Estimating the long-term health impacts of changes in alcohol consumption in England during the COVID-19 pandemic

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Appendix 2: Additional results

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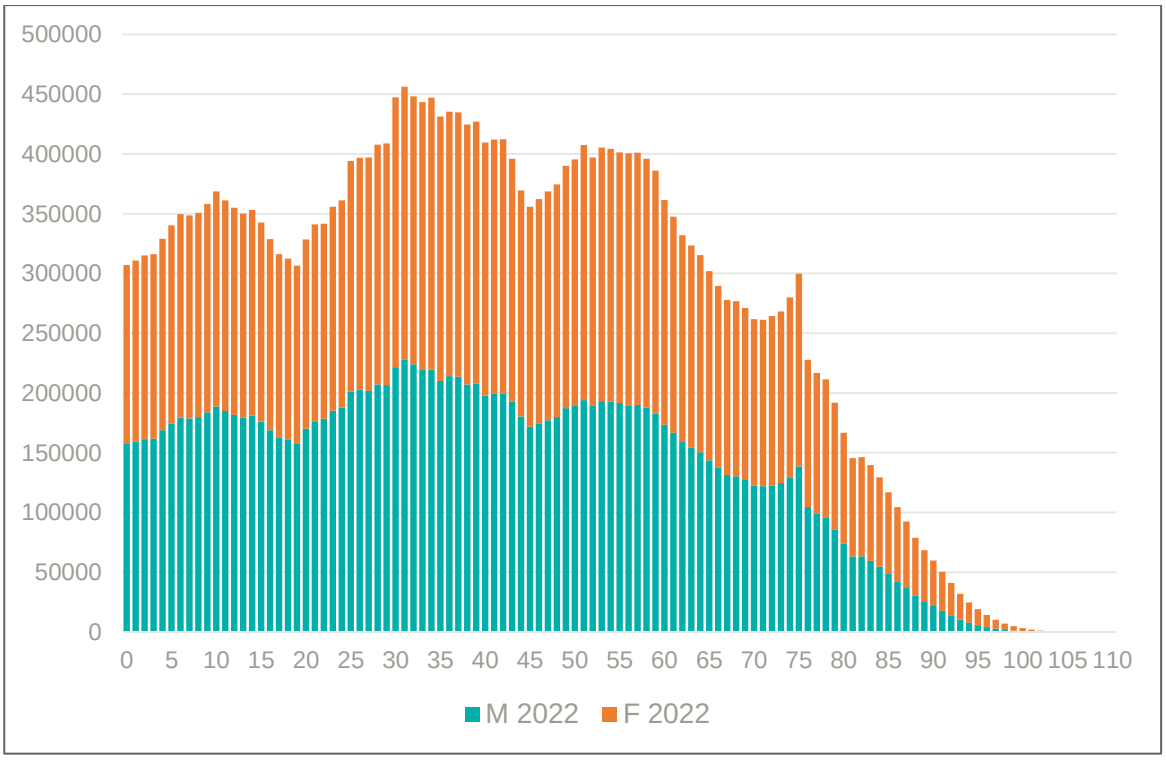
Contents

This appendix contains additional outputs from the project as well as other contextual data, to supplement the main findings.

Population projections

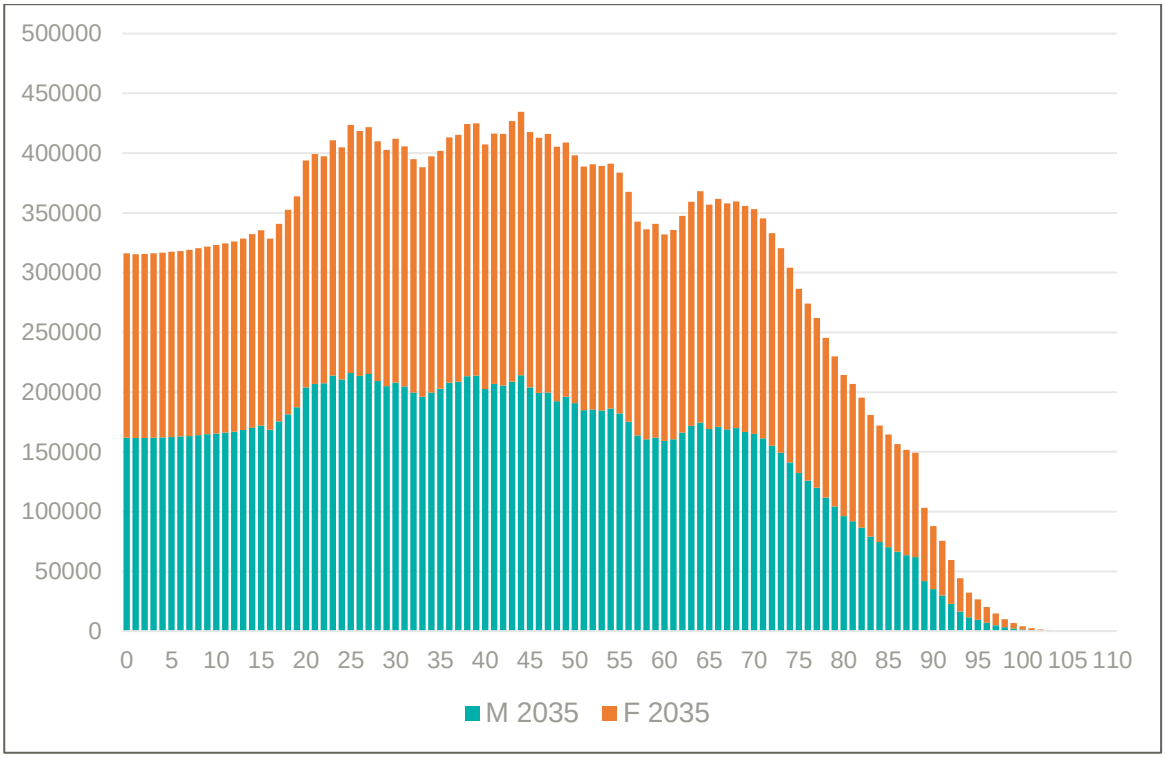
Figure 1 - Figure 4 show the projected size of the A-C1 and C2-E populations, by age and sex, in 2022 and 2035. By 2035, the size of the C2-E population is projected to grow by 5.4% and the size of the A-C1 population by 4.8%. The mean age of the A-C1 and C2-E populations in 2022 were similar, at 40.5 and 40.9 years, respectively. The projected increase in the size of the population aged 65+, between 2022 and 2035, is also comparable between the A-C1 and C2-E populations, with a projected growth of 27.3%, and 27.4%, respectively. Figure 1 - Figure 4 present the projected population, by SES, age, and sex, in 2022 and 2035.

