

CANCER INCIDENCE TRENDS 1993-2013

WITH PROJECTIONS TO 2035

SUMMARY

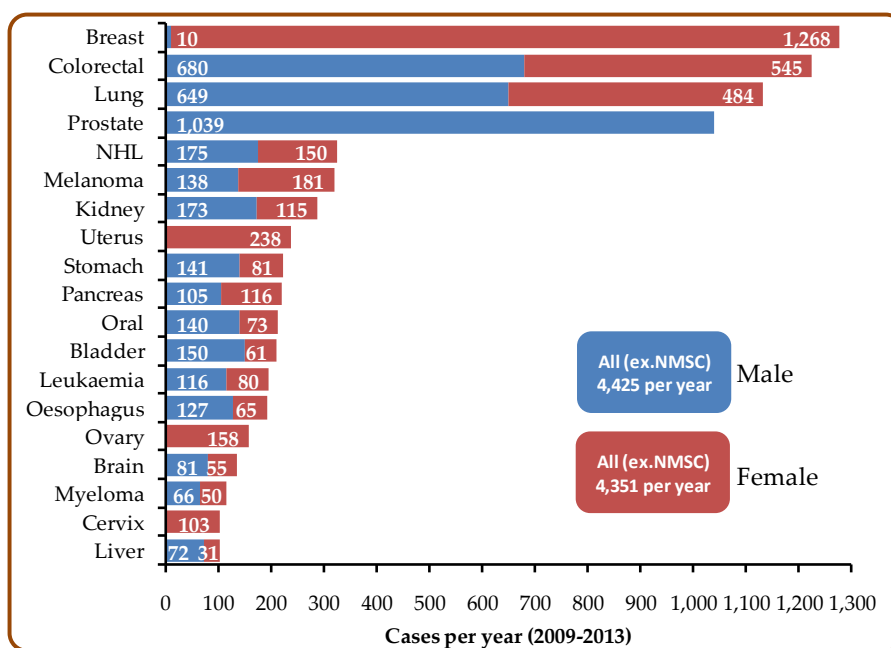
Monitoring trends in cancer incidence is essential if high quality cancer services are to be maintained and resourced. Trends for all cancers (excluding non-melanoma skin cancer - NMSC) along with the most common cancers are analysed in detail. Additionally projections of cancer incidence up to the year 2035 are presented for the first time in Northern Ireland.

THE FULL REPORT IS AVAILABLE AT WWW.OUB.AC.UK/NICR

Methods

Data on all malignant cancers (excluding non-melanoma skin cancer) diagnosed between 1993 and 2013 was extracted from the NI Cancer Registry. Age-specific rates for all cancers combined and 30 common cancers were determined for both sexes by year of diagnosis. The data was fitted separately for ages 0-49, 50-59, 60-69, 70-79 and 80+ using a regression model with five-year age group, five-year birth cohort and year of diagnosis used as predictors of the cancer incidence rate. The resulting model was used to predict rates in future years, which were combined with population projections to provide estimates of the future number of cases.

KEY FACTS



NUMBER OF CASES DIAGNOSED EACH YEAR BY SEX AND TYPE: 2009-2013

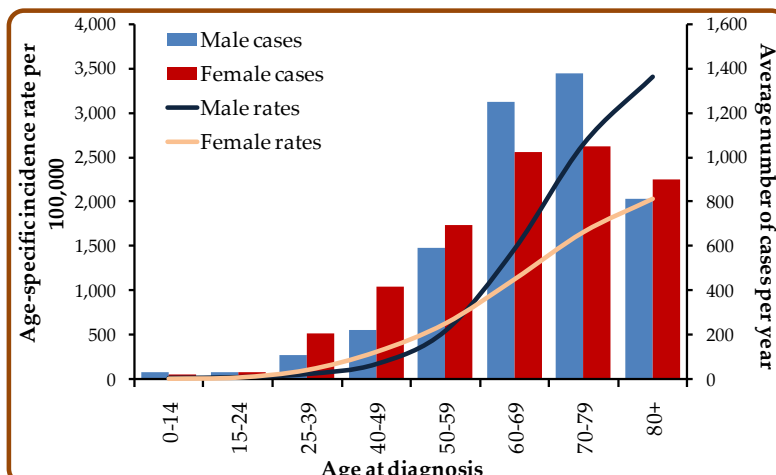
There were 4,425 male and 4,351 female cases (excluding NMSC) diagnosed each year during 2009-2013.

