Singapore Cancer Registry
Annual Registry Report
Trends in Cancer Incidence in Singapore
2010 – 2014

National Registry of Diseases Office
(NRDO)

Acknowledgement

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1 GLOSSARY

Crude rate (CR): Crude incidence or mortality rate is the number of cancer cases or deaths divided by the mid-year general population respectively.

Age-standardised rate (ASR): Age-standardised incidence (ASIR) or mortality rate (ASMR) is the rate that would be observed if the general population had the age structure of an external world standard population. Age standardisation facilitates the comparison of rates across time and also across countries. In this report, Segi's world population was used in direct age-standardisation.

The CR and ASR figures in this report are stated as per 100,000 Singapore resident population.

Observed Survival: Percentage of patients who are still alive after a specified period of time following diagnosis. This estimate includes death from cancer and also from other causes. The five-year survival estimates are used in this report.

2 EXECUTIVE SUMMARY

A total number of 61,522 incident cancer cases were diagnosed among the resident population during the period 2010 – 2014 **(Table 5.1)**. Of these, 29,779 (48.4%) of diagnosed cancer patients were males and 31,743 (51.6%) were females **(Table 5.2.1)**.

The crude incidence rates for cancer diagnoses in males and females for the period 2010 – 2014 were 316.7 and 327.5 (per 100,000 person-years) respectively. The corresponding age-standardised incidence rates were 229.2 and 217.4 per 100,000 person-years **(Table 5.2.1)**.

In both males and females, the crude and age-standardised incidence rates were highest in the Chinese followed by the Malays and Indians **(Table 5.2.2)**.

Colorectal, lung and prostate cancers were the three leading cancers diagnosed among the male resident population **(Table 5.3.1)**. Among females, breast, colorectal and lung cancers were the most common **(Table 5.3.2)**.

The numbers of cases and crude incidence rates of cancer for the period 2010 – 2014 had increased vis-à-vis the incidence reported for the period 2009 – 2013. The ten leading cancers also remained the same for both genders, except for stomach and thyroid cancers in women, which saw an exchange in ranks from the period 2009 – 2013 **(Tables 5.3.1 and 5.3.2)**.

It was estimated that 22.66% of men (1 in 4) and 22.03% (1 in 5) of women would develop cancer by age 75. The cancer that males were most at risk of is colorectal cancer (3.89%), while that for women is breast cancer (6.83%) **(Tables 5.5.1 & 5.5.2)**.

Lung cancer and breast cancer had the highest mortality rates in males and females respectively **(Tables 5.6.1 & 5.6.2)**. Overall, however, the mortality rates for cancer for 2010 – 2014 did not differ significantly from those of the period 2009 – 2013.

3 INTRODUCTION

The Singapore Cancer Registry provides information on cancer patterns and trends in Singapore. This comprehensive population-based cancer registration in Singapore began in January 1968. In April 2001, the Cancer Registry came under the auspices of the National Registry of Diseases Office (NRDO).

The Ministry of Health (MOH) enacted the National Registry of Diseases Act in 2007 to establish the disease registries' access to medical information from healthcare providers, while safeguarding data confidentiality. Cancer was the first disease to be covered by the Act.

4 SOURCE OF DATA AND DATA PROCESSING

Comprehensive cancer registration was achieved through data obtained from a combination of sources, viz., (a) notifications by the medical profession, (b) pathology records, (c) hospital records, and (d) mortality data from the Registry of Births and Deaths (RBD), Ministry of Home Affairs (MHA). Notification of cases of cancer has been mandatory since 2009.

For cancer cases obtained from sources other than physician notification, the data were checked against known registered cases in the registry.

Data Processing

Data were captured both manually (from case notes) and through electronic transfer of data from relevant institutions. All relevant information of new cases would be entered into a computerised system and checked for duplication against a master index. The clinical data would then be verified by NRDO staff and a visiting consultant pathologist.

NRDO staff do not have personal contact with the patients and are not involved in the clinical management of the patients.

The Cancer Registry adopted the International Classification of Diseases for Oncology, 2nd Edition (ICD-O-2) for the classification of primary sites and morphology during the period 1993 to 2002. From year 2003 onwards, diagnosed cases of cancer were classified using the International Classification of Diseases for Oncology, 3rd Edition (ICD-O-3).

Cases of carcinoma-in-situ were registered but not included in the computation of incidence and survival rates. Those which progressed to be invasive at a later stage would be re-registered in the year they were diagnosed as invasive carcinomas.

This report is based primarily on cancers registered in Singapore which were diagnosed within the period 1st January, 2010 to 31st December, 2014 (inclusive of the stated dates). The data in the report are accurate as of 13th October 2015.

All the results refer only to the resident population (citizens and permanent residents) of Singapore.

Population Denominators

In this report, we have used the population denominators obtained from the Department of Statistics (DOS) to compute the rates. DOS releases mid-year population estimates annually and these population denominators are widely used in official publications in Singapore, including those published by the Ministry of Health. Segi's World Population was used for direct standardisation to calculate age-standardised rates.

Survival

Calculation of survival follows the methodology in 'Cancer Survival in Singapore, 1968 – 2007', except that the life table used to generate expected survival for 2005 – 2014 was obtained from DOS.

In addition, the Brenner method is now used for age-standardisation[1]. This was done so that age-standardised survival could still be obtained even if none of the patients within one or more age strata was followed up over the entire period of interest. Furthermore, this method also assures that age-adjustment using the study's population own age-distribution yields exactly the same result as obtained in the crude analysis.

The site-specific age groups in the distribution tables were based on the International Cancer Survival Standards (ICSS) age categories for weights used to obtain age-standardised survival.

[1] H. Brenner et al. An alternative approach to age adjustment of cancer survival rates. *European Journal of Cancer* 40 (2004), 2317–2322.

5 OVERALL FINDINGS

5.1 Notifications by Year of Diagnosis

For the period 2010 to 2014, the number of annual cancer notifications had increased every year (Table 5.1).

Table 5.1: Number of Incident Cancers by Year of Diagnosis, 2010 – 2014

Year of diagnosis	2010	2011	2012	2013	2014	2010 – 2014
No. of notifications	11,441	11,743	12,312	12,785	13,241	61,522

5.2 Incidence of Cancers for the Period 2010 – 2014

A total number of 61,522 incident cases of cancer were diagnosed among the resident population during the period 2010 – 2014. Of these, 29,779 (48.4%) occurred in males and the other 31,743 (51.6%) in females. The crude incidence rates for the total number of male and female cancer patients for the period 2010 – 2014 were 316.7 and 327.5 per 100,000 person-years respectively. The corresponding age-standardised incidence rates were 229.2 and 217.4 per 100,000 person-years (Table 5.2.1).

Table 5.2.1: Incidence of Cancers by Gender, 2010 – 2014

Gender	Number	%	CR (95% CI)	ASR (95% CI)
Male	29,779	48.4	316.7 (313.1-320.3)	229.2 (226.5-231.9)
Female	31,743	51.6	327.5 (323.9-331.1)	217.4 (214.9-219.9)

For both males and females, the highest crude and age-standardized incidence rates were observed in the Chinese, followed by the Malays and Indians (Table 5.2.2).

Table 5.2.2: Age-Standardised Incidence Rates for All Cancers by Gender and Ethnicity, 2010 – 2014

Gender	Ethnicity	Number	CR (95% CI)	ASR (95% CI)
Male	Chinese	25,040	361.3 (356.8-365.8)	239.2 (236.2-242.2)
	Malay	2,587	203.9 (196.1-211.8)	191.4 (183.8-199.1)
	Indian	1,330	147.1 (139.2-155.1)	142.3 (134.2-150.4)
	All	29,779	316.7 (313.1-320.3)	229.2 (226.5-231.9)
Female	Chinese	26,156	361.7 (357.3-366.1)	222.2 (219.3-225.0)
	Malay	3,255	254.2 (245.5-262.9)	207.5 (200.2-214.9)
	Indian	1,630	192.1 (182.8-201.4)	171.4 (162.9-180.0)
	All	31,743	327.5 (323.9-331.1)	217.4 (214.9-219.9)

5.3 Ten Most Frequent Cancers by Gender, 2010 – 2014

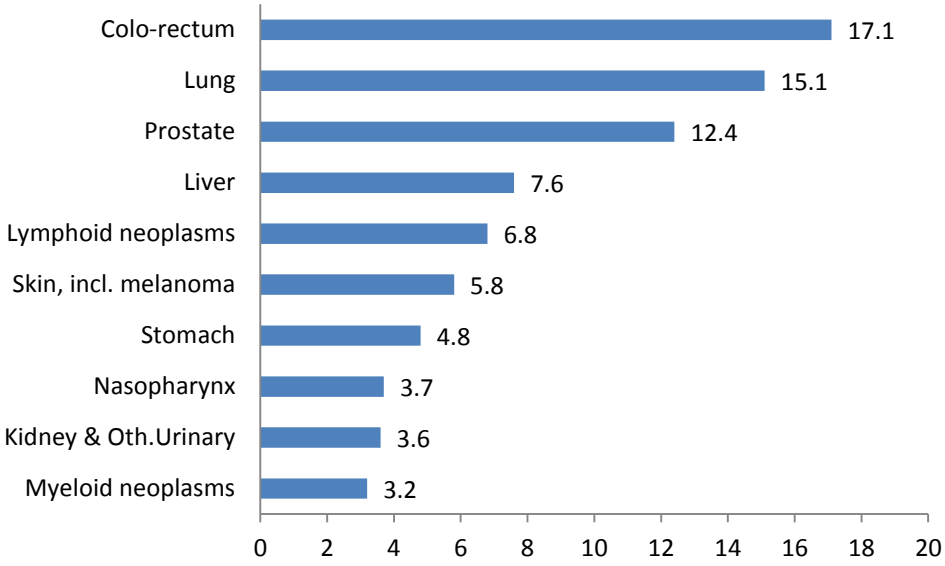
Similar to the findings of the trend report for the period 2009 – 2013, colorectal, lung, and prostate cancers were the three most frequent cancers diagnosed among males (Table 5.3.1, Figure 5.3.1).

Table 5.3.1: Ten Most Frequent Cancers in Males, 2010 – 2014

Rank	Site	Number	%	CR (95% CI)	ASR (95% CI)
1	Colo-rectum	5,101	17.1	54.2 (52.8-55.7)	38.2 (37.2-39.3)
2	Lung	4,489	15.1	47.7 (46.3-49.1)	33.7 (32.7-34.7)
3	Prostate	3,705	12.4	39.4 (38.1-40.7)	28.6 (27.7-29.5)
4	Liver	2,264	7.6	24.1 (23.1-25.1)	16.9 (16.2-17.7)
5	Lymphoid neoplasms	2,027	6.8	21.6 (20.6-22.5)	17.5 (16.7-18.3)
6	Skin, including melanoma	1,715	5.8	18.2 (17.4-19.1)	12.8 (12.2-13.4)
7	Stomach	1,430	4.8	15.2 (14.4-16.0)	10.7 (10.2-11.3)
8	Nasopharynx	1,107	3.7	11.8 (11.1-12.5)	8.1 (7.6-8.6)
9	Kidney & Other Urinary	1,079	3.6	11.5 (10.8-12.2)	8.1 (7.6-8.6)
10	Myeloid neoplasms	957	3.2	10.2 (9.5-10.8)	7.6 (7.1-8.2)
-	Others	5,905	19.8	-	-
-	All	29,779	100	316.7 (313.1-320.3)	229.2 (226.5-231.9)

* Lymphoid neoplasms include Non-Hodgkin Lymphoma (e.g. Precursor Lymphoid, B-Cell & T-Cell neoplasms) and Hodgkin Lymphoma
* Myeloid neoplasms - includes Acute Myeloid Leukemia; Myelodysplastic syndromes (MDS); Myeloproliferative neoplasms (MPN); Myelodysplastic and Myeloproliferative (MDS/MPN) neoplasms; and Myeloid neoplasms associated with eosinophilia and abnormalities of growth factor receptors
* Other urinary refers to renal pelvis, ureter, urethra etc.

Figure 5.3.1: Ten Most Frequent Cancers in Males (%), 2010 – 2014



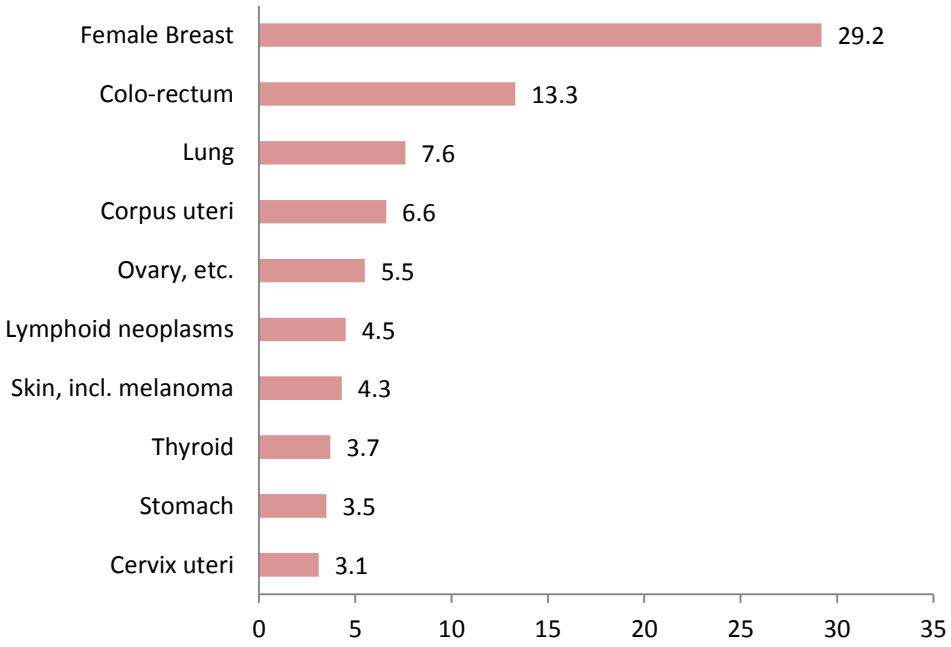
Among the females, breast, colorectal, and lung cancer were the three most frequently diagnosed cancers (Table 5.3.2, Figure 5.3.2). The results for females were similar to the trends reported for the period 2009 – 2013, except that stomach and thyroid cancers had exchanged positions.