Figure 1: The projected population structure of the A-C1 population in 2022, by age and sex



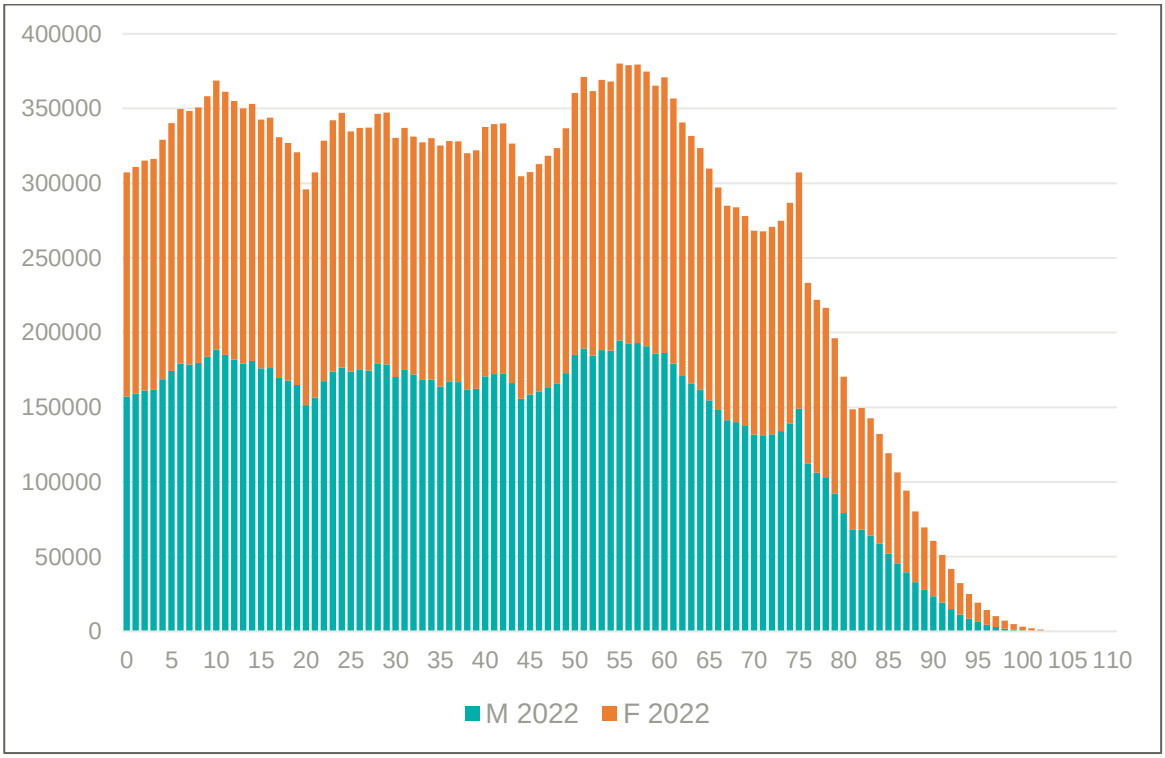
F, Female; M, Male

Figure 2: The projected population structure of the A-C1 population in 2035, by age and sex