The most common cancers among men were prostate (23.5%), colorectal (15.4%) and lung (14.7%), while among women they were breast (29.1%), colorectal (12.5%) and lung (11.1%).

NUMBER OF CASES DIAGNOSED EACH YEAR BY SEX AND AGE: 2009-2013

Cancer occurs primarily among older people with a median age at diagnosis of 69 for males and 68 for females.

Incidence rates were greatest among both men and women aged 80 and over.

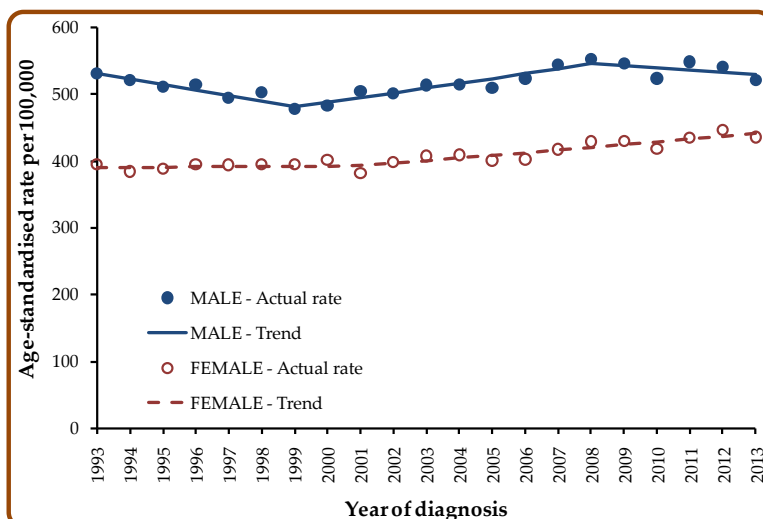


PAST TRENDS IN INCIDENCE RATES

TREND IN INCIDENCE RATES BY SEX: 1993-2013

Cancer incidence rates, adjusted for age and population change, decreased by 1.6% per year among males during 1993-1999, after which rates increased by 1.4% per year until 2008. There was no significant change after 2008.

Among women there was no change in incidence rates during 1993-2001, however after 2001 rates increased by 1.0% per year.



ANNUAL CHANGE IN INCIDENCE RATES BY SEX AND TYPE

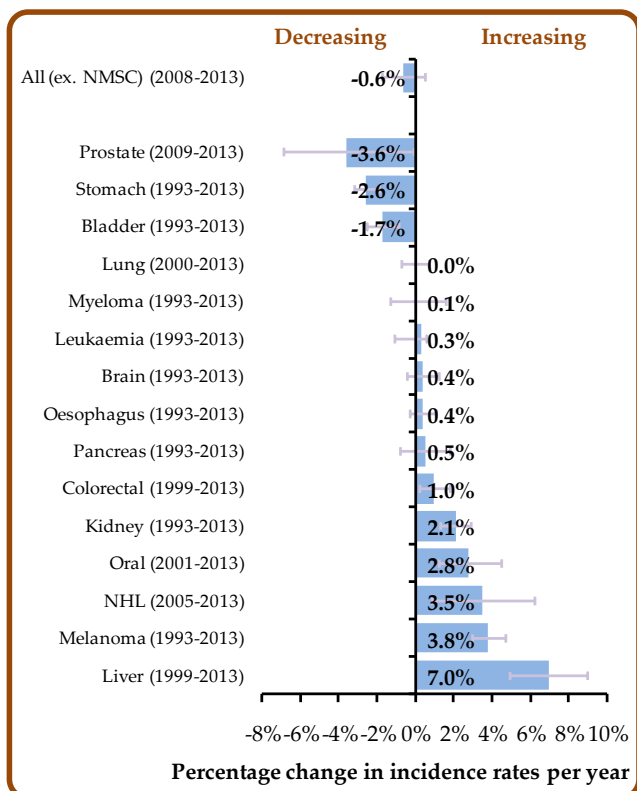
At the end of 2013 the trend in cancer incidence rates among men was:

- **decreasing** for prostate cancer, stomach cancer and bladder cancer;
- **increasing** for liver cancer, malignant melanoma, non-Hodgkin’s lymphoma, oral cancer, kidney cancer and colorectal cancer.

