ICRP International Cancer Research Partnership

CODING GUIDELINES

Welcome to ICRP

The ICR Partnership's **MISSION** is to add value to cancer research efforts internationally by fostering collaboration and strategic co-ordination between cancer research organizations

The ICR Partnership's **VISION** is that all funders of cancer research collaborate to enhance the impact of research on individuals affected by cancer

The Solution

The Partners, representing international cancer research funding organisations, have agreed to apply a common language—the Common Scientific Outline (CSO)—for discussing, comparing, and presenting their cancer research portfolios. The CSO, a classification system organized around seven broad areas of science, along with a standard cancer type coding scheme provides the tools needed to lay the groundwork for collective portfolio analyses and enable coordinated strategic planning among the partner organizations

Using the guidelines

This document will

1. Help you to prepare your own portfolio for submission to the ICRP online database of research (*www.icrpartnership.org*)
2. Provide coding training and guidance
3. Answer common coding problems
4. Give you a point of contact for assistance with coding problems

CONTENTS

1.0 – General Principles

1.1 Who should code?

There is no one right way of coding. ICRP organizations use different methodologies to apply the classification system:

1.1.1 Research managers/research administration staff apply codes to research awards.
This can be labour-intensive, but has the advantage that coders become familiar with the system and more rigorous in its use.

1.1.2 Applicants for grants are invited to code their own awards.
Can be expedient, but coding quality may suffer as the applicant will be less familiar with the coding system, and may tend to overemphasize the translational/clinical relevance of their research or the applicability of their research to various cancer sites. If this method is adopted then additional quality control (see 1.3) is very important.

1.1.3 Centralized coding process is undertaken for multiple organizations by coders external to the organizations.
This approach may improve coding consistency across funding organizations, and may be a more impartial approach to coding.

1.1.4 Automated Coding
ICRP is trialling an automated coding tool for CSO and Cancer Type classifications, with Uberresearch's 'Dimensions Coding for ICRP'. Partners may access this tool https://icrp.uberresearch.com/#/login by contacting the Operations Manager for a password and separate user guide.

1.2 Time and resources required for coding

This will vary as the structures that individual organisations adopt for coding differ.

Minimum resources required:

1.2.1 Coding personnel: 2 coders are suggested as a minimum (your applicants could count as a single coder). If your organisation is unable to dedicate more than one individual, please contact us as ICRP may be able to help with cross-coding in your start-up phase.

1.2.2 Data: Electronic versions of the data required for the submission templates are essential (see Appendix IV), this includes electronic versions of the project title in English (and your local language, if applicable) and an abstract in English (preferred) or your local language.

1.2.3 Time for coding: Novice coders could expect to code a minimum of 3 abstracts per hour. Therefore a portfolio of 100 awards would be expected to take 33 hours for basic coding, an additional 33h for cross-coding by a second novice coder and two to three 2h teleconferences to resolve coding difficulties or to consult experienced coders. In total, a portfolio of 100 awards would be estimated to take 70h. Experienced coders would expect to code over 10 awards per hour, therefore after familiarisation with the coding system the time investment for coding is much reduced.

1.2.4 Information technology: The ICRP data submission template is not complex, but basic competence in Microsoft Excel will be required to input your data.

How much time does it take to code & prepare your data?
Evidently, this will vary depending on the nature of your portfolio and the level of knowledge of the coder. As a guideline, the following provision should be made

1. **Coding of awards**
   3 awards/hr for novice; 10 awards/hr for experienced
2. **Coding validation**
   3 awards/hr for novice; 10 awards/hr for experienced
3. **Reconciliation between coders**
   15 awards/hr for novice; 40 awards/hr for experienced
4. **Data submission**
   3-5 days for novice, 1-2 days for experienced

Note: we expect the introduction of automated coding to reduce this time significantly, by at least half in the initial phase and possibly eliminating most manual coding efforts. Some examples of the different time and resources committed to manual coding by different organisations are given below:

Model 1

Portfolio size: 450 active awards, 90 - 100 new awards p.a.

System: Applicants submit electronic applications, these are coded by internal staff and then blind-coded by a second coder. Differences are resolved and data are submitted to ICRP.

Time required: 9-10 days annually (novice), 5-6 days (experienced)

- 3-4h monthly to code new awards (novice)
- 2-3 days annually to prepare portfolio for submission to the national body
- 1-2 days annually to resolve coding issues

Model 2

Portfolio size: 1500 active awards, 300 – 400 new awards p.a.

System: Applicants code their own research as part of an electronic grant submission system and this is cross-checked by a research manager. Any amendments to coding are noted on the system and retained alongside the original codes.

Time required: 12 days annually (novice), 8 days (experienced)

- 8-10h monthly to check new awards (novice)
- 2-3 days annually to prepare portfolio for submission to the national body
- 1-2 days annually to resolve coding issues

1.3 Quality control

Whichever coding method is adopted, it is good practice to ensure that a second, blind classification is completed by an independent coder. Differences between the two coders can then be reconciled in order to arrive at final coding decisions.

ICRP offers the following services to help with quality control of your coding:

1.3.1 Coding teleconferences, that are organised *ad hoc* to resolve coding issues

1.3.2 Random coding cross-checks across the whole ICRP portfolio. These are done periodically to ensure consistency and to help highlight problem coding areas which are then discussed at partner teleconferences.

1.3.3 Cross-checks via automated coding.

1.4 ICRP languages

1.4.1 The working language of the partnership is English and data must be submitted to ICRP in English, with the exception of abstracts. English-language abstracts are preferred, but may be submitted in the source language if no translation is available.

1.4.2 The CSO is currently available in the following languages:

- English
- French
- Spanish
- Japanese

ICRP welcomes translations of the CSO into other languages and can post these on its website for ease of use. We would however request that organisations submitting translated versions of the CSO undertake to keep the translations up to date in the event of changes to the CSO. An expert vetting process is recommended to ensure the accuracy of translated versions of the CSO.

1.5 Coding in practice – an overview

The CSO research and disease site coding is determined on the basis of the award title, lay and/or scientific abstract, keywords (where available), and other available textual descriptions used by the researcher to describe the research. Other information about the researchers (e.g. past publications) is not used in CSO classification decisions for a given award. A detailed abstract (100 words +) is normally the minimum information required for coding.

1.5.1 In cases where more than one code is assigned to an award, the award budget is allocated evenly across the codes (e.g. 2 CSO codes would each receive a weighting of 50%), except in circumstances where this is known to be inaccurate and the coder has knowledge of the details of the proposal.

1.5.2 “Parent” awards, large grant/award programs with multiple projects, are not classified. The CSO codes for its offspring projects are rolled up and used to represent the coding for the parent.

1.5.3 Awards are typically coded in batches by funding organizations in order to ensure greater consistency in coding.

1.5.4 An award title must be provided in English, in addition to the language of origin if desired. Abstracts in English are preferred but may be provided in the source language if translations are not available.

1.5.5 The CSO has been translated into other languages and these versions are available from the ICRP website *https://www.icrpartnership.org* or from *operations@icrpartnership.org*

2.0 – CSO Coding

2.1 Assigning codes

The Common Scientific Outline (CSO) is the principal classification tool used by the ICR Partners (see Appendix I). There are 34 codes organized into six broad categories of scientific interest: 1. Biology; 2. Etiology; 3. Prevention; 4. Early Detection, Diagnosis & Prognosis; 5. Treatment; 6. Cancer Control, Survivorship & Outcomes.