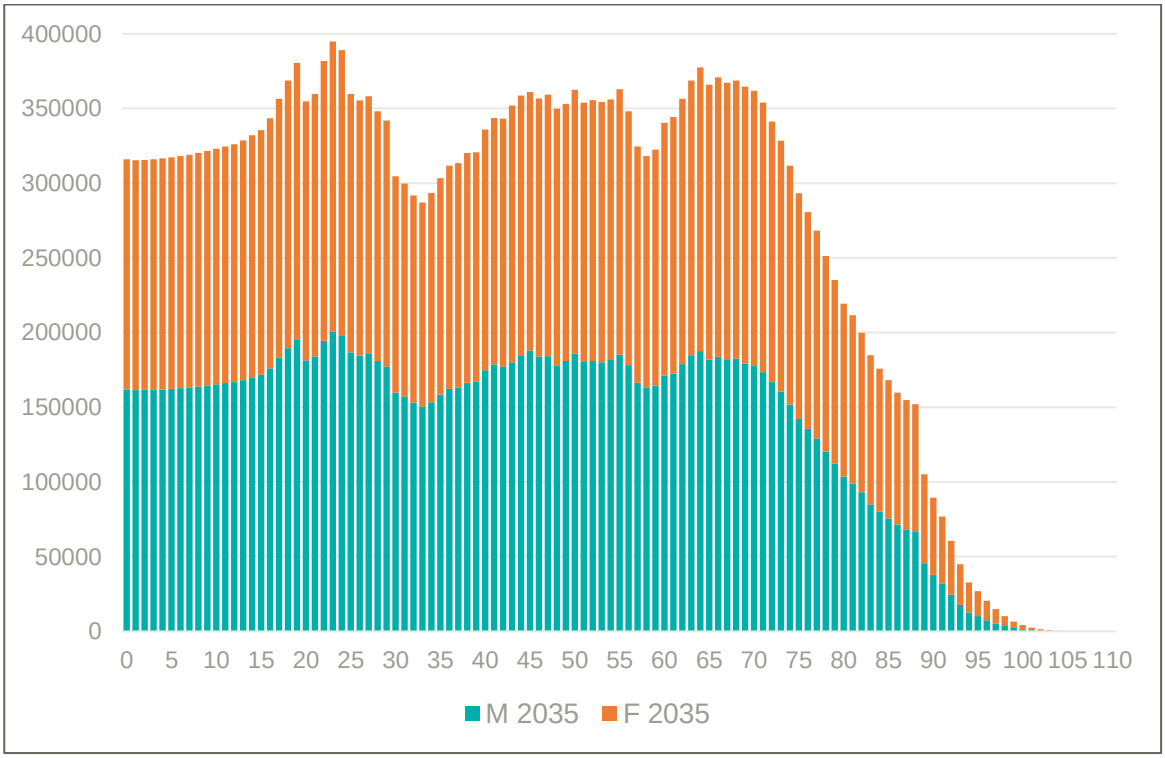
F, Female; M, Male

Figure 3: The projected population structure of the C2-E population in 2022, by age and sex



F, Female; M, Male

Figure 4: The projected population structure of the C2-E population in 2035, by age and sex



F, Female; M, Male

Excess cumulative incidence cases by age and sex by 2035, total population

Table 1. Excess cumulative incidence cases in females by age group, by 2035, in the total population

Age group	Scenario	Breast cancer	Colorectal cancer	Hypertension	Liver cancer	Liver cirrhosis	Mouth cancer	Oesophageal cancer	Stroke	Throat cancer
15-39	Short	147 (±248)	76 (±114)	223 (±831)	8 (±26)	16 (±125)	-4 (±47)	7 (±16)	0 (±0)	0 (±28)
	Medium	171 (±248)	97 (±114)	996 (±832)	9 (±26)	92 (±125)	1 (±47)	6 (±16)	0 (±0)	0 (±28)
	Long	235 (±248)	107 (±114)	2,573 (±833)	8 (±26)	344 (±126)	28 (±47)	4 (±16)	0 (±0)	14 (±28)
40-59	Short	714 (±718)	170 (±280)	-205 (±1,595)	25 (±79)	2 (±271)	65 (±127)	-4 (±85)	172 (±529)	8 (±75)
	Medium	1,030 (±719)	189 (±280)	4,477 (±1,596)	34 (±79)	528 (±272)	130 (±127)	21 (±85)	476 (±529)	38 (±75)
	Long	2,623 (±720)	304 (±280)	28,449 (±1,605)	137 (±80)	3,221 (±277)	418 (±129)	189 (±86)	1,857 (±531)	156 (±76)
60+	Short	79 (±990)	-426 (±708)	-1,442 (±1,781)	-52 (±228)	343 (±336)	22 (±209)	30 (±267)	1,435 (±1,353)	-53 (±123)
	Medium	465 (±990)	-435 (±708)	67 (±1,782)	-30 (±228)	685 (±336)	80 (±209)	91 (±267)	1,757 (±1,353)	-35 (±124)
	Long	2,305 (±991)	-178 (±708)	15,727 (±1,787)	213 (±229)	2,477 (±339)	480 (±210)	789 (±269)	4,568 (±1,354)	122 (±124)

Table 2. Excess cumulative incidence cases in males by age group, by 2035 in the total population

Age group	Scenario	Colorectal cancer	Hypertension	Liver cancer	Liver cirrhosis	Mouth cancer	Oesophageal cancer	Stroke	Throat cancer
15-39	Short	68 (±113)	-274 (±919)	-12 (±34)	-22 (±136)	15 (±47)	21 (±33)	0 (±0)	21 (±39)
	Medium	86 (±114)	809 (±919)	-12 (±34)	42 (±136)	26 (±47)	24 (±33)	0 (±0)	24 (±39)
	Long	100 (±114)	3,007 (±921)	-10 (±34)	221 (±137)	57 (±47)	33 (±33)	0 (±0)	46 (±40)
40-59	Short	-165 (±315)	-275 (±1,680)	58 (±130)	95 (±284)	-3 (±186)	22 (±162)	327 (±603)	-123 (±160)
	Medium	-141 (±315)	3,697 (±1,682)	64 (±130)	273 (±284)	119 (±187)	86 (±162)	685 (±604)	-65 (±160)
	Long	227 (±316)	30,551 (±1,691)	151 (±131)	1,654 (±287)	664 (±188)	329 (±163)	2,588 (±605)	357 (±161)
60+	Short	742 (±804)	-607 (±1,710)	139 (±332)	-10 (±337)	293 (±281)	154 (±405)	1,060 (±1,332)	-21 (±241)
	Medium	1,179 (±804)	2,643 (±1,712)	169 (±332)	282 (±338)	487 (±281)	571 (±406)	2,596 (±1,333)	118 (±242)
	Long	2,960 (±806)	19,255 (±1,717)	556 (±333)	1,580 (±340)	1,719 (±284)	2,610 (±408)	11,033 (±1,337)	1,034 (±244)