Table 5.3.2: Ten Most Frequent Cancers in Females, 2010 – 2014

Rank	Site	Number	%	CR (95% CI)	ASR (95% CI)
1	Female Breast	9,274	29.2	95.7 (93.7-97.6)	64.6 (63.3-66.0)
2	Colo-rectum	4,219	13.3	43.5 (42.2-44.8)	26.7 (25.9-27.6)
3	Lung	2,410	7.6	24.9 (23.9-25.9)	15.1 (14.5-15.7)
4	Corpus uteri	2,092	6.6	21.6 (20.7-22.5)	14.6 (14.0-15.3)
5	Ovary, etc.	1,731	5.5	17.9 (17.0-18.7)	12.8 (12.2-13.4)
6	Lymphoid neoplasms	1,414	4.5	14.6 (13.8-15.4)	11.2 (10.5-11.9)
7	Skin, including melanoma	1,374	4.3	14.2 (13.4-14.9)	8.4 (7.9-8.8)
8	Thyroid	1,182	3.7	12.2 (11.5-12.9)	9.0 (8.5-9.5)
9	Stomach	1,115	3.5	11.5 (10.8-12.2)	6.8 (6.4-7.2)
10	Cervix uteri	998	3.1	10.3 (9.7-10.9)	7.0 (6.6-7.4)
-	Others	5,934	18.7	-	-
-	All	31,743	100	327.5 (323.9-331.1)	217.4 (214.9-219.9)

* Lymphoid neoplasms include Non-Hodgkin Lymphoma (e.g. Precursor Lymphoid, B-Cell & T-Cell neoplasms) and Hodgkin Lymphoma

Figure 5.3.2: Ten Most Frequent Cancers in Females (%), 2010 – 2014



5.4 Ten Most Frequent Cancers by Ethnicity, 2010 – 2014

From 2010 – 2014, colorectal, lung, and prostate cancers were the three most common cancers diagnosed among Chinese and Indian males. Among Malay males, lung cancer, colorectal cancer, and lymphoid neoplasms were the three most frequent cancer diagnoses (Tables 5.4.1.1 – 5.4.3.2).

Breast and colorectal cancer were consistently ranked among the three leading female cancers regardless of ethnicity. Lung cancer was among the top three cancers for Chinese females, while cancer of the corpus-uteri was among the top three cancers for Malay and Indian females (Tables 5.4.1.1 – 5.4.3.2).

Table 5.4.1.1: Ten Most Frequent Cancers among Chinese Male Residents, 2010 – 2014

Rank	Site	Number	%	CR (95% CI)	ASR (95% CI)
1	Colo-rectum	4,436	17.7	64.0 (62.1-65.9)	41.2 (40.0-42.5)
2	Lung	3,795	15.2	54.8 (53.0-56.5)	35.1 (34.0-36.2)
3	Prostate	3,189	12.7	46.0 (44.4-47.6)	30.0 (28.9-31.0)
4	Liver	1,956	7.8	28.2 (27.0-29.5)	18.0 (17.2-18.9)
5	Lymphoid neoplasms	1,496	6.0	21.6 (20.5-22.7)	16.4 (15.5-17.3)
6	Skin, including melanoma	1,371	5.5	19.8 (18.7-20.8)	12.8 (12.1-13.4)
7	Stomach	1,276	5.1	18.4 (17.4-19.4)	11.9 (11.2-12.5)
8	Nasopharynx	991	3.9	14.3 (13.4-15.2)	9.4 (8.8-10.0)
9	Kidney & Other Urinary	926	3.7	13.4 (12.5-14.2)	8.7 (8.1-9.3)
10	Myeloid neoplasms	747	3.0	10.8 (10.0-11.6)	7.5 (6.9-8.1)
-	Others	4,857	19.4	-	-
-	All	25,040	100	361.3 (356.8-365.8)	239.2 (236.2-242.2)

* Lymphoid neoplasms include Non-Hodgkin Lymphoma (e.g. Precursor Lymphoid, B-Cell & T-Cell neoplasms) and Hodgkin Lymphoma
* Myeloid neoplasms - includes Acute Myeloid Leukemia; Myelodysplastic syndromes (MDS); Myeloproliferative neoplasms (MPN); Myelodysplastic and Myeloproliferative (MDS/MPN) neoplasms; and Myeloid neoplasms associated with eosinophilia and abnormalities of growth factor receptors
* Other urinary refers to renal pelvis, ureter, urethra etc.

Table 5.4.1.2: Ten Most Frequent Cancers among Chinese Female Residents, 2010 – 2014

Rank	Site	Number	%	CR (95% CI)	ASR (95% CI)
1	Female Breast	7,468	28.5	103.3 (100.9-105.6)	65.9 (64.4-67.5)
2	Colo-rectum	3,637	13.9	50.3 (48.7-51.9)	27.9 (27.0-28.9)
3	Lung	2,131	8.1	29.5 (28.2-30.7)	16.2 (15.4-16.9)
4	Corpus uteri	1,630	6.2	22.5 (21.4-23.6)	14.4 (13.7-15.1)
5	Ovary, etc.	1,358	5.2	18.8 (17.8-19.8)	12.8 (12.1-13.5)
6	Skin, including melanoma	1,208	4.6	16.7 (15.8-17.6)	8.9 (8.3-9.4)
7	Lymphoid neoplasms	1,048	4.0	14.5 (13.6-15.4)	10.4 (9.6-11.1)
8	Stomach	993	3.8	13.7 (12.9-14.6)	7.3 (6.8-7.8)
9	Thyroid	940	3.6	13.0 (12.2-13.8)	9.2 (8.6-9.8)
10	Cervix uteri	817	3.1	11.3 (10.5-12.1)	7.2 (6.7-7.8)
-	Others	4,926	18.8	-	-
-	All	26,156	100	361.7 (357.3-366.1)	222.2 (219.3-225.0)

* Lymphoid neoplasms include Non-Hodgkin Lymphoma (e.g. Precursor Lymphoid, B-Cell & T-Cell neoplasms) and Hodgkin Lymphoma

Table 5.4.2.1: Ten Most Frequent Cancers among Malay Male Residents, 2010 – 2014

Rank	Site	Number	%	CR (95% CI)	ASR (95% CI)
1	Lung	472	18.2	37.2 (33.9-40.6)	35.3 (32.0-38.6)
2	Colo-rectum	394	15.2	31.1 (28.0-34.1)	28.2 (25.3-31.1)
3	Lymphoid neoplasms	322	12.4	25.4 (22.6-28.2)	24.2 (21.4-26.9)
4	Prostate	243	9.4	19.2 (16.7-21.6)	19.4 (16.9-22.0)
5	Liver	192	7.4	15.1 (13.0-17.3)	13.9 (11.8-15.9)
6	Myeloid neoplasms	128	4.9	10.1 (8.3-11.8)	9.5 (7.8-11.2)
7	Nasopharynx	93	3.6	7.3 (5.8-8.8)	6.1 (4.8-7.3)
8	Bladder	85	3.3	6.7 (5.3-8.1)	6.5 (5.1-8.0)
9	Kidney & Other Urinary	81	3.1	6.4 (5.0-7.8)	5.8 (4.5-7.1)
10	Skin, including melanoma	69	2.7	5.4 (4.2-6.7)	5.0 (3.7-6.2)
-	Others	508	19.6	-	-
-	All	2,587	100	203.9 (196.1-211.8)	191.4 (183.8-199.1)

* Lymphoid neoplasms include Non-Hodgkin Lymphoma (e.g. Precursor Lymphoid, B-Cell & T-Cell neoplasms) and Hodgkin Lymphoma
* Myeloid neoplasms - includes Acute Myeloid Leukemia; Myelodysplastic syndromes (MDS); Myeloproliferative neoplasms (MPN); Myelodysplastic and Myeloproliferative (MDS/MPN) neoplasms; and Myeloid neoplasms associated with eosinophilia and abnormalities of growth factor receptors
* Other urinary refers to renal pelvis, ureter, urethra etc.

Table 5.4.2.2: Ten Most Frequent Cancers among Malay Female Residents, 2010 – 2014

Rank	Site	Number	%	CR (95% CI)	ASR (95% CI)
1	Female Breast	984	30.2	76.8 (72.0-81.6)	60.3 (56.4-64.2)
2	Colo-rectum	381	11.7	29.8 (26.8-32.7)	24.1 (21.6-26.6)
3	Corpus uteri	257	7.9	20.1 (17.6-22.5)	15.7 (13.7-17.6)
4	Lymphoid neoplasms	254	7.8	19.8 (17.4-22.3)	17.6 (15.3-19.9)
5	Ovary, etc.	249	7.6	19.4 (17.0-21.9)	15.7 (13.7-17.7)
6	Lung	189	5.8	14.8 (12.7-16.9)	11.6 (9.9-13.3)
7	Thyroid	120	3.7	9.4 (7.7-11.0)	7.9 (6.5-9.4)
8	Cervix uteri	119	3.7	9.3 (7.6-11.0)	7.7 (6.3-9.1)
9	Myeloid neoplasms	88	2.7	6.9 (5.4-8.3)	6.0 (4.7-7.3)
10	Stomach	69	2.1	5.4 (4.1-6.7)	4.4 (3.3-5.4)
-	Others	545	16.7	-	-
-	All	3,255	100	254.2 (245.5-262.9)	207.5 (200.2-214.9)

* Lymphoid neoplasms include Non-Hodgkin Lymphoma (e.g. Precursor Lymphoid, B-Cell & T-Cell neoplasms) and Hodgkin Lymphoma
* Myeloid neoplasms - includes Acute Myeloid Leukemia; Myelodysplastic syndromes (MDS); Myeloproliferative neoplasms (MPN); Myelodysplastic and Myeloproliferative (MDS/MPN) neoplasms; and Myeloid neoplasms associated with eosinophilia and abnormalities of growth factor receptors

Table 5.4.3.1: Ten Most Frequent Cancers among Indian Male Residents, 2010 – 2014

Rank	Site	Number	%	CR (95% CI)	ASR (95% CI)
1	Colo-rectum	182	13.7	20.1 (17.2-23.1)	19.0 (16.1-21.9)
2	Prostate	168	12.6	18.6 (15.8-21.4)	20.0 (16.9-23.2)
3	Lung	155	11.6	17.1 (14.4-19.8)	16.9 (14.1-19.7)
4	Lymphoid neoplasms	151	11.3	16.7 (14.0-19.4)	16.8 (13.9-19.7)
5	Liver	87	6.5	9.6 (7.6-11.6)	9.5 (7.4-11.7)
6	Stomach	68	5.1	7.5 (5.7-9.3)	6.9 (5.1-8.6)
7	Myeloid neoplasms	56	4.2	6.2 (4.6-7.8)	5.6 (4.0-7.1)
8	Kidney & Other Urinary	51	3.8	5.6 (4.1-7.2)	5.2 (3.7-6.7)
9	Bladder	39	2.9	4.3 (3.0-5.7)	4.4 (2.9-5.8)
10	Pancreas	39	2.9	4.3 (3.0-5.7)	4.0 (2.7-5.3)
-	Others	516	38.8	-	-
-	All	1,330	100	147.1 (139.2-155.1)	142.3 (134.2-150.4)

* Lymphoid neoplasms include Non-Hodgkin Lymphoma (e.g. Precursor Lymphoid, B-Cell & T-Cell neoplasms) and Hodgkin Lymphoma
* Myeloid neoplasms - includes Acute Myeloid Leukemia; Myelodysplastic syndromes (MDS); Myeloproliferative neoplasms (MPN); Myelodysplastic and Myeloproliferative (MDS/MPN) neoplasms; and Myeloid neoplasms associated with eosinophilia and abnormalities of growth factor receptors
* Other urinary refers to renal pelvis, ureter, urethra etc.

Table 5.4.3.2: Ten Most Frequent Cancers among Indian Female Residents, 2010 – 2014

Rank	Site	Number	%	CR (95% CI)	ASR (95% CI)
1	Female Breast	586	35.9	69.1 (63.5-74.7)	59.3 (54.4-64.2)
2	Corpus uteri	167	10.2	19.7 (16.7-22.7)	17.5 (14.8-20.2)
3	Colo-rectum	128	7.9	15.1 (12.5-17.7)	13.6 (11.2-16.0)
4	Ovary, etc.	96	5.8	11.3 (9.1-13.6)	10.0 (8.0-12.1)
5	Lymphoid neoplasms	82	5.0	9.7 (7.6-11.8)	9.7 (7.5-11.9)
6	Thyroid	77	4.7	9.1 (7.0-11.1)	7.4 (5.7-9.1)
7	Lung	58	3.6	6.8 (5.1-8.6)	6.5 (4.7-8.2)
8	Stomach	40	2.4	4.7 (3.3-6.2)	4.2 (2.9-5.6)
9	Pancreas	37	2.3	4.4 (3.0-5.8)	4.0 (2.7-5.4)
10	Myeloid neoplasms	36	2.2	4.2 (2.9-5.6)	3.8 (2.5-5.1)
-	Others	323	19.8	-	-
-	All	1,630	100	192.1 (182.8-201.4)	171.4 (162.9-180.0)

* Lymphoid neoplasms include Non-Hodgkin Lymphoma (e.g. Precursor Lymphoid, B-Cell & T-Cell neoplasms) and Hodgkin Lymphoma
* Myeloid neoplasms - includes Acute Myeloid Leukemia; Myelodysplastic syndromes (MDS); Myeloproliferative neoplasms (MPN); Myelodysplastic and Myeloproliferative (MDS/MPN) neoplasms; and Myeloid neoplasms associated with eosinophilia and abnormalities of growth factor receptors

5.5 Lifetime Risks for Ten Most Frequent Cancers by Gender, 2010 – 2014

The following tables give the risks of developing the ten most frequent incident cancers for men and women by age 75 (Tables 5.5.1 & 5.5.2). This was done by the DevCan software version 6.7.1[2], using cancer data for the period 2010 – 2014. The risk estimates are expressed in percent. It is further expressed in terms of the numbers of individuals for which one person will develop cancer. For example, a lifetime risk of 6.83 for breast cancer means that 1 in 15 women will develop breast cancer before the age of 75.

Overall, 1 in every 4 to 5 Singapore residents, male or female, is likely to develop cancer in his or her lifetime. For males, the cancers which present the highest lifetime risks were colorectal, lung, and prostate cancers. For females, the three cancers that carry the highest lifetime risks are breast, colorectal, and lung cancers[3].

Table 5.5.1: Risk of Developing Cancer by Age 75 among Males

Rank	Site	ICD 9	Risk (%)	1 in X
1	Colo-rectum	153 - 154	3.89	26
2	Lung	162	3.32	30
3	Prostate	185	3.13	32
4	Liver	155	1.74	57
5	Skin, including melanoma	172 - 173	1.16	86
6	Lymphoma	200 - 202	1.12	89
7	Stomach	151	1.02	98
8	Leukemia	204 - 208	0.87	115
9	Kidney & Other Urinary	189	0.85	118
10	Nasopharynx	147	0.83	120
	All	**140 - 208**	**22.66**	**4**

[2] DevCan – Probability of Developing or Dying of Cancer. National Cancer Institute. http://surveillance.cancer.gov/devcan/

[3] It should be noted that these figures should be interpreted with caution, as a multitude of factors influence an individual's risk of developing cancer, such as lifestyle, diet, and family history of cancer and other diseases.

Table 5.5.2: Risk of Developing Cancer by Age 75 among Females

Rank	Site	ICD 9	Risk (%)	1 in X
1	Female Breast	174	6.83	15
2	Colo-rectum	153 - 154	2.78	36
3	Corpus uteri	182	1.58	63
4	Lung	162	1.55	65
5	Ovary, etc.	183	1.25	80
6	Thyroid	193	0.84	119
7	Lymphoid neoplasms	200 - 202	0.76	132
8	Skin, including melanoma	172 - 173	0.76	132
9	Cervix uteri	180	0.73	137
10	Stomach	151	0.66	152
	All	**140 - 208**	**22.03**	**5**

5.6 Mortality Rates by Gender, 2010 – 2014

Overall, the crude and age-standardised mortality rates for cancer for the period 2010 – 2014 did not differ significantly from those for the period 2009-2013. However, cancer of the oesophagus, which was the 10th most fatal cancer among males in 2009 – 2013, had been replaced by leukaemias in 2010 – 2014.