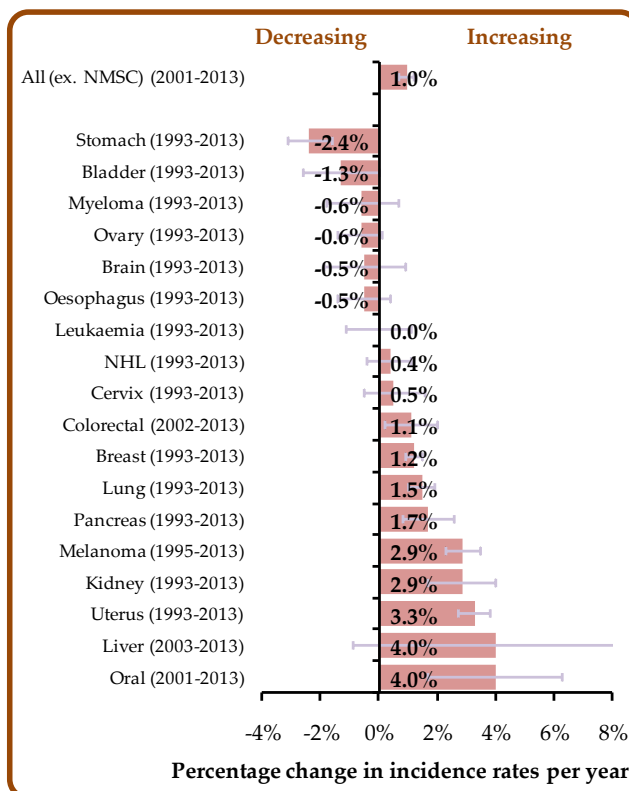
At the end of 2013 the trend in cancer incidence rates among women was:

- **decreasing** for stomach cancer and bladder cancer;
- **increasing** for oral cancer, uterine cancer, kidney cancer, malignant melanoma, pancreatic cancer, lung cancer, breast cancer and colorectal cancer.

Male



Female



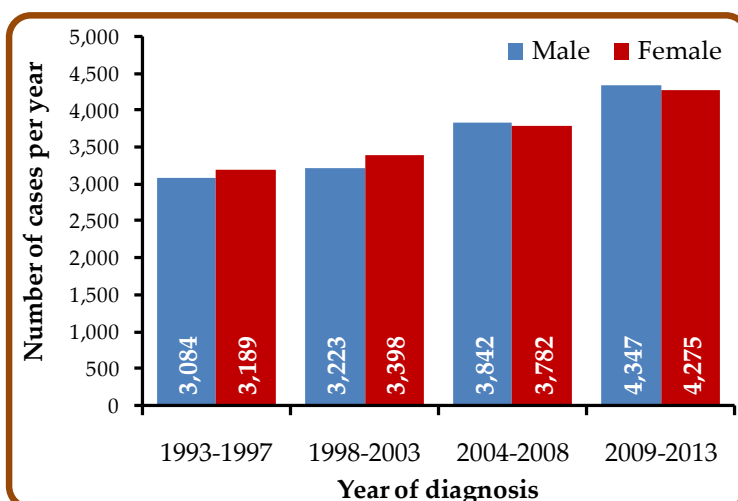
NHL: Non-Hodgkin’s lymphoma, NMSC: Non-melanoma skin cancer

PAST TRENDS IN NUMBER OF CASES DIAGNOSED

NUMBER OF CASES DIAGNOSED EACH YEAR BY SEX AND PERIOD OF DIAGNOSIS

In 2009-2013 there were 8,622 cancers (4,347 male, 4,275 female)¹ diagnosed each year compared to 6,273 per year (3,084 male, 3,189 female) in 1993-1997; an increase of 37.4%.