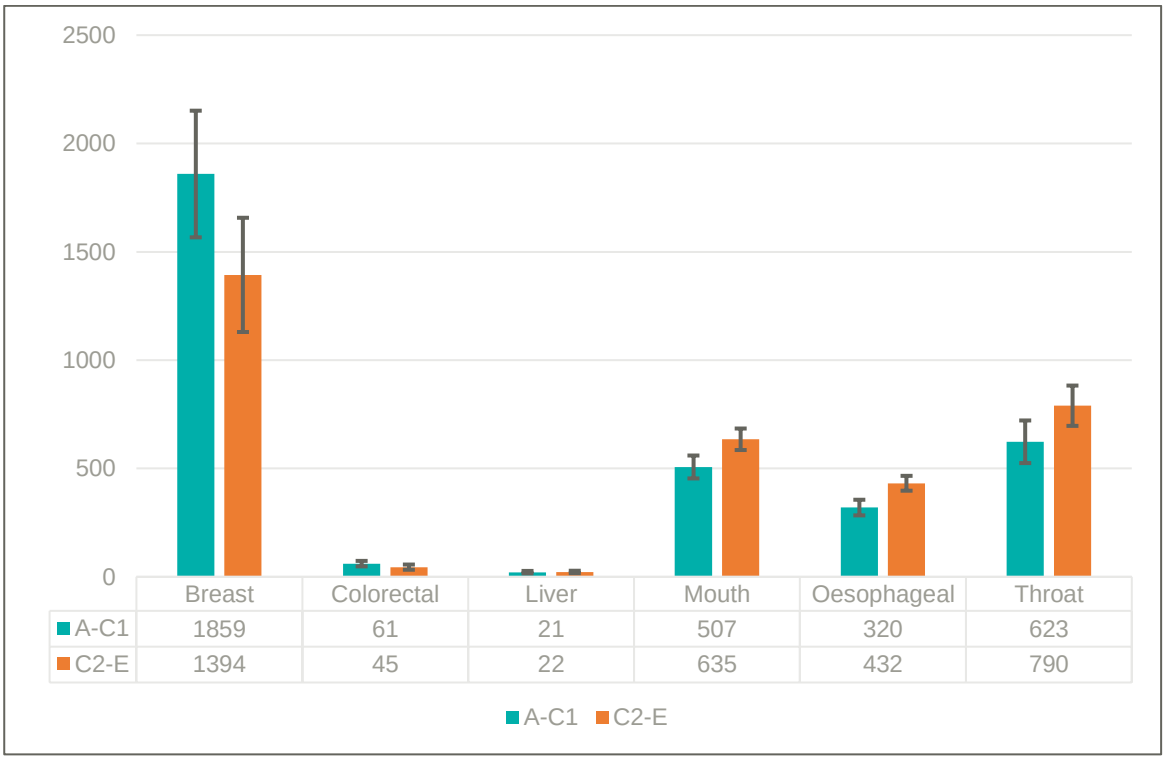
Long-term scenario: Cancer Care

Tumourectomy, radiotherapy and chemotherapy

Under the long-term scenario, compared to the baseline scenario, we project that there will be an additional 6,707 people who will need radiotherapy (Figure 5) in their first year of treatment, between 2022 and 2035. The majority of individuals who will need to undergo radiotherapy are those who have breast cancer (3,253), with throat and mouth cancers being the next largest contributors (1,413 and 1,142 respectively). Due to the statistics on the provision of cancer treatments by cancer site, the chance of an individual undergoing radiotherapy for colorectal and liver cancers are low (3% and 4%, respectively), which is reflected in the projection.

Under the long-term scenario, compared to the baseline scenario, we project that there will be an additional 8,400 more people who will need to undergone chemotherapy (Figure 6), in their first year of treatment, between 2022 and 2035. The projected excess number of tumourectomies under the long-term scenario, compared to the baseline scenario are presented in figure 7.

