Recent CCSA Alcohol Report and *the Wine Paradox*

Late breaking research may negate findings

Gary Strachan and Bill Broddy

September 14, 2022

Crush Dynamics™

Preface

Crush Dynamics converts polyphenol-rich side streams into fermented paste used to improve nutritional value of processed foods.

Over the past six years, we have developed methods to make polyphenols more bioactive. We have been successful with Cranberry, Cherry, and Grape pomace.

Our patented process uses a proprietary cocktail of microbes to modify the structure of both simple and complex polyphenols. Our internal research, and yet-to-be-published academic research that we are partially funding, suggests that the de-glycosylation and polymerisation of key Phenols leads to better bioavailability e.g., quercetin and resveratrol. This shows very promising results in the eradication of some cancer cells, and treatment of some types of cardiovascular disease. Although our process is different than winemaking, we know that similar reactions take place in wine aging, hence the *French Paradox* affect.

Therefore, we found the conclusions in the CCSA Report regarding wine consumption quite shocking, and not in line with both our research, and the hundreds of external research papers we have accumulated. They deal with polyphenols, red wine, white wine and winemaking derivatives (pomace and lees), and the numerous health benefits associated with them.

Although we have no direct interest in retail wine, we do procure winery waste to feed our process.

Bill Broddy

Gary Strachan is the Chief Scientist at Crush Dynamics. He is a leading researcher in polyphenolics, oenology, viticulture, and fermentation. Over the past forty years, he has been active in the BC wine industry. He was the lead oenology and viticulture researcher at the AAFC Summerland Research Centre, and he has participated in the start-up of dozens of wineries in BC.

Bill Broddy is founder of Crush Dynamics and leads market research on the bioavailability of polyphenols in juice and winemaking derivatives.

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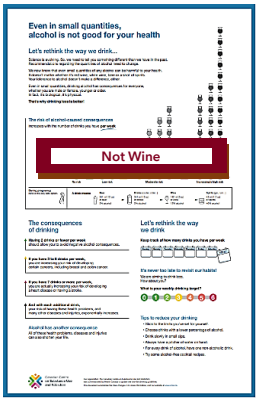
Introduction

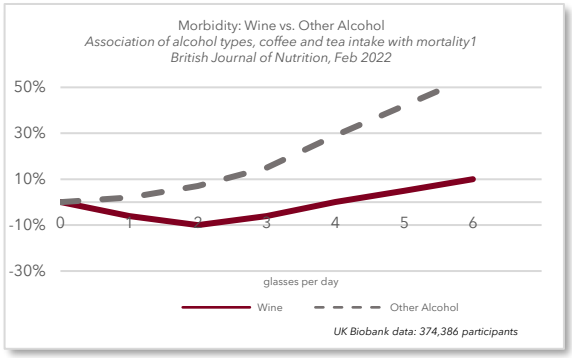
Late breaking research may negate findings of recent report on alcohol consumption

The Canadian Federal Government is being encouraged to lower alcohol consumption to no more than two drinks per week, alluding to over 5,000 studies that show that "no drink containing alcohol is good for you". The Report *Update of Canada's Low-Risk Alcohol Drinking Guidelines: Final Report for Public Consultation* was issued in late August by the *Canadian Centre on Substance Use and Addiction*, a federally funded agency that advises the Federal Minister of Health. The Report has a consultation period that ends on Sept 23, 2022.



> *The calculations for this project are based on the health harms cause by ethanol in alcoholic beverages. They do not distinguish between harms caused by beer, wine, spirits and other alcoholic beverages. Harms caused by beer, wine, spirits and other alcoholic beverages are based mainly on ethanol content, regardless of the form in which ethanol is consumed."*
> (Rehm, Gmel Sr, et al., 2017 quoted in report)

Unfortunately, the Report's literature review took place prior to a major study out of Cambridge University (Feb 2022) in which different types of alcohol drinks have been analyzed for correlations. If they had access, they would have discovered that there is a dramatic difference between Wine and all other alcoholic beverages. In fact, they would have found that one – two glasses of Wine per day has a lower mortality rate than abstinence and a dramatically lower rate, than other types of alcohol[1].



Findings also show that Wine has no impact to cancer morbidity and has positive effects on cardiovascular health.

This study uses one of the most inclusive and comprehensive health-related data bases ever compiled (UK Biobank). No health- related review paper can draw valid conclusions without citing this enormous study.
When Red Wine is isolated, the results are even more dramatic as shown in the 2021 COVID-19 study and the 2020 Obesity study, discussed in *Significant research regarding mental / general health, and beverage consumption* below.

[1] Schaefer, S., Kaiser, A., Behrendt, I., Eichner, G., & Fasshauer, M. (2022). Association of alcohol types, coffee and tea intake with mortality: Prospective cohort study of UK Biobank participants. British Journal of Nutrition, 1-11. doi:10.1017/S000711452200040X

Conclusions

Over 350K UK Biobank participants answered the alcohol consumption questions. Multiple Biobank studies show that the *wine consumption paradox* is responsible for dramatic differences in health outcomes. Also called *The French Paradox,* wine has high levels of polyphenols, especially resveratrol and quercetin.

This research clearly shows that:

1. 1 – 2 glasses of wine per day leads to optimal health outcomes
2. Any continuous consumption of other alcohol (Beer, Cider, Spirits) leads to sub-optimal health outcomes
3. Non-alcoholic drinks that contain polyphenols also lead to optimal health outcomes

No research of similar depth refutes this conclusion, including the studies cited in the Report. To ignore this *paradox* could potentially put the health of many Canadians in danger. How many Canadians could become ill or die because they lowered their intake of wine, especially red wine? Or worse, if they switched from wine consumption to other alcoholic beverages?

"Studies show that people who have polyphenol-rich diets — consuming more than 650 milligrams per day — have lower death risks than those who get less than 500 milligrams per day." WebMD[2]

Recommendations

1. That the Report authors use the UK Biobank to rerun, and expand upon the *Association of alcohol types, coffee and tea intake with mortality*[3] study to either confirm or refute the results. It could be expanded to cover:
    1. Beer, Cider, Spirits, Red Wine, White Wine, Fortified Wine, Tea, Coffee, and Sugar-sweetened drinks (all fields available in the database)
    2. Smoking habits
    3. Education and economic levels
    4. Exercise habits
2. That *truthful* on-bottle labelling for Wine could be:

    "Consumption of 1 – 2 glasses of wine per day leads to optimal health"

3. That all retail food and drink packaging list the mg of polyphenols present in an average serving. The total amount of polyphenols found in a glass of red wine is approximately 200 mg and 30 mg in a glass of white wine, A glass of red wine has ~25% of the polyphenol DV.[4]

There is unequivocal information, both from population studies and from controlled laboratory studies as cited in the present review, that the daily intake of phenolic compounds

[2] https://www.webmd.com/diet/foods-high-in-polyphenols
[3] Ibid
[4] Cordova AC, Sumpio BE. *Polyphenols are medicine: Is it time to prescribe red wine for our patients?* Int J Angiol. 2009 Fall;18(3):111-7. doi: 10.1055/s-0031-1278336. PMID: 22477510; PMCID: PMC2903024.

such as those in red wine, is an essential component of a healthy diet. A recommendation to lower the consumption of red wine beyond the current recommended daily intake could potential be a handicap to the health of those who choose to consume wine.