On average the number of cases diagnosed increased by 1.8% per year among men between 2008 and 2013, while among women the number of cases increased between 2001 and 2013 by 2.4% per year.



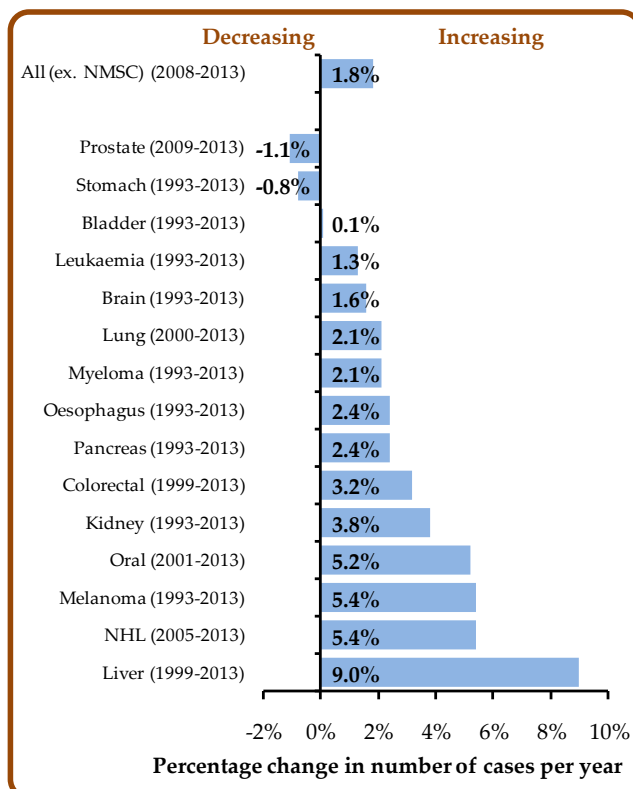
ANNUAL CHANGE IN NUMBER OF CASES DIAGNOSED BY SEX AND TYPE

Among men cancer incidence was increasing at the end of 2013 for all cancer types, except for prostate and stomach cancer. Among women increases were occurring for all cancer types.

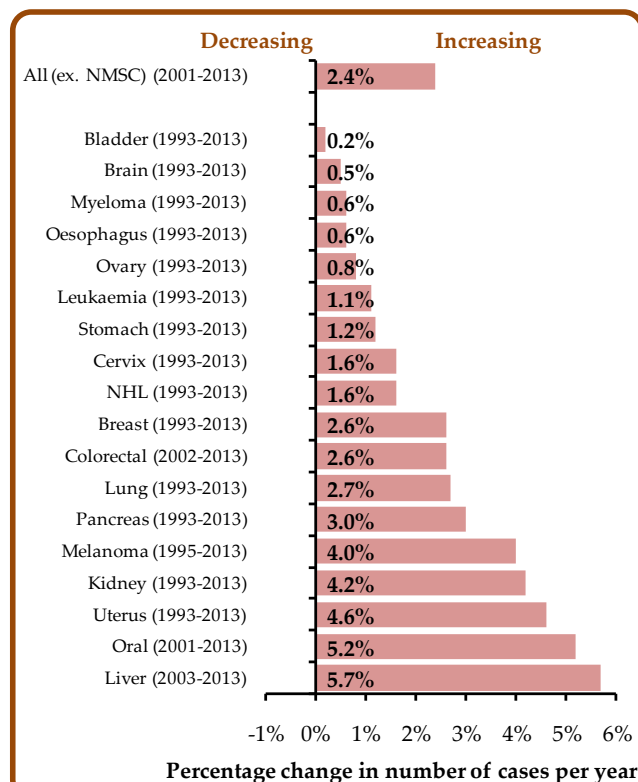
Among men the number of cases diagnosed each year was increasing by more than 4% per year for liver cancer, non-Hodgkin's lymphoma, malignant melanoma and oral cancer.