2.1.1 In reading the abstract, decide what the main aim or 'centre of gravity' of the grant is. Apply CSO codes (e.g. 1.1, 5.3, 6.2) that reflect the overall nature of the project and that are achievable within the lifetime of the grant. Most awards can be described with no more than 2 CSO codes: those that are most germane to the proposal. However it is possible that certain large or multi-faceted awards may require more codes. There is no technical limit for CSO codes per award for inclusion in the ICRP database.

2.1.2 Coding should not include potential or future applications of the research findings. Often these are stated by researchers at the end of their abstracts. For example "The results of this research may lead to new therapeutic approaches that will block the ability of cancer cells to move throughout the body, therefore improving management of metastatic breast cancer."

2.1.3 **Do not** rely on PI and Co-PI biographies or expertise lists as a basis for coding individual abstracts.

2.1.4 The project should be given the ICRP numeric code (e.g. 1.1, 3.2 etc) for submission to the ICRP database.

2.2 Percentage relevance

For most ICR Partner organizations, CSO codes are equally weighted. There may be some circumstances where the coder has knowledge of the details of the proposal, and can apply more appropriate weighting of the codes.

3.0 – Disease Site Coding

3.1 Assigning codes

3.1.1 There is no limit to the number of disease codes, or types of cancer, that may be applicable for a given research project. In the data submission excel file, the research should be given the ICRP numeric code for submission to the database (see Appendix II).

3.1.2 For research that is not focused on a particular cancer, the "Not site-specific" category is used for ICRP. Some organizations make further distinctions within their own databases to differentiate this large category (e.g. basic research versus relevant to all sites), but this is not necessary for the ICRP.

3.2 Percentage relevance

3.2.1 If percentages are not specified in the application, assign equal weighting to all disease types listed, unless it is desirable to assign weightings to ensure that the most-studied cancers are accorded a realistic weighting.

3.2.2 Some of the Partners have developed site allocations for research which relates to a specific group of cancers (e.g. childhood cancers) but does not mention specific sites, or deals with risk factors (e.g. tobacco, BRCA1/2). Examples are provided in Appendix III. These examples are given as a guideline only and individual organisations may use alternative local percentage relevance guidelines where necessary.

4.0 – Which awards are suitable for ICRP?

4.1 Awards which are not suitable for ICRP

The ICRP database aims to record the DIRECT spend on cancer RESEARCH (e.g. salaries, consumables etc), but does not at present aim to capture the indirect or hidden costs of this research. Awards that are not for research should not be included. For example:

- Awards for courses that do not have a research component
- Building costs
- Overhead costs
- Other research-related support (e.g. funding for letters of intent, travel awards)

4.2 Is an award 100% relevant to cancer?

Some Partners choose to apply weightings to awards which may not be entirely focused on cancer and submit only the cancer-relevant percentage of the award budget to ICRP.

Individual organisations and countries submitting research awards to ICRP that are not 100% relevant to cancer or solely-funded by a cancer research organisation are asked to consider a percent weighting for awards that are not wholly relevant to cancer. Examples of different approaches are given below

Example 1 (United Kingdom)

The UK distinguishes between awards as follows:

4.2.1 Awards funded by a cancer research organisation, or mentioning cancer specifically are always included

Also, if a gene is mentioned in cancer gene list (http://www.sanger.ac.uk/genetics/CGP/Census/Table_1_full_2007-02-13.xls) then the award is deemed to be 100% relevant to cancer. If the award does not mention a specific cancer gene, but is comparable to an award funded by a cancer organisation, it is included at 100%.

4.2.2 Research that is 100% health related but only partially relevant to cancer

(e.g. the role of diet in the prevention of illness).

a. Research relevant to healthcare generally is awarded 25% as 25% of all UK mortalities are caused by cancer
b. The proportion of funding relevant to cancer can be identified if cancer is mentioned as one of a number of diseases (one of three = 33%)
c. If the proportion not easily identified – the funding partner is consulted and/or the award referred to the local Coding Panel

4.2.3 Research that is not 100% health related and only partially relevant to cancer

(e.g. How people make decisions in times of stress.)

a. The percent relevance is at the discretion of the local coding panel, but will usually be between 10-25%

4.2.4 Underpinning research

(not only relevant to cancer but to other areas of biomedical and sociological research. It may provide an essential **resource** to enable research to take place, e.g. SNP database).

Always given 10%, but if in doubt, the award is referred to the ICRP or local Coding Panel

Example 2 (Canada)

4.2.5 In Canada, projects funded by cancer funding organizations are weighted at 100%. Similar types of projects funded by general health research funding organizations are also weighted at 100%. However, projects relevant to, but not focused on cancer, and supported by general health research funding organizations are weighted at 33%.

5.0 – Award Types

5.1 Awards Types - classification

Within the ICRP data submission template, organisations are asked to classify their awards into three types:

Award Type	Code	Guidance on classification
Clinical Trial	C	Any award that funds or part-funds a clinical trial. This includes epidemiological and randomised controlled trials. Clinical trials funded independently should always be coded to this area. Trials funded as a significant component of another research programme should also be coded to "Clinical Trial" where possible.
Training	T	Funding mechanisms designed for trainees (whether for an individual or for many) should be coded to this area. Examples would include studentships, masters, doctoral, research training schemes for clinicians and junior fellowships
Research	R	All other awards (please refer to Section 4 for details on awards that should not be included)

5.2 How to assign award types

As a general principle, award types should describe the type of funding; the CSO should be used to describe the research. Up to 3 award types can be given to each award in ICRP.

Example	Award Description	CSO	Project Type
1	A training programme in Biology for a number of users (not an individual's research)	1.5	T
2	A specific programme of research in tumour biology for a single PhD studentship	1.3	R,T
3	A project on tumour biology/cancer etiology/etc. undertaken by a scientist	1.3	R
4	A clinical trial in surgery	5.2	C
5	Training for a clinical scientist as part of a trial	5.4, 5.7	C,T

6.0 – FAQs: Frequently-asked questions

Question		Response
6.1	How do I code research into the side effects of treatment?	If the side effect is a secondary tumour, then the 2.3 code may apply as that is etiologic for that secondary tumour If the side effects being studied are not neoplasms, but nausea, dry mouth etc. Then a 5.4 or a 6.1 category is used, depending on the particular emphasis. Research into the biology underlying a treatment side effect might be 1.1
6.2	How do I code Scientific Model systems research?	A large proportion of cancer research will use a model system, but not all should be given a specific code. In this version of the CSO, development of significant model systems is included in the Resources and infrastructure code for the relevant CSO area. So, for example a new model system for analysing prognostic biomarkers would be in CSO 4.4.