Technical Information

UK Biobank

Many of these studies are based on the UK Biobank, a database of over 500,000 volunteer participants. The information dates back over 20 years, and include data from interviews, online questionnaires, annual physicals, and online medical records.

This medical research database is likely the largest in the world. It also closely mimics the socioeconomics and lifestyles of Canada (UK life expectancy is 81.2 years vs. 82.5 in Canada).

Over 5,000 papers have been published, and 30,000 researchers have been approved to use the database. The major areas of research include cardiovascular disease, cancer, depression, dementia,

> *"UK Biobank has elevated UK Life Sciences and fuelled an era of unprecedented scientific discovery that continues to improve decision making across our R&D pipeline, helping us accelerate the discovery and delivery of transformational therapies for patients."*
>
> Sir Mene Pangalos, AstraZeneca

There are over 8,000 data fields within the database, including a number that are relevant to the consumption of alcohol and its relationship to both infliction and premature mortality,

Significant research regarding mental / general health, and beverage consumption

Association of alcohol types, coffee, and tea intake with mortality: prospective cohort study of UK Biobank participants[5]

A recently released study from the British Journal of Nutrition (Feb 2022) published by Cambridge University Press, showed a "significant U-shaped association between wine consumption and all-cause, non-cancer and CVD mortality. Wine consumption with lowest risk of death (nadir) ranged from 19 to 23 g alcohol/d (2 glasses of wine per day) in all participants and both sexes separately.

In contrast, non-wine intake was significantly and positively associated in a dose-dependent manner with all mortality types studied except for CVD in females and with the nadir between 0 and 12 g alcohol/d."

[5] Ibid

Overall Mortality

Wine intake

"In all participants, a significant U-shaped association between wine intake and all-cause mortality was detected with the nadir at 20 g alcohol/d. Similar findings were observed in sex-dependent analyses with the nadir for all-cause mortality at 20 g alcohol/d for both females and males. HR^0 was 1·07 (1·03, 1·12) in females and 1·14 (1·11, 1·17) in males.

A significant U-shaped association between wine intake and all-cause mortality was also detected in sensitivity analyses in cohorts S1 and S2 with the nadir between 19 and 20 g alcohol/d from wine in all participants, as well as in females and males separately. In cohort S2, HR^0 for present non-alcohol drinkers was higher in both females (1·23 (1·20, 1·26); and males (1·20 (1·18, 1·22) compared with the corresponding HR^0 in the primary cohort."

Non-wine intake

"In all participants and in females, a significant positive dose-dependent association between non-wine intake and all-cause mortality was detected with the nadir at 0 g alcohol/d. In males, the nadir was at 9 g alcohol/d from non-wine with dose-dependent increases seen beyond 20 g alcohol/d.

The shape of the association between non-wine intake and all-cause mortality changed towards a J-shaped curve in the sensitivity analyses with the most pronounced alterations seen in cohort S2. In cohort S2, the nadir was at 14, 7 and 17 g alcohol/d in all participants, females and males, respectively."

Coffee intake

"In all participants, coffee intake and all-cause mortality were significantly associated. The nadir was observed at 2 cups/d coffee and HR0 was significantly increased at 1·06 (1·03, 1·09)."

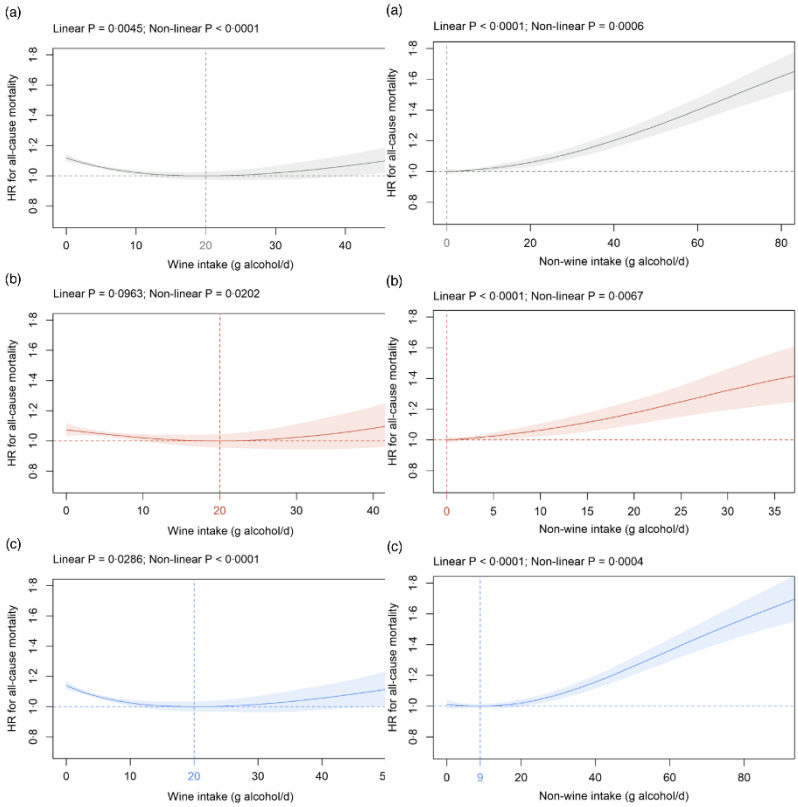
Tea intake

"In all participants, all-cause mortality risk continuously decreased from HR0 of 1·18 (1·14, 1·21) to the nadir at 4 cups/d and no significant effects at higher consumption levels.

The results below show that people who drink two glasses of wine per day have lower mortality than abstainers and significantly lower than other alcohol consumers."[6]

[6] Ibid

Alcohol intake (grams / day) & overall mortality: Wine vs. other types of alcohol



Alcohol intake and Cancer Mortality

"Wine intake

In all participants and in both sexes separately, wine intake was not significantly associated with cancer mortality.