Although colorectal and breast cancers were the most common cancers respectively in the male and female resident population, lung and breast cancers accounted for the most cancer fatalities in males and females respectively [Registry of Births and Deaths (RBD), Ministry of Home Affairs (MHA)] (Tables 5.6.1 & 5.6.2).

Table 5.6.1: Ten Most Frequent Cancer Deaths in Males, 2010 – 2014

Rank	Site	Number	%	CR (95% CI)	ASR (95% CI)
1	Lung	3,810	27.1	40.5 (39.2-41.8)	28.6 (27.7-29.5)
2	Colo-rectum	1,943	13.8	20.7 (19.7-21.6)	14.6 (14.0-15.3)
3	Liver	1,768	12.6	18.8 (17.9-19.7)	13.2 (12.6-13.8)
4	Stomach	889	6.3	9.5 (8.8-10.1)	6.6 (6.2-7.0)
5	Pancreas	742	5.3	7.9 (7.3-8.5)	5.5 (5.1-5.9)
6	Prostate	741	5.3	7.9 (7.3-8.4)	5.6 (5.2-6.0)
7	Nasopharynx	578	4.1	6.1 (5.6-6.6)	4.2 (3.9-4.6)
8	Lymphomas	446	3.2	4.7 (4.3-5.2)	3.4 (3.1-3.7)
9	Kidney & Other Urinary	406	2.9	4.3 (3.9-4.7)	3.0 (2.7-3.3)
10	Leukaemias	378	2.7	4.0 (3.6-4.4)	3.0 (2.7-3.3)
-	All	14,056	100	149.5 (147.0-152.0)	105.9 (104.1-107.6)

Table 5.6.2: Ten Most Frequent Cancer Deaths in Females, 2010 – 2014

Rank	Site	Number	%	CR (95% CI)	ASR (95% CI)
1	Female Breast	2,049	17.6	21.1 (20.2-22.1)	13.7 (13.1-14.3)
2	Lung	1,922	16.5	19.8 (18.9-20.7)	11.4 (10.9-12.0)
3	Colo-rectum	1,780	15.2	18.4 (17.5-19.2)	10.4 (9.9-10.9)
4	Liver	746	6.4	7.7 (7.1-8.2)	4.3 (4.0-4.6)
5	Stomach	694	5.9	7.2 (6.6-7.7)	4.0 (3.7-4.3)
6	Pancreas	672	5.8	6.9 (6.4-7.5)	4.1 (3.8-4.4)
7	Ovary, etc.	610	5.2	6.3 (5.8-6.8)	4.0 (3.6-4.3)
8	Cervix uteri	357	3.1	3.7 (3.3-4.1)	2.3 (2.1-2.6)
9	Lymphomas	297	2.5	3.1 (2.7-3.4)	1.9 (1.7-2.1)
10	Leukaemias	292	2.5	3.0 (2.7-3.4)	2.0 (1.8-2.3)
-	All	11,675	100	120.5 (118.3-122.7)	72.3 (70.9-73.6)

6 COMMENTARY ON SELECTED CANCER SITES

6.1 Breast Cancer (ICD 9: 174)

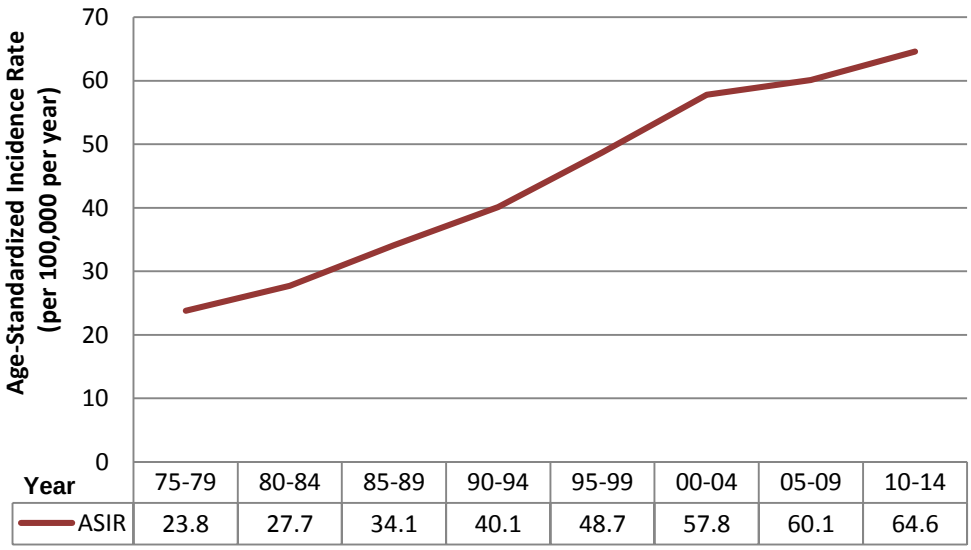
Incidence

A total of 9,274 new cases of female breast cancer were diagnosed in the period 2010 – 2014, accounting for nearly 1 in 3 incident cancers in females and making it the most common cancer diagnosis among women. The age-standardised incidence rate of newly diagnosed breast cancer in females has been increasing since 1975. It has risen almost threefold from 23.8 per 100,000 person-years in 1975 – 1979 to 64.6 per 100,000 person-years in 2010 – 2014 (Figure 6.1.1).

Chinese women were at significantly higher risk of developing breast cancer in comparison to their Malay and Indian counterparts (Table 6.1.1).

Majority of the breast cancer cases were diagnosed at stages I and II (Table 6.1.2) and at ages 45 – 64 (Table 6.1.4).

Figure 6.1.1: Age-Standardised Incidence Rates (ASIR) for Breast Cancer, 1975 – 2014



Year	75-79	80-84	85-89	90-94	95-99	00-04	05-09	10-14
ASIR	23.8	27.7	34.1	40.1	48.7	57.8	60.1	64.6

Table 6.1.1: Crude and Age-standardised Incidence Rates for Breast Cancer by Ethnicity, 2010 – 2014

Ethnicity	Number	CR (95% CI)	ASR (95% CI)
Chinese	7,468	103.3 (100.9-105.6)	65.9 (64.4-67.5)
Malay	984	76.8 (72.0-81.6)	60.3 (56.4-64.2)
Indian	586	69.1 (63.5-74.7)	59.3 (54.4-64.2)
Others	236	71.5 (62.4-80.6)	68.8 (58.6-79.1)
All	9,274	95.7 (93.7-97.6)	64.6 (63.3-66.0)

Table 6.1.2: Stage distribution of Breast Cancer patients, 2005 – 2014

Period	2005-2009		2010-2014	
Stage	**Number**	**%**	**Number**	**%**
I	2,289	32.9	2,848	33.3
II	2,672	38.4	3,253	38.1
III	1,365	19.6	1,589	18.6
IV	640	9.2	856	10.0

* Cancers of unknown stage were excluded.

Table 6.1.3: Ethnic distribution of Breast Cancer patients, 2005 – 2014

Period	2005-2009		2010-2014	
Ethnicity	**Number**	**%**	**Number**	**%**
Chinese	6,050	80.8	7,468	80.5
Malay	845	11.3	984	10.6
Indian	441	5.9	586	6.3
Others	148	2.0	236	2.5
Total	7,484	100	9,274	100

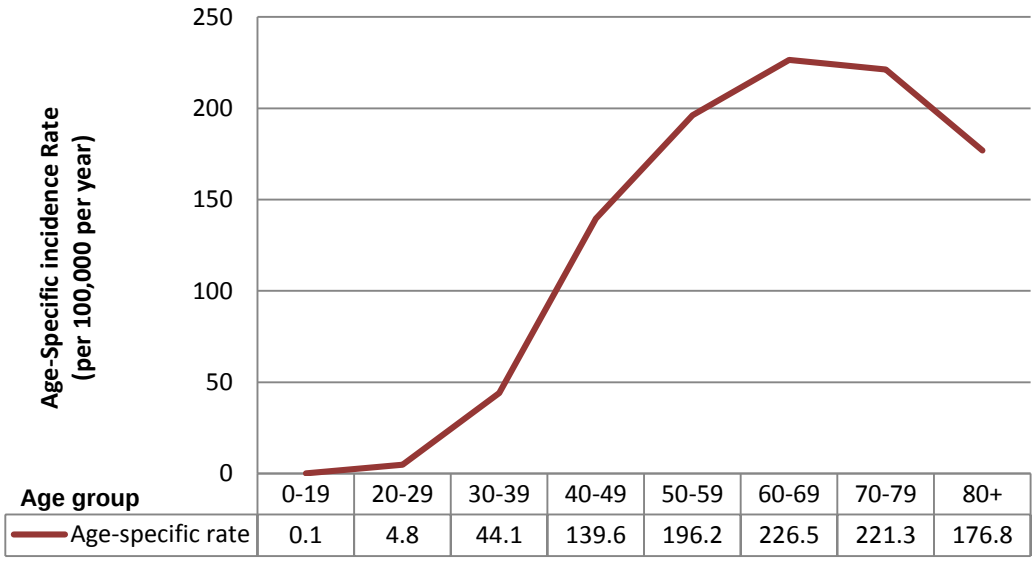
Table 6.1.4: Age Distribution of Breast Cancer Patients, 2005 – 2014

Period	2005-2009		2010-2014	
Age group	**Number**	**%**	**Number**	**%**
0-44	1,626	21.7	1,656	17.9
45-54	2,564	34.3	2,686	29.0
55-64	1,786	23.9	2,700	29.1
65-74	900	12.0	1,375	14.8
75+	608	8.1	857	9.2
Total	7,484	100	9,274	100

Age at Diagnosis

In 2010 – 2014, the age-specific incidence rate rose sharply from age 30 – 39 onwards to reach a peak in the 60 – 69 age group, before declining gradually after 70 years of age (Figure 6.1.2).

Figure 6.1.2: Age-Specific Incidence Rates for Breast Cancer, 2010 – 2014

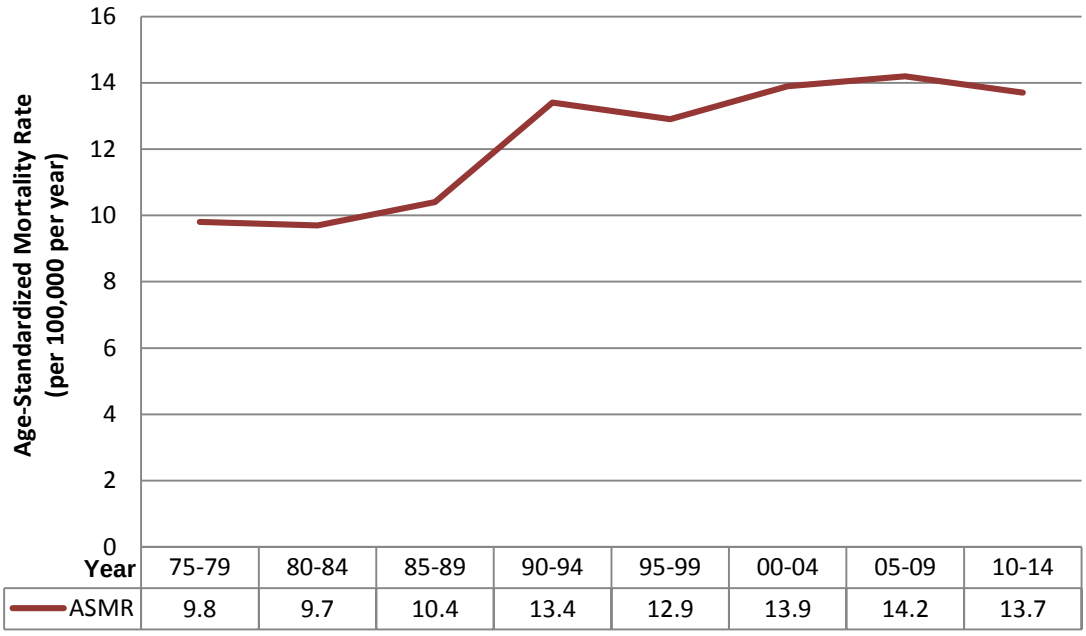


Age group	0-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Age-specific rate	0.1	4.8	44.1	139.6	196.2	226.5	221.3	176.8

Mortality Rates

Breast cancer has consistently accounted for the greatest number of fatalities among all cancers diagnosed in women. A total of 2,049 women died from breast cancer in the period 2010 – 2014 (Table 5.6.2). The age-standardised mortality rate has remained relatively stable since 1990 (Figure 6.1.3).

Figure 6.1.3: Age-Standardised Mortality Rates (ASMR) for Female Breast Cancer, 1975 – 2014



Year	75-79	80-84	85-89	90-94	95-99	00-04	05-09	10-14
ASMR	9.8	9.7	10.4	13.4	12.9	13.9	14.2	13.7

Survival

There was a significant increase in the survival of breast cancer patients from the period 2005 – 2009 to 2010 – 2014. This increase was observed in all ethnicities, although there were slight dips in the survival of those in the 65 – 74 age band, as well as stage I and IV patients. Survival is noticeably better among the Chinese, and there is a dramatic decrease in the survival rate of women with breast cancer at stage IV compared to those at earlier stages (Table 6.1.5).

Table 6.1.5: 5-year Age-standardised Observed Survival of Female Breast Cancer by Ethnicity, Age Group, and Stage, 2005 – 2014

	2005 – 2009	2010 - 2014
Ethnicity	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
Chinese	69.30 (68.14, 70.42)	72.71 (71.70, 73.69)
Malay	52.87 (49.30, 56.30)	53.81 (50.70, 56.82)
Indian	61.95 (56.86, 66.62)	66.28 (62.24, 69.99)
Age group	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
15 – 44	87.27 (85.48, 88.85)	88.98 (87.33, 90.43)
45 – 54	84.45 (82.91, 85.86)	86.45 (85.08, 87.70)
55 – 64	78.57 (76.39, 80.58)	81.74 (80.05, 83.32)
65 – 74	73.78 (70.56, 76.71)	72.78 (70.03, 75.33)
75+	47.35 (42.85, 51.72)	54.71 (50.85, 58.40)
Stage	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
I	90.52 (88,81, 91.98)	90.07 (88.85, 91.17)
II	79.74 (77.75, 81.58)	80.80 (79.34, 82.16)
III	58.39 (55.09, 61.54)	63.53 (61.01, 65.94)
IV	19.92 (15.93, 24.23)	19.47 (16.71, 22.39)
All	**67.52 (66.45, 68.56)**	**70.50 (69.57, 71.41)**

* Cancers of unknown stage were excluded.

6.2 Cervical Cancer (ICD 9: 180)

Incidence

From 2010 – 2014, cervical cancer was the 10th most common cancer occurring among Singaporean women (Table 5.3.2). A total of 998 new cases of cervical cancer were diagnosed in the period 2010 – 2014. The age-standardised incidence rate of newly diagnosed cervical cancer in females has been decreasing since 1974. It has dropped by more than half from 16.6 per 100,000 person-years in 1975 – 1979 to 7.0 per 100,000 person-years in 2010 – 2014 (Figure 6.2.1). It has dropped in rank from being the 4th most common cancer in the 1970s to its current 10th position.

Chinese women were at higher risk of developing cervical cancer compared to Malay and Indian women (Table 6.2.1).

Majority of the cervical cancer cases were diagnosed at stage I and II (Table 6.2.2) and at the age of 54 or below (Table 6.2.4).