Question		Response
6.3	Defining the molecular signature of a cancer cell is currently under 1.1, 4.1 and 5.3. How do I decide where my project fits?	You need to consider the specific aim of the project carefully. Is this speculative work on cell lines, e.g. proteomic work? If so, 1.1 is probably the category. If technologies were being used very specifically to look at specific tumour tissues and candidate genes/proteins identified for study, 5.3 might be appropriate. If the study is looking for markers that may be useful in progression (e.g. comparison of metastatic and non-metastatic tumour samples) then the 4.1 or 4.3 categories may be more relevant
6.4	What is the difference between localised therapies and systemic therapies?	Localised therapies are those that are administered to a specific area (e.g. radiotherapy), or administered systemically and subsequently activated locally (e.g. phototherapy agent administered IV, but activated locally by laser). Therapies that are administered systemically, but are designed to target a particular receptor (e.g. Gleevec) are still classed as systemic therapies
6.5	How do I code research into resistance to therapy?	If this is looking at things like the biology of the multidrug resistance proteins, then this is 1.1, but looking at molecular mechanisms of drug resistance, then this is 5.3. Patient responses will be in the 5.4 category generally.
6.6	How do I code things like follicular lymphoma? Is that Non-Hodgkin's or Hodgkin's Disease	Follicular lymphoma is a Non-Hodgkin's Lymphoma. There are very useful documents giving definitions and sub-groups of leukaemias and lymphomas at http://www.cancer.net/cancer-types/lymphoma-non-hodgkin/subtypes
6.7	How do I classify myelodysplastic syndromes?	These are predisposing towards AML and are classified as Leukaemia-relevant (27)
6.8	How do I code for metastases? E.g. Lung cancer that has metastasised to the brain	The disease site given should always reflect the site of the primary cancer, so in this case the award would be classified to "Lung"
6.9	How do I code for prevention of recurrence?	This is coded under the treatment area (CSO5), choose the sub-code depending on the type of treatment being researched (localised, systemic, combination)
7.0	How do I code research that was previously in CSO7: Scientific Model Systems?	Research into the development of significant, novel new model systems should now be coded to the Resources & Infrastructure category of CSO 1, 2, 3, 4, 5 or 6. For example, research generating a totally new model for investigating factors involved in cancer etiology would be coded to CSO 2.4. Research that involves use of an existing model system should be coded to the relevant research category.
7.1	How do I code research that was previously in CSO 6.8?	Please code this to CSO 6.1
7.2	How do I code research that was previously in CSO 6.8?	These can be co-coded to the relevant sub-categories of CSO4 and CSO5. For example a pre-clinical project on "Porous silicon nanoparticles for multiphotonic theranostics…..enabling imaging and photodynamic therapy of cancer cells" would be coded to CSO5.1 and CSO4.2

7 – Preparing your data for the ICRP database

7.1	**Preparing your dataset** A minimum dataset must be prepared for the ICRP and data must be provided as specified in the ICRP template file available from your ICRP contact (see below).

7.2	**Contacts & assistance** Assistance with preparing and coding your portfolio is provided by the ICRP Operations Manager. For assistance, please contact: Dr Lynne Davies (lynne.davies@cancer.org.uk) or operations@icrpartnership.org

APPENDIX I – The Common Scientific Outline (CSO)

The CSO was developed by the International Cancer Research Partners and is maintained for the classification and analysis of cancer research. It is openly available for use as a research management tool. The International Cancer Research Partners reserve the right to control its content and may issue new versions at:https://www.icrpartnership.org/CSO.cfm

The current version (v2) of the CSO was adopted by the International Cancer Research Partnership in April 2015. The ICRP website will transition to using this version in 2015. To register as a CSO user, please register by emailing operations@icrpartnership.org. You will then be notified of any changes or updates to the CSO.

Use the links in the boxes below to see examples of awards coded to these areas

1 – BIOLOGY

Research included in this category looks at the biology of how cancer starts and progresses as well as normal biology relevant to these processes.

1.1 Normal Functioning

Example 1
Example 2

Examples of science that would fit:

- Developmental biology (from conception to adulthood) and the biology of aging
- Normal functioning of genes, including their identification and expression, and the normal function of gene products, such as hormones and growth factors
- Normal formation of the extracellular matrix
- Normal cell-to-cell interactions
- Normal functioning of apoptotic pathways
- Characterization of pluripotent progenitor cells (e.g., normal stem cells)

1.2 Cancer Initiation: Alterations in Chromosomes

Example 1
Example 2

Examples of science that would fit:

- Abnormal chromosome number
- Aberration in chromosomes and genes (e.g., in chronic myelogenous leukemia)
- Damage to chromosomes and mutation in genes
- Failures in DNA repair
- Aberrant gene expression
- Epigenetics
- Genes and proteins involved in aberrant cell cycles

Guidance note: *investigations to test whether or not genetic/environmental factors are involved in etiology should be coded to the relevant area of CSO 2*

1.3 Cancer Initiation: Oncogenes and Tumor Suppressor Genes

Example 1
Example 2

Examples of science that would fit:

- Genes and signals involved in growth stimulation or repression, including oncogenes (Ras, etc.), and tumor suppressor genes (p53, etc.)

- Effects of hormones and growth factors and their receptors such as estrogens, androgens, TGF-beta, GM-CSF, etc.
- Research into the biology of stem cell tumour initiation

> ***Guidance note:*** *investigations to test whether or not genetic/environmental factors are involved in etiology should be coded to the relevant area of CSO 2*

1.4 Cancer Progression and Metastasis

Example 1
Example 2

Examples of science that would fit:

- Latency, promotion, and regression
- Expansion of malignant cells
- Interaction of malignant cells with the immune system or extracellular matrix
- Cell mobility, including detachment, motility, and migration in the circulation
- Invasion
- Malignant cells in the circulation, including penetration of the vascular system and extrasavation
- Systemic and cellular effects of malignancy
- Tumor angiogenesis and growth of metastases
- Role of hormone or growth factor dependence/independence in cancer progression
- Research into cancer stem cells supporting or maintaining cancer progression

1.5 Resources and Infrastructure

Example 1
Example 2

Examples of science that would fit:

- Informatics and informatics networks
- Specimen resources
- Epidemiological resources pertaining to biology
- Reagents, chemical standards
- Development and characterization of new model systems for biology, distribution of models to scientific community or research into novel ways of applying model systems, including but not limited to computer-simulation systems, software development, in vitro/cell culture models, organ/tissue models or animal model systems. Guidance note: this should only be used where the focus of the award is creating a model. If it is only a tool or a methodology, code to the research instead.
- Education and training of investigators at all levels (including clinicians and other health professionals), such as participation in training workshops, conferences, advanced research technique courses, and Master's course attendance. This does not include longer-term research-based training, such as Ph.D. or post-doctoral fellowships.

> ***Guidance note:*** *CSO1.5 should only be used where the focus of the award is creating a model. If it is only a tool or a methodology, code to the research instead.*

What's changed in this latest version?

- CSO1.5: an additional bullet has been added to include significant development of new model systems for biology here instead of CSO7
- CSO 1.2 and 1.3: Guidance notes have been added

2 – ETIOLOGY

Research included in this category aims to identify the causes or origins of cancer - genetic, environmental, and lifestyle, and the interactions between these factors.

2.1 Exogenous Factors in the Origin and Cause of Cancer

Example 1
Example 2

Examples of science that would fit:

- Research into the role of lifestyle factors such as smoking, chewing tobacco, alcohol consumption, parity, diet, sunbathing, and exercise in the origin and cause of cancer or increasing the risk of cancer
- Research into the social determinants of cancer such as crime, housing dilapidation (poor housing), neighbourhood level socioeconomic status and services and their relationship to cancer incidence and mortality etc.
- Studies on the effect(s) of nutrients or nutritional status on cancer incidence
- Development, characterization, validation, and use of dietary/nutritional assessment instruments in epidemiological studies and to evaluate cancer risk
- Environmental and occupational exposures such as radiation, second-hand smoke, radon, asbestos, organic vapors, pesticides, and other chemical or physical agents
- Infectious agents associated with cancer etiology, including viruses (Human Papilloma Virus-HPV, etc.) and bacteria (helicobacter pylori, etc.)
- Viral oncogenes and viral regulatory genes associated with cancer causation
- Contextual factors contributing to cancer incidence (e.g., race/ethnicity, socioeconomic status, neighborhood factors, community factors, built environment).

