Cancer Toolkit Guideline v2.0

Instruments

Toolkit Purpose

A collection of measures to capture essential phenotypes associated with Cancer-related biomedical research.

Guideline Description

The Cancer toolkit is an add-on toolkit, which can be used in conjunction with the H3Africa Core Phenotypes toolkit in order to collect essential phenotypes associated with Cancer-related research, including: Cancer Prognosis & Treatment History, Cancer Screenings and Cancer Family History. The following document establishes guidelines (particularly applicable in Africa) on how to use the toolkit and collect detailed, relevant and harmonized phenotype and exposure data for research.

As listed below, the Cancer toolkit consists of 3 Instruments, labelled 1 to 3:

Instrument	**Phenotypes**
1	Cancer Prognosis & Treatment History
2	Cancer Screenings
3	Cancer Family History

Important Notes

1. The toolkit employs branching logic, therefore, we recommend that it is completed in order, as some variables may or may not appear OR accept input based on the input of previously listed variables.

2. Some branching logic (specifically related to date of birth/age and biological sex) affect the display of items relevant to adult or paediatric participants across multiple instruments.

3. Any addition or removal of variables may also affect branching logic so editing of variables should be carefully positioned so as not to interrupt branching logic conditions with related variables.

4. The toolkit is recommended to be used in conjunction with the Core Phenotypes toolkit (https://github.com/h3abionet/h3aphenstds).

5. Although not highlighted below, each instrument requires a collection date, which can be collected either manually or automatically.

6. Consistent codes are recommended for the identification of missing data, and these are incorporated into all Instruments discussed below.

7. Codes for Missing Data are specified below:

Code	Value Label
-991	No information
-992	Asked but unknown
-993	Temporarily unavailable
-994	Not asked
-995	Refused
-998	Not applicable

8. We recommend that when a participant responds with an "I don't know" to a question that the interviewer firstly ensures that the participant understands the question clearly and secondly is gently encouraged to reconsider their response if possible. If "I don't know" is still the response we make use of the 'Asked but unknown' missing code. Questions where "I don't know" is a highly anticipated and valid response will have a checkbox for Unknown included - it should be noted that this will not be recognised as missing data in statistical software.

Recommendations

Instrument 1: Cancer Prognosis & Treatment History

The instrument enables the retrospective collection of a research participant's cancer history i.e. a record of a participant's medical background regarding the occurrence of cancer and cancer-related problems. In addition, it enables the retrospective collection of a research participant's cancer treatment history i.e. the details of the types of treatment received for each cancer. This instrument is a repeated measure which can be employed for more than one unrelated cancer diagnosis.

Questions	Date of cancer diagnosis: Age at cancer diagnosis: Please specify the cancer type: **Response Options**: Bone; Brain; Breast; Cervix; Colon/Rectum; Endometrium; Lung; Lymphatic System; Ovary; Pancreas; Prostate; Skin; Thyroid; Other (If Other) Specify cancer type:

	Did this cancer metastasize/spread to other body sites? **Response Options**: Yes; No (If Yes) Specify metastasis site/s: Did this cancer recur? **Response Options**: Yes; No (If Yes) Specify the date of recurrence: Specify highest cancer stage: **Response Options**: Stage 1; Stage 2; Stage 3; Stage 4 Specify cancer outcome: **Response Options**: Still active; In remission; Recovered
Notes	- The batch of questions above can be repeated based on the number of unrelated cancer diagnoses reported in the Core Phenotypes. - Unrelated cancer diagnoses refers to the occurence of independent cancer events. This does not include cancer which spread from one site to another (metastasized) or recurrence of cancer that was in remission. - **Cancer type** refers to the specific organ/site affected by disease. - **Cancer staging** is the process of determining the extent to which a cancer has developed by growing and spreading. Stage I means the cancer is small and only in one area. Stage 2 and 3 mean the cancer is larger and has grown into nearby tissues. Stage 4 means the cancer has spread to other parts of your body. - **Cancer recurrence** occurs when cancer comes back after treatment. This can happen weeks, months, or even years after the primary or original cancer was treated. - **Cancer metastasis** means that cancer spreads to a different body part from where it started.
Questions	Did the participant have surgery for this cancer? **Response Options**: Yes; No (If Yes) How many surgeries? (If Yes) Specify the surgery/ies:
Notes	- Cancer surgery may be conducted for various reasons, including curative, preventive, diagnostic, staging, debulking, palliative, supportive and restorative purposes. Any and all such surgeries should be reported here. - Common cancer surgeries to treat cancer include Craniotomy (Brain), Gastrectomy (Stomach), Hysterectomy (Cervical, ovarian, uterine), Mastectomy (Breast), Prostatectomy (Prostate), and Thyroidectomy (Thyroid) - Surgery names may be retrieved from hospital records, if available and with appropriate consent. If self-reported, surgery names may also be recorded in layman's terms.
Questions	Did the participant receive chemotherapy for this cancer? **Response Options**: Yes; No; Not Sure Date completed: Did the participant receive radiotherapy for this cancer? **Response Options**: Yes; No; Not Sure Date completed:

	Did the participant receive hormonal therapy for this cancer? **Response Options**: Yes; No; Not Sure Date completed: Did the participant receive any other type(s) of therapy? **Response Options**: Yes; No (If Yes) Specify type/s of therapy received for this: Date completed:
Notes	- Dates should be collected in the following format - DD-MM-YYYY - **Chemotherapy** is an aggressive form of chemical drug therapy used to treat cancer. The treatment is considered systemic, as the drug moves throughout the body. **Chemotherapy drug administration methods** include: Oral, Infusion, Injection, Perfusion, Topical, Intrathecal, and Intraperitoneal. - **Radiotherapy** is the use of high-energy radiation from x-rays, gamma rays, neutrons, protons, and other sources to kill cancer cells, shrink tumors and/or alleviate certain cancer-related symptoms. - **Hormonal therapy** is used to treat cancers that use hormones to grow, such as some prostate and breast cancers. These treatments stop hormones from attaching to their respective hormone receptors. - **Examples** of other types of therapy include: **Targeted therapy** - uses drugs or other substances to identify and attack specific types of cancer cells with less harm to normal cells. **Immunotherapy** - uses substances to stimulate or suppress the immune system to help the body fight cancer.

Instrument 2: Cancer Screenings

This instrument enables the retrospective collection of information related to the screenings for cancer which a research participant has undergone in the past three years. Screening tests are used to identify specific types of cancer prior to the exhibition of any signs or symptoms.

Questions	[During the past three years, have you had a chest x-ray? During the past three years, have you had a test for blood in the stool? During the past three years, have you had a colonoscopy, sigmoidoscopy, or barium enema to examine the colon and rectum? During the past three years, have you had a mammogram? During the past three years, have you had a blood test for liver cancer?] **Response Options**: No; Yes, once; Yes, more than once;
Notes	- A **chest x-ray** is an x-ray of the structures inside the chest, used to diagnose diseases (mainly lung cancer). - Testing for blood in the stool is a fecal test performed to screen for colorectal cancer or colorectal polyps. - A **colonoscopy and sigmoidoscopy** is a type of examination in which a long, flexible tube (colonoscope) or a thin, flexible tube (sigmoidoscope) is inserted into the rectum with a camera which allows the doctor to view the inside of the entire colon.

	- A **mammogram** involves an x-ray used to examine breast tissue and identify breast cancer.
Questions	[(IF FEMALE) During the past three years, have you had a pap smear? (IF FEMALE) During the past three years, have you had a pelvic examination? (IF FEMALE) During the past three years, have you had an ultrasound or scan of your ovaries? (IF FEMALE) During the past three years, have you had a blood test for ovarian cancer for example, CA-125?] **Response Options**: No; Yes, once; Yes, more than once;
Notes	- A **pap smear** involves collecting and examining cells from your cervix — the lower, narrow end of your uterus that's at the top of your vagina. - A **pelvic exam** is a doctor's visual and physical examination of a woman's reproductive organs. - An **ultrasound** scan is a procedure that uses high frequency sound waves to create a picture of a part of the inside of your body.
Question	[(IF MALE) During the past three years, have you had a digital rectal examination of the prostate? (IF MALE) During the past three years, have you had a blood test for prostate cancer for example, PSA?] **Response Options**: No; Yes, once; Yes, more than once; A genetic test for cancer/cancer susceptibility? **Response Options**: Yes; No
Notes	- A **digital rectal examination** is a test that examines a person's lower rectum, pelvis, and lower belly, commonly employed to diagnose prostate cancer in men.