Non-wine intake

In all participants, as well as in females and males separately, non-wine intake was significantly associated with cancer mortality in a linear way."[7]

Beverage intake and CVD mortality

"Wine intake

Wine intake was significantly associated with CVD mortality in a non-linear manner in all participants and both sexes separately. The nadir was between 19 (females) and 21 (males) g alcohol/d.

Non-wine intake

In all participants and in males, a significant positive dose-dependent association between non-wine intake and CVD mortality was detected with the nadir at 4 and 6 g alcohol/d,

[7] ibid

respectively. The shape of the association between non-wine intake and CVD mortality changed towards a J-shaped curve in the sensitivity analyses with the most pronounced alterations seen in cohort S2. Here, the nadir was at 16 and 17 g alcohol/d and HR0 was significantly elevated at 1·08 (1·05, 1·11) and 1·08 (1·03, 1·13) in all participants and males, respectively."[8]

Discussion points

For all participants and in sex-dependent analyses (primary cohort), a significant U-shaped association is seen between wine intake and all-cause mortality with HR0 significantly increased as compared with the nadir at 20 g alcohol/d.

A decreased risk of death for light to moderate wine intake has also been shown in studies from the USA[9], Denmark[10], France[11] and Sweden[12].

It is interesting to note in this context that the intake of black but not green tea has been linked with lower cancer mortality.

Is There a Link between Different Types of Alcoholic Drinks and Obesity? An Analysis of 280,183 UK Biobank Participants [13]

Compared to those who never drink wines (red wine, champagne and fortified wine), drinkers of these alcoholic beverages had lower BMI (difference of -0.75 kg/m^2, 95% CI -0.78, -0.72 kg/m^2; -0.48 kg/m^2, 95% CI -0.52, -0.45 kg/m^2; and -0.24 kg/m^2, 95% CI -0.29, -0.18 kg/m^2, respectively). Beer and spirits drinkers had higher BMI compared to never drinkers of beer and spirits (difference of 0.18 kg/m^2, 95% CI 0.14, 0.22 kg/m^2 and 0.64 kg/m^2, 95% CI 0.61, 0.68 kg/m^2, respectively).

[8] Ibid

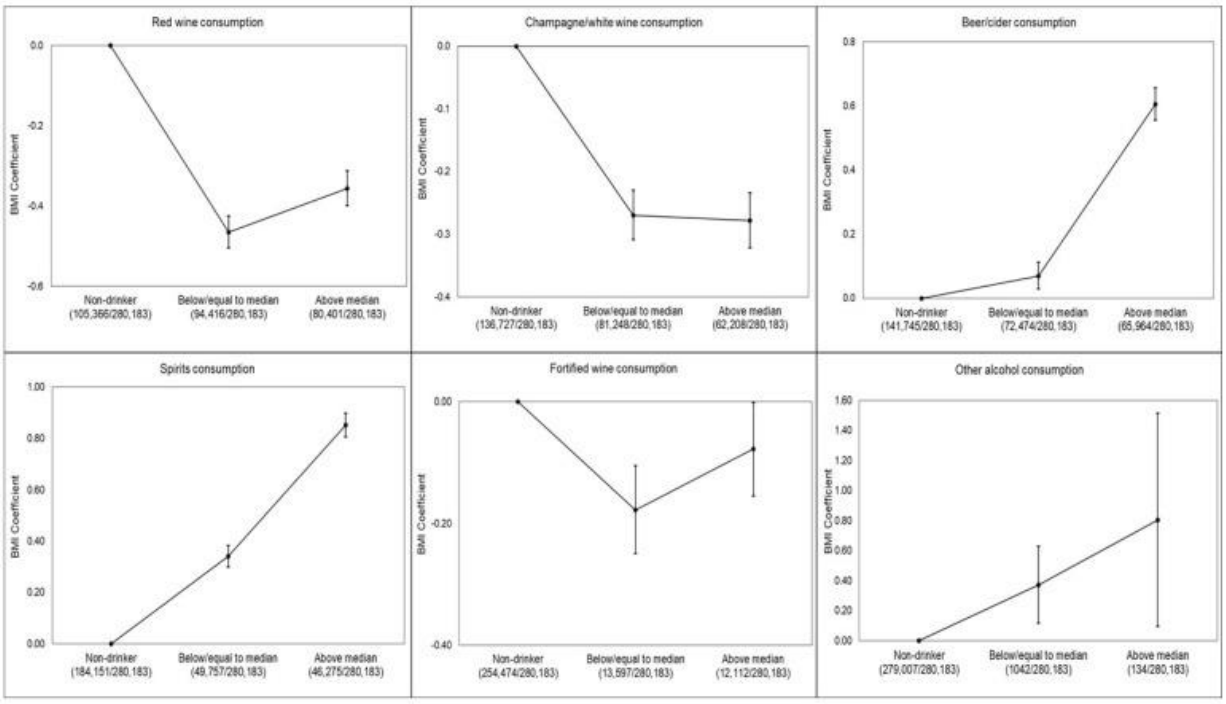
[9] Klatsky, AL, Friedman, GD, Armstrong, MA, et al. (2003) Wine, liquor, beer, and mortality. Am J Epidemiol 158, 585–595.

[10] Grønbaek, M, Becker, U, Johansen, D, et al. (2000) Type of alcohol consumed and mortality from all causes, coronary heart disease, and cancer. Ann Intern Med 133, 411–419.

[11] Renaud, SC, Guéguen, R, Siest, G, et al. (1999) Wine, beer, and mortality in middle-aged men from eastern France. Arch Intern Med 159, 1865–1870

[12] Theobald, H, Bygren, LO, Carstensen, J, et al. (2000) A moderate intake of wine is associated with reduced total mortality and reduced mortality from cardiovascular disease. J Stud Alcohol 61, 652–656.

[13] Inan-Eroglu E, Powell L, Hamer M, O'Donovan G, Duncan MJ, Stamatakis E. Is There a Link between Different Types of Alcoholic Drinks and Obesity? An Analysis of 280,183 UK Biobank Participants. Int J Environ Res Public Health. 2020 Jul 17;17(14):5178. doi: 10.3390/ijerph17145178. PMID: 32709071; PMCID: PMC7400254.