2.2 Endogenous Factors in the Origin and Cause of Cancer

Example 1
Example 2

Examples of science that would fit:

- Free radicals such as superoxide and hydroxide radicals
- Identification /confirmation of genes suspected of being mechanistically involved in familial cancer syndromes; for example, BRCA1, Ataxia Telangiectasia, and APC
- Identification/confirmation of genes suspected or known to be involved in "sporadic" cancer events; for example, polymorphisms and/or mutations that may affect carcinogen metabolism (e.g., CYP, NAT, glutathione transferase, etc.)
- Investigating a role for stem cells in the etiology of tumours

2.3 Interactions of Genes and/or Genetic Polymorphisms with Exogenous and/or Endogenous Factors

Example 1
Example 2

Examples of science that would fit:

- Gene-environment interactions
- Interactions of genes with lifestyle factors, environmental, and/or occupational exposures such as variations in carcinogen metabolism associated with genetic polymorphisms
- Interactions of genes and endogenous factors such as DNA repair deficiencies and endogenous DNA damaging agents such as oxygen radicals or exogenous radiation exposure

2.4 Resources and Infrastructure Related to Etiology

Example 1
Example 2

Examples of science that would fit:

- Informatics and informatics networks; for example, patient databanks
- Specimen resources (serum, tissue, etc.)
- Reagents and chemical standards
- Epidemiological resources pertaining to etiology
- Statistical methodology or biostatistical methods
- Centers, consortia, and/or networks
- Development, characterization and validation of new model systems for etiology, distribution of models to the scientific community or research into novel ways of applying model systems, including but not limited to computer-simulation systems, software development, in vitro/cell culture models, organ/tissue models or animal model systems. Note: this should only be used where the focus of the award is creating a model. If it is only a tool or a methodology, code to the research instead.
- Education and training of investigators at all levels (including clinicians and other health professionals), such as participation in training workshops, conferences, advanced research technique courses, and Master's course attendance. This does not include longer term research based training, such as Ph.D. or post-doctoral fellowships.

What's changed in this latest version?

- Studies on cancer incidence related to diet/nutrition have been moved from CSO3.2 to 2.1
- CSO2.1: added bullet 2 to cover etiological components of research that were previously coded in CSO6.3
- CSO 2.1: Added contextual factors to last bullet
- CSO2.2: revised phrasing to avoid overlap with CSO1.3
- CSO2.4: added additional bullet to note that significant development of new model systems for etiology are now included here instead of CSO7
- Guidance and additional clarifying language has been added to other bullets, or new examples included

3 – PREVENTION

Research included in this category looks at identifying individual and population-based primary prevention interventions, which reduce cancer risk by reducing exposure to cancer risks and increasing protective factors.

3.1 Interventions to Prevent Cancer: Personal Behaviors (Non-Dietary) that Affect Cancer Risk

Example 1
Example 2

Examples of science that would fit:

- Research on determinants of personal behaviors, such as physical activity, sun exposure, alcohol and tobacco use, known to affect cancer risk and interventions (including educational and behavioral interventions directed at individuals as well as population-based interventions including social marketing campaigns, environmental supports, and regulatory, policy and legislative changes) to change determinants or to target health inequalities.

- Directed education to specified populations of patients, health care providers, and at-risk groups about cancer risk and prevention and relevant interventions with the intent of promoting increased awareness and behavioural change. This includes communication of lifestyle models that reduce cancer risk, such as communicating smoking and tobacco cessation interventions, genetic counselling, or targeting/addressing health inequalities.

***Guidance note**: Multi-factorial/multi-risk studies to prevent cancer through reducing obesity - including behavioral factors, obesity in general - can be coded to CSO3.1. Research projects clearly split between 2 risk factors, one of which is behavioral, one diet can be dual-coded (CSO 3.1, 3.2). Research on determinants of diet and interventions solely related to diet, nutrients, or interventions to reduce obesity through diet etc. are coded to 3.2*

3.2 Dietary Interventions to Reduce Cancer Risk and Nutritional Science in Cancer Prevention

Example 1
Example 2

Examples of science that would fit:

- Quantification of nutrients, micronutrients, and purified nutritional compounds in cancer prevention studies
- Development, characterization, validation, and use of dietary/nutritional assessment instruments to evaluate cancer prevention interventions
- Research on determinants of dietary behavior and interventions to change diet (including educational and behavioral interventions directed at individuals as well as population-based interventions including social marketing campaigns, environmental supports, and regulatory and legislative changes) to change diet
- Education of patients, health care providers, at-risk populations, and the general population about cancer risk and diet
- Communicating cancer risk of diet to underserved populations, at-risk populations, and the general public
- Communication of nutritional interventions that reduce cancer risk

***Guidance note**: Multi-factorial/multi-risk studies to prevent cancer through reducing obesity - including behavioral factors, obesity in general - can be coded to CSO3.1. Research projects clearly split between 2 risk factors, one of which is behavioral, one diet can be dual-coded (CSO 3.1, 3.2). Research on determinants of diet and interventions solely related to diet, nutrients, or interventions to reduce obesity through diet etc. are coded to 3.2*

3.3 Chemoprevention and other medical interventions

Example 1
Example 2

Examples of science that would fit:

- Chemopreventive agents and their discovery, mechanism of action, development, testing in model systems, and clinical testing
- Other (non-vaccine) preventive measures such as prophylactic surgery (e.g., mastectomy, oophorectomy, prostatectomy etc.), use of antibiotics, immune modulators/stimulators or other biological agents.

***Guidance note**: Guidance note: please note that research into prevention of cancer by vaccination against the causative agent should be coded to CSO3.4.*

3.4 Vaccines

Example 1
Example 2

Examples of science that would fit:

- Vaccines for prevention, their discovery, mechanism of action, development, testing in model systems, and clinical testing (e.g., HPV vaccines)

***Guidance note**: only preventive/prophylactic vaccine* research should be included here. Vaccines for the treatment of cancer should be coded to CSO 5.3 or 5.4, depending on the phase of development.*
** an antigenic substance prepared from the causative agent of a disease or a synthetic substitute, used to provide immunity.*

3.5 Complementary and Alternative Prevention Approaches

Example 1
Example 2

Examples of science that would fit:

- Discovery, development, and testing of complementary/alternative medicine (CAM) approaches or other primary prevention interventions that are not widely used in conventional medicine or are being applied in different ways as compared to conventional medical uses
- Mind and body medicine (e.g., meditation, acupuncture, hypnotherapy), manipulative and body-based practices (e.g., spinal manipulation, massage therapy), and other practices (e.g., light therapy, traditional healing) used as a preventive measure.

***Guidance note**: please note that dietary interventions or micronutrient supplementation should be coded to CSO3.2*

3.6 Resources and Infrastructure Related to Prevention

Example 1
Example 2

Examples of science that would fit:

- Informatics and informatics networks; for example, patient databanks
- Specimen resources (serum, tissue, etc.)
- Epidemiological resources pertaining to prevention
- Clinical trials infrastructure
- Statistical methodology or biostatistical methods
- Centers, consortia, and/or networks
- Development and characterization of new model systems for prevention, distribution of models to scientific community or research into novel ways of applying model systems, including but not limited to computer-simulation systems, software development, in vitro/cell culture models, organ/tissue models or animal model systems. Note: this should only be used where the focus of the award is creating a model. If it is only a tool or a methodology, code to the research instead.
- Education and training of investigators at all levels (including clinicians and other health professionals), such as participation in training workshops, conferences, advanced research technique courses, and Master's course attendance. This does not include longer term research based training, such as Ph.D. or post-doctoral fellowships.

What's changed in this latest version?

