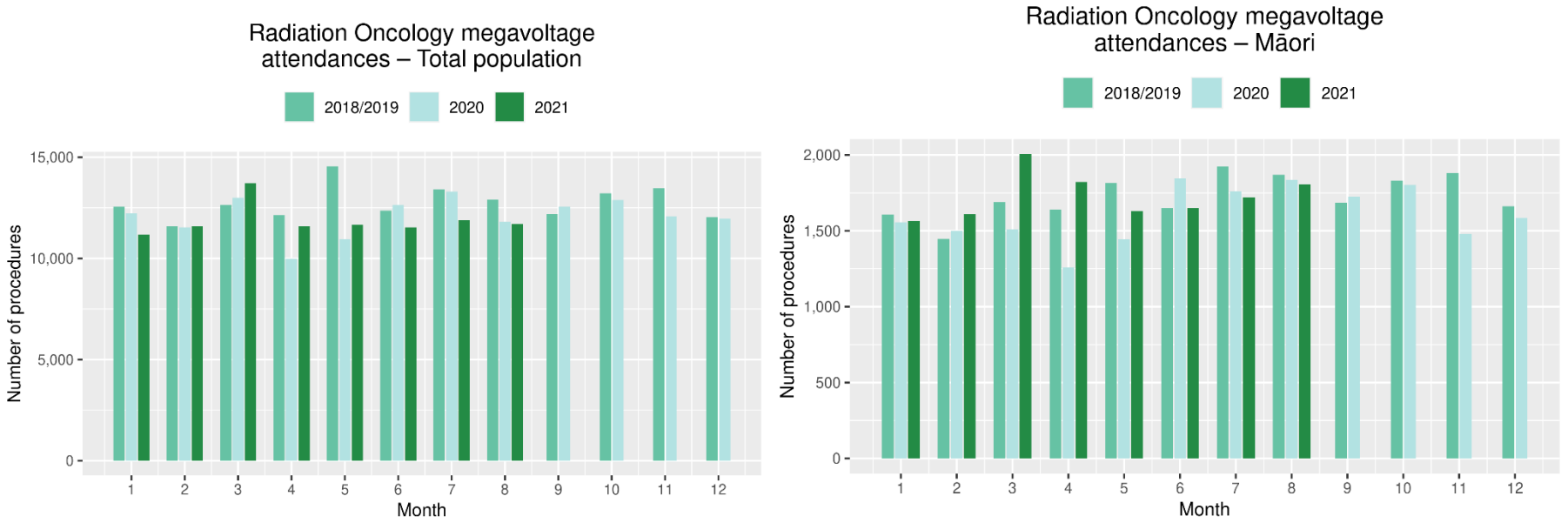
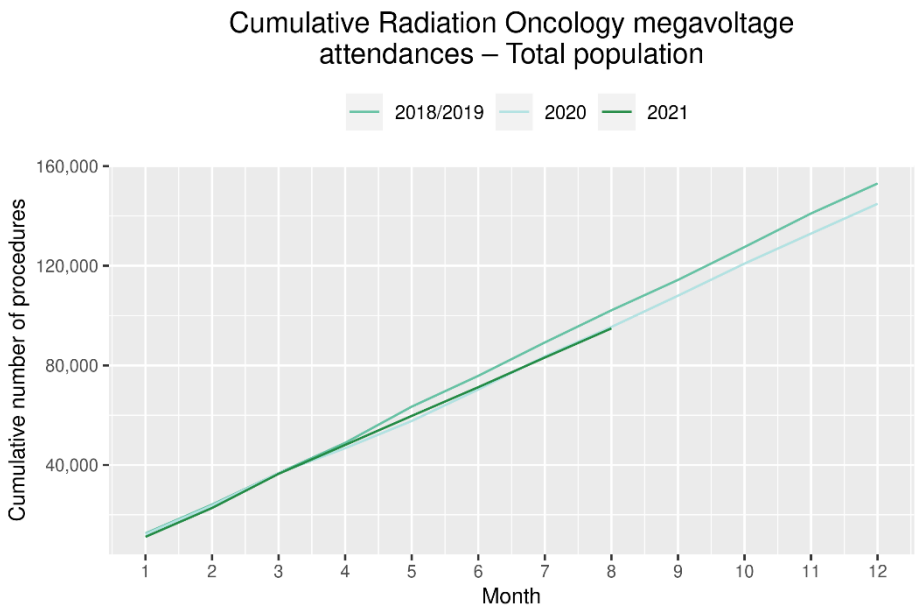
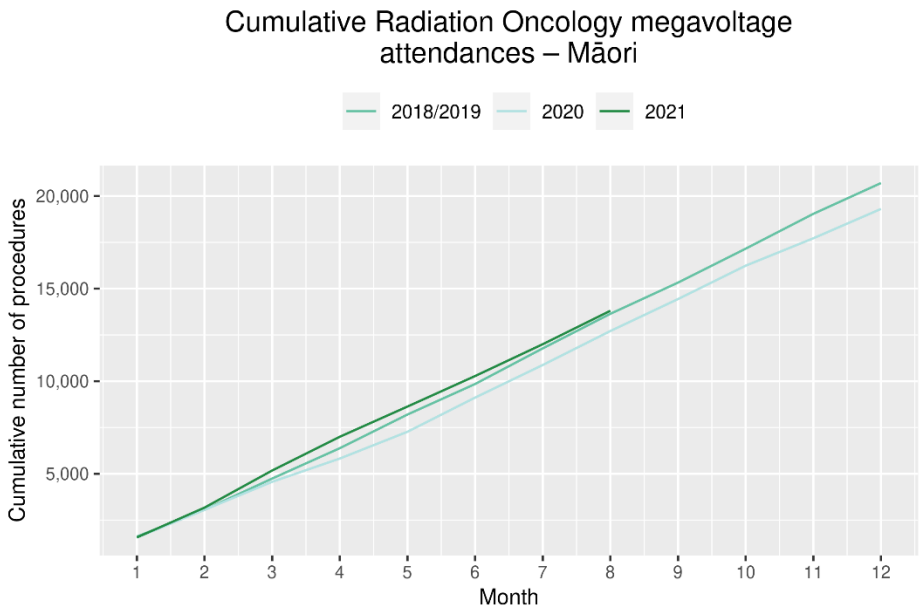


Figure 14: Cumulative number of attendances for radiation therapy, 2018/19 average, 2020 and 2021, total population and for Māori





HAEMATOLOGY

Notes on data

- Data extracted from National Non-admitted Patient Collection (outpatient) and National Minimum Dataset (inpatient) on 24 September 2021.
- First specialist assessment (FSA) reflects counts of first attendance for specialist haematology assessment for any indication, not just cancer.
- IV chemotherapy reflects appointments for IV chemotherapy for haematological malignancies.
- Technical information: Haematology FSA (Purchase Unite Code: M30002), IV haem/chemo (Purchase Unit Code: M30020).