(A) Total

COVID-19 Risk Appears to Vary Across Different Alcoholic Beverages[14]

Compared with non-drinkers, the COVID-19 risk was 10–17% lower in red wine consumers (1–2 glasses/week, 0.88 [0.83, 0.93]; 3–4 glasses/week, 0.90 [0.84, 0.96]; ≥ 5 glasses/week, 0.83 [0.78, 0.88]) regardless of the amount of red wine

7–8% lower in white wine and champagne consumers (1–2 glasses/week, 0.94 [0.89, 0.99]; 3–4 glasses/week, 0.93 [0.87, 1.00]), but the protective effect was not significant when the amount of white wine and champagne was above 5 glasses/week (0.95 [0.89, 1.02]).

Compared with non-drinkers, fortified wine consumers of 1–2 glasses per week were associated with a 12% lower risk of COVID-19 (0.88 [0.80, 0.96]), whereas the consumption of a higher amount of fortified wine was not associated with lower COVID-19 risks (3–4 glasses/week, 0.95 [0.78, 1.15]; ≥ 5 glasses/week, 1.10 [0.89, 1.34]).

Compared with non-drinkers, the average consumption of 1–4 glasses/week of spirits was not significantly associated with COVID-19 risk among spirits consumers (1–2 glasses/week, 0.97 [0.92, 1.02]; 3–4 glasses/week, 1.04 [0.97, 1.13]); however, consumption of a higher number of spirits increased the risk of COVID-19 among spirits consumers (1.09 [1.03, 1.17]).

[14] Dai Xi-jian, Tan Liang, Ren Lina, Shao Yuan, Tao Weiqun, Wang Yongjun. COVID-19 Risk Appears to Vary Across Different Alcoholic Beverages, Frontiers in Nutrition, 2022, https://www.frontiersin.org/articles/10.3389/fnut.2021.772700 DOI=10.3389/fnut.2021.772700, ISSN=2296-861X

Compared with non-drinkers, consumers of beer and cider had 7–28% higher risks of COVID-19 (1–2 glasses/week, 1.07 [1.01, 1.13]; 3–4 glasses/week, 1.18 [1.10, 1.27]; ≥5 glasses/week, 1.28 [1.20, 1.38]), regardless of the amount of beer and cider; that is, a higher amount of beer and cider corresponds to a higher COVID-19 risk.

"Risk Thresholds for Total and Beverage-Specific Alcohol Consumption and Incident Atrial Fibrillation" [15]

In the paper, which surveyed 403,281 participants, the authors point out that low wine consumption is unlikely to cause risk, whereas and any consumption of beer/cider could.

Drink types unmask the health risks associated with alcohol intake - Prospective evidence from the general population[16]

When analyzing over 500,000 participants, it was found that wine drinkers were less likely to be at risk of ischemic heart disease compared to abstainers (-12%) and beer. cider and spirits drinkers (-24%).

[15] Tu SJ, Gallagher C, Elliott AD, Linz D, Pitman BM, Hendriks JML, Lau DH, Sanders P, Wong CX. Risk Thresholds for Total and Beverage-Specific Alcohol Consumption and Incident Atrial Fibrillation. JACC Clin Electrophysiol. 2021 Dec;7(12):1561-1569. doi: 10.1016/j.jacep.2021.05.013. Epub 2021 Jul 27. PMID: 34330672.

[16] Schutte R, Papageorgiou M, Najlah M, Huisman HW, Ricci C, Zhang J, Milner N, Schutte AE. Drink types unmask the health risks associated with alcohol intake - Prospective evidence from the general population. Clin Nutr. 2020 Oct;39(10):3168-3174. doi: 10.1016/j.clnu.2020.02.009. Epub 2020 Feb 15. PMID: 32111522.

UK Biobank data

There are over 8,000 data fields organized into almost 300 categories. Here are some of the most relevant categories and their value in determining the interaction between illness, sociodemographics, and Alcohol consumption by type and quantity.

Appendix: UK Biobank relevant data fields lists the fields for the categories below. It provides hyperlinks to the UK Biobank data dictionary,

It describes for each field, the number or responses, date field was implemented, and number of responses per answer, e.g. "How much wine do you drink: 0 glass/day, 1 g/d, 2 g/d, etc.

Mental Health

Addiction

The addiction category has six fields dealing with alcohol, over-the-counter and recreational drugs, and behavioural addictions.

Anxiety

The anxiety category has thirty fields dealing with various levels of anxiety and its effect on the volunteer.

Depression

There are thirty fields associated with depression and corelated mental health issuers

General Health

Cancer

There are fifty-five fields associated with cancer and its treatment

COVID

There are twenty-four fields associated with COVID-19

Mental and Behaviour disorders

There are one hundred fifty-six fields associated with mental disorders

Food and Drink Consumption

There are a number of categories associated with food and beverage consumption. The most relevant are:

Alcohol

There are twenty-one fields associated with the type of and quantity of alcohol consumed, as well information of former use, and reasons for reduction or curtailment in consumption.

Alcoholic beverages consumed day before interview

There are even eleven fields on previous day consumption

Diet

There are thirty-three field associated with different types of foods eaten and non-alcoholic beverages

Demographics

Employment

There are sixteen fields associated with employment type, times. and travel to work

Family history

There are sixteen fields associated with family illnesses.

Socio-demographics

There are twenty-five field dealing education, criminal past, housing, health, and income.

Physical Activity

There are twenty-six fields dealing with physical activity and exertion,

Sleep

There are seven fields asccoited with sleep duration, napping, and morning versus night persion.

Smoking

There are thirty-three field dealing with smoking

Appendix: UK Biobank relevant data fields

Mental Health

Addiction

Field ID	Description	Category
20457	Ongoing **addiction** or dependence on illicit or recreational drugs	Addictions
20504	Ongoing **addiction** or dependence to over-the-counter medication	Addictions
20415	Ongoing **addiction** to alcohol	Addictions
20551	Substance of prescription or over-the-counter medication **addiction**	Addictions
20432	Ongoing behavioural or miscellanous **addiction**	Addictions
20552	Behavioural and miscellaneous **addiction**s	Addictions