- Primary preventions based on educational/behavioral/policy changes have been moved from CSO6 to CSO3.1
- CSO3.1: additional language added to aid interpretation and avoid overlap with CSO2.1
- CSO3.2: all dietary prevention research is consolidated here
- CSO3.4: added other medical preventive interventions in addition to
- CSO3.6: significant development of new model systems is included here instead of CSO7
- Guidance and additional clarifying language added.

4 – EARLY DETECTION, DIAGNOSIS, AND PROGNOSIS

Research included in this category focuses on identifying and testing cancer markers, imaging and other methods that are helpful in detecting and/or diagnosing cancer as well as predicting the outcome or chance of recurrence or to support treatment decision making in stratified/personalised medicine.

4.1 Technology Development and/or Marker Discovery

Example 1
Example 2

Examples of science that would fit:

- Discovery or identification and characterization of markers (e.g., proteins, genes, epigenetic), and/or technologies (such as fluorescence, nanotechnology, etc.) that are potential candidates for use in cancer detection, staging, diagnosis, theranostic and/or prognosis
- Use of proteomics, genomics, expression assays, or other technologies in the discovery or identification of markers
- Defining molecular signatures of cancer cells, including cancer stem cells (e.g., for the purposes of diagnosis/prognosis/theranostic and to enable treatment decision planning in personalized/stratified/precision medicine)

***Guidance note**:* research defining the molecular signature of cancer cells and how they will respond to treatment (patient biology focused) should go in CSO 4. However where the therapy is being tested and this testing will form the basis of future treatment decisions (therapy focused), this should go in CSO 5.

4.2 Technology and/or Marker Evaluation With Respect to Fundamental Parameters of Method

Example 1
Example 2

Examples of science that would fit:

- Development, refinement, and preliminary evaluation (e.g., animal trials, preclinical, and Phase I human trials) of identified markers or technologies such as genetic/protein biomarkers (prospective or retrospective) or imaging methods (optical probes, PET, MRI, etc.)
- Preliminary evaluation with respect to laboratory sensitivity, laboratory specificity, reproducibility, and accuracy
- Research into mechanisms assessing tumor response to therapy at a molecular or cellular level

4.3 Technology and/or Marker Testing in a Clinical Setting

Example 1
Example 2

Examples of science that would fit:

- Evaluation of clinical sensitivity, clinical specificity, and predictive value (Phase II or III clinical trials), including theranostics and prediction of late/adverse events
- Quality assurance and quality control
- Inter- and intra-laboratory reproducibility
- Testing of the method with respect to effects on morbidity and/or mortality
- Study of screening methods, including compliance, acceptability to potential screenees, and receiver-operator characteristics. Includes education, communication (e.g., genetic counselling and advice on screening behavior based on cancer risk factors), behavioral and complementary/alternative approaches to improve compliance, acceptability or to reduce anxiety/discomfort, and evaluation of new methods to improve screening in healthcare settings.
- Research into improvements in techniques to assess clinical response to therapy

***Guidance note**: Development or clinical testing of theranostic agents (combining therapeutic and diagnostic components in a single agent) may be dual-coded to the appropriate diagnostic and treatment category (e.g., CSO5.1 - 5.5). Imaging for the purpose of treatment planning may be coded to the relevant CSO5 category.*

4.4 Resources and Infrastructure Related to Detection, Diagnosis, or Prognosis

Example 1
Example 2

Examples of science that would fit:

- Informatics and informatics networks; for example, patient databanks
- Specimen resources (serum, tissue, images, etc.)
- Clinical trials infrastructure
- Epidemiological resources pertaining to risk assessment, detection, diagnosis, or prognosis
- Statistical methodology or biostatistical methods
- Centers, consortia, and/or networks
- Development, characterization and validation of new model systems for detection, diagnosis or prognosis, distribution of models to the scientific community or research into novel ways of applying model systems, including but not limited to computer-simulation systems, software development, in vitro/cell culture models, organ/tissue models or animal model systems. Note: this should only be used where the focus of the award is creating a model. If it is only a tool or a methodology, code to the research instead.
- Education and training of investigators at all levels (including clinicians and other health professionals), such as participation in training workshops, conferences, advanced research technique courses, and Master's course attendance. This does not include longer term research based training, such as Ph.D. or post-doctoral fellowships.

What's changed in this latest version?

- CSO4.4: new bullet added. Significant development of new model systems for detection, diagnosis, prognosis are now included here instead of CSO7
- Guidance and additional clarifying language added to other bullets, or new example bullets included.

5 – TREATMENT

Research included in this category focuses on identifying and testing treatments administered locally (such as radiotherapy and surgery) and systemically (treatments like chemotherapy which are administered throughout the body) as well as non-traditional (complementary/alternative) treatments (such as supplements, herbs). Research into the prevention of recurrence and treatment of metastases are also included here.

5.1 Localized Therapies - Discovery and Development

Example 1
Example 2

Examples of science that would fit:

- Discovery and development of treatments administered locally that target the organ and/or neighboring tissue directly, including but not limited to surgical interventions, cryotherapy, local/regional hyperthermia, high-intensity, focused ultrasound, radiotherapy, and brachytherapy
- Therapies with a component administered systemically but that act locally (e.g., photodynamic therapy, radioimmunotherapy, radiosensitizers and theranostics)
- Development of methods of localized drug delivery of systemic therapies e.g., Pressurized Intraperitoneal Aerosol Chemotherapy (PIPAC), direct intratumoral polymers / gels / nanoparticles / microsomes etc

- Research into the development of localized therapies to prevent recurrence
- Identifying mechanisms of action of existing localized therapies and targets, including cancer stem cells.

5.2 Localized Therapies - Clinical Applications

Example 1
Example 2

Examples of science that would fit:

- Clinical testing and application of treatments administered locally that target the organ and/or neighboring tissue directly, including but not limited to surgical interventions, cryotherapy, local/regional hyperthermia, radiotherapy, and brachytherapy.
- Clinical testing and application of therapies with a component administered systemically but that act locally (e.g., photodynamic therapy, radiosensitizers and theranostics, Pressurized Intraperitoneal Aerosol Chemotherapy (PIPAC), direct intratumoral polymers / gels / nanoparticles / microsomes etc.
- Phase I, II, or III clinical trials of promising therapies that are administered locally
- Side effects, toxicity, and pharmacodynamics
- Clinical testing of localized therapies to prevent recurrence and prevent and treat metastases

> ***Guidance note**: localized therapies are considered to be localized when the site of action is the same as the site of administration*

5.3 Systemic Therapies - Discovery and Development

Example 1
Example 2

Examples of science that would fit:

- Discovery and development of treatments administered systemically such as cytotoxic or hormonal agents, novel systemic therapies such as immunologically directed therapies (treatment vaccines, antibodies , antibiotics, theranostics or other biologics), gene therapy, angiogenesis inhibitors, apoptosis inhibitors, whole body hyperthermia, bone marrow/stem cell transplantation, differentiating agents, adjuvant and neo-adjuvant treatments, systemically-delivered nanoparticles/microsomes etc.
- Identifying mechanisms of action of existing cancer drugs and novel drug targets, including cancer stem cells for the purposes of treatment/identifying drug targets
- Drug discovery and development, including drug metabolism, pharmacokinetics, pharmacodynamics, combinatorial chemical synthesis, drug screening, development of high-throughput assays, and testing in model systems, including that which may aid treatment planning in stratified/personalised medicine
- Investigating the molecular mechanisms of drug resistance (including the role of cancer stem cells) and pre-clinical evaluation of therapies to circumvent resistance
- Development of methods of drug delivery
- Research into the development of systemic therapies to prevent recurrence