Key points

- Attendances for haematology FSAs remained relatively stable during the August lockdown.
- Attendances for IV chemotherapy remained largely stable over August 2021, with an overall 5% increase in the number of attendances for the year to date compared to the same time period in 2018/19.
- For the year to date there has been an increase in haematology FSAs for Māori, but an overall decrease in attendances for IV chemotherapy. This does not appear to be related to the 2021 COVID outbreak, and worth noting that haematology FSAs include non-cancer indications.

Results

Table 13: Number of haematology first specialist assessment attendances and percentage difference in 2021 compared to 2018/2019 average, by month (June, July, August) and cumulative year to date, by ethnicity

	June			July			August			Cumulative January-August		
	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change
Māori	61	59	-2%	53	77	45%	50	72	45%	424	498	17%
Pacific peoples	28	34	21%	25	23	-8%	29	20	-31%	211	220	4%
Non-Māori/Non-Pacific	384	468	22%	428	418	-2%	483	441	-9%	3,505	3,307	-6%
Total population	473	561	19%	506	518	2%	561	533	-5%	4,140	4,025	-3%

Figure 15: Number of haematology first specialist assessments by month, 2018/19 average, 2020 and 2021, total population and Māori

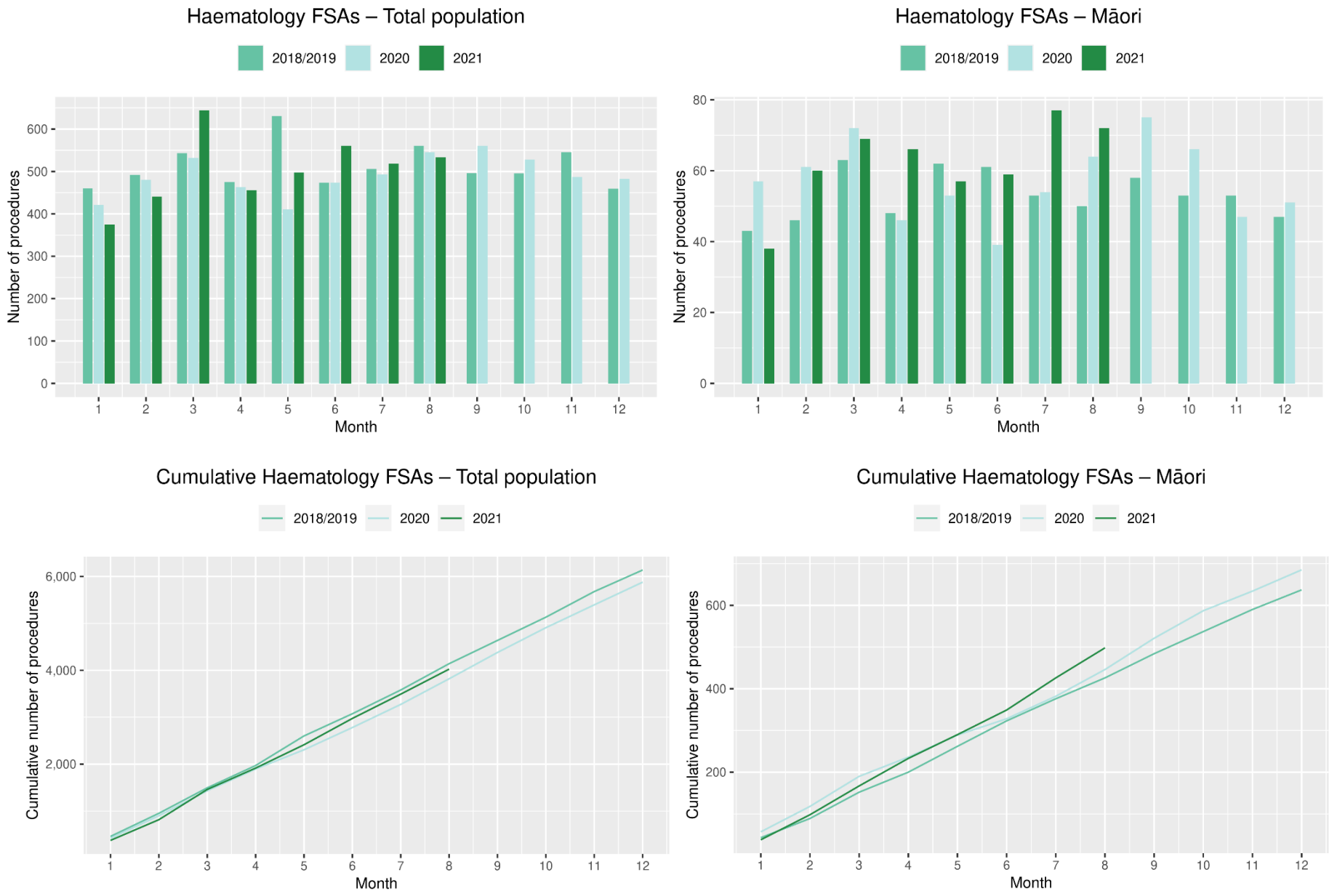


Table 14: Number of IV chemotherapy attendances for haematological malignancies and percentage difference in 2021 compared to 2018/2019 average, by month (June, July, August) and cumulative year to date, by ethnicity

	June			July			August			Cumulative January-August		
	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change	2018/19	2021	% change
Māori	184	172	-6%	229	191	-17%	225	194	-14%	1,592	1,543	-3%
Pacific peoples	92	140	53%	114	142	25%	112	146	30%	804	1,092	36%
Non-Māori/Non-Pacific	1,587	1,781	12%	1,858	1,782	-4%	1,864	1721	-8%	13,342	13,918	4%
Total population	1,862	2,093	12%	2,200	2,115	-4%	2,201	2061	-6%	15,738	16,553	5%

Figure 16: Number of attendances for IV chemotherapy for haematological malignancies by month, 2018/19 average, 2020 and 2021, total population and Māori