Figure 6.2.1: Age-Standardised Incidence Rates (ASIR) for Cervical Cancer, 1975 – 2014

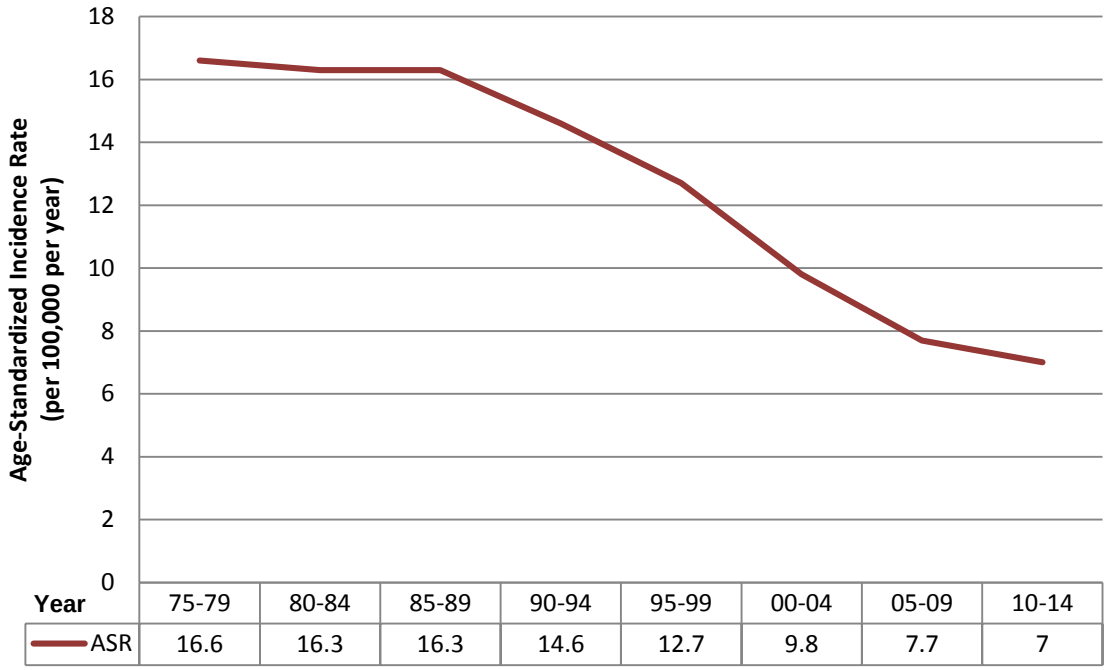


Table 6.2.1: Crude and Age-standardised Incidence Rates for Cervical Cancer by Ethnicity, 2010 – 2014

Ethnicity	Number	CR (95% CI)	ASR (95% CI)
Chinese	817	11.3 (10.5-12.1)	7.2 (6.7-7.8)
Malay	119	9.3 (7.6-11.0)	7.7 (6.3-9.1)
Indian	33	3.9 (2.6-5.2)	3.5 (2.3-4.7)
Others	29	8.8 (5.6-12.0)	6.5 (3.9-9.0)
All	998	10.3 (9.7-10.9)	7.0 (6.6-7.4)

Table 6.2.2: Stage distribution of Cervical Cancer patients, 2005 – 2014

Period	2005-2009		2010-2014	
Stage	**Number**	**%**	**Number**	**%**
I	391	45.6	374	41.9
II	229	26.7	228	25.5
III	146	17.0	142	15.9
IV	91	10.6	149	16.7

* Cancers of unknown stage were excluded.

Table 6.2.3: Ethnic distribution of Cervical Cancer patients, 2005 – 2014

Period	2005-2009		2010-2014	
Ethnicity	**Number**	**%**	**Number**	**%**
Chinese	802	83.8	817	81.9
Malay	102	10.7	119	11.9
Indian	24	2.5	33	3.3
Others	29	3.0	29	2.9
Total	957	100	998	100

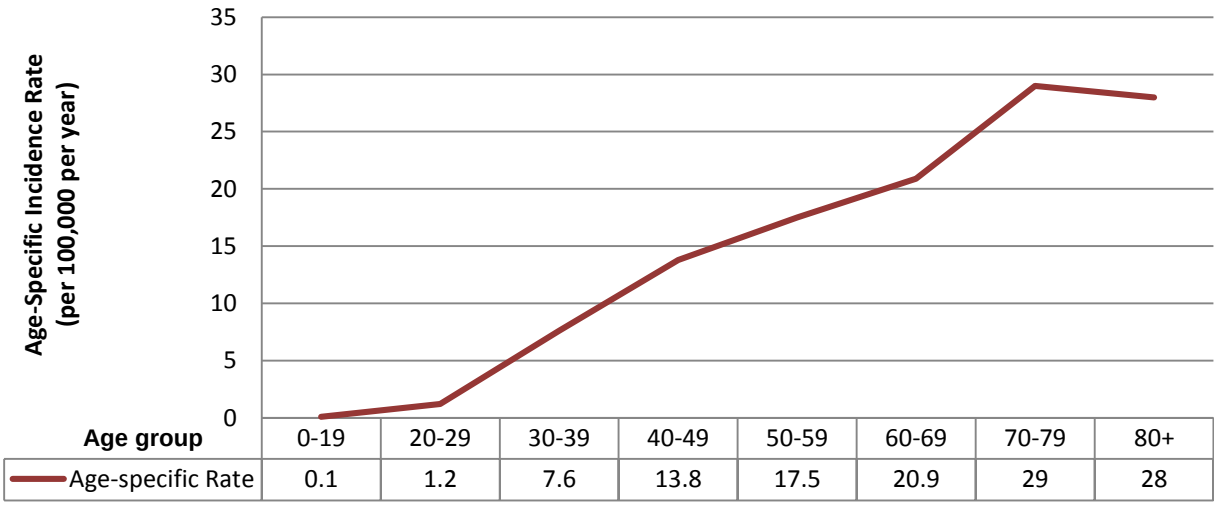
Table 6.2.4: Age distribution of Cervical Cancer patients, 2005 – 2014

Period	2005-2009		2010-2014	
Age group	**Number**	**%**	**Number**	**%**
0-44	206	21.5	238	23.8
45-54	241	25.2	239	23.9
55-64	182	19.0	227	22.7
65-74	182	19.0	173	17.3
75+	146	15.3	121	12.1
Total	957	100	998	100

Age at Diagnosis

From 2010 – 2014, the age-specific incidence rate for cervical cancer increased steadily with age from 0.1 per 100,000 person-years for women aged 0 – 19 to 28 per 100,000 person-years for women aged 80 or above (Figure 6.2.2).

Figure 6.2.2: Age-Specific Incidence Rates for Cervical Cancer, 2010 – 2014

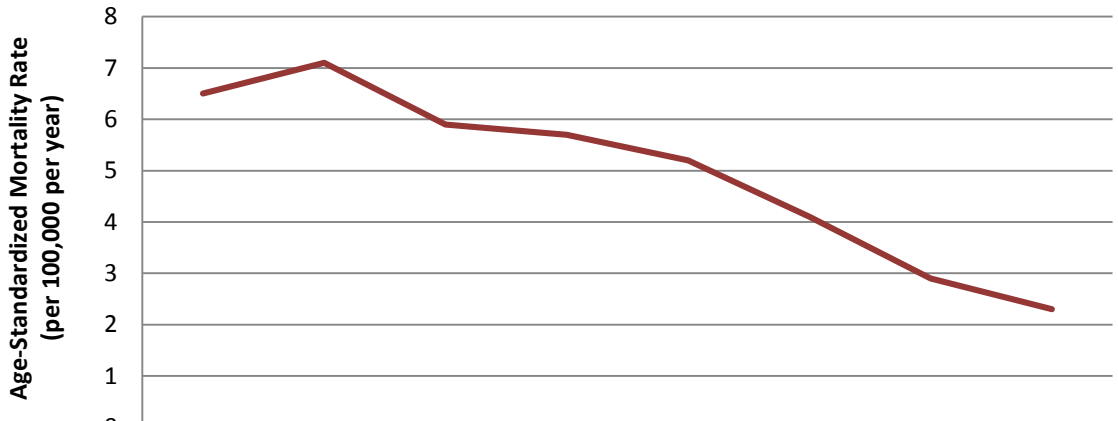


Age group	0-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Age-specific Rate	0.1	1.2	7.6	13.8	17.5	20.9	29	28

Mortality Rates

A total of 357 women died from cervical cancer in 2010 – 2014 (Table 5.6.2). The age-standardised mortality rate was 6.5 per 100,000 person-years in 1975 – 1979 and it decreased progressively to 2.3 per 100,000 person-years in 2010 – 2014 (Figure 6.2.3).

Figure 6.2.3: Age-Standardised Mortality Rates (ASMR) for Cervical Cancer, 1975 – 2014



Year	75-79	80-84	85-89	90-94	95-99	00-04	05-09	10-14
ASMR	6.5	7.1	5.9	5.7	5.2	4.1	2.9	2.3

Survival

There was an overall decrease in the survival of cervical cancer patients, particularly for Indian women. The decrease was also observed in all age groups, except those aged 45 – 54. On the contrary, the survival rates of stage III and IV cervical cancer patients improved markedly over the two time periods, especially the latter.

Table 6.2.5: 5-year Age-standardised Observed Survival of Cervical Cancer by Ethnicity, Age Group, and Stage, 2005 – 2014

	2005 – 2009	2010 - 2014
Ethnicity	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
Chinese	59.83 (56.71, 62.80)	55.60 (52.36, 58.70)
Malay	43.52 (34.48, 52.21)	41.64 (32.64, 50.38)
Indian	67.17 (46.96, 81.10)	38.54 (22.42, 54.44)
Age group	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
15 – 44	81.79 (76.03, 86.29)	76.08 (69.82, 81,21)
45 – 54	69.68 (63.85, 74.76)	71.56 (65.23, 76.94)
55 – 64	66.50 (59.23, 72.78)	63.53 (56.42, 69.80)
65 – 74	54.96 (47.58, 61.73)	52.42 (44.51, 59.72)
75+	36.86 (28.21, 45.52)	27.17 (20.02, 34.78)
Stage	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
I	84.45 (80.23, 87.83)	77.25 (72.82, 81.05)
II	63.19 (56.19, 69.39)	55.66 (48.83, 61.95)
III	39.14 (30,90, 47.27)	48.74 (39.38, 57.46)
IV	3.37 (0.40, 12.48)	20.52 (13.63, 28.41)
All	**58.57 (55.68, 61.34)**	**53.64 (50.68, 56.50)**

* Cancers of unknown stage were excluded.

6.3 Colorectal Cancer (ICD 9: 153 – 154)

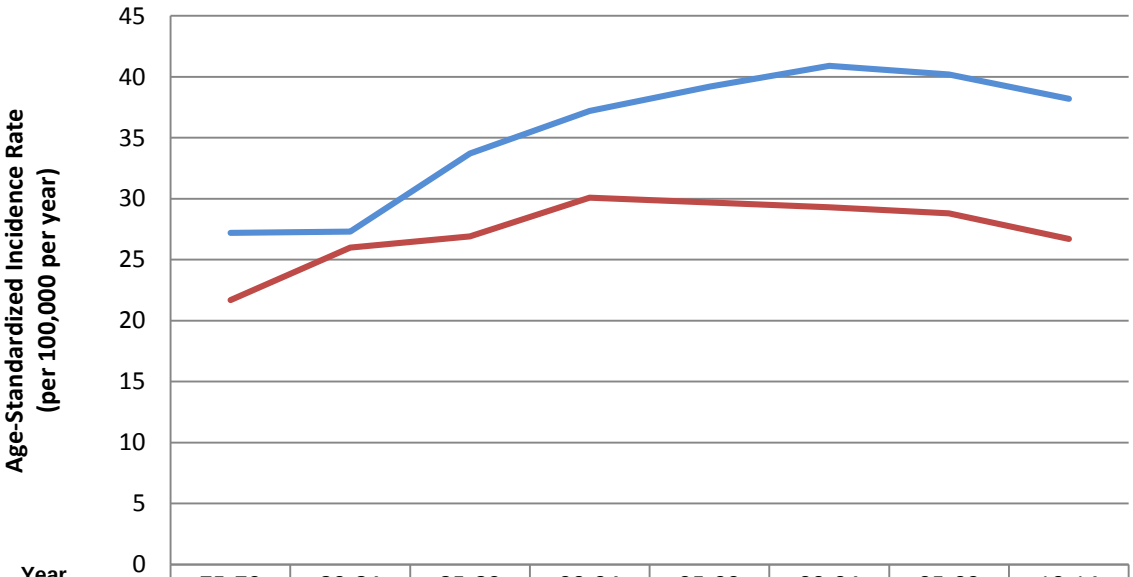
Incidence

A total of 9,320 new cases of colorectal cancer were diagnosed in 2010 – 2014, making it the most common cancer diagnosed in the Singapore resident population as a whole. The age-standardised incidence rate of newly diagnosed colorectal cancer for both genders rose for about two decades from 1975 – 1994, before plateauing from 1995 onwards, and decreasing gradually in recent years (Figure 6.3.1).

Chinese men and women had higher risk of developing colorectal cancer compared to their Malay and Indian counterparts (Table 6.3.1). Men have consistently higher age-standardised incidence rates of colorectal cancer (Figure 6.3.1).

Majority of the cases of colorectal cancer were diagnosed at stage III (Table 6.3.2) and in patients above the age of 55 (Table 6.3.4).

Figure 6.3.1: Age-standardised Incidence Rates (ASIR) for Colorectal Cancer, 1975 – 2014



Year	75-79	80-84	85-89	90-94	95-99	00-04	05-09	10-14
Males	27.2	27.3	33.7	37.2	39.2	40.9	40.2	38.2
Females	21.7	26	26.9	30.1	29.7	29.3	28.8	26.7

Table 6.3.1: Crude and Age-standardised Incidence Rates for Colorectal Cancer by Gender and Ethnicity, 2010 – 2014

Gender	Ethnicity	Number	CR (95% CI)	ASR (95% CI)
Male	Chinese	4,436	64.0 (62.1, 65.9)	41.2 (40.0, 42.5)
	Malay	394	31.1 (28.0, 34.1)	28.2 (25.3, 31.1)
	Indian	182	20.1 (17.2, 23.1)	19.0 (16.1, 21.9)
	Others	89	29.7 (23.5, 35.8)	34.0 (26.4, 41.5)
	All	5,101	54.2 (52.8, 55.7)	38.2 (37.2, 39.3)
Female	Chinese	3,637	50.3 (48.7, 51.9)	27.9 (27.0, 28.9)
	Malay	381	29.8 (26.8, 32.7)	24.1 (21.6, 26.6)
	Indian	128	15.1 (12.5, 17.7)	13.6 (11.2, 16.0)
	Others	73	22.1 (17.0, 27.2)	27.7 (20.6, 34.9)
	All	4,219	43.5 (42.2, 44.8)	26.7 (25.9, 27.6)

Table 6.3.2: Stage distribution of Colorectal Cancer patients, 2005 – 2014

Gender	Period	2005-2009		2010-2014	
	Stage	Number	%	Number	%
Male	I	553	14.3	759	16.4
	II	1,063	27.5	1,242	26.9
	III	1,368	35.3	1,467	31.7
	IV	886	22.9	1,156	25.0
Female	I	445	13.8	542	14.5
	II	872	27.0	951	25.5
	III	1,176	36.5	1,305	35.0
	IV	732	22.7	935	25.0

* Cancers of unknown stage were excluded.