5.4 Systemic Therapies - Clinical Applications

Example 1
Example 2

Examples of science that would fit:

- Clinical testing and application of treatments administered systemically such as cytotoxic or hormonal agents, novel systemic therapies such as immunologically directed therapies (treatment vaccines, antibodies, antibiotics, theranostics or other biologics), gene therapy, angiogenesis inhibitors, apoptosis inhibitors, whole body hyperthermia, bone marrow/stem cell transplantation, differentiating agents, adjuvant and neo-adjuvant treatments, systemically-delivered nanoparticles/microsomes etc.
- Phase I, II, or III clinical trials of promising therapies administered systemically

- Side effects, toxicity, and pharmacodynamics
- Clinical testing of systemic therapies to prevent recurrence and prevent and treat metastases

***Guidance note**: Development or clinical testing of theranostic agents (combining therapeutic and diagnostic components in a single agent) may be dual-coded to the appropriate treatment category and diagnostic category (e.g., CSO4.1, 4.2, 4.3)*

5.5 Combinations of Localized and Systemic Therapies

Example 1
Example 2

Examples of science that would fit:

- Development and testing of combined local and systemic approaches to treatment (e.g., radiotherapy and chemotherapy, or surgery and chemotherapy)
- Clinical application of combined approaches to treatment such as systemic cytotoxic therapy and radiation therapy
- Development and clinical application of combined localized and systemic therapies to prevent recurrence and prevent and treat metastases

***Guidance note**: combinations of various systemic therapies should be coded to 5.3 or 5.4; combinations of various localized therapies to 5.1 or 5.2. Dual coding should be used where there are two unconnected treatments (one localized and other systemic) in the same project. Coding should be guided by the study purpose. For example, in a Phase II study where different drugs are being tested with the same surgical regimen, the code would be 5.4*

5.6 Complementary and Alternative Treatment Approaches

Example 1
Example 2

Examples of science that would fit:

- Discovery, development, and clinical application of complementary/alternative medicine (CAM) treatment approaches such as diet, herbs, supplements, natural substances, or other interventions that are not widely used in conventional medicine or are being applied in different ways as compared to conventional medical uses
- Complementary/alternative or non-pharmaceutical approaches to prevent recurrence and prevent and treat metastases

***Guidance note**: primary prevention using complementary or alternative approaches should be coded to 3.5.*

5.7 Resources and Infrastructure Related to Treatment and the Prevention of Recurrence

Example 1
Example 2

Examples of science that would fit:

- Informatics and informatics networks; for example, clinical trials networks and databanks
- Mathematical and computer simulations
- Specimen resources (serum, tissue, etc.)
- Clinical trial groups
- Clinical treatment trials infrastructure
- Epidemiological resources pertaining to treatment
- Statistical methodology or biostatistical methods
- Drugs and reagents for distribution and drug screening infrastructures
- Centers, consortia, and/or networks
- Development and characterization of new model systems for treatment, distribution of models to scientific community or research into novel ways of applying model systems, including but not limited to computer-

simulation systems, software development, in vitro/cell culture models, organ/tissue models or animal model systems. Note: this should only be used where the focus of the award is creating a model. If it is only a tool or a methodology, code to the research instead.

- Reviews/meta-analyses of clinical effectiveness of therapeutics/treatments
- Education and training of investigators at all levels (including clinicians and other health professionals), such as participation in training workshops, conferences, advanced research technique courses, and Master's course attendance. This does not include longer term research based training, such as Ph.D. or post-doctoral fellowships.

What's changed in this latest version?

- CSO5.7: Significant development of new model systems for treatment are now coded here, instead of CSO7
- Guidance and additional clarifying language added to other bullets, or new example bullets included

6 - CANCER CONTROL, SURVIVORSHIP, AND OUTCOMES RESEARCH

Research included in this category includes a broad range of areas: patient care and pain management; tracking cancer cases in the population; beliefs and attitudes that affect behavior regarding cancer control; ethics; education and communication approaches for patients, family/caregivers, and health care professionals; supportive and end-of-life care; and health care delivery in terms of quality and cost effectiveness.

6.1 Patient Care and Survivorship Issues

Example 1
Example 2

Examples of science that would fit:

- Research into patient centred outcomes
- Quality of life
- Pain management
- Psychological impacts of cancer survivorship
- Rehabilitation, including reconstruction and replacement
- Economic sequelae, including research on employment, return to work, and vocational/educational impacts on survivors and their families/caregivers
- Reproductive issues
- Long-term issues (morbidity, health status, social and psychological pathways)
- Symptom management, including nausea, vomiting, lymphedema, neuropathies, etc.
- Prevention and management of long-term treatment-related toxicities and sequelae, including symptom management (e.g., physical activity or other interventions), prevention of mucosities, prevention of cardiotoxicities, opportunistic infections, cachexia etc.
- Psychological, educational or complementary/alternative (e.g., hypnotherapy, relaxation, transcendental meditation, imagery, spiritual healing, massage, biofeedback, herbs, spinal manipulation, yoga, acupuncture)

interventions/approaches to promote behaviors that lessen treatment-related morbidity and promote psychological adjustment to the diagnosis of cancer and to treatment effects

- Burdens of cancer on family members/caregivers and interventions to assist family members/caregivers
- Educational interventions to promote self-care and symptom management
- Research into peer support, self-help, and other support groups
- Behavioral factors in treatment compliance

***Guidance note**: Palliative care research should be coded here if it is primarily targeted at survivors and to code 6.6 if associated primarily with end-of-life care. If it is impossible to distinguish on the basis of the abstract, dual coding to both 6.1 and 6.6 is acceptable.*

Retrospective assessment of biomarkers that predict of the late effects of treatment in a clinical setting can be dual-coded to CSO4.3 and 6.1

6.2 Surveillance

Example 1
Example 2

Examples of science that would fit:

- Epidemiology and end results reporting (e.g., SEER)
- Registries that track incidence, morbidity, co-morbidities/symptoms, long-term effects and/or mortality related to cancer
- Surveillance, measurement, evaluation or tracking of established cancer risk factors in populations such as diet, body weight, physical activity, sun exposure, and tobacco use, including method development
- Analysis of variations in established cancer risk factor exposure in populations by demographic, geographic, economic, or other factors
- Trends in use of interventional strategies in populations (e.g., geographic variation)

***Guidance note**: Studies aimed at identifying whether or not potential risk factors are causative belong in CSO 2.*

6.3 Population-based Behavioral Factors

Example 1
Example 2

Examples of science that would fit:

- Research into populations' attitudes and belief systems (including cultural beliefs) and their influence on behaviors related to cancer control, outcomes and treatment. For example, how populations' beliefs can affect compliance/interaction with all aspects of the health care/service provision
- Research into the psychological effects of genetic counselling
- Research into behavioral barriers to improving cancer care/survivorship clinical trial enrolment

***Guidance note**: Behavioral research and interventions directed at primary prevention should be coded to CSO 3.1*

6.4 Health Services, Economic and Health Policy Analyses

Example 1
Example 2

Examples of science that would fit:

- Development and testing of health service delivery methods
- Interventions to increase the quality of health care delivery
- Impact of organizational, social, and cultural factors on access to care and quality of care, including studies on variations or inequalities in access among racial, ethnic, geographical or socio-economic groups
- Studies of providers such as geographical or care-setting variations in outcomes
- Effect of reimbursement and/or insurance on cancer control, outcomes, and survivorship support