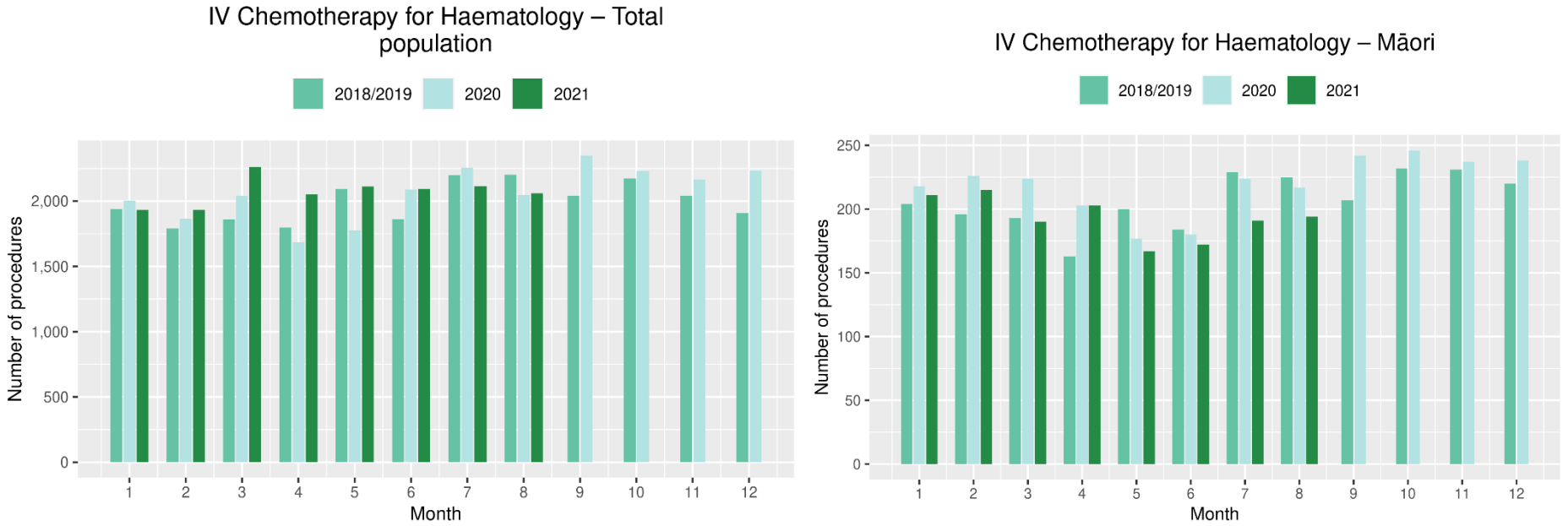
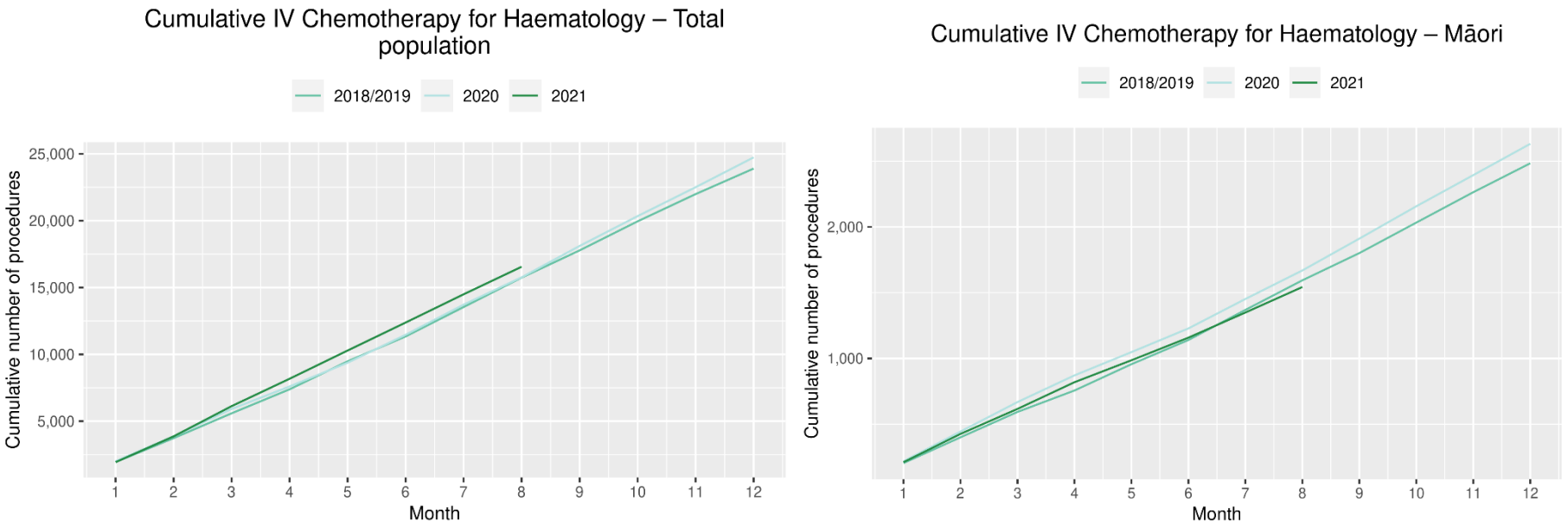


Figure 17: Cumulative number of attendances for IV chemotherapy for haematological malignancies, 2018/19 average, 2020 and 2021, total population and for Māori



APPENDIX 1: NZCR DATA INFORMATION

The New Zealand Cancer Registry as a data source for new cancer diagnoses

Cancer registration is a process where data is collated from multiple sources about people diagnosed with cancer and rules are applied to determine the type of cancer they have. This information is recorded in the New Zealand Cancer Registry. Each tumour is classified using an international World Health Organization standard so that cancer incidence can be compared between countries. The tumour is staged based on all the information available within 4 months of diagnosis. This process may take up to six months or more depending on the number of missing reports that need to be followed up with laboratories.

For each registration there may be multiple pathology reports as there may be multiple procedures performed on the tumour. This means there will be more than one registration for people diagnosed with more than one type of tumour.

Cancer registrations come from pathology laboratories, haematology laboratories, mortality records and reviewing hospital discharge records. Laboratory reports provide the best source of near real time data to monitor new diagnoses of cancer in New Zealand.

Pathology reports as a data source for providing near real time monitoring cancer diagnoses

