UK Biobank

Cancer data: a report on the number of prevalent and incident cases

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This report details the number of prevalent and incident cases of cancer within the UK Biobank cohort, as identified through linkage to national cancer registries.

Contents

1	Introduction	.2
2	Aim	.2
3	Cancer coding	.5

1 Introduction

This report details the number of prevalent and incident cases of cancer within the UK Biobank cohort, as identified through linkage to national cancer registries. Details of the linkage process can be found elsewhere (<u>http://biobank.ctsu.ox.ac.uk/crystal/refer.cgi?id=115558</u>).

Data on cancer diagnoses is provided to UK Biobank by the <u>Health & Social Care Information</u> <u>Centre (HSCIC)</u> for participants resident in England and Wales, and the <u>NHS Central Register</u> (<u>NHSCR</u>) for participants resident in Scotland. Cancer registries acquire information on cancer diagnoses from a variety of sources including hospitals, cancer centres and treatment centres, hospices and nursing homes, private hospitals, cancer screening programmes, other cancer registers, general practices, death certificates, Hospital Episode Statistics (HES) and Cancer Waiting Time (CWT) data. (In many instances, more than one source of information is available to cancer registries from a single organisation, for example hospital patient information systems, pathology laboratories, medical records departments and radiotherapy databases). Please see the UK Association of Cancer Registries website for more details (<u>www.ukacr.org</u>)

2 Aim

The aim of this report is to provide researchers with an indication of the numbers of prevalent and incident cases of cancers in the UK Biobank Resource, in order to guide timings for submitting cancer-related research applications. Please see **Table 1**.

Please note:

- **Prevalent cases** of cancer are defined as those diagnosed prior to the recruitment date into UK Biobank. **Incident cases** of cancer are defined as those diagnosed after the recruitment date into UK Biobank.
- Cancers identified from sources other than the cancer registry are not included here (i.e. self-reported cancer, primary care records, hospital records, etc.)
- The numbers of cases of cancers is provided by broad cancer groupings (according to ICD-10 chapters), as well as the numbers for individual sub-sites of most interest to researchers. Please contact the Access Team if you wish to enquire about the numbers of cases of a specific cancer site(s) (i.e. ICD-10 code(s)) that is not included in this report).
- The earliest record of cancer diagnosis in the UK Biobank cohort is **20 September 1957**. Cancers diagnosed prior to this date are not included here (as this is the earliest date to which cancer registry data is available).
- Although we have cancer data on some participants until **October 2013**, the last date of complete follow-up should be taken to be the end of 2011; data is still continuing to

accrue after that date and will be made available in due course. As a result, all longitudinal analyses that require follow-up data should be censored at Dec 2011. Please see the report on <u>Health Outcomes</u> to view tables of cancer incidence by year, age group and sex.

- For the sake of clarity, only the first occurrence of cancer for an individual participant is included in this report.
- The numbers of cases of benign neoplasms (ICD-10 D10-D36) may be under-estimated because not all benign neoplasms are routinely registered by cancer registries. Currently, ICD-10 D32-D33, D35.2-D35.4, D00-D09 and D37-D48 are mandatory registerable benign conditions. Please see the UK Association of Cancer Registries website for more details (www.ukacr.org).
- The contents of this document will be updated periodically, as and when follow-up data is incorporated into the UK Biobank Resource.

Table 1. Number of prevalent and incident cancers available from cancer registry data

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		1361	498

3 Cancer coding

Cancer site is coded according to the International Classification of Diseases (ICD), which is provided by the World Health Organisation (WHO) (<u>http://www.who.int/classifications/icd/en/</u>).

For participants resident in England and Wales; cancers diagnosed between 1971 and 1978, 1979 and 1994, and 1995 to present, are coded according to the 8th, 9th and 10th revisions of ICD respectively. For participants resident in Scotland, cancers diagnosed up until 31 Dec 1996 are coded according to the 9th revision of ICD and cancers diagnosed from 01 Jan 1997 are coded according to the 10th revision.

To provide an estimate of the number of prevalent cases by cancer type, it was therefore necessary to map between the different versions of ICD. ICD-9 codes for cancer have been mapped to the current version ICD-10, using the mappings outlined in **Table 2**, based on expert advice from the National Cancer Intelligence Network and local clinicians. ICD-8 codes were not included in the mapping, as there are few differences between the cancer codes in the 8th and 9th revisions.

Table 2. UK Biobank ICD-9 to ICD-10 map for cancers

Table 2. UK Biobank ICD-9 to ICD-10 map for cancers	ICD-9 code	ICD-10 code
Malignant neoplasms	140 – 208	C00 – C97
Lip, oral cavity and pharynx Lip Tongue	140 – 149 140 141	C00 – C14 C00 C01 – C02
Digestive organs Oesophagus Stomach Colorectal Liver Gallbladder or biliary ducts / tree Pancreas	150 – 157, 159 150 151 153 – 154.1 155.0 155.1, 156 157	C15 – C26 C15 C16 C18 – C20 C22 (excl. C22.1) C22.1, C23 – C24 C25
Respiratory and intrathoracic organs Larynx Trachea, bronchial and lung Pleura (incl. pleural mesothelioma)	160 – 165 161 162 163	C30 – C39 C32 C33 – C34 C38.4, C45.0
Bone and articular cartilage of limbs	170	C40 – C41
Melanoma and other malignant neoplasms of the skin Malignant melanoma Non-melanoma skin cancer (excl. Kaposi's and genital cancer)	172 – 173 172 173	C43 – C44 C43 C44
Soft & connective tissue and peripheral nerve tumours Kaposi's sarcoma Peripheral / autonomic nerve, soft & connective tissue	158, 171, 176 176 158, 171	C45 – C49 (excl. C45.0) C46 C45 (excl. C45.0), C47-C49
Breast	174 – 175	C50
Female genital organs Cervical Uterine Ovarian / other female genital organs	179 – 184 180 179, 182 183	C51 – C58 C53 C54 – C55 C56 – C57
Male genital organs Prostate Testis	185 – 187 185 186	C60 – C63 C61 C62
Urinary tract Kidney Renal pelvis, ureter, bladder and urethra	188 - 189 189.0 188, 189.1 – 189.3	C64 – C68 C64 C65 – C68.0
Eye, brain and other parts of central nervous system (CNS) Brain Meninges, cord and other parts of the CNS	190 – 192 191 192.0 – 192.3	C69 – C72 C71 C70, C72
Thyroid and other endocrine glands Thyroid	193 – 194 193	C73 – C75 C73
III-defined and malignancy without site, secondary and unspecified sites	195 – 199	C76 – C80
Primary lymphoid and haematopoietic tissue Hodgkin's disease Multiple myeloma and malignant plasma cell neoplasm	200 – 208 201 203	C81 – C96 C81 C90
Non-malignant neoplasms	230 – 239	D00 – D48
In-situ neoplasms	230 – 234	D00 – D09
Benign neoplasms	210 – 229	D10 – D36
Uncertain or unknown behaviour	235 – 239	D37 – D48