- Health services research, including health policy and practice and development of guidelines/best practice for healthcare delivery across the diagnostic/ preventive/ treatment spectrum
- Analysis of health service provision, including the interaction of primary and secondary care
- Analyses of the cost effectiveness of methods used in cancer prevention, detection, diagnosis, prognosis, treatment, and survivor care/support
- Ethical, legal or social implications of research/health service delivery (e.g. genetic counselling)
- Research into systemic or operational barriers to trial enrolment

6.5 Education and Communication Research

Example 1
Example 2

Examples of science that would fit:

- Development of generic health provider-patient communication tools and methods (e.g., telemedicine/health)
- Tailoring educational approaches or communication to different populations (e.g., social, racial, geographical, or linguistic groups)
- Research into new educational and communication methods and approaches, including special approaches and considerations for underserved and at-risk populations
- Research on new methods and strategies to disseminate cancer information/innovation to healthcare providers (e.g., web-based information, telemedicine, smartphone apps, etc.) and the effectiveness of these approaches
- Research on new communication processes and/or media and information technologies within the health care system and the effectiveness of these approaches
- Media studies focused on the nature and ways in which information on cancer and cancer research findings are communicated to the general public
- Education, information, and assessment systems for the general public, primary care professionals, or policy makers
- Research into barriers to successful health communication

***Guidance note**: Communication research focused on prevention, early detection, diagnosis and prognosis, treatment, patient care/survivorship should all be coded to the respective CSO code and not to 6.5. Please note also that training programs for researchers/students should be coded to the relevant research & infrastructure codes.*

6.6 End-of-Life Care

Example 1
Example 2

Examples of science that would fit:

- Hospice/end-of-life patient care focused on managing pain and other symptoms (e.g., respiratory distress, delirium, cachexia) and the provision of psychological, social, spiritual and practical support through either conventional or complementary/alternative interventions/approaches throughout the last phase of life and into bereavement
- Quality of life and quality of death for terminally-ill patients
- Provision of psychological, social, spiritual and practical support to families/caregivers through either conventional or complementary/alternative interventions/approaches
- Research into the delivery of hospice care

***Guidance note**: Palliative research should be coded here if it is primarily targeted to end of life and to code 6.1 if associated with care of survivors. If it is impossible to distinguish on the basis of the abstract, dual coding to both 6.1 and 6.6 is acceptable.*

6.7 Research on Ethics and Confidentiality

Example 1
Example 2

Examples of science that would fit:

- Informed consent modeling/framing and development
- Quality of Institutional Review Boards (IRBs)
- Protecting patient confidentiality and privacy
- Research on publication bias within the cancer research field

6.8 – Historical code [no longer used]

6.9 Resources and Infrastructure Related to Cancer Control, Survivorship, and Outcomes Research

Example 1
Example 2

Examples of science that would fit:

- Informatics and informatics networks
- Clinical trial groups related to cancer control, survivorship, and outcomes research
- Epidemiological resources pertaining to cancer control, survivorship, and outcomes research
- Statistical methodology or biostatistical methods pertaining to cancer control, survivorship and outcomes research
- Surveillance infrastructures
- Centers, consortia, and/or networks pertaining to cancer control, survivorship and outcomes research
- Development and characterization of new model systems for cancer control, outcomes or survivorship, distribution of models to scientific community or research into novel ways of applying model systems, including but not limited to computer-simulation systems, software development, in vitro/cell culture models, organ/tissue models or animal model systems. Note: this should only be used where the focus of the award is creating a model. If it is only a tool or a methodology, code to the research instead.
- Psychosocial, economic, political and health services research frameworks and models
- Education and training of investigators at all levels (including clinicians and other health professionals), such as participation in training workshops, conferences, advanced research technique courses, and Master's course attendance. This does not include longer-term research-based training, such as Ph.D. or post-doctoral fellowships.

What's changed in this latest version?

- Primary prevention elements of CSO6.3 and 6.5 have been moved to CSO3, to reduce overlap and ambiguity.
- CSO6.3: is now focused on population-based behavioral factors that cannot be assigned to any specific area of research, and relevant to all areas of research.
- CSO6.8 has been consolidated into 6.1 to reduce overlap
- CSO6.9: Significant development of new model systems for cancer control, survivorship & outcomes are now included here instead of CSO7

Historical codes

The following codes are historical and are no longer used:

- CSO1.6
  Awards are now coded to either CSO1.1, 1.2, 1.3, 1.4 or 1.5
- CSO6.8
  Awards are now coded to CSO 6.1
- CSO7.1
- CSO7.2
- CSO7.3
  Research into model systems (CSO 7) is now included in the relevant "Resources & Infrastructure" categories of CSO 1, CSO 2, CSO 3, CSO 4, CSO 5 and CSO 6.

APPENDIX II – Cancer Site Codes

Cancer Type	Code	Description	*Equivalent ICD-10 Code (for info only)*
Adrenocortical Cancer	0		*C74.0*
Anal Cancer	103		*C21*
Bladder Cancer	3		*C67*
Bone Cancer	4	Includes Osteosarcoma, Malignant Fibrous Histiocytoma, Ewing's sarcoma and all other bone/cartilaginous tumors.	*C40, C41*
Brain Tumor	6	Includes Chordoma	*C71*
Breast Cancer	7		*C50*
Cardiotoxicity / Heart Cancer	8		*C38.0*
Cervical Cancer	9		*C53*
Colon and Rectal Cancer	64		*C18, C19, C20*
Ear Cancer	10		*C30.1*
Endometrial Cancer	11		*C54*
Esophageal / Oesophageal Cancer	12		*C15*
Eye Cancer	13	Not including Retinoblastoma (45)	*C69 (excluding C69.2)*
Gallbladder Cancer	14		*C23*
Hodgkin's Disease	24		*C81*
Kaposi's Sarcoma	46		*C46*
Kidney Cancer	25	Includes Kidney cancer and Wilms' tumor (60)	*C64*
Laryngeal Cancer	26		*C32*
Leukemia / Leukaemia	27	Including ALL, AML, CLL, CML & Hairy Cell Leukaemia, Myelodysplastic Syndrome and Myeloproliferative disorders	*C91, C92, C93, C94, C95*
Liver Cancer	23	Including Bile Duct	*C22, C24*
Lung Cancer	28	Including Mesothelioma	*C34, C45*
Melanoma	29		*C43*
Myeloma	30	Including Multiple Myeloma	*C90*
Nasal Cavity and Paranasal Sinus Cancer	31		*C30.0, C31*
Neuroblastoma	32		*C74.9*
Non-Hodgkin's Lymphoma	35		*C82, C83, C84, C85, C96.3*
Oral Cavity and Lip Cancer	36		*C00, C01, C02, C03, C04, C05, C06, C09*

Cancer Type	Code	Description	*Equivalent ICD-10 Code (for info only)*
Ovarian Cancer	66		*C56*
Pancreatic Cancer	37		*C25*
Parathyroid Cancer	38		*C75.0*
Penile Cancer	39		*C60*
Pharyngeal Cancer	61		*C14.0*
Pituitary Tumor	40		*C75.1*
Primary CNS Lymphoma	104		--
Primary of Unknown Origin	102		--
Prostate Cancer	42		*C61*
Retinoblastoma	45		*C69.2*
Salivary Gland Cancer	63		*C07, C08*
Sarcoma (soft tissue)	105	Includes Fibrosarcoma, Rhabdomyosarcoma, leiomyosarcoma, liposarcoma, muscle and other Soft Tissue Sarcoma (but not Ewing's Sarcoma or other bone/cartilaginous tumors (4), or Kaposi's Sarcoma (46))	*C49*
Skin Cancer (non-melanoma)	49		*C44*
Small Intestine Cancer	50		*C17*
Stomach Cancer	51		*C16*
Testicular Cancer	52		*C62*
Thymoma, Malignant	53		*C37*
Thyroid Cancer	54		*C73*
Vaginal Cancer	57		*C52*
Vulva	101		*C51*