Among women the number of cases diagnosed each year was increasing by more than 4% per year for liver cancer, oral cancer, uterine cancer, kidney cancer and malignant melanoma.

Male



Female



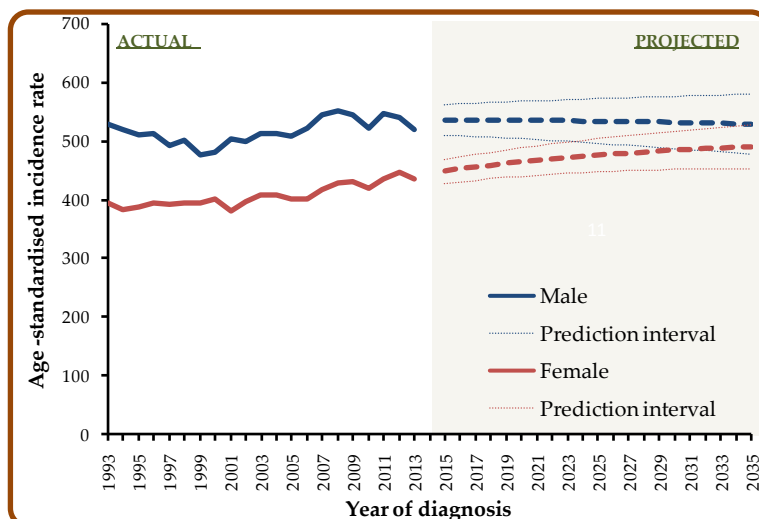
NHL: Non-Hodgkin's lymphoma, NMSC: Non-melanoma skin cancer

PROJECTED INCIDENCE RATES

PROJECTED INCIDENCE RATES FROM 2015 TO 2035

Incidence rates of cancer among men are projected to remain fairly steady in forthcoming years with no change by 2020 compared to rates in 2009-2013, while by 2035 a slight drop of 1% is expected.

Among women incidence rates are projected to continue to increase, with a 7% rise by 2020 and a 13% rise by 2035 expected.



PROJECTED CHANGE IN INCIDENCE RATES BY SEX AND TYPE

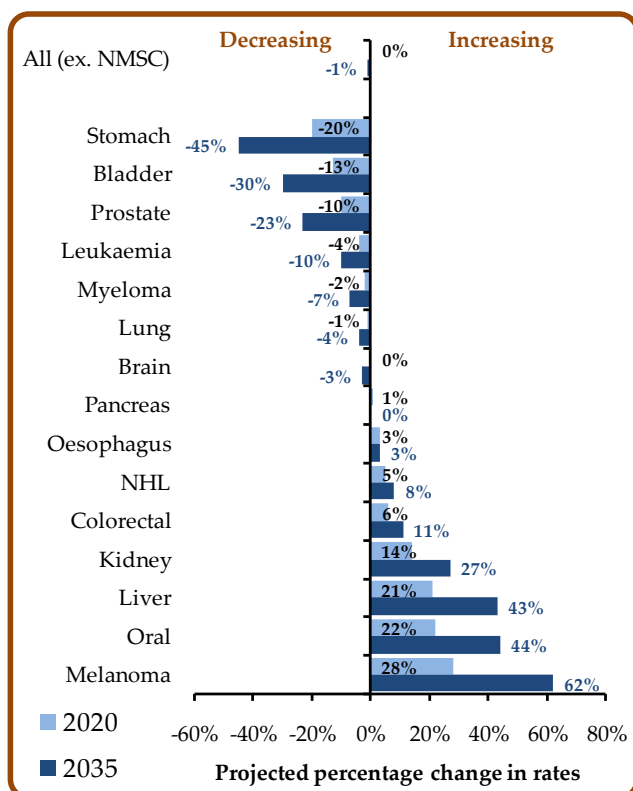
Compared to the 2009-2013 average male incidence rates are projected to:

- **decrease** by more than 10% by 2020 and by more than 20% by 2035 for stomach, bladder and prostate cancers,
- **increase** by more than 10% by 2020 and by more than 20% by 2035 for malignant melanoma, oral, liver and kidney cancers.