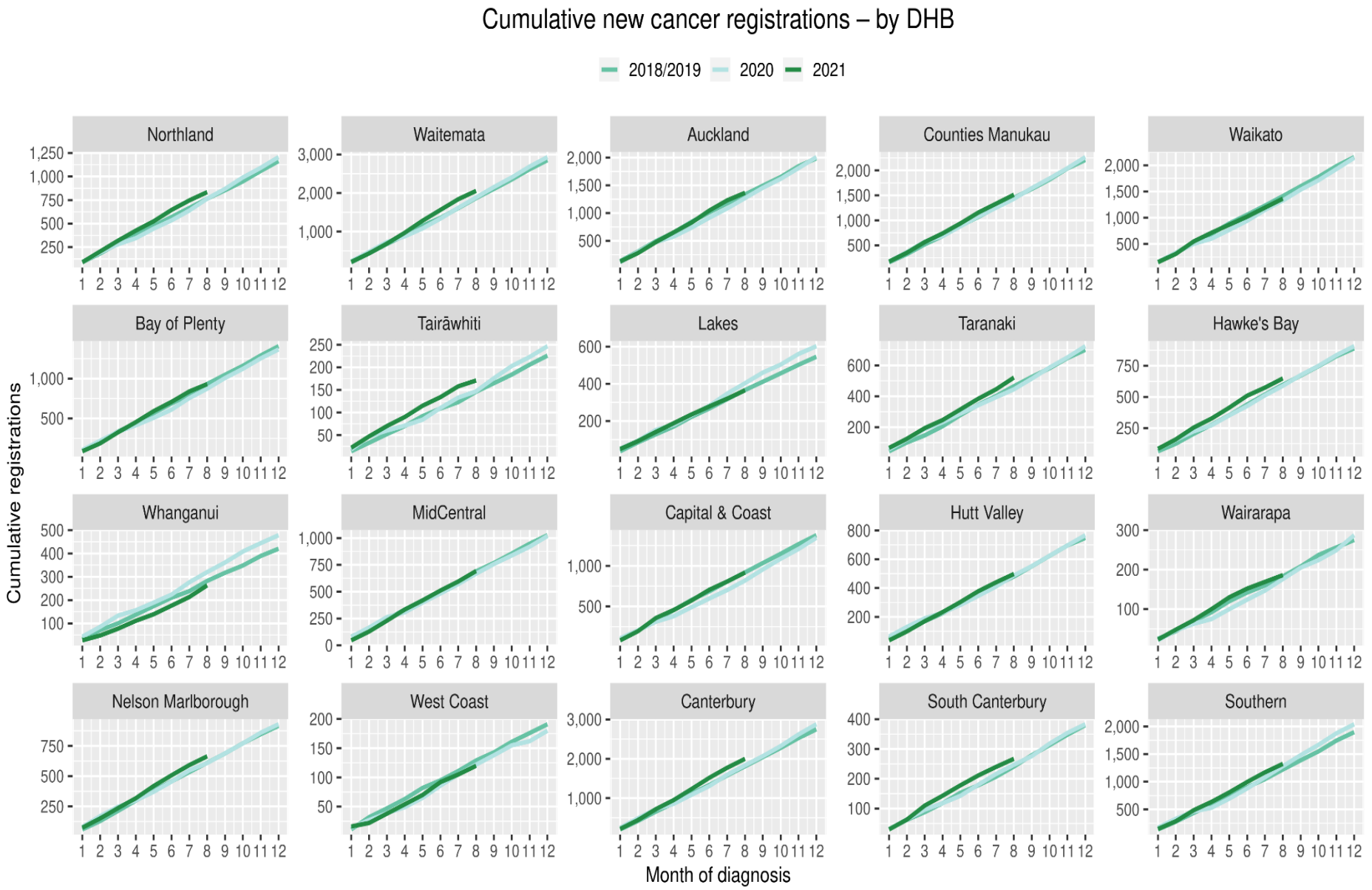
Pathology reports (documents) are received by the NZCR as electronic messages. An administrator triages these documents each day and if the document appears to meet the requirements for registration the document is “administered”. The document may relate to an existing registration or may contain information for a new cancer event. Documents that do not meet the cancer reporting requirements will be marked as “deleted”, “rejected” or “agreed not for registration”.

The administrator creates a new provisional cancer event if the pathology report identifies a new cancer diagnosis for this person. This new cancer event is assigned to a cancer group and this provisional event is then queued for further assessment by a clinical coder. If the required information has been provided the coder creates a new registration. If some information is not yet available, then the registration is held open until further information arrives to complete the registration or determine that the tumour does not meet the registration criteria.

APPENDIX 2: NZCR REGISTRATIONS BY DHB

Number of cancer registrations and percentage difference in 2021 compared to 2018/2019 average, by month (June, July, August) and cumulative year to date, by DHB of domicile

	June			July			August			Cumulative January-August		
	2018/2019 average	2021	%	2018/2019 average	2021	%	2018/2019 average	2021	%	2018/2019 average	2021	%
Northland	93	120	29%	96	102	6%	99	87	-12%	763	834	9%
Waitematā	201	279	39%	252	278	11%	262	216	-18%	1,868	2,056	10%
Auckland	170	218	29%	163	184	13%	160	135	-15%	1,335	1,365	2%
Counties Manukau	178	217	22%	194	179	-7%	190	179	-6%	1,449	1,513	4%
Waikato	165	154	-7%	175	172	-2%	180	171	-5%	1,411	1,364	-3%
Bay of Plenty	120	116	-3%	108	131	21%	137	92	-33%	931	931	0%
Tairāwhiti	17	19	15%	14	24	71%	23	13	-42%	143	171	20%
Lakes	45	43	-4%	50	42	-15%	49	45	-8%	365	365	0%
Taranaki	67	69	4%	57	61	8%	63	76	21%	463	521	13%
Hawke's Bay	86	96	12%	81	65	-20%	78	74	-5%	597	649	9%
Whanganui	36	37	4%	28	37	35%	44	50	14%	280	263	-6%
MidCentral	87	92	6%	86	84	-2%	97	98	2%	687	693	1%
Capital & Coast	106	133	26%	121	101	-16%	113	111	-1%	916	917	0%
Hutt Valley	64	75	17%	63	62	-2%	60	58	-3%	478	498	4%
Wairarapa	22	22	2%	18	17	-6%	23	17	-24%	181	186	3%
Nelson Marlborough	75	88	17%	77	85	10%	77	72	-6%	609	664	9%
West Coast	13	22	76%	16	13	-19%	18	15	-17%	127	120	-6%
Canterbury	221	287	30%	242	255	5%	233	227	-3%	1,807	1,998	11%
South Canterbury	25	33	32%	29	29	0%	34	27	-21%	240	267	11%
Southern	140	188	34%	146	175	20%	173	153	-11%	1,220	1,324	9%


Cumulative new cancer registrations – by DHB
2018/2019
2020
2021
Northland
Waitemata
Auckland
Counties Manukau
Waikato
Bay of Plenty
Tairāwhiti
Lakes
Taranaki
Hawke's Bay
Whanganui
MidCentral
Capital & Coast
Hutt Valley
Wairarapa
Nelson Marlborough
West Coast
Canterbury
South Canterbury
Southern
Cumulative registrations
Month of diagnosis