Cancer types, not otherwise specified **ONLY use these codes if assigning a more specific cancer type from the list above is not possible**			
Cancer Type	**Code**	**Description**	***Equivalent ICD-10 Code (for information only)***
Blood Cancer	67	Use this code for Blood Cancers other than: Hodgkin's Disease (24), Leukemia / Leukaemia (27), Myeloma (30), Non-Hodgkin's Lymphoma (35)	*C88, C96 (excluding C96.2, C96.3)*
Gastrointestinal Tract	15	Use this code for GI cancers other than: Colon and Rectal (64), Esophogeal /Oesophageal (12) , Gallbladder (14), Liver (23), Pancreatic (37), Small Intestine (50), Stomach (51). The computer program will automatically map these sites to GI cancers.	*C26.9*
Genital System, Female	17	Use this code for genital system, female cancers other than: Cervical (9), Endometrial (11), Ovarian (66), Vaginal (57), Vulva (101). The computer program will automatically map these sites to this category.	*C57*
Genital System, Male	19	Use this code for genital system, male cancers other than: Penile (39), Prostate (42), Testicular (52) cancers. The computer program will automatically map these cancer sites to this category.	*C63*
Head and Neck Cancer	21	Use this code for head and neck cancers other than: Laryngeal (26), Nasal Cavity and Paranasal Sinus (31), Oral Cavity and Lip (36), Parathyroid (38), Pharyngeal (61), Salivary Gland (63), and Thyroid (54) cancers. The computer program will automatically map these cancer sites to this category.	*C76.0*
Nervous System	33	Use this for nervous system cancers other than: Brain (6), Eye (16), Neuroblastoma (32), Pituitary (40), Primary CNS Lymphoma (104) and Retinoblastoma (45). The computer program will automatically map these cancers to this category.	--

Not Site-Specific Cancer	2	Includes fundamental research (fluids, secretions, milk lymph, blood components, cell lines and cell fractions, etc.) and research that applies to all types of cancer.	-
Respiratory System	43	Use this code for respiratory cancers other than: Lung (28), Nasal Cavity & Paranasal Sinus (31) cancers. The computer program will automatically map these cancers to this category.	*C39*
Urinary System	55	Use this code for urinary cancers other than: Bladder (3), Kidney or Wilms' tumor (25). The computer program will automatically map these cancer sites to this category.	*C65, C66, C68*

CHANGES:

(1) Vascular system (58) has been removed
(2) Sarcoma, Rhabdomyosarcoma, childhood (47) has been removed (now under Sarcoma (105))
(3) Sarcoma, Soft tissue (48) has been removed (now under Sarcoma (105))
(4) Wilms' tumor (60) has been removed (now under Kidney (25))

APPENDIX III

Apportionment of disease/cancer site codes

***Please note* that these are suggestions to aid your coding and use of these allocations is not mandatory.**

Cancer-related to	ICRP Code	Site	Allocation-Canada
Alcohol	12	Oesophageal	8%
	61	Pharyngeal	2%
	26	Laryngeal	6%
	36	Oral & lip cavity	4%
	7	Breast	50%
	64	Colorectal	30%

Cancer-related to	ICRP Code	Site	Allocation – Canada	Allocation - UK
BRCA 1/2	7	Breast	60%	70%
	66	Ovary	30%	30%
	2	Non-specific/All sites	10%	-

Cancer-related to	ICD-10 code	Site	Allocation – Canada
Bone Marrow/ Hematopoetic Stem Cell Transplantation (HSCT) – All Ages	35	Non-Hodgkin's lymphoma	13%
	67	Blood Cancer	12%
	27	Leukaemia/Leukemia	63%
	30	Multiple Myeloma	4%
	2	Not Site-specific	8%

Cancer-related to	ICD-10 code	Site	Allocation – USA
Childhood Hematopoetic Stem Cell Transplantation (HSCT)	35	Non-Hodgkin's lymphoma	20%
	24	Hodgkin's Disease	20%
	27	Leukemia	20%
	32	Neuroblastoma	20%
	6	Brain	20%

Cancer-related to	ICRP Code	Site	Allocation – Canada	Allocation - UK
EBV	61	Pharyngeal	34%	34%
	24	Hodgkin's disease	33%	33%
	35	Non-Hodgkin's lymphoma	33%	33%

Cancer-related to	ICRP code	Site	Allocation – Canada	Allocation - UK
Extra-hepatic cancer	23	Extrahepatic bile duct (Liver)	100%	100%

Cancer-related to	ICRP code	Site	Allocation – Canada	Allocation - UK
Germline p53 mutations/Li-Fraumeni syndrome	7	Breast	26%	10%*[1]
	105	Connective and soft tissue, unspecified	17%	10%
	6	Brain	16%	10%
	4	Bone and articular cartilage, unspecified	12%	10%
	0	Adrenal gland, unspecified	4%	10%
	28	Lung	-	10%
	29	Melanoma	-	10%
	27	Leukemia, unspecified	3%	10%
	2	Non-specific/All sites	22%	20%

Cancer-related to	ICRP code	Site	Allocation – Canada	Allocation - UK
Hepatic cancer	23	Liver cell carcinoma	100%	-

Cancer-related to	ICRP code	Site	Allocation - USA
HIV Reference	46	Kaposi's Sarcoma	20
	35	Non-Hodgkin's Lymphoma	20
	9	Cervical Cancer	20
	103	Anal Cancer	10
	23	Liver Cancer	10
	28	Lung Cancer	10
	24	Hodgkin's Disease	10

Cancer-related to	ICRP code	Site	Allocation – Canada	Allocation - UK
Neuroendocrine tumors (Unless specified in abstract, code to:)	2	Not Site-specific	5%	50%
	51	Stomach	4%	10%
	50	Small Intestine	39%	10%
	64	Colorectal	7%	10%
	37	Pancreatic	3%	10%
	33	Nervous system	-	10%
	15	Gastrointestinal tract	26%	-
	23	Liver cancer	1%	-

Cancer-related to	ICRP code	Site	Allocation – Canada	Allocation - UK
Neurofibromatosis	6	Brain	40%	40%
	33	CNS	40%	40%
	4	Bone	10%	10%
	29	Melanoma	10%	10%

Cancer-related to	ICRP code	Site	Allocation – Canada	Allocation - UK
Non-specified CEA-positive tumours	64	Colorectal	100%	60%
	37	Pancreatic		10%
	28	Lung		10%
	29	Breast		10%
	66	Ovarian		10%

Cancer-related to	ICRP code	Site	Allocation – Canada	Allocation - UK
Non-specified germ cell tumours	66	Ovarian	45%	50%
	52	Testicular	45%	50%
	2	Not Site-specific	10%	

Cancer-related to	ICRP code	Site	Allocation – Canada	Allocation - UK
Overweight & obesity	64	Colorectal	35%	
	7	Breast	30%	

	2	Endometrial	10%	
	25	Kidney	10%	
	37	Pancreatic	10%	
	12	Oesophageal	5%	

Cancer-related to	ICRP code	Site	Allocation – Canada	Allocation - UK
Peutz-Jeghers Syndrome	50	Small intestine	40%	
	51	Stomach	20%	
	2	Not site-specific	40%	

Cancer-related to	ICRP code	Site	Allocation – Canada	Allocation - UK
Physical inactivity	64	Colorectal	100%	