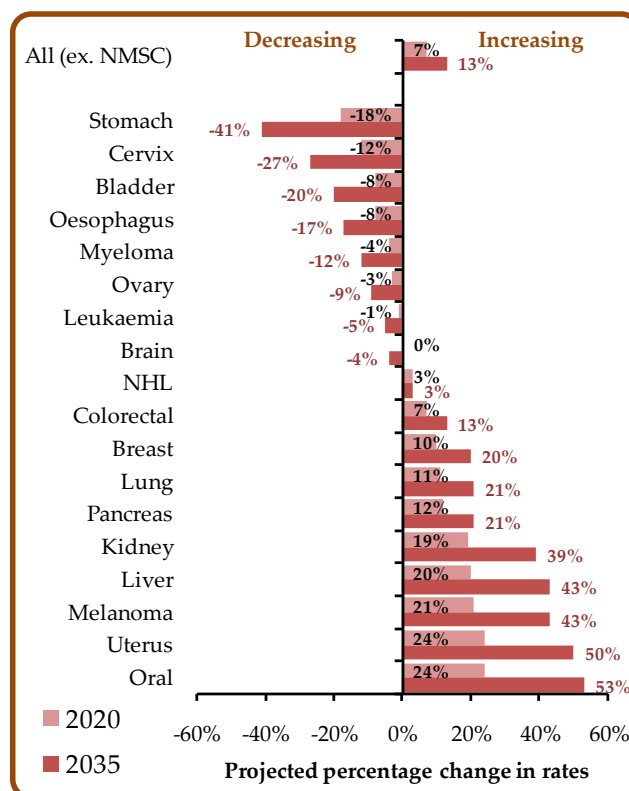
Also compared to the 2009-2013 average female incidence rates are projected to:

- **decrease** by more than 10% by 2020 and by more than 20% by 2035 for stomach and cervical cancers;
- **increase** by more than 10% by 2020 and by more than 20% by 2035 for malignant melanoma, oral, uterine, liver, kidney, pancreatic, lung and breast cancer.

Male



Female



NHL: Non-Hodgkin's lymphoma, NMSC: Non-melanoma skin cancer

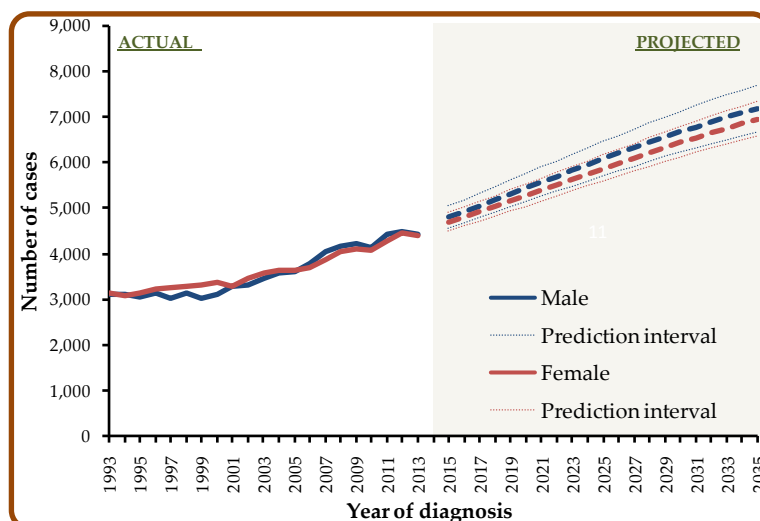
PROJECTED NUMBER OF CASES DIAGNOSED

PROJECTED NUMBER OF CASES DIAGNOSED FROM 2015 TO 2035

In 2009-2013 there were 4,347 male and 4,275 female cases of cancer (ex. NMSC) diagnosed each year¹.

By 2020 this is expected to rise by 25% for men and by 24% for women to 5,443 and 5,285 cases per year respectively.

By 2035 the number of cases per year is projected to be 7,181 male and 6,967 females cases, a 65% rise among men and a 63% rise among women.