Anxiety

Field ID	Description	Category
120102	**Anxiety**/depression today	Experience of pain
130904	Date F40 first reported (phobic **anxiety** disorders)	Mental and behavioural disorders
130906	Date F41 first reported (other **anxiety** disorders)	Mental and behavioural disorders
21062	Ever been offered/sought treatment for **anxiety**	Digestive health
20506	Recent feelings or nervousness or **anxiety**	Anxiety
2100	Seen a psychiatrist for nerves, **anxiety**, tension or depression	Mental health
2090	Seen doctor (GP) for nerves, **anxiety**, tension or depression	Mental health
130905	Source of report of F40 (phobic **anxiety** disorders)	Mental and behavioural disorders
130907	Source of report of F41 (other **anxiety** disorders)	Mental and behavioural disorders
20550	Activities undertaken to treat **anxiety**	Anxiety
20419	Difficulty concentrating during worst period of **anxiety**	Anxiety
20541	Difficulty stopping worrying during worst period of **anxiety**	Anxiety
20429	Easily tired during worst period of **anxiety**	Anxiety
20537	Frequency of difficulty controlling worry during worst period of **anxiety**	Anxiety
20539	Frequency of inability to stop worrying during worst period of **anxiety**	Anxiety
20427	Frequent trouble falling or staying asleep during worst period of **anxiety**	Anxiety
20418	Impact on normal roles during worst period of **anxiety**	Anxiety
20423	Keyed up or on edge during worst period of **anxiety**	Anxiety
20422	More irritable than usual during worst period of **anxiety**	Anxiety
20540	Multiple worries during worst period of **anxiety**	Anxiety

20543	Number of things worried about during worst period of **anxiety**	Anxiety
20428	Professional informed about **anxiety**	Anxiety
20426	Restless during period of worst **anxiety**	Anxiety
20542	Stronger worrying (than other people) during period of worst **anxiety**	Anxiety
20549	Substances taken for **anxiety**	Anxiety
20417	Tense, sore, or aching muscles during worst period of **anxiety**	Anxiety
20538	Worried most days during period of worst **anxiety**	Anxiety
26413	Health score (England)	Indices of Multiple Deprivation
26430	Health score (Scotland)	Indices of Multiple Deprivation
20505	Recent easy annoyance or irritability	Anxiety
20512	Recent feelings of foreboding	Anxiety
20509	Recent inability to stop or control worrying	Anxiety
20516	Recent restlessness	Anxiety
20515	Recent trouble relaxing	Anxiety
20520	Recent worrying too much about different things	Anxiety
20544	Mental health problems ever diagnosed by a professional	Mental distress

Depression

Field ID	Description	Category
20126	Bipolar and major **depression** status	Mental health
120102	Anxiety/**depression** today	Experience of pain
120044	**Depression** in past six months	Experience of pain
20445	**Depression** possibly related to childbirth	Depression
21063	Ever been offered/sought treatment for **depression**	Digestive health
20124	Probable recurrent major **depression** (moderate)	Mental health
20125	Probable recurrent major **depression** (severe)	Mental health
2100	Seen a psychiatrist for nerves, anxiety, tension or **depression**	Mental health
2090	Seen doctor (GP) for nerves, anxiety, tension or **depression**	Mental health
20123	Single episode of probable major **depression**	Mental health
20547	Activities undertaken to treat **depression**	Depression
20433	Age at first episode of **depression**	Depression
20434	Age at last episode of **depression**	Depression
20447	**Depression** possibly related to stressful or traumatic event	Depression
20435	Difficulty concentrating during worst **depression**	Depression
20438	Duration of worst **depression**	Depression
20446	Ever had prolonged feelings of sadness or **depression**	Depression
20449	Feelings of tiredness during worst episode of **depression**	Depression
20450	Feelings of worthlessness during worst period of **depression**	Depression
20436	Fraction of day affected during worst episode of **depression**	Depression

20439	Frequency of depressed days during worst episode of **depression**	Depression
20440	Impact on normal roles during worst period of **depression**	Depression
120113	Level of difficultly **depression** has made to do work, take care of things at home, or get along with other people	Experience of pain
4609	Longest period of **depression**	Mental health
4620	Number of **depression** episodes	Mental health
20448	Professional informed about **depression**	Depression
20510	Recent feelings of **depression**	Depression
20546	Substances taken for **depression**	Depression
20437	Thoughts of death during worst **depression**	Depression
20536	Weight change during worst episode of **depression**	Depression
20544	Mental health problems ever diagnosed by a professional	Mental distress

Mental and Behaviour disorders

Field ID	Description
130836	Date F00 first reported (dementia in alzheimer's disease)
130837	Source of report of F00 (dementia in alzheimer's disease)
130838	Date F01 first reported (vascular dementia)
130839	Source of report of F01 (vascular dementia)
130840	Date F02 first reported (dementia in other diseases classified elsewhere)
130841	Source of report of F02 (dementia in other diseases classified elsewhere)
130842	Date F03 first reported (unspecified dementia)
130843	Source of report of F03 (unspecified dementia)
130844	Date F04 first reported (organic amnesic syndrome, not induced by alcohol and other psychoactive substances)
130845	Source of report of F04 (organic amnesic syndrome, not induced by alcohol and other psychoactive substances)
130846	Date F05 first reported (delirium, not induced by alcohol and other psychoactive substances)
130847	Source of report of F05 (delirium, not induced by alcohol and other psychoactive substances)
130848	Date F06 first reported (other mental disorders due to brain damage and dysfunction and to physical disease)
130849	Source of report of F06 (other mental disorders due to brain damage and dysfunction and to physical disease)
130850	Date F07 first reported (personality and behavioural disorders due to brain disease, damage and dysfunction)
130851	Source of report of F07 (personality and behavioural disorders due to brain disease, damage and dysfunction)
130852	Date F09 first reported (unspecified organic or symptomatic mental disorder)
130853	Source of report of F09 (unspecified organic or symptomatic mental disorder)
130854	Date F10 first reported (mental and behavioural disorders due to use of alcohol)
130855	Source of report of F10 (mental and behavioural disorders due to use of alcohol)
130856	Date F11 first reported (mental and behavioural disorders due to use of opioids)
130857	Source of report of F11 (mental and behavioural disorders due to use of opioids)
130858	Date F12 first reported (mental and behavioural disorders due to use of cannabinoids)