Cumulative cancer registrations by ethnicity

	Total population					Māori					Non-Māori / Non-Pacific				
	Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021	
	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%
Northland	763	765	834	71	9%	176	174	206	30	17%	587	591	628	41	7%
Waitematā	1,868	1,885	2,056	188	10%	110	125	109	-1	0%	1,759	1,760	1,947	189	11%
Auckland	1,335	1,270	1,365	31	2%	77	70	86	10	12%	1,258	1,200	1,279	21	2%
Counties Manukau	1,449	1,432	1,513	65	4%	188	206	190	3	1%	1,261	1,226	1,323	62	5%
Waikato	1,411	1,328	1,364	-47	-3%	229	215	199	-30	-13%	1,182	1,113	1,165	-17	-1%
Bay of Plenty	931	874	931	0	0%	149	144	149	0	0%	782	730	782	0	0%
Tairāwhiti	143	147	171	28	20%	53	60	66	14	26%	91	87	105	15	16%
Lakes	365	403	365	1	0%	88	107	111	23	26%	277	296	254	-23	-8%
Taranaki	463	445	521	59	13%	47	46	65	18	38%	416	399	456	41	10%
Hawke's Bay	597	589	649	52	9%	43	46	57	14	33%	237	274	206	-31	-13%
Whanganui	280	320	263	-17	-6%	73	76	83	11	14%	614	592	610	-4	-1%
MidCentral	687	668	693	7	1%	68	51	63	-5	-7%	410	437	435	25	6%
Capital & Coast	916	818	917	1	0%	16	20	23	8	48%	166	156	163	-3	-2%
Hutt Valley	478	488	498	20	4%	33	25	31	-2	-5%	576	584	633	57	10%
Wairarapa	181	176	186	5	3%	9	6	13	5	53%	119	116	107	-12	-10%
Nelson Marlborough	609	609	664	56	9%	102	87	109	7	7%	1,705	1,746	1,889	184	11%
West Coast	127	122	120	-7	-6%	65	75	91	26	40%	851	743	826	-25	-3%
Canterbury	1,807	1,833	1,998	191	11%	112	108	127	16	14%	486	481	522	37	8%
South Canterbury	240	247	267	28	11%	12	7	8	-4	-33%	228	240	259	32	14%
Southern	1,220	1,281	1,324	105	9%	63	72	84	21	33%	1,157	1,209	1,240	84	7%
Total	15,866	15,700	16,699	834	5%	1,708	1,720	1,870	162	9%	14,158	13,980	14,829	672	5%

APPENDIX 3: DIAGNOSIS AND TREATMENT DATA BY DHB

Percentage differences are only presented if the cumulative total is 10 or greater. In some cases, the totals may differ to those presented in the national report due to non-DHB providers being excluded from the analyses within this appendix.

Southern DHB endoscopy and non-surgical cancer treatment data is not included due incomplete data for the July 2021 and August 2021 period. Te Aho o Te Kahu is actively working with the Ministry of Health to support the DHB resolve this issue for our next report.

Gastrointestinal endoscopy

	Total population					Māori					Non-Māori / Non-Pacific				
	Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021	
	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%
Northland	2,598	2,318	2,773	176	7%	470	421	562	92	20%	2,108	1,878	2,185	77	4%
Waitematā	5,802	6,074	6,823	1,022	18%	339	335	416	77	23%	5,269	5,474	6,157	889	17%
Auckland	4,207	3,805	4,175	-32	-1%	207	219	245	39	19%	3,711	3,288	3,624	-87	-2%
Counties Manukau	5,926	6,664	6,243	317	5%	563	666	590	27	5%	4,621	5,076	4,759	138	3%
Waikato	3,907	4,341	4,282	376	10%	466	499	557	92	20%	3,391	3,778	3,672	282	8%
Bay of Plenty	3,256	3,307	4,359	1,103	34%	397	413	544	147	37%	2,845	2,884	3,789	945	33%
Lakes	1,317	1,170	1,609	293	22%	239	243	296	57	24%	1,057	905	1,291	234	22%
Tairāwhiti	500	467	509	9	2%	144	136	143	-1	-1%	353	325	363	11	3%
Taranaki	1,293	1,254	1,677	384	30%	135	107	178	44	32%	1,152	1,138	1,492	340	30%
Whanganui	1,003	844	923	-80	-8%	139	115	133	-6	-4%	859	723	785	-74	-9%
Hawke's Bay	1,817	1,901	2,296	479	26%	218	266	310	93	43%	1,580	1,605	1,955	375	24%
MidCentral	1,440	1,491	1,698	258	18%	102	133	172	71	69%	1,325	1,340	1,512	188	14%
Capital & Coast	1,924	2,185	2,001	77	4%	135	172	185	50	37%	1,711	1,937	1,735	24	1%
Hutt Valley	1,755	2,124	2,127	373	21%	145	219	202	57	39%	1,551	1,832	1,832	282	18%
Wairarapa	669	588	696	28	4%	57	53	68	11	19%	605	530	623	18	3%
Nelson Marlborough	1,366	1,771	1,776	411	30%	73	98	100	27	37%	1,287	1,657	1,667	381	30%
West Coast	442	444	580	139	31%	32	17	44	13	40%	409	425	534	126	31%
Canterbury	5,148	5,237	5,024	-124	-2%	295	304	277	-18	-6%	4,777	4,860	4,679	-98	-2%
South Canterbury	816	781	894	79	10%	33	35	32	-1	-3%	781	744	859	79	10%
Total	45,180	46,766	50,465	5,285	12%	4186	4451	5054	869	21%	39,387	40,399	43,513	4,127	10%

Bronchoscopy

	Total population					Māori					Non-Māori / Non-Pacific				
	Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021	
	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%
Northland	54	43	70	16	30%	17	14	20	3	18%	36	28	50	14	39%
Waitematā	97	96	130	33	34%	7	9	17	11	-	87	83	111	25	28%
Auckland	231	186	183	-48	-21%	28	19	20	-8	-27%	182	149	154	-28	-15%
Counties Manukau	235	219	210	-25	-11%	43	28	40	-3	-6%	159	159	136	-23	-14%
Waikato	187	137	156	-31	-16%	42	32	32	-10	-24%	142	102	124	-18	-13%
Bay of Plenty	110	90	121	11	10%	26	21	33	8	29%	83	69	88	6	7%
Tairāwhiti	2	17	18	16	-	1	6	6	5	-	1	11	12	11	-
Lakes	59	49	52	-7	-12%	20	21	18	-2	-10%	39	27	34	-5	-12%
Taranaki	36	26	36	0	0%	7	2	9	3	-	30	24	27	-3	-8%
Hawke's Bay	48	30	49	2	3%	13	8	14	2	12%	35	21	34	-1	-1%
Whanganui	11	10	12	1	9%	5	4	7	2	-	6	6	5	-1	-
MidCentral	26	20	25	-1	-2%	5	1	7	2	-	21	19	17	-4	-17%
Capital & Coast	64	48	46	-18	-28%	8	7	4	-4	-	53	39	39	-14	-26%
Hutt Valley	77	62	57	-20	-25%	15	11	10	-5	-31%	59	47	41	-18	-31%
Nelson Marlborough	48	57	58	11	22%	5	5	2	-3	-	43	51	56	13	30%
Canterbury	255	249	236	-19	-7%	19	14	13	-6	-32%	233	229	221	-12	-5%
South Canterbury	9	13	11	2	-	1	0	0	-1	-	9	13	11	3	-
Total	1,546	1,352	1,470	-76	-5%	257	202	252	-5	2%	1,214	1,077	1,160	-54	-4%