Table 6.3.3: Ethnic distribution of Colorectal Cancer patients, 2005 – 2014

Gender	Period	2005-2009		2010-2014	
	Ethnicity	Number	%	Number	%
Male	Chinese	3,763	88.2	4,436	87.0
	Malay	295	6.9	394	7.7
	Indian	156	3.7	182	3.6
	Others	54	1.3	89	1.7
	Total	4,268	100	5,101	100
Female	Chinese	3,299	89.9	3,637	86.2
	Malay	235	6.4	381	9.0
	Indian	94	2.6	128	3.0
	Others	42	1.1	73	1.7
	Total	3,670	100	4,219	100

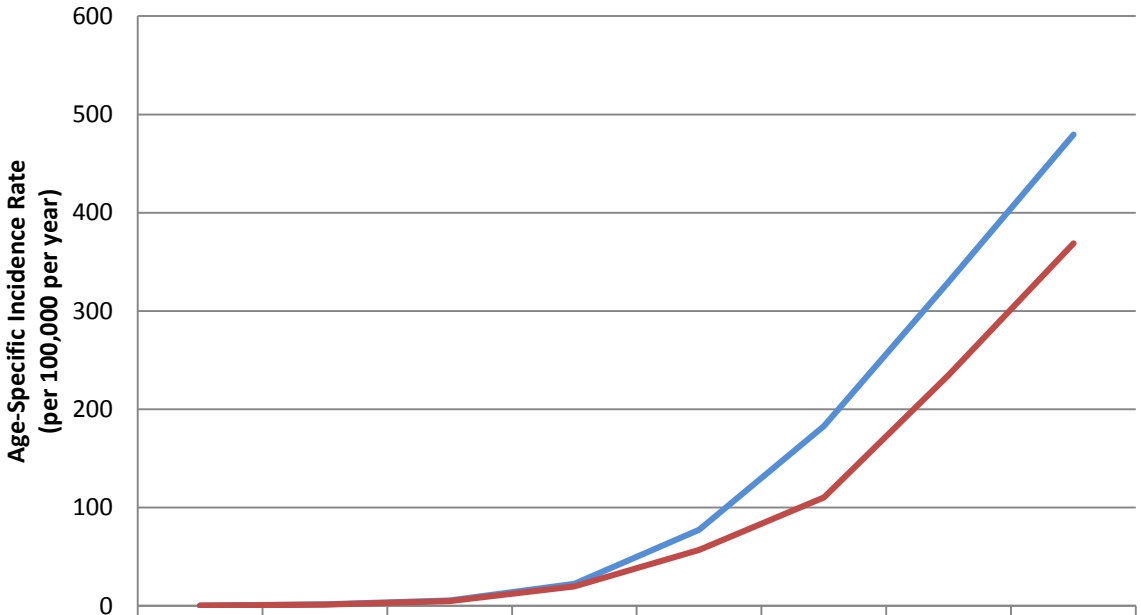
Table 6.3.4: Age distribution of Colorectal Cancer patients, 2005 – 2014

Gender	Period	2005-2009		2010-2014	
	Age group	Number	%	Number	%
Male	0-44	221	5.2	230	4.5
	45-54	679	15.9	689	13.5
	55-64	1,095	25.7	1,492	29.2
	65-74	1,222	28.6	1,440	28.2
	75+	1,051	24.6	1,250	24.5
	Total	4,268	100	5,101	100
Female	0-44	201	5.5	215	5.1
	45-54	509	13.9	550	13.0
	55-64	791	21.6	1,020	24.2
	65-74	903	24.6	986	23.4
	75+	1,266	34.5	1,448	34.3
	Total	3,670	100	4,219	100

Age at Diagnosis

In 2010 – 2014, the age-specific incidence rate rose steeply with age past the age of 50 years, regardless of gender. The rate for males rose from 22.4 per 100,000 person-years for men aged 40 – 49 to 479.4 per 100,000 person-years for men aged 80 or above, while the rate for females rose from 19.9 per 100,000 person-years for women aged 40 – 49 to 369.0 for women aged 80 or above (Figure 6.3.2). In every age group among adults above 19 years, men have consistently higher incidence rates of colorectal cancer, and the gender gaps widens with age.

Figure 6.3.2: Age-specific Incidence Rates for Colorectal Cancer, 2010 – 2014

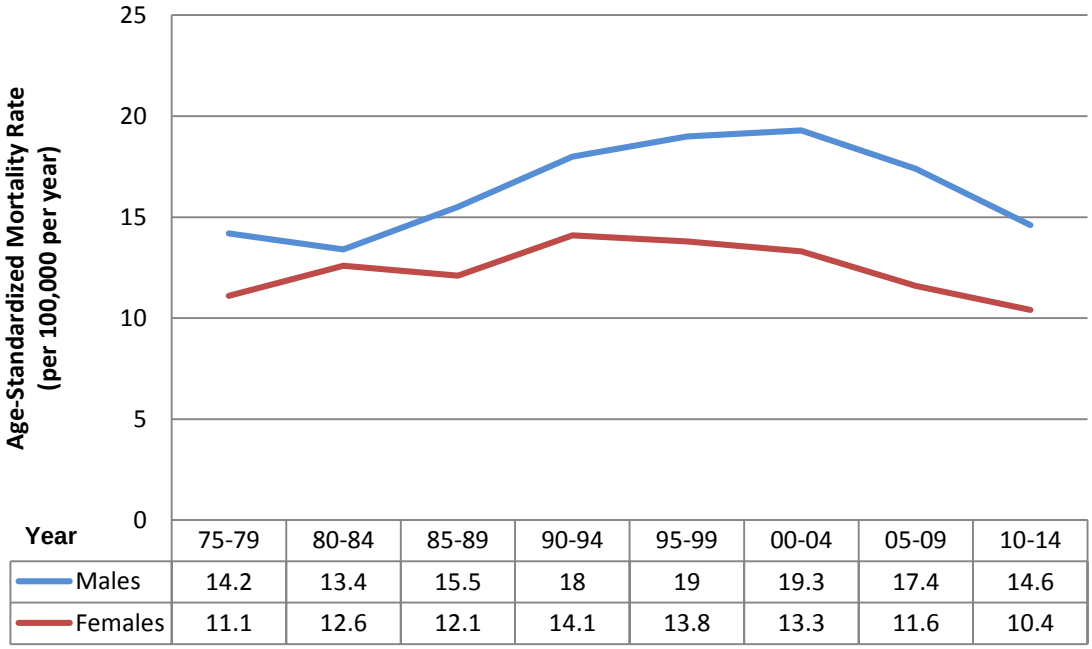


Age group	0-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Male	0.2	1.5	5.6	22.4	77.6	183	329.7	479.4
Female	0.4	1.3	4.8	19.9	56.8	110.3	235	369

Mortality Rates

A total of 3,723 people died from colorectal cancer in 2010 – 2014 (Tables 5.6.1 – 5.6.2). The age-standardised mortality rate for both genders decreased gradually from 1999 onwards. This is mainly due to advances in treatment, such as adjuvant therapy combining chemotherapy, radiotherapy and total mesorectal excision, as well as more widespread screening for colorectal cancer, thus allowing early detection and timely treatment of the cancers (Figure 6.3.3).

Figure 6.3.3: Age-Standardised Mortality Rates (ASMR) for Colorectal Cancer, 1975 – 2014



Year	75-79	80-84	85-89	90-94	95-99	00-04	05-09	10-14
Males	14.2	13.4	15.5	18	19	19.3	17.4	14.6
Females	11.1	12.6	12.1	14.1	13.8	13.3	11.6	10.4

Survival

There was an overall increase in the survival of colorectal cancer for both genders. This was seen across the board for all ethnicities, age bands, as well as stages of the disease, with the exceptions of Malay males, and males who were diagnosed at stage II, which saw slight decreases in survival from 2005 – 2009 to 2010 – 2014. Females and Indians exhibited better survival. Survival decreases dramatically at stage IV of the disease compared to earlier stages for both genders.

Table 6.3.5.1: 5-year Age-standardised Observed Survival of Colorectal Cancer by Ethnicity, Age Group, and Stage for Males, 2005 – 2014

	2005 – 2009	2010 - 2014
Ethnicity	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
Chinese	45.91 (44.24, 47.56)	51.15 (49.62, 52.65)
Malay	41.42 (35.37, 47.35)	41.33 (35.99, 46.59)
Indian	54.15 (45.32, 62.16)	56.02 (48.58, 62.81)
Age group	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
15 – 44	58.63 (51.76, 64.86)	65.19 (58.08, 71.39)
45 – 54	61.72 (57.64, 65.53)	66.24 (62.59, 69.63)
55 – 64	56.36 (53.12, 59.46)	63.31 (60.60, 65.88)
65 – 74	48.03 (45.03, 50.96)	53.54 (50.76, 56.24)
75+	32.20 (29.15, 35.28)	35.26 (32.44, 38.08)
Stage	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
I	77.49 (72.19, 81.91)	84.35 (81.31, 86.94)
II	69.80 (66.36, 72.97)	69.29 (66.54, 71.87)
III	47.17 (43.78, 50.47)	55.70 (53.05, 58.27)
IV	6.81 (4.98, 9.01)	10.15 (8.29, 12.23)
All	**45.95 (44.38, 47.51)**	**50.70 (49.27, 52.11)**

* Cancers of unknown stage were excluded.

Table 6.3.5.2: 5-year Age-standardised Observed Survival of Colorectal Cancer by Ethnicity, Age Group, and Stage for Females, 2005 – 2014

	2005 – 2009	2010 - 2014
Ethnicity	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
Chinese	51.83 (50.01, 53.62)	53.40 (51.71, 55.05)
Malay	36.22 (30.12, 42.35)	43.36 (37.83, 48.75)
Indian	43.88 (33.54, 53.73)	59.19 (49.28, 67.80)
Age group	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
15 – 44	59.32 (51.50, 66.31)	65.17 (58.09, 71.35)
45 – 54	63.84 (59.42, 67.92)	64.80 (60.47, 68.78)
55 – 64	62.90 (59.11, 66.44)	64.57 (61.35, 67.60)
65 – 74	55.86 (52.42, 59.15)	59.47 (56.20, 62.57)
75+	35.45 (32.57, 38.33)	37.16 (34.55, 39.77)
Stage	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
I	81.23 (75.35, 85.84)	85.54 (82.13, 88.36)
II	72.14 (68.46, 75.47)	78.53 (75.68, 81.08)
III	56.88 (53.39, 60.20)	60.50 (57.70, 63.18)
IV	7.72 (5.57, 10.32)	10.61 (8.60, 12.85)
All	**50.89 (49.17, 52.59)**	**53.02 (51.44, 54.57)**

* Cancers of unknown stage were excluded.

6.4 Ovarian Cancer (ICD 9: 183)

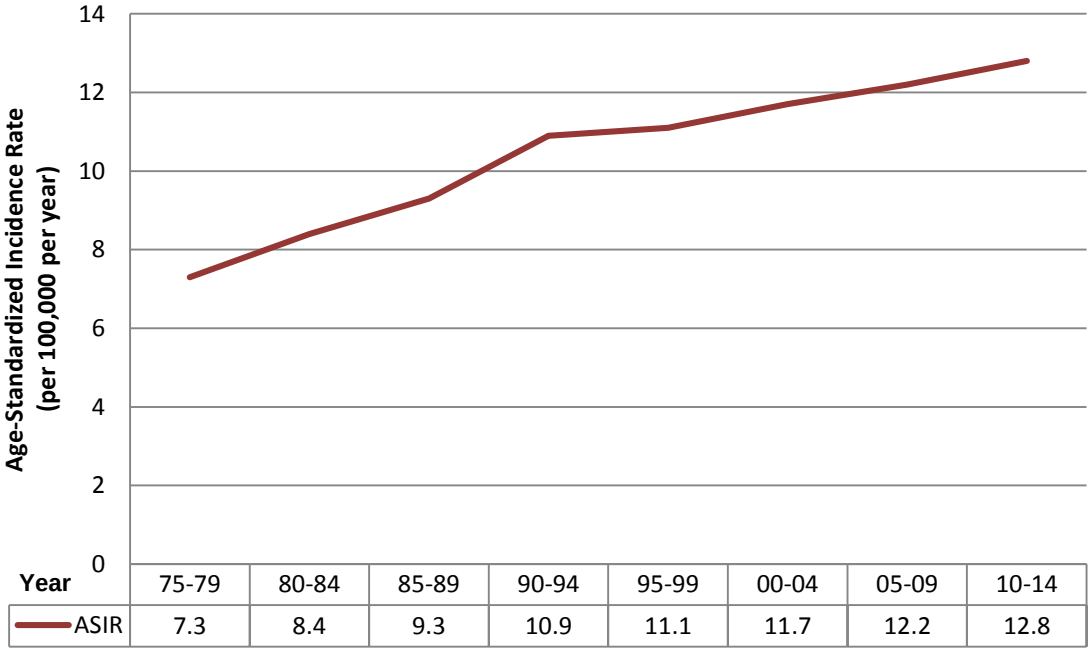
Incidence

A total of 1,731 new cases of ovarian cancer were diagnosed in 2010 – 2014. The age-standardised incidence rate of newly diagnosed ovarian cancer in females has been increasing steadily over the last forty years. It has almost doubled from 7.3 per 100,000 person-years in 1975 – 1979 to 12.8 per 100,000 person-years in 2010 – 2014 (Figure 6.4.1).

Malay women were at higher risk of developing ovarian cancer compared to Chinese and Indian women (Table 6.4.1).

More ovarian cancer cases were stage I and III diagnoses (Table 6.4.2) and occurred in women aged 54 years or below (Table 6.4.4).

Figure 6.4.1: Age-Standardised Incidence Rates (ASIR) for Ovarian Cancer, 1975 – 2014



Year	75-79	80-84	85-89	90-94	95-99	00-04	05-09	10-14
ASIR	7.3	8.4	9.3	10.9	11.1	11.7	12.2	12.8

Table 6.4.1: Crude and Age-standardised Incidence Rates for Ovarian Cancer by Ethnicity, 2010 – 2014

Ethnicity	Number	CR (95% CI)	ASR (95% CI)
Chinese	1,358	18.8 (17.8-19.8)	12.8 (12.1-13.5)
Malay	249	19.4 (17.0-21.9)	15.7 (13.7-17.7)
Indian	96	11.3 (9.1-13.6)	10.0 (8.0-12.1)
Others	28	8.5 (5.3-11.6)	7.1 (4.2-10.0)
All	1,731	17.9 (17.0-18.7)	12.8 (12.2-13.4)

Table 6.4.2: Stage distribution of Ovarian Cancer patients, 2005 – 2014

Period	2005-2009		2010-2014	
Stage	**Number**	**%**	**Number**	**%**
I	379	38.8	510	40.8
II	101	10.3	98	7.8
III	326	33.3	414	33.1
IV	172	17.6	227	18.2

* Cancers of unknown stage were excluded.