Instrument 4: Cancer Family History

The instrument allows for the collection of cancer diagnosis history related to the participant's family. It also obtains detailed information related to affected family members such as sex, type of cancer, age at first diagnosis, and any additional cancer diagnoses, therefore providing further information on the possibility of heritance. Excluding the overview section, the instrument can be employed repeatedly to collect detailed information on family members that have been diagnosed with cancer.

Questions	CANCER FAMILY HISTORY - OVERVIEW How many nuclear family members have had cancer? How many extended family members have had cancer?
Notes	- **Nuclear family** members are biological family members as it pertains to the household, including parents and children/siblings. - **Extended family** members are biological family members beyond the limits of the household, including uncles, aunts, cousins, nephews and nieces.

Questions	CANCER FAMILY HISTORY - PROGNOSIS What is/was the relative's biological sex? **Response Options**: Male; Female; Other Is the relative alive? **Response Options**: Yes; No What is the relative's current age or age at death? **Response Options**: < 40; 40 - 50; 51 - 64; 65+ Specify the relative's first cancer diagnosis: **Response Options**: Bone; Brain; Breast; Cervix; Colon/Rectum; Endometrium; Lung; Lymphatic System; Ovary; Pancreas; Prostate; Skin; Thyroid; Other (If Other) Specify the relative's first cancer diagnosis: What was their age at first cancer diagnosis? **Response Options**: < 40; 40 - 50; 51 - 64; 65+ Did the relative have a subsequent cancer event? **Response Options**: Yes; No (If YES) What was their subsequent cancer diagnosis? **Response Options**: Bone; Brain; Breast; Cervix; Colon/Rectum; Endometrium; Lung; Lymphatic System; Ovary; Pancreas; Prostate; Skin; Thyroid; Other (If Other) Specify the relative's subsequent diagnosis:
Notes	- This section may be repeated to collect detailed information on each family member which has been diagnosed with cancer. - **Subsequent cancer diagnosis** refers to a cancer diagnosis unrelated to the initial cancer (i.e. not recurrence).

Abbreviations

CA-125: Cancer antigen 125
PSA: Prostate Specific Antigen

Administration

Mode of Administration

	Instruments		
	1	2	3
Interview OR Self-administered questionnaire	X	X	X
Clinical assessment			
Bioassay/Lab- based assessment			

Life Stage

	Instruments		
	1	2	3
Infancy (0 - 12 months)	X		X
Toddler (13 - 24 months)	X		X
Childhood (2-11 years)	X	X	X
Adolescence (12 - 18 years)	X	X	X
Adult (18 and older)	X	X	X

Personnel and Training Required

All instruments may be implemented as either self-reported questionnaires or interviewer-administered questionnaires (recommended). If interviewer-administered, interviews should be conducted by trained study coordinators or data collectors who speak the native/local language of the target population. If available, **Instrument 1 to 3** may be recorded from or cross-checked with hospital and(or) patient records.

References

The Cancer toolkit is based on and aligned with several existing standards, to facilitate data harmonisation. These resources are listed below:

1. Instrument - Cancer: Personal and Family History (https://www.phenxtoolkit.org/protocols/view/70601)
2. Instrument - Cancer Treatments (https://www.phenxtoolkit.org/protocols/view/71101)
3. Instrument - Cancer Screenings (https://www.phenxtoolkit.org/protocols/view/70901)

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Contact Us

For queries related to this standard and guideline, users can log a ticket to the Phenotypes Standards queue in the H3ABioNet Helpdesk. User feedback and improvements on the current toolkit are welcome and encouraged. These can also be submitted through the Helpdesk, or on our GitHub Issues page.