Colorectal cancer surgery

	Total population					Māori					Non-Māori / Non-Pacific				
	Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021	
	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%
Northland	57	56	65	8	14%	10	15	16	6	60%	47	41	49	3	5%
Waitematā	172	145	128	-44	-25%	11	10	6	-5	-45%	152	132	118	-34	-22%
Auckland	132	130	142	11	8%	8	16	12	5	-	113	107	114	2	1%
Counties Manukau	89	96	79	-10	-11%	6	15	6	0	-	74	70	59	-15	-20%
Waikato	147	182	165	18	12%	15	26	25	11	72%	130	155	137	7	5%
Bay of Plenty	94	122	96	2	2%	10	17	16	6	60%	84	105	75	-9	-10%
Tairāwhiti	16	17	22	7	42%	3	5	11	8	-	13	12	10	-3	-20%
Lakes	52	54	53	1	2%	10	8	10	1	-	41	45	40	-1	-2%
Taranaki	60	55	58	-2	-3%	6	8	6	1	-	55	47	52	-3	-5%
Hawke's Bay	97	100	85	-12	-12%	11	14	6	-5	-45%	86	83	77	-9	-10%
Whanganui	32	37	27	-5	-14%	3	3	1	-2	-	29	34	26	-3	-9%
MidCentral	79	86	90	11	14%	5	11	14	9	-	73	75	76	3	4%
Capital & Coast	107	92	96	-11	-10%	8	10	15	7	-	93	80	75	-18	-19%
Hutt Valley	45	36	42	-3	-6%	4	3	2	-2	-	40	32	38	-2	-5%
Wairarapa	14	3	12	-2	-11%	2	0	2	1	-	12	3	10	-2	-17%
Nelson Marlborough	60	41	53	-7	-12%	3	2	1	-2	-	57	39	52	-5	-9%
West Coast	3	6	4	2	-	0	0	0	0	-	3	6	4	2	
Canterbury	207	196	238	32	15%	11	14	12	1	9%	192	179	223	31	16%
South Canterbury	36	27	40	5	13%	1	2	0	-1	-	35	25	40	6	16%
Southern	169	152	162	-7	-4%	7	4	8	2	-	161	147	151	-10	-6%
Total	1,663	1,633	1,657	-6	0%	131	183	169	39	30%	1,485	1,417	1,426	-59	-4%

Lung cancer surgery

	Total population					Māori					Non-Māori / Non-Pacific				
	Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021	
	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%
Waitematā	0	0	1	1	-	0	0	0	0	-	0	0	1	1	-
Auckland	185	172	155	-30	-16%	32	27	24	-8	-24%	140	129	117	-23	-16%
Counties Manukau	2	2	0	-2	-	0	1	0	0	-	1	1	0	-1	-
Waikato	86	106	94	9	10%	25	26	26	1	4%	59	79	66	7	12%
Bay of Plenty	0	0	1	1	-	0	0	0	0	-	0	0	1	1	-
Taranaki	1	0	0	-1	-	0	0	0	0	-	1	0	0	-1	-
Hawke's Bay	0	1	0	0	-	0	0	0	0	-	0	0	0	0	-
MidCentral	0	0	1	1	-	0	0	1	1	-	0	0	0	0	-
Capital & Coast	87	61	100	14	16%	17	8	20	4	21%	66	50	74	8	12%
Canterbury	57	76	62	5	9%	3	5	17	14	-	54	70	44	-10	-19%
Southern	26	19	21	-5	-19%	2	2	0	-2	-	25	17	21	-4	-14%
Total	442	437	435	-7	-1%	78	69	88	11	14%	345	346	324	-21	-6%

Prostate cancer surgery

	Total population					Māori					Non-Māori / Non-Pacific				
	Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021	
	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%
Northland	34	22	43	9	26%	6	5	7	2	-	28	17	35	7	25%
Waitematā	48	74	63	16	33%	3	2	7	5	-	44	70	54	10	23%
Auckland	63	89	63	0	0%	4	8	6	2	-	54	77	45	-9	-17%
Counties Manukau	1	0	8	8	-	0	0	1	1	-	1	0	5	5	-
Waikato	44	38	34	-10	-22%	2	3	8	6	-	42	34	26	-16	-37%
Bay of Plenty	33	28	18	-15	-45%	5	5	3	-2	-	28	23	15	-13	-45%
Tairāwhiti	4	6	6	3	-	2	2	3	2	-	2	4	3	1	-
Lakes	6	11	11	6	-	0	6	4	4	-	6	5	6	1	-
Taranaki	15	25	31	16	107%	2	4	2	1	-	13	21	29	16	123%
Hawke's Bay	12	16	22	11	91%	1	4	3	3	-	11	12	19	8	73%
Whanganui	4	3	7	4	-	1	0	0	-1	-	3	3	7	4	-
MidCentral	51	58	40	-11	-22%	5	3	4	-1	-	46	55	35	-11	-24%
Capital & Coast	43	44	64	22	51%	2	2	3	2	-	38	41	57	19	50%
Wairarapa	7	7	7	1	-	1	1	1	1	-	6	6	6	0	-
Nelson Marlborough	27	27	29	2	7%	0	0	2	2	-	27	27	27	1	2%
West Coast	5	4	6	2	-	0	0	0	0	-	5	4	6	2	-
Canterbury	42	52	46	4	10%	1	2	3	2	-	41	49	42	1	2%
South Canterbury	10	12	7	-3	-	0	0	0	0	-	10	12	7	-3	-
Southern	52	59	74	23	44%	3	4	5	2	-	48	55	69	21	44 %
Total	495	575	579	85	17%	34	51	62	28	82%	450	515	493	44	10%