Table 6.4.3: Ethnic distribution of Ovarian Cancer patients, 2005 – 2014

Period	2005-2009		2010-2014	
Ethnicity	**Number**	**%**	**Number**	**%**
Chinese	1,144	79.7	1,358	78.5
Malay	182	12.7	249	14.4
Indian	81	5.6	96	5.5
Others	29	2.0	28	1.6
Total	1,436	100	1,731	100

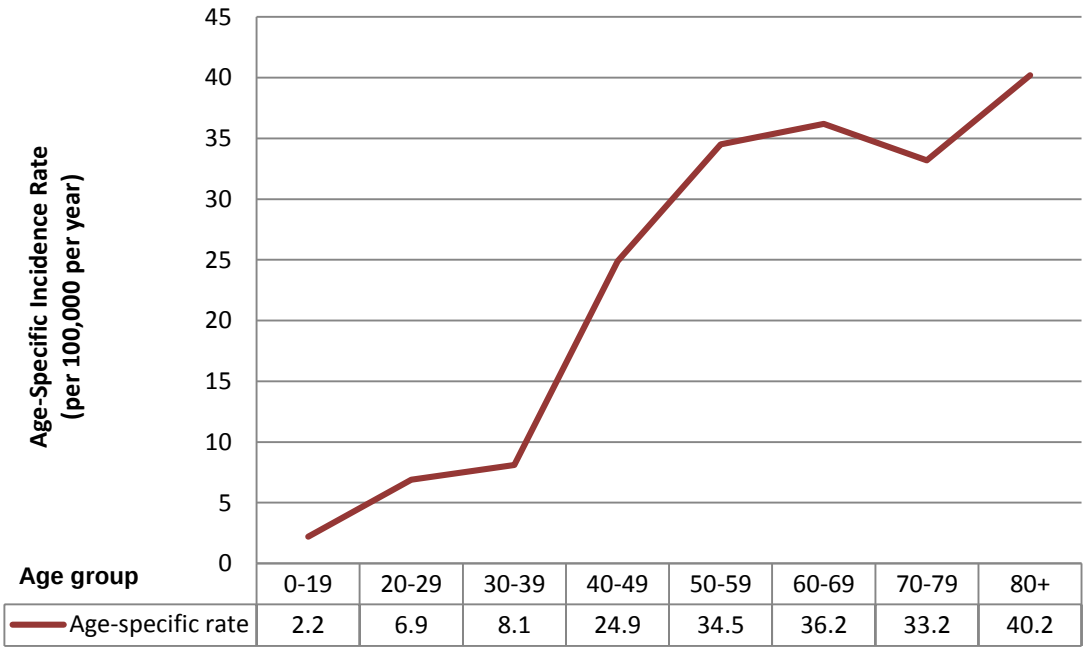
Table 6.4.4: Age distribution of Ovarian Cancer patients, 2005 – 2014

Period	2005-2009		2010-2014	
Age group	Number	**%**	**Number**	**%**
0-44	392	27.3	426	24.7
45-54	430	29.9	490	28.3
55-64	310	21.6	432	25.0
65-74	165	11.5	219	12.7
75+	139	9.7	164	9.5
Total	1,436	100	1,731	100

Age at Diagnosis

In 2010 – 2014, the age-specific incidence rate rose sharply from 8.1 per 100,000 person-years for women aged 30 – 39 to 34.5 per 100,000 person-years for women aged 50 – 59. The rate of increase became less drastic after 50 – 59 years of age (Figure 6.4.2).

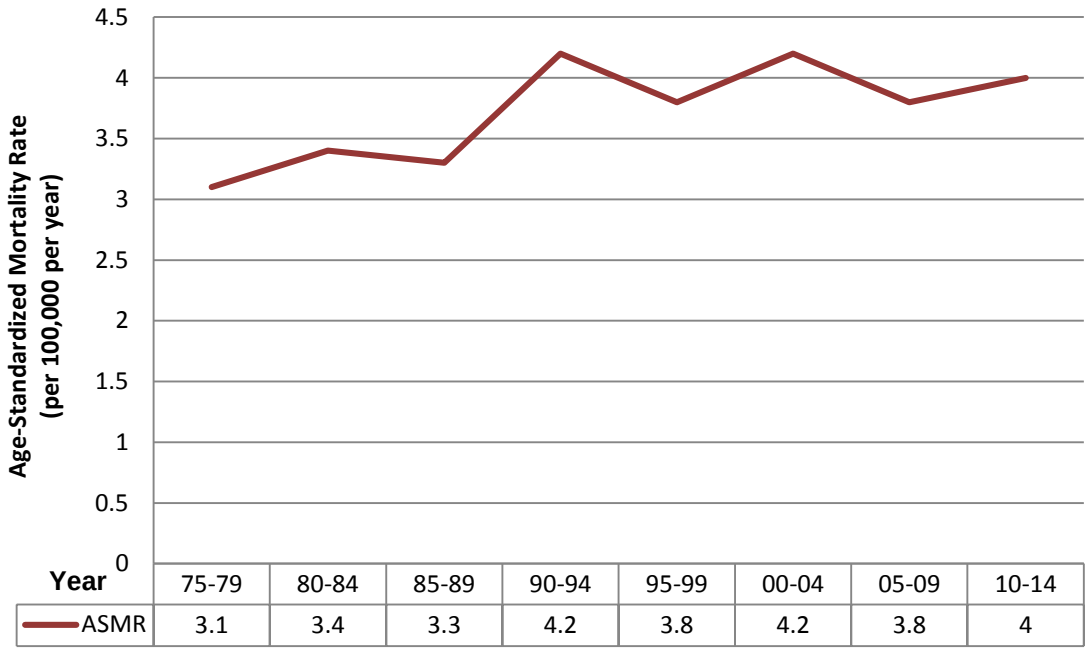
Figure 6.4.2: Age-Specific Incidence Rates for Ovarian Cancer, 2010 – 2014



Mortality Rates

A total of 610 women died from ovarian cancer in 2010 – 2014 (Table 5.6.2). It is seventh among the ten cancers in women that most frequently lead to death. Nevertheless, the age-standardised mortality rate has remained fairly stable since 1994 (Figure 6.4.3).

Figure 6.4.3: Age-Standardised Mortality Rates (ASMR) for Ovarian Cancer, 1975 – 2014



Year	75-79	80-84	85-89	90-94	95-99	00-04	05-09	10-14
ASMR	3.1	3.4	3.3	4.2	3.8	4.2	3.8	4

Survival

There was an overall decrease in the survival of females with ovarian cancer from the period 2005 – 2009 to 2010 – 2014, most notably among Chinese women, those aged above 75 years, and those who were diagnosed at earlier stages of the disease. Ovarian cancer is known as the “silent killer” among females, being relatively asymptomatic until its later stages and thus undiscovered and left untreated. Women with stage IV ovarian cancer have a much poorer prognosis in terms of survival rates, as compared to women with stage I – III ovarian cancer.

Table 6.4.5: 5-year Age-standardised Observed Survival of Ovarian Cancer by Ethnicity, Age Group, and Stage, 2005 – 2014

	2005 – 2009	2010 - 2014
Ethnicity	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
Chinese	43.91 (40.98, 46.81)	35.24 (32.71, 37.77)
Malay	27.36 (20.85, 34.26)	24.72 (19.37, 30.43)
Indian	28.09 (19.28, 37.55)	34.56 (26.29, 42.96)
Age group	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
15 – 44	75.90 (70.21, 80.66)	81.49 (75.71, 86.02)
45 – 54	64.48 (58.76, 69.61)	71.78 (66.66, 76.26)
55 – 64	57.86 (50.94, 64.16)	51.40 (45.78, 56.73)
65 – 74	38.62 (30.22, 46.93)	43.16 (35.28, 50.78)
75+	24.21 (16.47, 32.77)	8.90 (5.28, 13.67)
Stage	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
I	84.34 (79.58, 88.07)	78.89 (74.60, 82.55)
II	64.67 (49.97, 76.04)	57.77 (47.26, 66.91)
III	36.82 (30.21, 43.43)	30.50 (26.12, 34.98)
IV	11.58 (6.66, 17.98)	14.10 (9.69, 19.32)
All	**40.66 (38.08, 43.22)**	**34.37 (32.16, 36.60)**

* Cancers of unknown stage were excluded.

6.5 Uterine Cancer (ICD 9: 182)

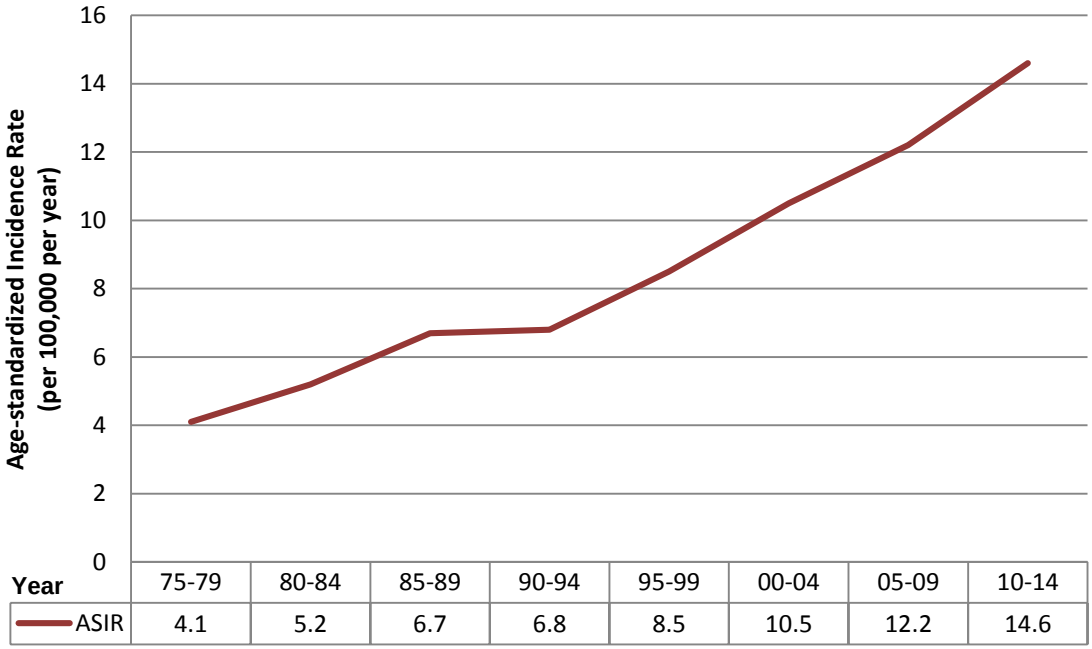
Incidence

A total of 2,092 new cases of uterine cancer were diagnosed in 2010 – 2014, making it the fourth most common cancer diagnosed in the resident female population. The age-standardised incidence rate of newly diagnosed uterine cancer in females has been increasing for the past forty years. It rose more than threefold from 4.1 per 100,000 person-years in 1975 – 1979 to 14.6 per 100,000 person-years in 2010 – 2014 (Figure 6.5.1).

There are no significant differences in the risk of developing uterine cancer between the various ethnic groups (Table 6.5.1).

Majority of the uterine cancer cases were stage I diagnoses (Table 6.5.2) and occurred in the 45 – 64 age range (Table 6.5.4).

Figure 6.5.1: Age-Standardised Incidence Rates (ASIR) for Uterine Cancer, 1975 – 2014



Year	75-79	80-84	85-89	90-94	95-99	00-04	05-09	10-14
ASIR	4.1	5.2	6.7	6.8	8.5	10.5	12.2	14.6

Table 6.5.1: Crude and Age-standardised Incidence Rates for Uterine Cancer by Ethnicity, 2010 – 2014

Ethnicity	Number	CR (95% CI)	ASR (95% CI)
Chinese	1,630	22.5 (21.4-23.6)	14.4 (13.7-15.1)
Malay	257	20.1 (17.6-22.5)	15.7 (13.7-17.6)
Indian	167	19.7 (16.7-22.7)	17.5 (14.8-20.2)
Others	38	11.5 (7.9-15.2)	10.5 (6.7-14.2)
All	2,092	21.6 (20.7-22.5)	14.6 (14.0-15.3)

Table 6.5.2: Stage distribution of Uterine Cancer patients, 2005 – 2014

Stage	2005 – 2009		2010 – 2014	
	Number	%	Number	%
I	839	65.0	1,235	68.4
II	111	8.6	127	7.0
III	215	16.7	258	14.3
IV	125	9.7	185	10.2

* Cancers of unknown stage were excluded.

Table 6.5.3: Ethnic distribution of Uterine Cancer patients, 2005 – 2014

Ethnicity	2005 – 2009		2010 – 2014	
	Number	%	Number	%
Chinese	1,219	81.5	1,630	77.9
Malay	156	10.4	257	12.3
Indian	101	6.8	167	8.0
Others	19	1.3	38	1.8
All	1,495	100	2,092	100

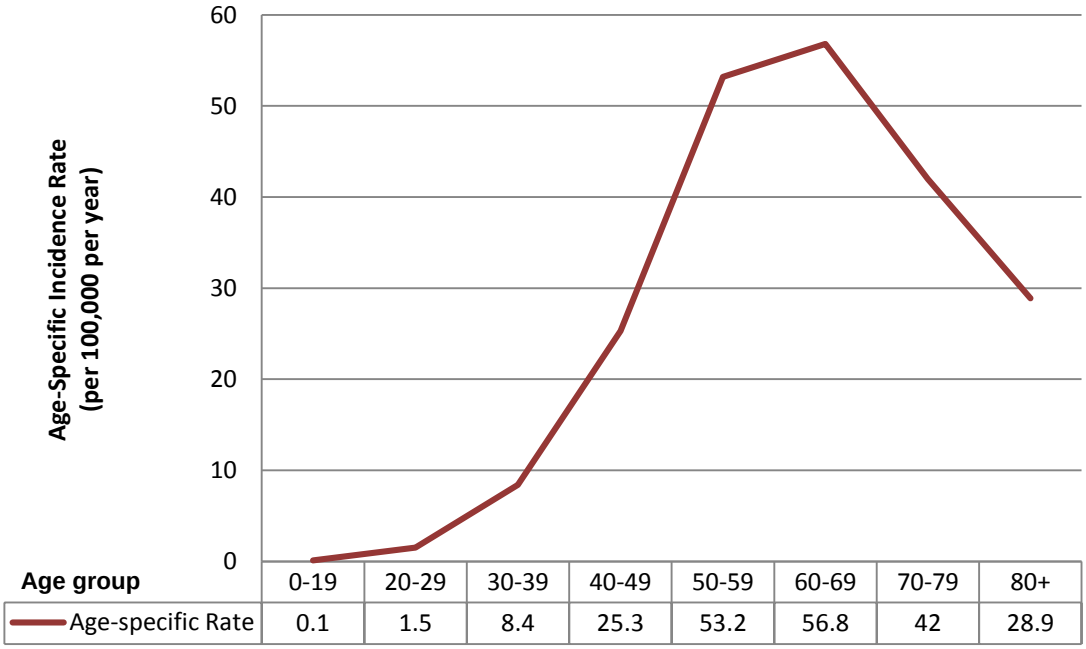
Table 6.5.4: Age distribution of Uterine Cancer patients, 2005 – 2014

Period	2005-2009		2010-2014	
Age group	**Number**	**%**	**Number**	**%**
0-44	230	15.4	324	15.5
45-54	498	33.3	632	30.2
55-64	433	29.0	682	32.6
65-74	229	15.3	310	14.8
75+	105	7.0	144	6.9
Total	1,495	100	2,092	100

Age at Diagnosis

In the period 2010 – 2014, the age-specific incidence rate rose steeply from 8.4 per 100,000 person-years for women aged 30 – 39 to 53.2 per 100,000 person-years for women aged 50 – 59. However, the rate also declined rapidly with age in the patients aged above 69 years (Figure 6.5.2).