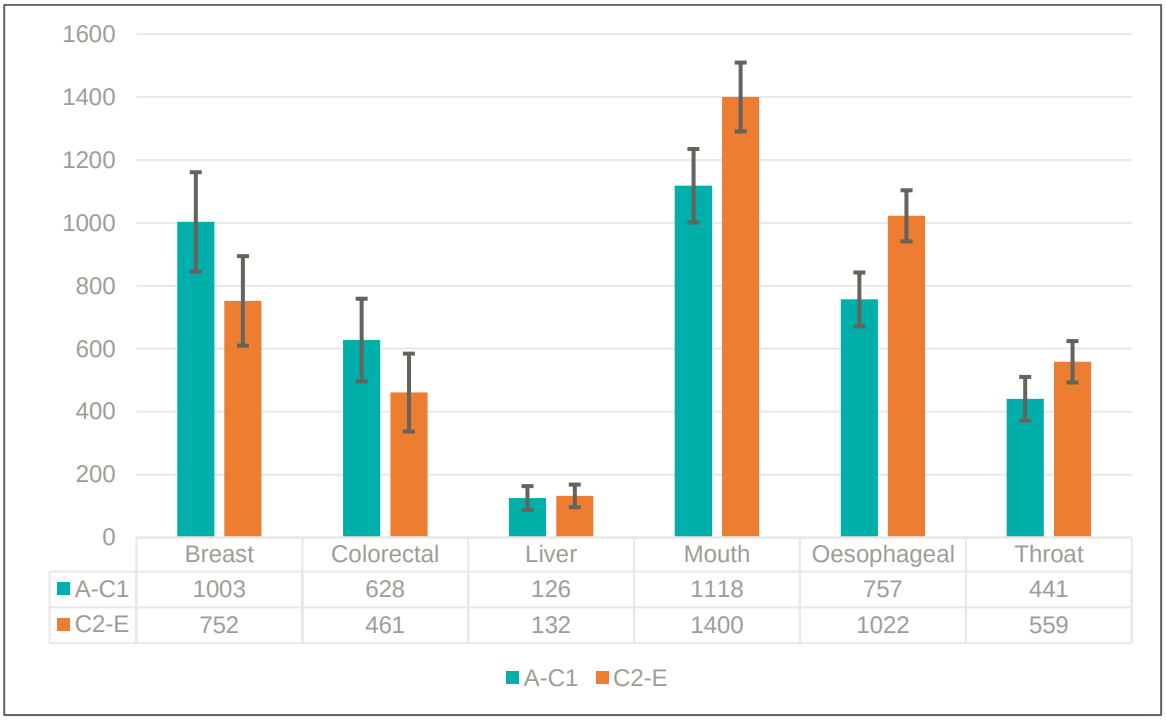
Figure 5: Additional projected number of people who will require radiotherapy in the A-C1 and C-2E populations, under the long-term scenario, compared to baseline, between 2022 and 2035



	Breast	Colorectal	Liver	Mouth	Oesophageal	Throat
A-C1	1859	61	21	507	320	623
C2-E	1394	45	22	635	432	790

Breast cancer is assumed as female only in the microsimulation.

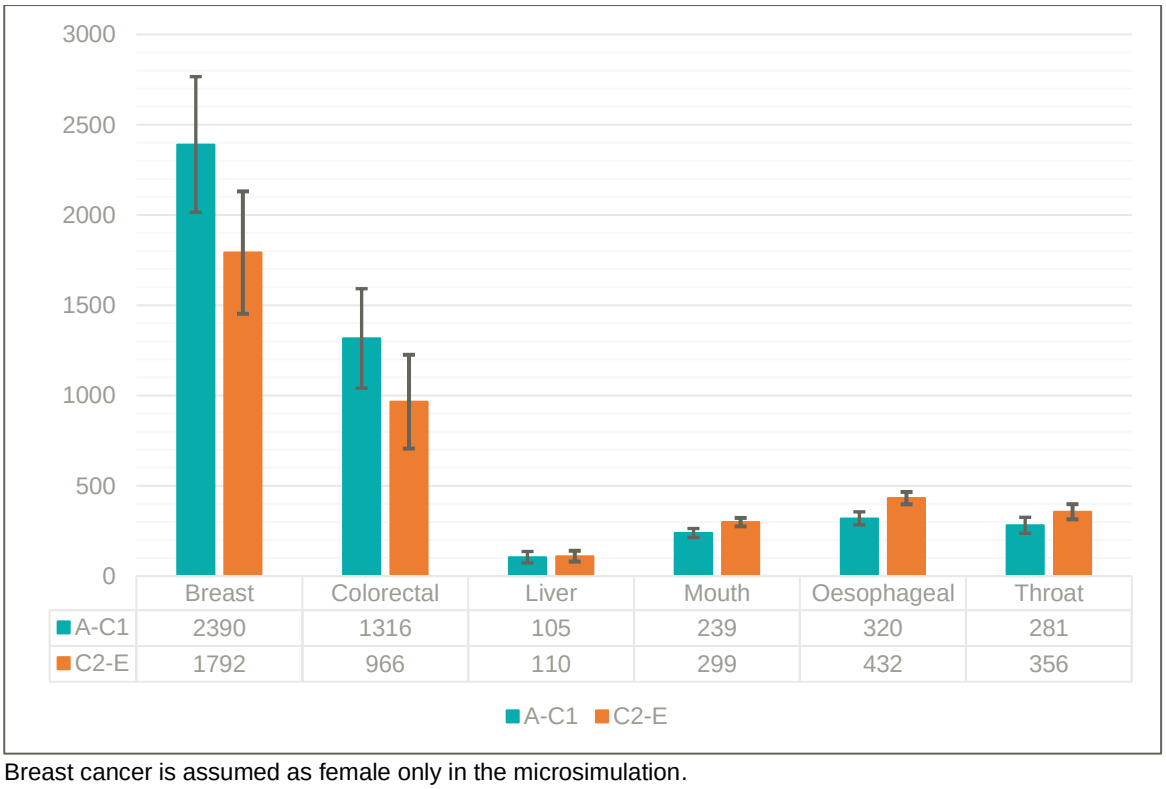
Figure 6: Additional projected number of people who will require chemotherapy in the A-C1 and C-2E populations, under the long-term scenario, compared to baseline, between 2022 and 2035



	Breast	Colorectal	Liver	Mouth	Oesophageal	Throat
A-C1	1003	628	126	1118	757	441
C2-E	752	461	132	1400	1022	559

Breast cancer is assumed as female only in the microsimulation.