Medical oncology first specialist assessments

	Total population					Māori					Non-Māori / Non-Pacific				
	Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021	
	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%
Northland	315	285	347	33	10%	85	78	107	22	26%	228	203	235	8	3%
Auckland	1,570	1,710	1,721	151	10%	181	201	197	17	9%	1,187	1,266	1,282	96	8%
Waikato	548	574	540	-8	-1%	118	122	130	13	11%	419	445	401	-18	-4%
Bay of Plenty	324	352	383	59	18%	62	63	78	16	26%	260	287	300	41	16%
Tairāwhiti	74	97	101	28	37%	33	44	45	12	36%	41	53	56	16	38%
Lakes	106	133	167	61	58%	37	37	61	25	67%	67	94	103	36	54%
Taranaki	161	153	138	-23	-14%	18	17	25	8	43%	143	135	112	-31	-21%
MidCentral	722	725	798	77	11%	112	117	156	44	39%	595	599	632	38	6%
Capital & Coast	585	579	608	24	4%	71	75	77	6	8%	481	464	486	5	1%
Nelson Marlborough	278	306	301	23	8%	21	15	12	-9	-41%	257	289	287	31	12%
West Coast	19	11	21	2	11%	2	0	3	2	-	17	11	18	1	6%
Canterbury	868	829	832	-36	-4%	59	52	58	-1	-2%	799	762	768	-31	-4%
South Canterbury	4	40	83	79	-	0	2	3	3	-	4	38	80	76	-
Total	5,572	5,794	6,040	469	8%	796	823	952	156	20%	4,494	4,646	4,760	267	6%

Medical oncology IV chemotherapy

	Total population					Māori					Non-Māori / Non-Pacific				
	Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021	
	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%
Northland	2,032	2,117	2,300	268	13%	450	660	737	288	64%	1,561	1,436	1,525	-36	-2%
Auckland	12,371	14,883	15,637	3,266	26%	1,179	1,703	1,677	499	42%	9,747	11,473	11,844	2,097	22%
Waikato	4,947	4,248	5,372	426	9%	811	685	934	123	15%	4,080	3,491	4,364	284	7%
Bay of Plenty	3,380	3,815	3,509	130	4%	571	766	810	239	42%	2,773	3,028	2,672	-101	-4%
Lakes	459	376	939	480	105%	205	172	434	230	112%	254	203	490	236	93%
Tairāwhiti	1,977	2,050	2,166	189	10%	559	606	718	159	28%	1,378	1,425	1,393	15	1%
Taranaki	1,130	1,376	1,271	141	12%	113	135	221	109	96%	1,007	1,222	1,050	44	4%
Whanganui	23	59	35	12	52%	6	49	20	15	-	18	10	12	-6	-31%
Hawke's Bay	75	62	59	-16	-21%	12	8	7	-5	-42%	63	54	52	-11	-17%
MidCentral	4,834	5,217	4,263	-571	-12%	805	874	830	26	3%	3,904	4,280	3,363	-541	-14%
Capital & Coast	4,462	4,183	3,656	-806	-18%	454	474	416	-38	-8%	3,798	3,464	2,948	-850	-22%
Hutt Valley	78	71	107	30	38%	7	3	10	4	-	67	62	93	26	39%
Wairarapa	16	50	35	20	126%	2	14	2	0	-	14	32	27	14	100%
Nelson Marlborough	1,957	2,006	1,849	-108	-5%	155	85	85	-70	-45%	1,774	1,902	1,764	-10	-1%
West Coast	20	23	15	-5	-23%	1	5	-	-1	-	19	18	15	-4	-21%
Canterbury	4,273	4,179	4,176	-97	-2%	280	277	259	-21	-7%	3,884	3,761	3,854	-30	-1%
South Canterbury	713	724	746	34	5%	6	17	20	15	-	701	707	726	25	4%
Total	42,745	45,439	46,138	3,394	8%	5,611	6,533	7,181	1,571	28%	35,040	36,568	36,193	1,154	3%

Radiation oncology first specialist assessments

	Total population					Māori					Non-Māori / Non-Pacific				
	Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021	
	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%
Northland	240	195	271	31	13%	62	67	89	27	44%	174	127	180	6	3%
Auckland	2,145	2,130	2,208	64	3%	258	248	276	19	7%	1,624	1,653	1,654	31	2%
Waikato	915	985	1,026	111	12%	159	213	208	49	31%	737	762	800	63	9%
Bay of Plenty	629	616	752	123	20%	92	93	134	43	46%	532	519	612	81	15%
Tairāwhiti	50	26	26	-24	-47%	19	13	7	-12	-62%	30	13	19	-11	-37%
Lakes	22	10	15	-7	-32%	5	3	6	1	-	17	7	9	-8	-47%
MidCentral	1,141	1,180	1,225	84	7%	146	150	183	37	25%	982	1,014	1,028	47	5%
Capital & Coast	954	902	991	38	4%	91	89	98	7	8%	822	765	840	18	2%
Nelson Marlborough	99	117	139	40	40%	7	8	6	-1	-	92	108	132	40	43%
West Coast	7	3	10	4	-	1	0	1	1	-	6	3	9	3	-
Canterbury	1,089	1,234	1,207	118	11%	63	55	68	5	8%	1,013	1,163	1,124	112	11%
Total	7,289	7,398	7,870	581	8%	901	939	1,076	176	19%	6,027	6,134	6,407	380	6%

Radiation oncology megavoltage fractions

	Total population					Māori					Non-Māori / Non-Pacific				
	Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 average and 2021	
	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%
Auckland	30,088	27,122	24,735	-5,353	-18%	4,120	3,515	4,218	98	2%	22,890	20,748	17,703	-5,187	-23%
Waikato	14,692	12,925	12,080	-2,612	-18%	2,655	2,844	2,553	-102	-4%	11,763	9,939	9,328	-2,435	-21%
Bay of Plenty	11,250	11,351	12,021	771	7%	1,980	1,909	2,145	166	8%	9,149	9,308	9,744	595	7%
MidCentral	15,061	14,997	16,085	1,024	7%	2,124	1,989	2,572	448	21%	12,825	12,726	13,373	548	4%
Capital & Coast	13,567	12,873	13,578	12	0%	1,594	1,524	1,488	-106	-7%	11,314	10,624	11,340	26	-
Canterbury	17,462	16,159	16,355	-1,107	-6%	1,168	929	830	-338	-29%	15,978	15,079	15,359	-619	-4%
Total	102,119	95,432	94,854	-7,265	-7%	13,640	12,712	13,806	166	1%	83,918	78,427	76,847	-7,071	-8%

Haematology first specialist assessment

	Total population					Māori					Non-Māori / Non-Pacific				
	Cumulative number for Jan to Aug			Difference between 2018/19 and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 and 2021	
	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%	2018	2019	2021	Number	%
Northland	147	173	129	-18	-12%	27	46	34	8	28%	118	124	94	-24	-20%
Waitematā	456	474	416	-40	-9%	25	31	33	9	35%	413	420	362	-51	-12%
Auckland	659	502	715	57	9%	50	44	69	19	38%	546	395	585	40	7%
Counties Manukau	503	474	434	-69	-14%	57	59	51	-6	-11%	370	342	310	-60	-16%
Waikato	480	490	462	-18	-4%	83	82	78	-5	-6%	390	401	373	-17	-4%
Bay of Plenty	267	210	260	-7	-2%	44	30	37	-7	-15%	219	177	219	1	0%
Tairāwhiti	27	25	38	12	43%	8	6	14	6	-	18	19	23	5	28%
Taranaki	106	119	99	-7	-7%	10	15	10	1	-	96	103	89	-7	-7%
MidCentral	514	509	555	41	8%	64	63	96	32	50%	444	432	453	9	2%
Capital & Coast	527	416	438	-89	-17%	38	48	43	6	15%	468	342	359	-109	-23%
Nelson Marlborough	118	79	95	-23	-19%	3	3	5	3	-	114	76	90	-24	-21%
West Coast	13	4	6	-7	-52%	1	0	1	0	-	12	4	5	-7	-57%
Canterbury	326	344	378	53	16%	17	19	27	11	64%	299	322	345	46	15%
Total	4,140	3,819	4,025	-115	-3%	424	446	498	74	17%	3,505	3,157	3,307	-198	-6%