PROJECTED NUMBER OF CASES DIAGNOSED BY SEX AND TYPE IN 2020 AND 2035

By 2035 the most common cancers are expected to remain breast, colorectal, lung and prostate cancer, with the number of breast cancers expected to reach 2,000 cases per year and the number of male lung and colorectal cancers expected to exceed 1,000 cases per year.

CANCER TYPE	Male					Female				
	2009-13 cases per year	2020		2035		2009-13 cases per year	2020		2035	
		Cases per year (prediction interval)	Cases per year (prediction interval)	Cases per year (prediction interval)	Cases per year (prediction interval)		Cases per year (prediction interval)	Cases per year (prediction interval)		
All (ex. NMSC) ¹	4,425	5,443 (5,140, 5,746)	7,181 (6,675, 7,687)	4,351	5,285 (5,050, 5,520)	6,967 (6,590, 7,344)				
Bladder	150	169 (128, 210)	205 (162, 248)	61	67 (47, 87)	83 (62, 104)				
Brain	81	94 (67, 121)	110 (76, 144)	55	63 (42, 84)	75 (49, 101)				
Breast				1,268	1,589 (1,464, 1,714)	2,077 (1,888, 2,266)				
Cervix				103	93 (56, 130)	74 (26, 122)				
Colorectal	680	909 (807, 1,011)	1,292 (1,143, 1,441)	545	688 (605, 771)	946 (818, 1,074)				
Kidney	173	244 (195, 293)	368 (294, 442)	115	161 (124, 198)	246 (189, 303)				
Leukaemia	116	137 (101, 173)	170 (128, 212)	80	91 (66, 116)	116 (88, 144)				
Liver	72	110 (77, 143)	179 (125, 233)	31	43 (24, 62)	67 (33, 101)				
Lung	649	816 (717, 915)	1,128 (991, 1,265)	484	641 (570, 712)	923 (821, 1,025)				
Melanoma	138	215 (168, 262)	370 (288, 452)	181	239 (193, 285)	317 (244, 390)				
Myeloma	66	82 (54, 110)	104 (70, 138)	50	57 (38, 76)	74 (54, 94)				
NHL	175	226 (182, 270)	316 (257, 375)	150	180 (146, 214)	232 (191, 273)				
Oesophagus	127	163 (124, 202)	215 (165, 265)	65	72 (52, 92)	86 (63, 109)				
Oral	140	204 (157, 251)	288 (204, 372)	73	103 (73, 133)	146 (96, 196)				
Ovary ²				158	178 (143, 213)	223 (183, 263)				
Pancreas	105	135 (98, 172)	185 (139, 231)	116	156 (125, 187)	241 (198, 284)				
Prostate	1,039	1,183 (1,040, 1,326)	1,294 (1,082, 1,506)							
Stomach	141	143 (107, 179)	140 (106, 174)	81	78 (56, 100)	76 (56, 96)				
Uterus				238	343 (286, 400)	506 (411, 601)				

NHL: Non-Hodgkin's lymphoma, NMSC: Non-melanoma skin cancer

¹ Excludes myelodysplastic syndromes and myeloproliferative disorders to maintain consistency in trends over time. Totals thus differ slightly from those on page I.