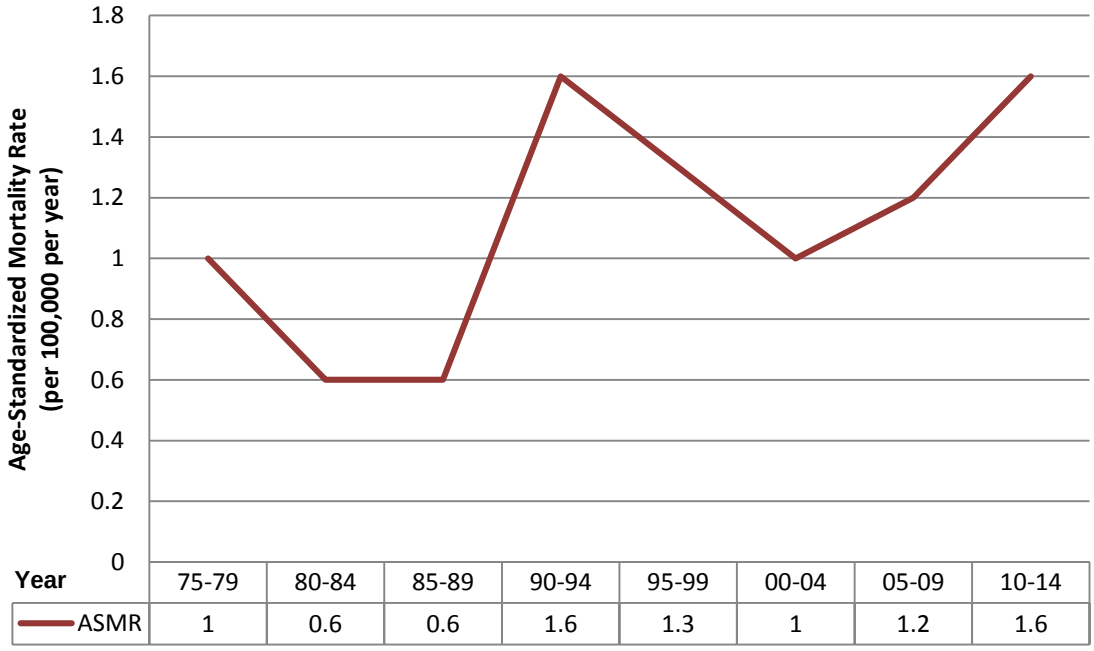
Figure 6.5.2: Age-Specific Incidence Rates for Uterine Cancer, 2010 – 2014



Mortality Rates

There has been a net increase in the mortality rate of women with uterine cancer since 1975 – 1979. The age-standardised mortality rate ranged from 0.6 per 100,000 person-years to 1.6 per 100,000 person-years over the last four decades (Figure 6.5.3).

Figure 6.5.3: Age-standardised Mortality Rates (ASMR) for Uterine Cancer, 1975 – 2014



Year	75-79	80-84	85-89	90-94	95-99	00-04	05-09	10-14
ASMR	1	0.6	0.6	1.6	1.3	1	1.2	1.6

Survival

There was a slight overall increase in the survival of women with uterine cancer, most notably in that of the Indians. However, the survival of Malay women was observed to decrease from 2005 – 2009 to 2010 – 2014. A large decline in the survival of uterine cancer patients with the progression of the disease towards stage IV was also observed in both time periods.

Table 6.5.5: 5-year Age-standardised Observed Survival of Uterine Cancer by Ethnicity, Age Group, and Stage, 2005 – 2014

	2005 – 2009	2010 - 2014
Ethnicity	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
Chinese	64.28 (61.53, 66.88)	67.30 (64.97, 69.51)
Malay	55.79 (47.92, 62.95)	47.19 (40.42, 53.65)
Indian	57.78 (46.09, 67.82)	69.75 (61.90, 76.30)
Age group	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
15 – 44	93.25 (88.86, 95.95)	92.22 (88.17, 94.93)
45 – 54	86.86 (83.39, 89,66)	88.17 (85.10, 90.65)
55 – 64	81.71 (77.24, 85.39)	76.72 (73.04, 79.97)
65 – 74	65.82 (58.63, 72.06)	68.18 (61.97, 73.59)
75+	39.36 (28.98, 49.57)	45.10 (36.12, 53.65)
Stage	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
I	88.22 (85.30, 90.60)	87.37 (85.16, 89.27)
II	77.26 (65.57, 85.41)	79.34 (71.23, 85.40)
III	50.56 (42.39, 58.15)	48.76 (42.27, 54.93)
IV	15.08 (8.69, 23.12)	11.32 (6.99, 16.80)
All	**62.93 (60.43, 65.31)**	**64.41 (62.31, 66.43)**

* Cancers of unknown stage were excluded.

6.6 Prostate Cancer (ICD 9: 185)

Incidence

Prostate cancer is the third most common cancer diagnosed in males from 2010 – 2014, accounting for 12.4% of total cancer diagnoses in men (Table 5.3.1). A total of 3,705 new cases of prostate cancer were diagnosed in the period 2010 – 2014. The age-standardised incidence rate of new prostate cancer diagnoses in males has been increasing steadily since 1974. It rose from 5.7 per 100,000 person-years in 1975 – 1979 to 28.6 per 100,000 person-years in 2010 – 2014 (Figure 6.6.1).

Chinese men were at considerably higher risk of developing prostate cancer compared to Malay and Indian men (Table 6.6.1).

Majority of the prostate cancer cases were stage II diagnoses (Table 6.6.2) and in the 65 or above age group (Table 6.6.4). There is a drastic increase in the numbers of stage I prostate cancer cases from 2005 – 2009 to 2010 – 2014 because of a change in ICD-O-3 coding for prostate cancer staging, which led to significant downstaging of cases of prostate cancer (from stage II to stage I).

Figure 6.6.1: Age-Standardised Incidence Rates (ASIR) for Prostate Cancer, 1975 – 2014

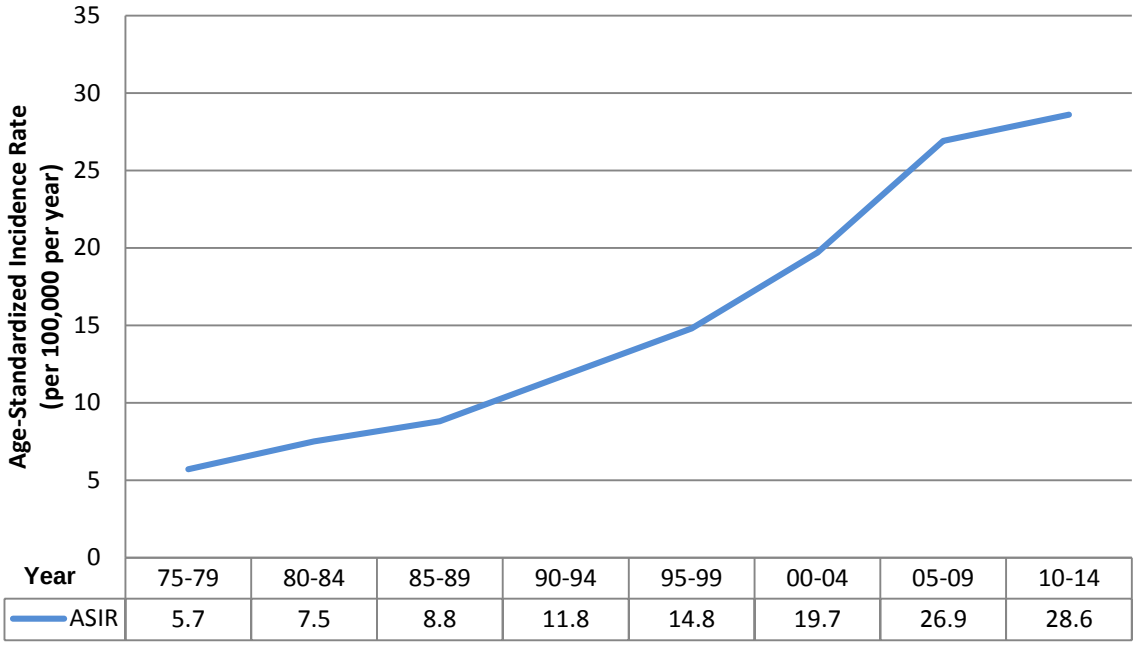


Table 6.6.1: Crude and Age-standardised Incidence Rates for Prostate Cancer by Ethnicity, 2010 – 2014

Ethnicity	Number	CR (95% CI)	ASR (95% CI)
Chinese	3,189	46.0 (44.4-47.6)	30.0 (28.9-31.0)
Malay	243	19.2 (16.7-21.6)	19.4 (16.9-22.0)
Indian	168	18.6 (15.8-21.4)	20.0 (16.9-23.2)
Others	105	35.0 (28.3-41.7)	45.5 (36.4-54.7)
All	3,705	39.4 (38.1-40.7)	28.6 (27.7-29.5)

Table 6.6.2: Stage distribution of Prostate Cancer patients, 2005 – 2014

Stage	2005 – 2009		2010 – 2014	
	Number	%	Number	%
I	13	0.5	504	15.1
II	1,547	64.4	1,450	43.3
III	237	9.9	391	11.7
IV	605	25.2	1,002	29.9

* Cancers of unknown stage were excluded.

Table 6.6.3: Ethnic distribution of Prostate Cancer patients, 2005 – 2014

Ethnicity	2005 – 2009		2010 – 2014	
	Number	%	Number	%
Chinese	2,287	84.9	3,189	86.1
Malay	201	7.5	243	6.6
Indian	133	4.9	168	4.5
Others	73	2.7	105	2.8
All	2,694	100	3,705	100

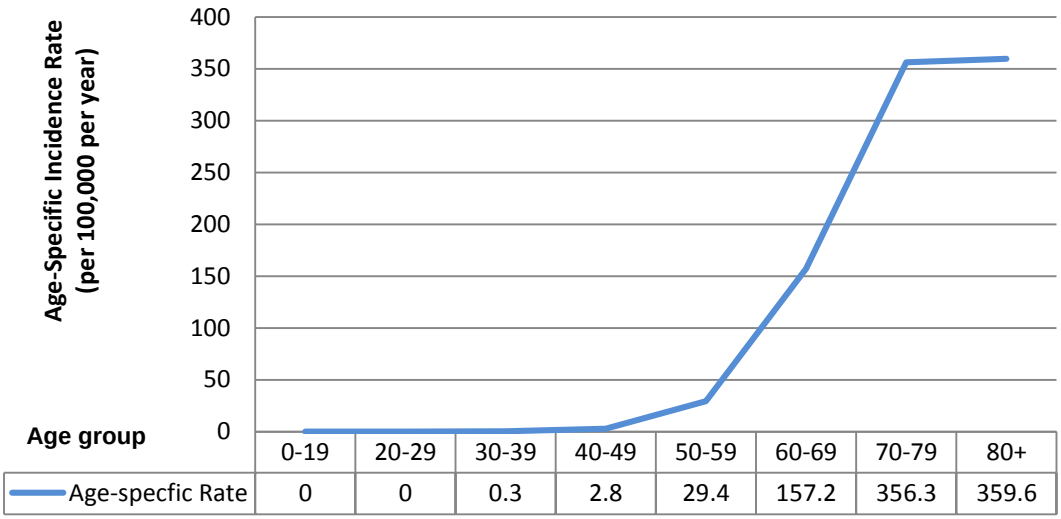
Table 6.6.4: Age distribution of Prostate Cancer patients, 2005 – 2014

Age Group	2005 – 2009		2010 – 2014	
	Number	%	Number	%
0-44	8	0.3	13	0.4
45-54	108	4.0	144	3.9
55-64	688	25.5	911	24.6
65-74	1,088	40.4	1,532	41.3
75+	802	29.8	1,105	29.8
All	2,694	100	3,705	100

Age at Diagnosis

In 2010 – 2014, the age-specific incidence rate climbed sharply from 29.4 per 100,000 person-years for men aged 50 – 59 to 356.3 per 100,000 person-years for men aged 70 – 79, plateauing thereafter in the range of 350 – 360 per 100,000 person-years (Figure 6.6.2).

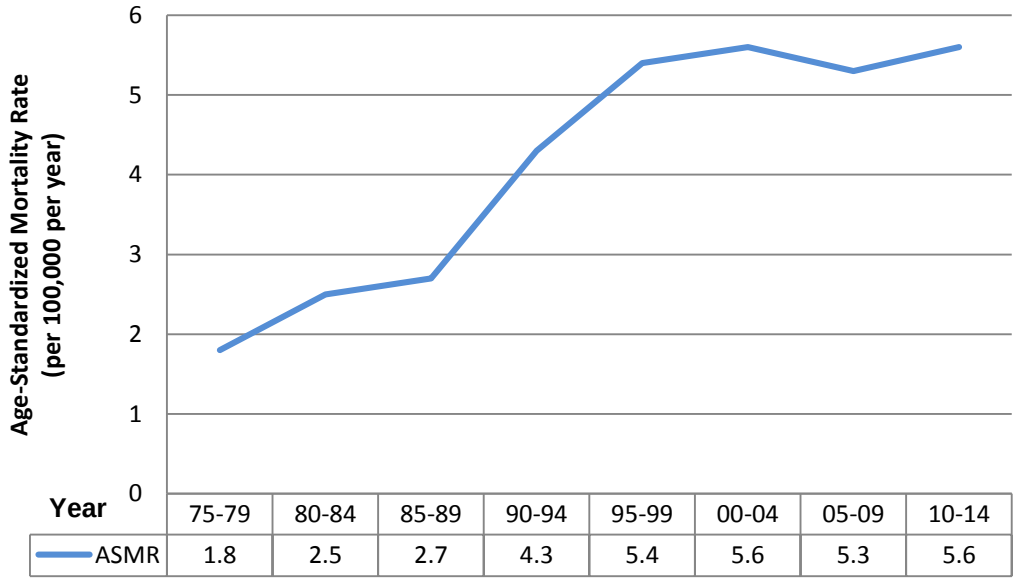
Figure 6.6.2: Age-Specific Incidence Rates for Prostate Cancer, 2010 – 2014



Mortality Rates

A total of 741 men died from prostate cancer in 2010 – 2014, ranking it sixth among cancer fatalities in men from 2010 – 2014 (Table 5.6.1). The age-standardised mortality rate climbed from 1.8 per 100,000 person-years in 1975 – 1979 to 5.4 per 100,000 person-years in 1995 – 1999, and has since remained stable (Figure 6.6.3).

Figure 6.6.3: Age-Standardised Mortality Rates (ASMR) for Prostate Cancer, 1975 – 2014



Survival

The observed survival for prostate cancer is among the best for cancers in men. Across stages, as well as overall, more patients survive compared to other cancers. There was a slight increase in survival rates from 2005 – 2009 to 2010 – 2014 for all age bands and stages, with the exception of a small decrease in the survival of stage I patients. Additionally, a decrease in the survival of Indian men was noted between the two time periods.