130859 Source of report of F12 (mental and behavioural disorders due to use of cannabinoids)
130860 Date F13 first reported (mental and behavioural disorders due to use of sedatives or hypnotics)
130861 Source of report of F13 (mental and behavioural disorders due to use of sedatives or hypnotics)
130862 Date F14 first reported (mental and behavioural disorders due to use of cocaine)
130863 Source of report of F14 (mental and behavioural disorders due to use of cocaine)
130864 Date F15 first reported (mental and behavioural disorders due to use of other stimulants, including caffeine)
130865 Source of report of F15 (mental and behavioural disorders due to use of other stimulants, including caffeine)
130866 Date F16 first reported (mental and behavioural disorders due to use of hallucinogens)
130867 Source of report of F16 (mental and behavioural disorders due to use of hallucinogens)
130868 Date F17 first reported (mental and behavioural disorders due to use of tobacco)
130869 Source of report of F17 (mental and behavioural disorders due to use of tobacco)
130870 Date F18 first reported (mental and behavioural disorders due to use of volatile solvents)
130871 Source of report of F18 (mental and behavioural disorders due to use of volatile solvents)
130872 Date F19 first reported (mental and behavioural disorders due to multiple drug use and use of other psychoactive substances)
130873 Source of report of F19 (mental and behavioural disorders due to multiple drug use and use of other psychoactive substances)
130874 Date F20 first reported (schizophrenia)
130875 Source of report of F20 (schizophrenia)
130876 Date F21 first reported (schizotypal disorder)
130877 Source of report of F21 (schizotypal disorder)
130878 Date F22 first reported (persistent delusional disorders)
130879 Source of report of F22 (persistent delusional disorders)
130880 Date F23 first reported (acute and transient psychotic disorders)
130881 Source of report of F23 (acute and transient psychotic disorders)
130882 Date F24 first reported (induced delusional disorder)
130883 Source of report of F24 (induced delusional disorder)
130884 Date F25 first reported (schizoaffective disorders)
130885 Source of report of F25 (schizoaffective disorders)
130886 Date F28 first reported (other nonorganic psychotic disorders)
130887 Source of report of F28 (other nonorganic psychotic disorders)
130888 Date F29 first reported (unspecified nonorganic psychosis)
130889 Source of report of F29 (unspecified nonorganic psychosis)
130890 Date F30 first reported (manic episode)
130891 Source of report of F30 (manic episode)
130892 Date F31 first reported (bipolar affective disorder)
130893 Source of report of F31 (bipolar affective disorder)
130894 Date F32 first reported (depressive episode)
130895 Source of report of F32 (depressive episode)
130896 Date F33 first reported (recurrent depressive disorder)

130897 Source of report of F33 (recurrent depressive disorder)
130898 Date F34 first reported (persistent mood [affective] disorders)
130899 Source of report of F34 (persistent mood [affective] disorders)
130900 Date F38 first reported (other mood [affective] disorders)
130901 Source of report of F38 (other mood [affective] disorders)
130902 Date F39 first reported (unspecified mood [affective] disorder)
130903 Source of report of F39 (unspecified mood [affective] disorder)
130904 Date F40 first reported (phobic anxiety disorders)
130905 Source of report of F40 (phobic anxiety disorders)
130906 Date F41 first reported (other anxiety disorders)
130907 Source of report of F41 (other anxiety disorders)
130908 Date F42 first reported (obsessive-compulsive disorder)
130909 Source of report of F42 (obsessive-compulsive disorder)
130910 Date F43 first reported (reaction to severe stress, and adjustment disorders)
130911 Source of report of F43 (reaction to severe stress, and adjustment disorders)
130912 Date F44 first reported (dissociative [conversion] disorders)
130913 Source of report of F44 (dissociative [conversion] disorders)
130914 Date F45 first reported (somatoform disorders)
130915 Source of report of F45 (somatoform disorders)
130916 Date F48 first reported (other neurotic disorders)
130917 Source of report of F48 (other neurotic disorders)
130918 Date F50 first reported (eating disorders)
130919 Source of report of F50 (eating disorders)
130920 Date F51 first reported (nonorganic sleep disorders)
130921 Source of report of F51 (nonorganic sleep disorders)
130922 Date F52 first reported (sexual dysfunction, not caused by organic disorder or disease)
130923 Source of report of F52 (sexual dysfunction, not caused by organic disorder or disease)
130924 Date F53 first reported (mental and behavioural disorders associated with the puerperium, not elsewhere classified)
130925 Source of report of F53 (mental and behavioural disorders associated with the puerperium, not elsewhere classified)
130926 Date F54 first reported (psychological and behavioural factors associated with disorders or diseases classified elsewhere)
130927 Source of report of F54 (psychological and behavioural factors associated with disorders or diseases classified elsewhere)
130928 Date F55 first reported (abuse of non-dependence-producing substances)
130929 Source of report of F55 (abuse of non-dependence-producing substances)
130930 Date F59 first reported (unspecified behavioural syndromes associated with physiological disturbances and physical factors)
130931 Source of report of F59 (unspecified behavioural syndromes associated with physiological disturbances and physical factors)
130932 Date F60 first reported (specific personality disorders)
130933 Source of report of F60 (specific personality disorders)
130934 Date F61 first reported (mixed and other personality disorders)

130935 Source of report of F61 (mixed and other personality disorders)
130936 Date F62 first reported (enduring personality changes, not attributable to brain damage and disease)
130937 Source of report of F62 (enduring personality changes, not attributable to brain damage and disease)
130938 Date F63 first reported (habit and impulse disorders)
130939 Source of report of F63 (habit and impulse disorders)
130940 Date F64 first reported (gender identity disorders)
130941 Source of report of F64 (gender identity disorders)
130942 Date F65 first reported (disorders of sexual preference)
130943 Source of report of F65 (disorders of sexual preference)
130944 Date F66 first reported (psychological and behavioural disorders associated with sexual development and orientation)
130945 Source of report of F66 (psychological and behavioural disorders associated with sexual development and orientation)
130946 Date F68 first reported (other disorders of adult personality and behaviour)
130947 Source of report of F68 (other disorders of adult personality and behaviour)
130948 Date F69 first reported (unspecified disorder of adult personality and behaviour)
130949 Source of report of F69 (unspecified disorder of adult personality and behaviour)
130950 Date F70 first reported (mild mental retardation)
130951 Source of report of F70 (mild mental retardation)
130952 Date F71 first reported (moderate mental retardation)
130953 Source of report of F71 (moderate mental retardation)
130954 Date F72 first reported (severe mental retardation)
130955 Source of report of F72 (severe mental retardation)
130956 Date F73 first reported (profound mental retardation)
130957 Source of report of F73 (profound mental retardation)
130958 Date F78 first reported (other mental retardation)
130959 Source of report of F78 (other mental retardation)
130960 Date F79 first reported (unspecified mental retardation)
130961 Source of report of F79 (unspecified mental retardation)
130962 Date F80 first reported (specific developmental disorders of speech and language)
130963 Source of report of F80 (specific developmental disorders of speech and language)
130964 Date F81 first reported (specific developmental disorders of scholastic skills)
130965 Source of report of F81 (specific developmental disorders of scholastic skills)
130966 Date F82 first reported (specific developmental disorder of motor function)
130967 Source of report of F82 (specific developmental disorder of motor function)
130968 Date F83 first reported (mixed specific developmental disorders)
130969 Source of report of F83 (mixed specific developmental disorders)
130970 Date F84 first reported (pervasive developmental disorders)
130971 Source of report of F84 (pervasive developmental disorders)
130972 Date F88 first reported (other disorders of psychological development)
130973 Source of report of F88 (other disorders of psychological development)