Figure 7: Additional projected number of people who will require a tumour removal surgery in the A-C1 and C-2E populations, under the long-term scenario, compared to baseline, between 2022 and 2035



	Breast	Colorectal	Liver	Mouth	Oesophageal	Throat
A-C1	2390	1316	105	239	320	281
C2-E	1792	966	110	299	432	356

Breast cancer is assumed as female only in the microsimulation.

Additional bed days

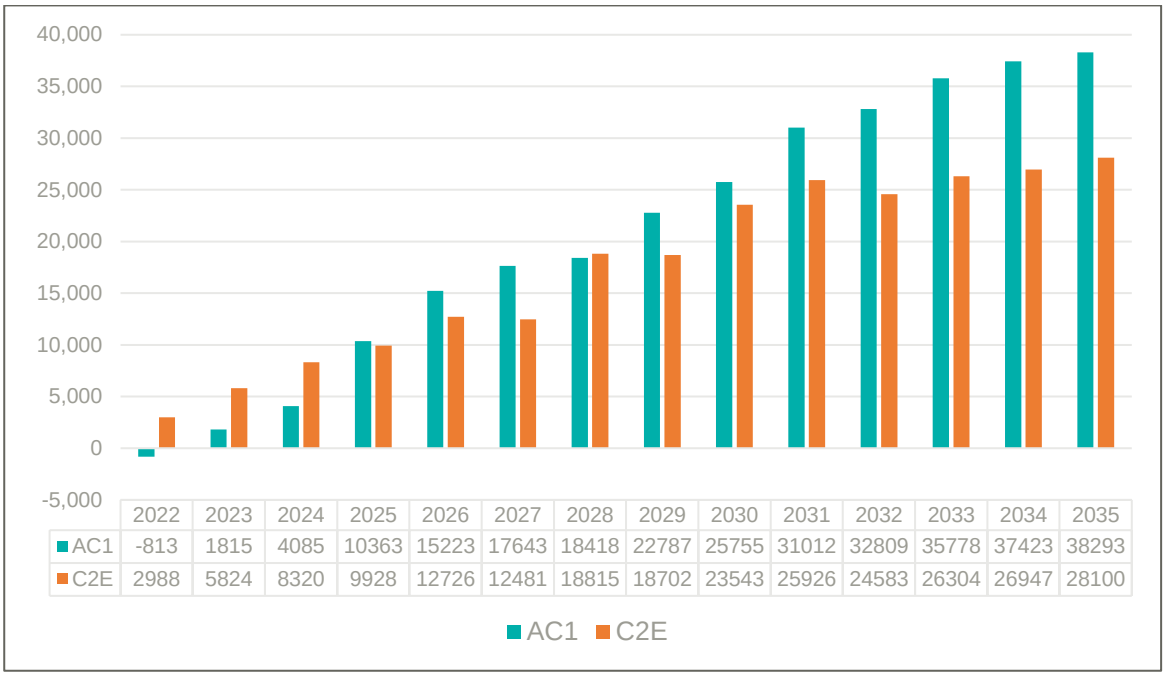
The additional incidence of breast and colorectal cancer, under the long-term scenario, is expected to result in 33,560 and 66,393 additional hospital bed-days (in the first 12 months from diagnosis) between 2022 and 2035, respectively, under the long-term scenario compared to baseline (Figure 8 & Figure 9).

Figure 8: Cumulative additional number of bed days associated with breast cancer care, between 2022 and 2035, in the AC1 and C2E populations, under the long-term scenario, relative to the baseline scenario

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AC1	1027	826	2854	3900	5220	6299	9412	11239	11967	14820	15509	17193	17823	19182
C2E	1073	2620	3959	4167	5259	5103	5935	7202	9529	11388	11960	13117	13241	14378

Breast cancer is assumed as female only in the microsimulation. The projected additional number of bed days is significant from 2023 in the C2-E population and from 2024 in the A-C1 population.

Figure 9: Cumulative additional number of bed days associated with colorectal cancer care, between 2022 and 2035, in the AC1 and C2E populations, under the long-term scenario, relative to the baseline scenario



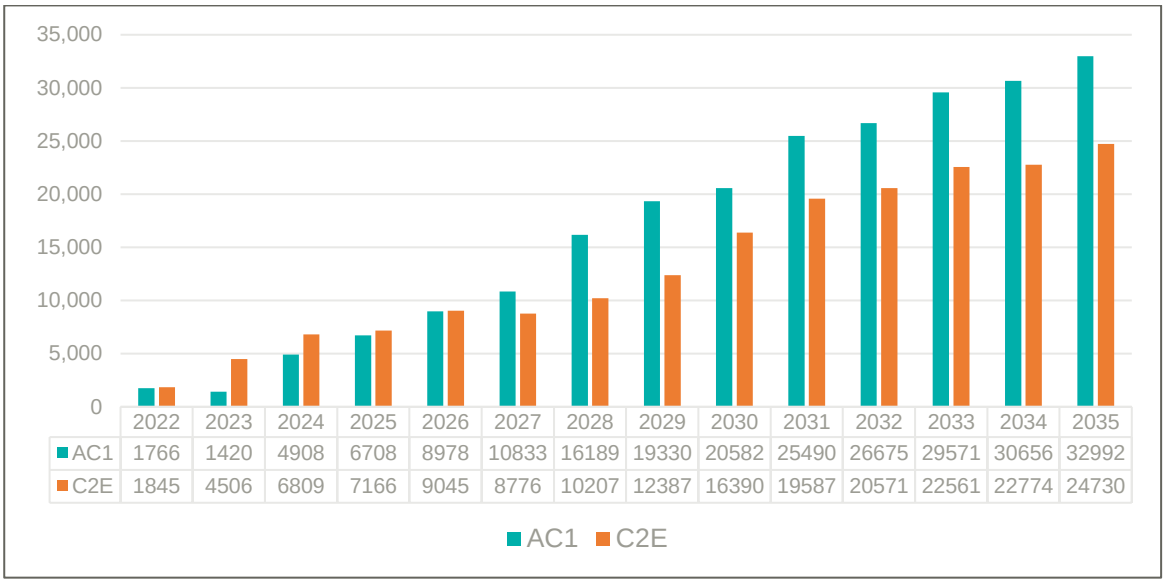
	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AC1	-813	1815	4085	10363	15223	17643	18418	22787	25755	31012	32809	35778	37423	38293
C2E	2988	5824	8320	9928	12726	12481	18815	18702	23543	25926	24583	26304	26947	28100