Table 6.6.5: 5-year Age-standardised Observed Survival of Prostate Cancer by Ethnicity, Age Group, and Stage, 2005 – 2014

	2005 – 2009	2010 - 2014
Ethnicity	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
Chinese	73.44 (71.24, 75.49)	76.33 (74.70, 77.87)
Malay	52.34 (44.88, 59.25)	58.80 (51.68, 65.23)
Indian	75.28 (65.99, 82.37)	63.98 (55.75, 71.08)
Age group	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
15 – 54	88.55 (80.20, 93.52)	90.92 (84.85, 94.64)
55 – 64	85.71 (82.24, 88.54)	86.49 (83.93, 88.67)
65 – 74	76.65 (73.60, 79.40)	80.43 (78.13, 82.52)
75+	47.76 (43.70, 51.70)	53.66 (50.40, 56.80)
Stage	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
I	100.00^ (100.00, 100.00)	92.95 (88.69, 95.64)
II	84.66 (81.89, 87.05)	89.60 (88.00, 91.00)
III	77.45 (70.02, 83.27)	84.60 (79.83, 88.33)
IV	35.88 (30.67, 41.11)	38.34 (34.76, 41.90)
All	**72.01 (70.00, 73.92)**	**74.96 (73.42, 76.43)**

* Cancers of unknown stage were excluded.
^ There is no confidence interval because there were no fatalities within the 5-year calendar period of observation.

6.7 Lung Cancer (ICD 9: 162)

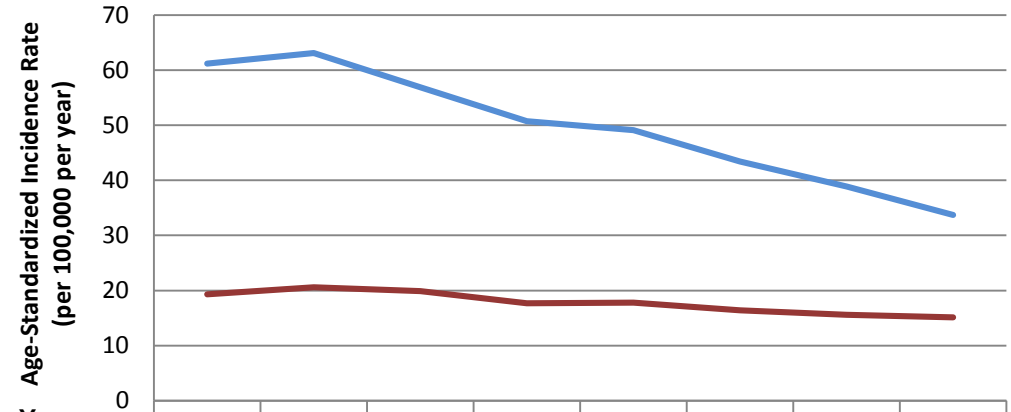
Incidence

A total of 6,899 new cases of lung cancer were diagnosed in 2010 – 2014. The age-standardised incidence rate of newly diagnosed lung cancer in the male resident population has been declining progressively since the period 1980 – 1984, dropping by almost half from 63.1 per 100,000 person-years in 1980 – 1984 to 33.7 per 100,000 person-years in 2010 – 2014. On the other hand, the age-standardised incidence rate of newly diagnosed lung cancer for females had been relatively stable and ranged from 15.1 and 20.6 per 100,000 person-years from 1975 – 2014 (Figure 6.7.1). Although men have a substantially higher incidence of lung cancer, possibly due to their higher incidence of smoking, which is a very strong risk factor for lung cancer, the gender gap has been declining steadily over the decades.

For both males and females, the Chinese were higher risk of developing lung cancer compared to the Malays and Indians (Table 6.7.1).

Majority of the lung cancer cases were diagnosed at stage III and IV (Table 6.7.2) and in those aged 65 or above (Table 6.7.4).

Figure 6.7.1: Age-Standardised Incidence Rates (ASIR) for Lung Cancer, 1975 – 2014



Year	75-79	80-84	85-89	90-94	95-99	00-04	05-09	10-14
Male	61.2	63.1	56.9	50.7	49.1	43.4	38.9	33.7
Female	19.3	20.6	19.9	17.7	17.8	16.4	15.6	15.1

Table 6.7.1: Crude and Age-standardised Incidence Rates for Lung Cancer by Gender and Ethnicity, 2010 – 2014

Gender	Ethnicity	Number	CR (95% CI)	ASR (95% CI)
Male	Chinese	3,795	54.8 (53.0-56.5)	35.1 (34.0-36.2)
	Malay	472	37.2 (33.9-40.6)	35.3 (32.0-38.6)
	Indian	155	17.1 (14.4-19.8)	16.9 (14.1-19.7)
	Others	67	22.3 (17.0-27.7)	27.8 (20.7-34.9)
	All	4,489	47.7 (46.3-49.1)	33.7 (32.7-34.7)
Female	Chinese	2,131	29.5 (28.2-30.7)	16.2 (15.4-16.9)
	Malay	189	14.8 (12.7-16.9)	11.6 (9.9-13.3)
	Indian	58	6.8 (5.1-8.6)	6.5 (4.7-8.2)
	Others	32	9.7 (6.3-13.1)	12.1 (7.3-16.9)
	All	2,410	24.9 (23.9-25.9)	15.1 (14.5-15.7)

Table 6.7.2: Stage distribution of Lung Cancer patients, 2005 – 2014

Gender	Stage	2005 – 2009		2010 – 2014	
		Number	%	Number	%
Male	I	337	9.8	333	8.1
	II	144	4.2	213	5.2
	III	929	27.0	852	20.7
	IV	2,033	59.0	2,718	66.0
Female	I	191	11.5	315	14.5
	II	41	2.5	90	4.1
	III	354	21.3	253	11.7
	IV	1,077	64.7	1,509	69.7

* Cancers of unknown stage were excluded.

Table 6.7.3: Ethnic distribution of Lung Cancer patients, 2005 – 2014

Gender	Ethnicity	2005 – 2009		2010 – 2014	
		Number	%	Number	%
Male	Chinese	3,480	86.3	3,795	84.5
	Malay	386	9.6	472	10.5
	Indian	130	3.2	155	3.5
	Others	36	0.9	67	1.5
	All	4,032	100	4,489	100
Female	Chinese	1,792	89.2	2,131	88.4
	Malay	169	8.4	189	7.8
	Indian	31	1.5	58	2.4
	Others	16	0.8	32	1.3
	All	2,008	100	2,410	100

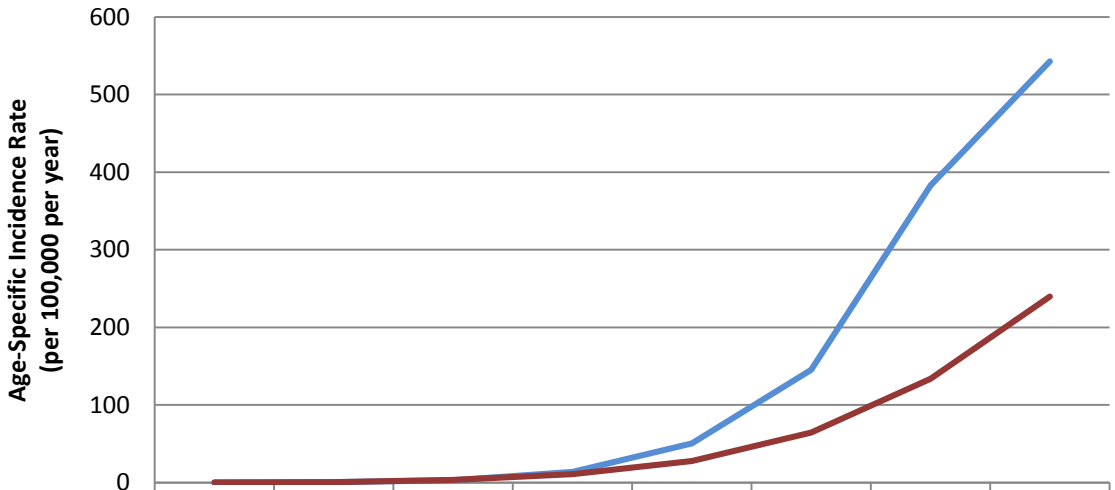
Table 6.7.4: Age distribution of Lung Cancer patients, 2005 – 2014

Gender	Age Group	2005 – 2009		2010 – 2014	
		Number	%	Number	%
Male	0-44	114	2.8	112	2.5
	45-54	384	9.5	431	9.6
	55-64	819	20.3	1,045	23.3
	65-74	1,402	34.8	1,390	31.0
	75+	1,313	32.6	1,511	33.7
	All	4,032	100	4,489	100
Female	0-44	89	4.4	101	4.2
	45-54	239	11.9	297	12.3
	55-64	395	19.7	516	21.4
	65-74	527	26.2	590	24.5
	75+	758	37.7	906	37.6
	All	2,008	100	2,410	100

Age at Diagnosis

In the period 2010 – 2014, the age-specific incidence rate rose slightly with age below 40 years of age for both genders. However, past the 40 – 49 age band, the incidence rate rose sharply, especially for men, where it rose from 13.8 per 100,000 person-years for men aged 40 – 49 to 542.9 per 100,000 person-years for men aged 80 onwards. The age-specific incidence rate for women increased at a slower pace, from 10.9 per 100,000 person-years for women aged 40 – 49 to 239.8 per 100,000 person-years for women aged 80 onwards (Figure 6.7.2).

Figure 6.7.2: Age-specific Incidence Rates for Lung Cancer, 2010 – 2014

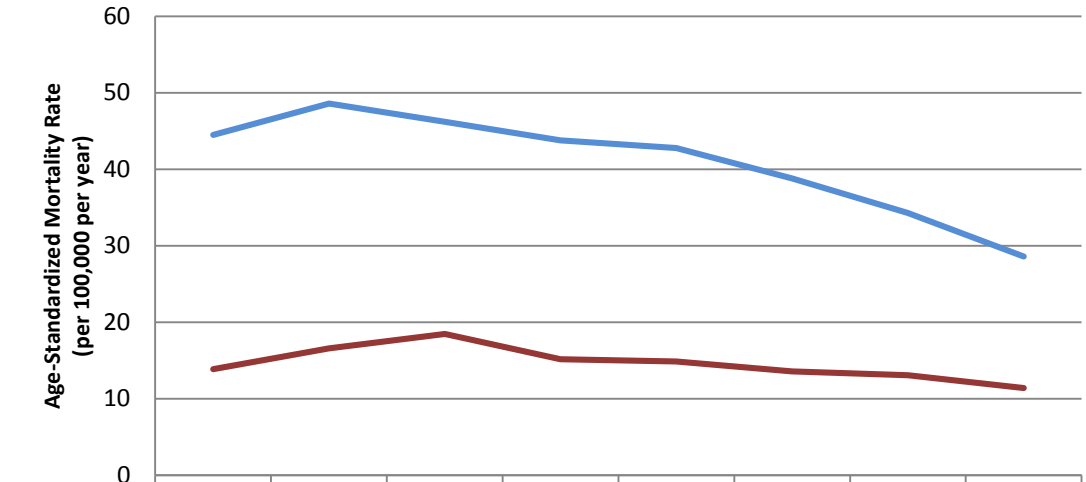


Age group	0-19	20-29	30-39	40-49	50-59	60-69	70-79	80+
Male	0.2	0.5	2.9	13.8	50.2	145.1	382.7	542.9
Female	0	0.3	3.1	10.9	27.7	64.2	133.8	239.8

Mortality Rates

A total of 5,732 individuals died from lung cancer in 2010 – 2014, making it the deadliest cancer among the total Singapore resident population. However, the age-standardised mortality rate for both genders has been decreasing since 1989. The rate for men declined gradually from a peak of 46.2 per 100,000 person-years in 1985 – 1989 to 28.6 per 100,000 person-years in 2010 – 2014, while that for women dropped from a high of 18.5 per 100,000 person-years in 1985 – 1989 to 11.4 per 100,000 person-years in 2010 – 2014 (Figure 6.7.3).

Figure 6.7.3: Age-standardised Mortality Rates (ASMR) for Lung Cancer, 1975 – 2014



Year	75-79	80-84	85-89	90-94	95-99	00-04	05-09	10-14
Male	44.5	48.6	46.2	43.8	42.8	38.8	34.3	28.6
Female	13.9	16.6	18.5	15.2	14.9	13.6	13.1	11.4

Survival

The overall survival rates, as well as the gender-, age-, and stage-specific survival rates for lung cancer remain low compared to other cancers. Indians of both genders had better survival rates than their Chinese and Malay counterparts in year 2010 – 2014. There was a slight increase in the overall survival of both male and female lung cancer patients from 2005 – 2009 to 2010 – 2014. Male lung cancer patients exhibit poorer survival overall compared to the females.

Table 6.7.5.1: 5-year Age-standardised Observed Survival of Lung Cancer by Ethnicity, Age Group, and Stage for Males, 2005 – 2014

	2005 – 2009	2010 - 2014
Ethnicity	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
Chinese	8.82 (7.90, 9.81)	10.47 (9.47, 11.52)
Malay	6.71 (44.1, 9.66)	9.23 (6.73, 12.20)
Indian	13.50 (7.89, 20.62)	13.85 (9.02, 19.69)
Age group	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
15 – 44	24.75 (17.18, 33.05)	28.08 (19.76, 36.97)
45 – 54	12.81 (9.69, 16.37)	16.31 (12.83, 20.15)
55 – 64	12.75 (10.48, 15.25)	15.40 (13.18, 17.78)
65 – 74	8.26 (6.85, 9.84)	9.67 (8.16, 11.33)
75+	3.33 (2.47, 4.38)	3.61 (2.70, 4.72)
Stage	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
I	44.18 (37.55, 50.59)	54.30 (48.68, 59.57)
II	21.78 (14.58, 29.93)	32.98 (25.91, 40.21)
III	11.24 (8.93, 13.83)	10.92 (8.95, 13.09)
IV	1.45 (0.92, 2.18)	3.14 (2.42, 4.01)
All	**8.82 (7.95, 9.75)**	**10.44 (9.53, 11.40)**

* Cancers of unknown stage were excluded.

Table 6.7.5.2: 5-year Age-standardised Observed Survival of Lung Cancer by Ethnicity, Age Group, and Stage for Females, 2005 – 2014

	2005 – 2009	2010 - 2014
Ethnicity	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
Chinese	12.50 (10.91, 14.20)	17.64 (15.88, 19.47)
Malay	8.35 (4.57, 13.55)	9.25 (5.80, 13.67)
Indian	8.84 (1.07, 27.32)	21.65 (10.45, 35.46)
Age group	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
15 – 44	22.06 (13.50, 31.95)	35.55 (25.75, 45.45)
45 – 54	17.87 (12.85, 23.57)	27.04 (21.86, 32.47)
55 – 64	19.38 (15.04, 24.14)	25.32 (21.17, 29.67)
65 – 74	13.49 (10.75, 16.54)	19.58 (16.11, 23.30)
75+	3.65 (2.45, 5.21)	4.18 (2.96, 5.70)
Stage	**5 year ASOS (95% CI)**	**5 year ASOS (95% CI)**
I	60.07 (50.07, 68.69)	68.97 (62.78, 74.34)
II	41.83 (26.36, 56.57)	44.57 (30.29, 57.88)
III	10.05 (6.33, 14.76)	20.10 (15.66, 24.95)
IV	3.40 (2.14, 5.11)	4.82 (3.66, 6.20)
All	**12.36 (10.86, 13.97)**	**17.09 (15.47, 18.79)**

* Cancers of unknown stage were excluded.