130974 Date F89 first reported (unspecified disorder of psychological development)
130975 Source of report of F89 (unspecified disorder of psychological development)
130976 Date F90 first reported (hyperkinetic disorders)
130977 Source of report of F90 (hyperkinetic disorders)
130978 Date F91 first reported (conduct disorders)
130979 Source of report of F91 (conduct disorders)
130980 Date F92 first reported (mixed disorders of conduct and emotions)
130981 Source of report of F92 (mixed disorders of conduct and emotions)
130982 Date F93 first reported (emotional disorders with onset specific to childhood)
130983 Source of report of F93 (emotional disorders with onset specific to childhood)
130984 Date F94 first reported (disorders of social functioning with onset specific to childhood and adolescence)
130985 Source of report of F94 (disorders of social functioning with onset specific to childhood and adolescence)
130986 Date F95 first reported (tic disorders)
130987 Source of report of F95 (tic disorders)
130988 Date F98 first reported (other behavioural and emotional disorders with onset usually occurring in childhood and adolescence)
130989 Source of report of F98 (other behavioural and emotional disorders with onset usually occurring in childhood and adolescence)
130990 Date F99 first reported (mental disorder, not otherwise specified)
130991 Source of report of F99 (mental disorder, not otherwise specified)

General Health

Cancer

Field ID	Description	Category
20001	**Cancer** code, self-reported	Medical conditions
40021	**Cancer** record origin	Cancer register
40011	Histology of **cancer** tumour	Cancer register
40008	Age at **cancer** diagnosis	Cancer register
22160	Age lung **cancer** (not mesothelioma) diagnosed by doctor	Medical information
40012	Behaviour of **cancer** tumour	Cancer register
2453	**Cancer** diagnosed by doctor	Medical conditions
84	**Cancer** year/age first occurred	Medical conditions
40005	Date of **cancer** diagnosis	Cancer register
22140	Doctor diagnosed lung **cancer** (not mesothelioma)	Medical information
2345	Ever had bowel **cancer** screening	Cancer screening
2674	Ever had breast **cancer** screening / mammogram	Female-specific factors
120002	Ever had **cancer** pain	Experience of pain
20007	Interpolated Age of participant when **cancer** first diagnosed	Medical conditions
20006	Interpolated Year when **cancer** first diagnosed	Medical conditions
20012	Method of recording time when **cancer** first diagnosed	Medical conditions

20013	Method of recording time when non-**cancer** illness first diagnosed	Medical conditions
2355	Most recent bowel **cancer** screening	Cancer screening
135	Number of self-reported non-**cancer** illnesses	Medical conditions
22180	Recent medication for lung **cancer** (not mesothelioma)	Medical information
40009	Reported occurrences of **cancer**	Cancer register
40006	Type of **cancer**: ICD10	Cancer register
40013	Type of **cancer**: ICD9	Cancer register
20009	Interpolated Age of participant when non-**cancer** illness first diagnosed	Medical conditions
20008	Interpolated Year when non-**cancer** illness first diagnosed	Medical conditions
87	Non-**cancer** illness year/age first occurred	Medical conditions
26219	PRS for enhanced bowel **cancer** (CRC)	Enhanced PRS
26221	PRS for enhanced breast **cancer** (BC)	Enhanced PRS
26233	PRS for enhanced epithelial ovarian **cancer** (EOC)	Enhanced PRS
26268	PRS for enhanced prostate **cancer** (PC)	Enhanced PRS
26218	PRS for standard bowel **cancer** (CRC)	Standard PRS
26220	PRS for standard breast **cancer** (BC)	Standard PRS
26232	PRS for standard epithelial ovarian **cancer** (EOC)	Standard PRS
26267	PRS for standard prostate **cancer** (PC)	Standard PRS
2684	Years since last breast **cancer** screening / mammogram	Female-specific factors
2365	Ever had prostate specific antigen (PSA) test	Cancer screening
3809	Time since last prostate specific antigen (PSA) test	Cancer screening
134	Number of self-reported **cancer**s	Medical conditions

COVID

Field ID	Description	Category
27984	Date of first **COVID**-19 vaccination	Self-test antibody study
27986	Date of second **COVID**-19 vaccination	Self-test antibody study
27983	Received first **COVID**-19 vaccination	Self-test antibody study
27985	Received second **COVID**-19 vaccination	Self-test antibody study
41001	Source of positive **COVID** test result	Coronavirus COVID-19
41000	Case-control status for **COVID**19 imaging repeat	Coronavirus COVID-19
27981	Antibody test result	Self-test antibody study
27990	Antibody test result	Coronavirus infection study
27982	Date antibody test performed	Self-test antibody study
40002	Contributory (secondary) causes of death: ICD10	Death register
41270	Diagnoses - ICD10	Summary Diagnoses
41202	Diagnoses - main ICD10	Summary Diagnoses
41204	Diagnoses - secondary ICD10	Summary Diagnoses
41201	External causes - ICD10	Summary Diagnoses
40006	Type of cancer: ICD10	Cancer register
40001	Underlying (primary) cause of death: ICD10	Death register

Food and Drink Consumption

Alcohol

Field ID	Description
20117	Alcohol drinker status
1558	Alcohol intake frequency.
3731	Former alcohol drinker
4407	Average monthly red wine intake
4418	Average monthly champagne plus white wine intake
4429	Average monthly beer plus cider intake
4440	Average monthly spirits intake
4451	Average monthly fortified wine intake
4462	Average monthly intake of other alcoholic drinks
1568	Average weekly red wine intake
1578	Average weekly champagne plus white wine intake
1588	Average weekly beer plus cider intake
1598	Average weekly spirits intake
1608	Average weekly fortified wine intake
5364	Average weekly intake of other alcoholic drinks
1618	Alcohol usually taken with meals
1628	Alcohol intake versus 10 years previously
2664	Reason for reducing amount of alcohol drunk
10818	Reason for reducing amount of alcohol drunk (pilot)
3859	Reason former drinker stopped drinking alcohol
10853	Reason former drinker stopped drinking alcohol (pilot)

Alcoholic beverages consumed day before interview

Field ID	Description
100580	Alcohol consumed
100590	Red wine intake
20096	Size of red wine glass drunk
100630	Rose wine intake
20097	Size of rose wine glass drunk
100670	White wine intake
20095	Size of white wine glass drunk
100710	Beer/cider intake
100720	Fortified wine intake
100730	Spirits intake
100740	Other alcohol intake