Haematology IV chemotherapy

	Total population					Māori					Non-Māori / Non-Pacific				
	Cumulative number for Jan to Aug			Difference between 2018/19 and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 and 2021		Cumulative number for Jan to Aug			Difference between 2018/19 and 2021	
	2018/19	2021	2020	Number	%	2018/19	2020	2021	Number	%	2018/19	2020	2021	Number	%
Northland	1,198	949	1,028	-170	-14%	272	197	247	-25	-9%	903	713	762	-141	-16%
Waitematā	2,711	2,552	2,433	-278	-10%	78	119	90	13	16%	2,491	2,266	2,249	-242	-10%
Auckland	2,419	2,237	2,856	438	18%	160	89	182	23	14%	2,014	1,913	2,334	320	16%
Counties Manukau	1,217	1,576	2,173	957	79%	158	147	225	67	42%	807	1,182	1,584	777	96%
Waikato	1,330	1,496	1,652	323	24%	223	281	298	75	34%	1,100	1,215	1,302	203	18%
Bay of Plenty	876	780	1,128	252	29%	81	115	144	63	78%	775	659	957	182	23%
Tairāwhiti	120	72	117	-3	-2%	14	10	18	4	29%	98	62	99	2	2%
Lakes	276	450	479	204	74%	76	114	102	26	34%	200	336	349	150	75%
MidCentral	1,825	1,617	1,011	-814	-45%	221	132	79	-142	-64%	1,591	1,470	932	-659	-41%
Capital & Coast	2,191	2,212	1,853	-338	-15%	177	272	93	-84	-47%	1,933	1,723	1,594	-339	-18%
Nelson Marlborough	1	10	0	-1	-	0	0	0	0	-	1	10	0	-1	-
West Coast	8	6	9	1	-	1	0	0	-1	-	7	6	9	2	-
Canterbury	1,570	1,806	1,814	245	16%	133	193	65	-68	-51%	1,424	1,576	1,747	323	23%
Total	15,738	15,763	16,553	815	5%	1,592	1,669	1,543	-49	-3%	13,342	13,131	13,918	576	4%

APPENDIX 4: SURGICAL PROCEDURE CODES

Below is a list of the surgical procedure codes that were used for analysis on curative cancer surgery.

COLORECTAL CANCER SURGERY		
Clinical code	Block short description	Clinical code description
3200000	Colectomy	Limited excision of large intestine with formation of stoma
3200001	Colectomy	Right hemicolectomy with formation of stoma
3200300	Colectomy	Limited excision of large intestine with anastomosis
3200301	Colectomy	Right hemicolectomy with anastomosis
3200400	Colectomy	Subtotal colectomy with formation of stoma
3200401	Colectomy	Extended right hemicolectomy with formation of stoma
3200500	Colectomy	Subtotal colectomy with anastomosis
3200501	Colectomy	Extended right hemicolectomy with anastomosis
3200600	Colectomy	Left hemicolectomy with anastomosis
3200601	Colectomy	Left hemicolectomy with formation of stoma
3200900	Colectomy	Total colectomy with ileostomy
3201200	Colectomy	Total colectomy with ileorectal anastomosis
3201500	Total proctocolectomy	Total proctocolectomy with ileostomy
3202400	Anterior resection of rectum	High anterior resection of rectum
3202500	Anterior resection of rectum	Low anterior resection of rectum
3202600	Anterior resection of rectum	Ultra low anterior resection of rectum
3202800	Anterior resection of rectum	Ultra low anterior resection of rectum with hand sutured coloanal anastomosis
3203000	Rectosigmoidectomy or proctectomy	Rectosigmoidectomy with formation of stoma
3203900	Rectosigmoidectomy or proctectomy	Abdominoperineal proctectomy
3205100	Total proctocolectomy	Total proctocolectomy with ileo-anal anastomosis
3205101	Total proctocolectomy	Total proctocolectomy with ileo-anal anastomosis and formation of temporary ileostomy
3206000	Rectosigmoidectomy or proctectomy	Restorative proctectomy
3209900	Excision of lesion or tissue of rectum or anus	Per anal submucosal excision of lesion or tissue of rectum
3211200	Rectosigmoidectomy or proctectomy	Perineal rectosigmoidectomy
9220800	Anterior resection of rectum	Anterior resection of rectum, level unspecified

LUNG CANCER SURGERY		
Clinical code	Clinical code description	Block Description
3844000	Wedge resection of lung	Partial resection of lung
3844001	Radical wedge resection of lung	Partial resection of lung
3843800	Segmental resection of lung	Partial resection of lung
9016900	Endoscopic wedge resection of lung	Partial resection of lung
3843801	Lobectomy of lung	Lobectomy of lung
3844100	Radical lobectomy	Lobectomy of lung
3844101	Radical pneumonectomy	Pneumonectomy
3843802	Pneumonectomy	Pneumonectomy

PROSTATE CANCER SURGERY		
Clinical code	Block short description	Clinical code description
3720004	Open prostatectomy	Retropubic prostatectomy
3720900	Open prostatectomy	Radical prostatectomy
3720901	Other closed prostatectomy	Laparoscopic radical prostatectomy
3721000	Open prostatectomy	Radical prostatectomy with bladder neck reconstruction
3721001	Other closed prostatectomy	Laparoscopic radical prostatectomy with bladder neck reconstruction
3721100	Open prostatectomy	Radical prostatectomy with bladder neck reconstruction and pelvic lymphadenectomy
3721101	Other closed prostatectomy	Laparoscopic radical prostatectomy with bladder neck reconstruction and pelvic lymphadenectomy
3720900	Open prostatectomy	Radical prostatectomy
3720901	Closed prostatectomy	Laparoscopic radical prostatectomy
3721000	Open prostatectomy	Radical prostatectomy with bladder neck reconstruction
3721001	Closed prostatectomy	Laparoscopic radical prostatectomy with bladder neck reconstruction
3721100	Open prostatectomy	Radical prostatectomy with bladder neck reconstruction and pelvic lymphadenectomy