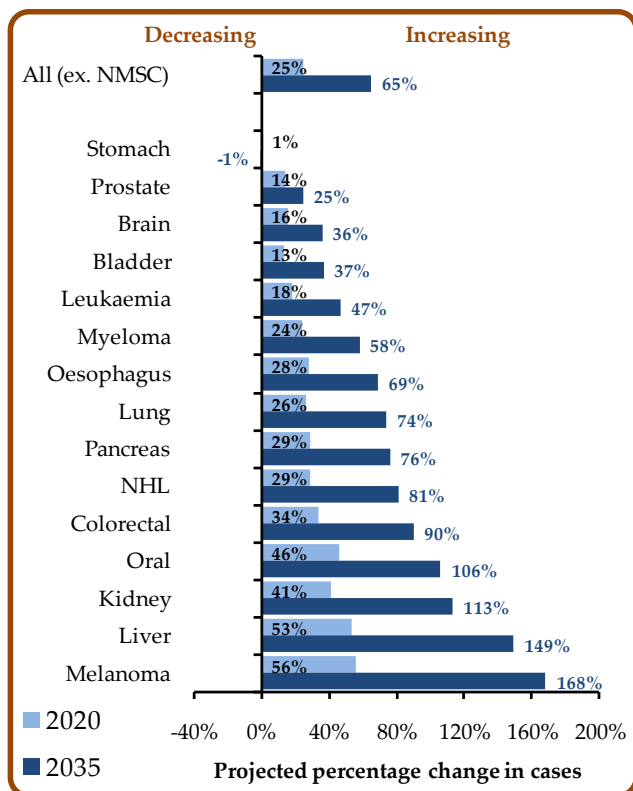
² Excludes borderline ovarian tumours to maintain consistency in trends over time.

PROJECTED ANNUAL CHANGE IN NUMBER OF CASES DIAGNOSED BY SEX AND TYPE

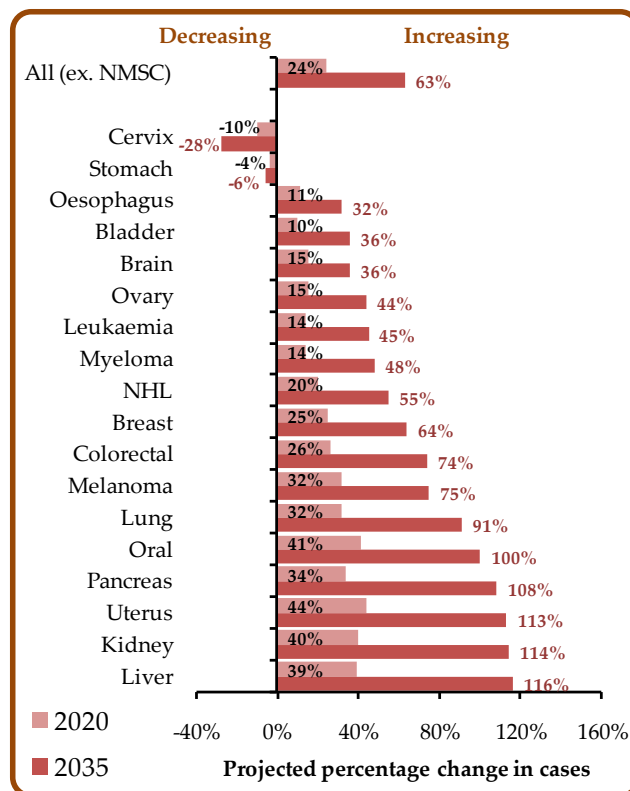
By 2035 the number of cases diagnosed each year among men is projected to increase for all cancer types compared to 2009-2013, except for stomach cancer, while among women increases are expected for all cancer types except cervical and stomach cancer.

The number of cases diagnosed each year is expected to increase among males by more than 100% for malignant melanoma, liver, kidney and oral cancers, and among females by more than 100% for liver, kidney, uterine, pancreatic and oral cancers.

Male



Female



NHL: Non-Hodgkin's lymphoma, NMSC: Non-melanoma skin cancer

FACTORS THAT CAN INFLUENCE CANCER INCIDENCE PROJECTIONS

(SEE SECTION 24 FOR FURTHER DISCUSSION)

- **Changes to risk factor exposure within the general population.**

The risk factors likely to have the greatest impact on future projections are:

- Tobacco use;
- Excessive alcohol consumption;
- Obesity, lack of physical activity and/or lack of a balanced diet;
- Ultraviolet radiation from sunshine or sun beds.

The potential exists to alter cancer incidence projections through control of these risk factors.

- **Introduction of health service initiatives that aim to either prevent or diagnose cancer early.**

These include vaccinations (e.g. the HPV vaccination), screening (e.g. the breast, cervical and colorectal screening programmes) and diagnostic tests (e.g. PSA testing for prostate cancer).

- **Changes to the way in which cancer is classified and/or revisions to population projections.**

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