Diet

Field ID	Description
1289	Cooked vegetable intake
1299	Salad / raw vegetable intake
1309	Fresh fruit intake
1319	Dried fruit intake
1329	Oily fish intake
1339	Non-oily fish intake
1349	Processed meat intake
1359	Poultry intake
1369	Beef intake
1379	Lamb/mutton intake
1389	Pork intake
3680	Age when last ate meat
6144	Never eat eggs, dairy, wheat, sugar
10855	Never eat eggs, dairy, wheat, sugar (pilot)
1408	Cheese intake
1418	Milk type used
1428	Spread type
2654	Non-butter spread type details
10767	Spread type (pilot)
1438	Bread intake
1448	Bread type
10776	Bread type/intake (pilot)
1458	Cereal intake
1468	Cereal type
1478	Salt added to food
1488	Tea intake
1498	Coffee intake
1508	Coffee type
1518	Hot drink temperature
1528	Water intake
1538	Major dietary changes in the last 5 years
1548	Variation in diet
10912	Variation in diet (pilot)
20086	Type of special diet followed (eg Vegan)

Demographics

Employment

Field ID	Description	Category
20119	Current **employment** status - corrected	Employment
26412	**Employment** score (England)	Indices of Multiple Deprivation
26429	**Employment** score (Scotland)	Indices of Multiple Deprivation
26419	**Employment** score (Wales)	Indices of Multiple Deprivation
6142	Current **employment** status	Employment
796	Distance between home and job workplace	Employment
777	Frequency of travelling from home to job workplace	Employment
22660	Gap coding	Employment history
20418	Impact on normal roles during worst period of anxiety	Anxiety
20440	Impact on normal roles during worst period of depression	Depression
816	Job involves heavy manual or physical work	Employment
806	Job involves mainly walking or standing	Employment
3426	Job involves night shift work	Employment
826	Job involves shift work	Employment
767	Length of working week for main job	Employment
22661	Number of gap periods	Employment history
757	Time employed in main current job	Employment
6143	Transport type for commuting to job workplace	Employment
22617	Job code - historical	Employment history
20277	Job code at visit	Employment

Family history

Field ID	Description
20112	Illnesses of adopted father
20113	Illnesses of adopted mother
20114	Illnesses of adopted siblings
20107	Illnesses of father
20110	Illnesses of mother
20111	Illnesses of siblings
1797	Father still alive
3912	Adopted father still alive
2946	Father's age
1807	Father's age at death
1835	Mother still alive
3942	Adopted mother still alive
1845	Mother's age
3526	Mother's age at death
1873	Number of full brothers

3972	Number of adopted brothers
1883	Number of full sisters
3982	Number of adopted sisters
5057	Number of older siblings
4501	Non-accidental death in close genetic family

Socio-demographics

26433	Access to services score (Scotland)
26422	Access to services score (Wales)
26425	Community safety score (Wales)
26416	Crime score (England)
26434	Crime score (Scotland)
26414	Education score (England)
26431	Education score (Scotland)
26421	Education score (Wales)
26412	Employment score (England)
26429	Employment score (Scotland)
26419	Employment score (Wales)
26413	Health score (England)
26430	Health score (Scotland)
26420	Health score (Wales)
26415	Housing score (England)
26432	Housing score (Scotland)
26423	Housing score (Wales)
26411	Income score (England)
26428	Income score (Scotland)
26418	Income score (Wales)
26410	Index of Multiple Deprivation (England)
26427	Index of Multiple Deprivation (Scotland)
26426	Index of Multiple Deprivation (Wales)
26417	Living environment score (England)
26424	Physical environment score (Wales)

Physical Activity

Field ID	Description
1100	Drive faster than motorway speed limit
2634	Duration of heavy DIY
1021	Duration of light DIY
894	Duration of moderate activity
10962	Duration of moderate physical activity (pilot)

3647	Duration of other exercises
1001	Duration of strenuous sports
914	Duration of vigorous activity
10971	Duration of vigorous physical activity (pilot)
874	Duration of walks
10953	Duration of walks (pilot)
981	Duration walking for pleasure
2624	Frequency of heavy DIY in last 4 weeks
1011	Frequency of light DIY in last 4 weeks
3637	Frequency of other exercises in last 4 weeks
943	Frequency of stair climbing in last 4 weeks
991	Frequency of strenuous sports in last 4 weeks
971	Frequency of walking for pleasure in last 4 weeks
884	Number of days/week of moderate physical activity 10+ minutes
904	Number of days/week of vigorous physical activity 10+ minutes
864	Number of days/week walked 10+ minutes
1090	Time spent driving
1080	Time spent using computer
1070	Time spent watching television (TV)
6164	Types of physical activity in last 4 weeks
6162	Types of transport used (excluding work)
924	Usual walking pace

Sleep

Field ID	Description
1160	Sleep duration
1170	Getting up in morning
1180	Morning/evening person (chronotype)
1190	Nap during day
1200	Sleeplessness / insomnia
1210	Snoring
1220	Daytime dozing / sleeping (narcolepsy)

Smoking

Field ID	Description
20160	Ever smoked
20162	Pack years adult smoking as proportion of life span exposed to smoking
20161	Pack years of smoking
10895	Light smokers, at least 100 smokes in lifetime (pilot)
20116	Smoking status
1239	Current tobacco smoking
1249	Past tobacco smoking

2644 Light smokers, at least 100 smokes in lifetime
3436 Age started smoking in current smokers
3446 Type of tobacco currently smoked
5959 Previously smoked cigarettes on most/all days
3456 Number of cigarettes currently smoked daily (current cigarette smokers)
6194 Age stopped smoking cigarettes (current cigar/pipe or previous cigarette smoker)
6183 Number of cigarettes previously smoked daily (current cigar/pipe smokers)
3466 Time from waking to first cigarette
3476 Difficulty not smoking for 1 day
3486 Ever tried to stop smoking
3496 Wants to stop smoking
3506 Smoking compared to 10 years previous
6158 Why reduced smoking
2867 Age started smoking in former smokers
2877 Type of tobacco previously smoked
2887 Number of cigarettes previously smoked daily
2897 Age stopped smoking
2907 Ever stopped smoking for 6+ months
10827 Ever stopped smoking for 6+ months (pilot)
6157 Why stopped smoking
10115 Why stopped smoking (pilot)
2926 Number of unsuccessful stop-smoking attempts
2936 Likelihood of resuming smoking
1259 Smoking/smokers in household
1269 Exposure to tobacco smoke at home
1279 Exposure to tobacco smoke outside home