The projected additional number of bed days is significant from 2023 in the C2-E population and from 2025 in the A-C1 population.

Additional outpatient visits

The additional incidence of breast and colorectal cancer, under the long-term scenario, is expected to result in 57,722 and 25,490 additional outpatient visits (in the first 12 months from diagnosis) between 2022 and 2035, respectively (Figure 10 & Figure 11).

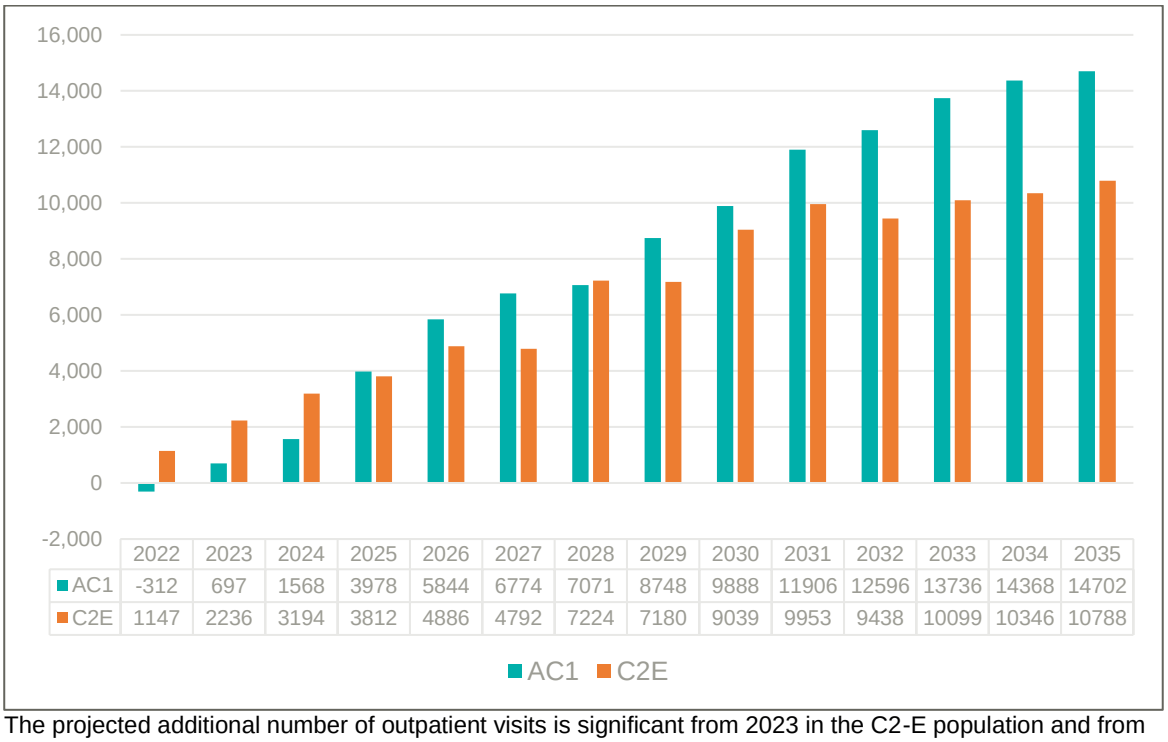
Figure 10: Cumulative additional number of outpatient visits associated with breast cancer care, between 2022 and 2035, in the AC1 and C2E populations, under the long-term scenario, relative to the baseline scenario



	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AC1	1766	1420	4908	6708	8978	10833	16189	19330	20582	25490	26675	29571	30656	32992
C2E	1845	4506	6809	7166	9045	8776	10207	12387	16390	19587	20571	22561	22774	24730

Breast cancer is assumed as female only in the microsimulation. The projected additional number of bed days is significant from 2023 in the C2-E population and from 2024 in the A-C1 population.

Figure 11: Cumulative additional number of outpatient visits associated with colorectal cancer care, between 2022 and 2035, in the AC1 and C2E populations, under the long-term scenario, relative to the baseline scenario



	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
AC1	-312	697	1568	3978	5844	6774	7071	8748	9888	11906	12596	13736	14368	14702
C2E	1147	2236	3194	3812	4886	4792	7224	7180	9039	9953	9438	10099	10346	10788

The projected additional number of outpatient visits is significant from 2023 in the C2-E population and from 2025 in the A-C1 population.

Historical mortality trend data by selected causes

Data provided by the Office for Health Disparities shows the trend in recent years for deaths due to alcoholic liver disease and mental and behavioural disorders associated with alcohol use are presented in Figures 12-14 (source: personal communication).

Figure 12: Deaths due to alcoholic liver disease in England (2012-2021)

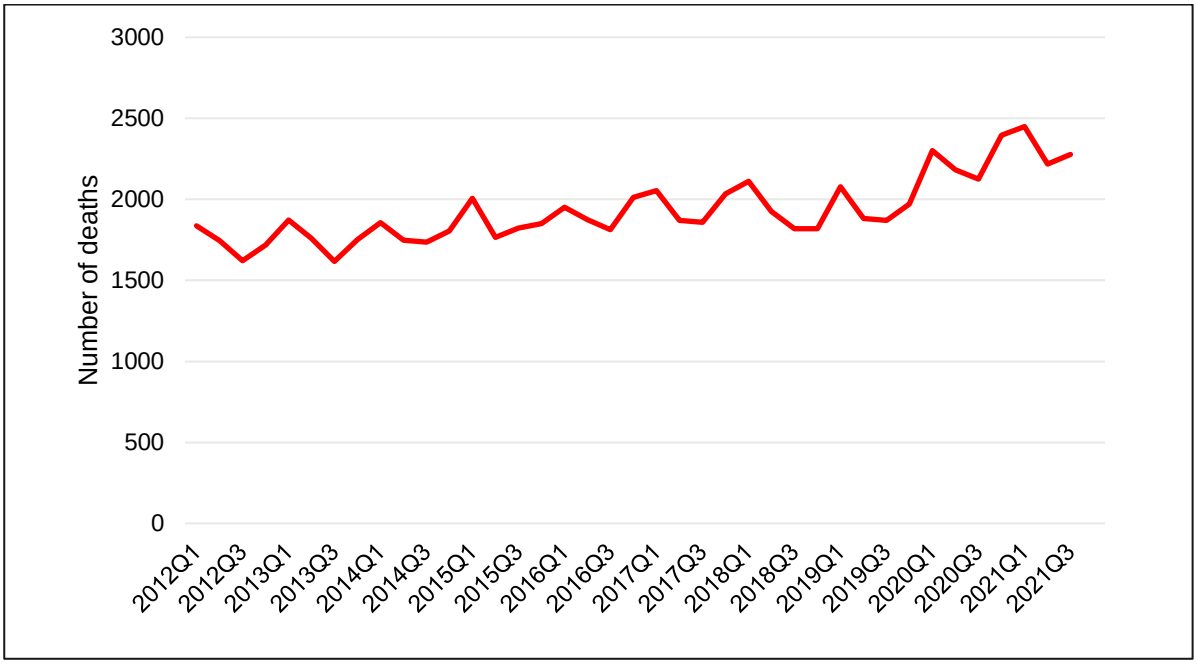


Figure 13: Deaths related to mental and behavioural disorders due to alcohol in England (2012-2021): crude rate per 100,000

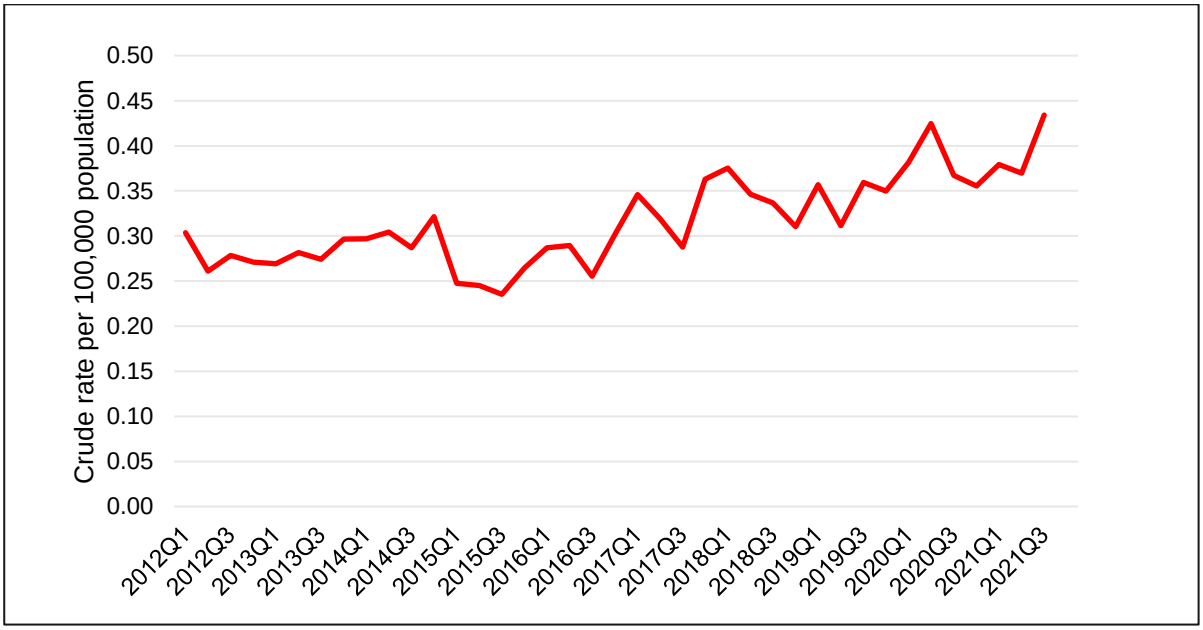


Figure 14: Deaths related to mental and behavioural disorders due to alcohol in England (2012-2021): 2-year moving average