



Igniting our potential

Health Research Classification System:
Coder Training Course 2025

Dr. Jim Carter, MRC

Structure of the training session

- Background (~15m)
 - Where the HRCS came from
 - What impact it has had
 - Who is using it now and why
 - “Why should I have to classify award data?”*
- Understanding the system (~45m)
 - How the HRCS is structured
 - What it can and cannot do
 - How to use it in practice
 - “How do I classify awards?”*
- ~~Coding exercise (45mins)~~





Igniting our potential

Health Research Classification System

Background

Origins of the HRCS: UKCRC

ABHI



BIA



amrc
ASSOCIATION OF MEDICAL RESEARCH CHARITIES

Academy of
Medical Royal
Colleges



UK Health
Security
Agency



Office for Health
Improvement
& Disparities



Department
of Health &
Social Care

NHS
England



Department for
Science, Innovation
& Technology



Medicines &
Healthcare products
Regulatory Agency

Cysgor Cylido Addysg
Uwch Cymru

hefcw
Higher Education Funding
Council for Wales



Llywodraeth Cymru
Welsh Government



Scottish Funding Council
Promoting further and higher education



CHIEF
SCIENTIST
OFFICE



Public Health
Agency



Department for
Employment
and Learning
www.delni.gov.uk

NHS

Health Research Authority

NHS CONFEDERATION



NICE National Institute for
Health and Care Excellence

NIHR National Institute for
Health and Care Research



Economic
and Social
Research Council



Medical
Research
Council

Office for
Students



1st UK Health Research Analysis (2004/05)

- Aims
 - Coherent, national approach to funding health research
 - Evidence base of current funding patterns
- Participating Organisations
 - 4 Health Departments
 - England, Scotland, Wales, Northern Ireland
 - 4 Research Councils
 - MRC, ESRC, EPSRC, BBSRC (health relevant data)
 - 4 largest charities
 - Wellcome, CRUK, BHF, Versus Arthritis*
- Designed a bespoke **Health Research Classification System (HRCS)**
 - Research Activity Codes – types of research
 - Health Categories – areas of health and disease

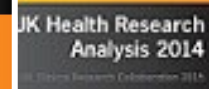


Impact of the first analysis and HRCS

- Reports widely distributed
- Evidence base used by
 - Individual funders
 - Joint planning and coordination
 - Research community
- Classification system adopted by many UK government and charity funders
- Primary data source for Cooksey Review
 - Office for Strategic Coordination of Health Research (OSCHR)

Aims of UKHRA (2009-2022)

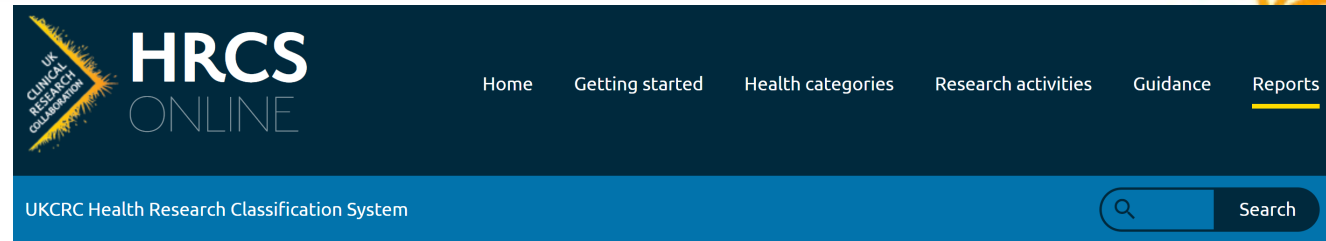
- **Improve speed of report production**
 - Greater availability of data in more easily extracted format
 - The majority of awards already coded
- **Increase number of participating organisations**
 - More medium/small charities and other public funders
- **Improve consistency and quality of coding**
 - Review HRCS, update guidance and standardise approach
- **Make the data openly accessible**
 - Considerable interest in further use of UK HRA data
 - Pre-agreement of HRAF members to release full public dataset
- **Expand the report to provide additional analyses**
 - Infrastructure Assessment (~£1bn spend pa)
 - Estimation of Total UK Health Research Expenditure



Accessing the reports and data (HRCS website)

Visit the [UKHRA22 Homepage](#) for...

- Report PDF
- Public Dataset
- Tableau dashboard for quick analyses



[Home](#) > [Reports](#) > [Analysis reports](#) > [UK Health Research Analysis 2022](#)

Reports

UK Health Research Analysis 2022: Geographical distribution

This dashboard provides interactive visualisations of data from the UK Health Research Analysis 2022, produced by the UK Clinical Research Collaboration in 2023. For further details, see [the HRCS website](#).

Number of Funders	2022 Expenditure	Number of Awards
150	£2.79B	18,023

Select a HRCS Health Category

(All)

AMRC

(All)

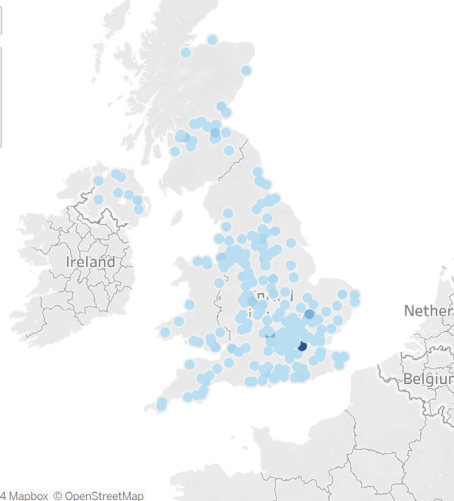
Select a HRCS Research Activity

(All)

Funder Group

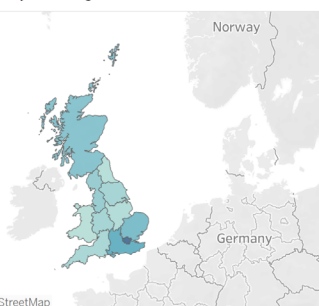
(All)

2022 Expenditure by City



© 2024 Mapbox © OpenStreetMap

2022 Expenditure by ILT1 Region



© 2024 Mapbox © OpenStreetMap

UK Health Research Analysis 2022

The fifth in our UK analysis series is officially published

The *UK Health Research Analysis 2022* – the fifth iteration of our nationwide health research landscaping report series – has been published.

Begun in 2023, the *UK Health Research Analysis 2022* provides the most detailed overview yet of UK health research funding from all public sectors, including the governments of the four nations of the UK, charities, societies, and professional bodies.

The analysis consists of more than 23,500 health and biomedical research awards from 173 organisations accounting for an estimated expenditure of just over £5.0 billion in the calendar year 2022.



[Tableau Dashboard – CLICK HERE](#)

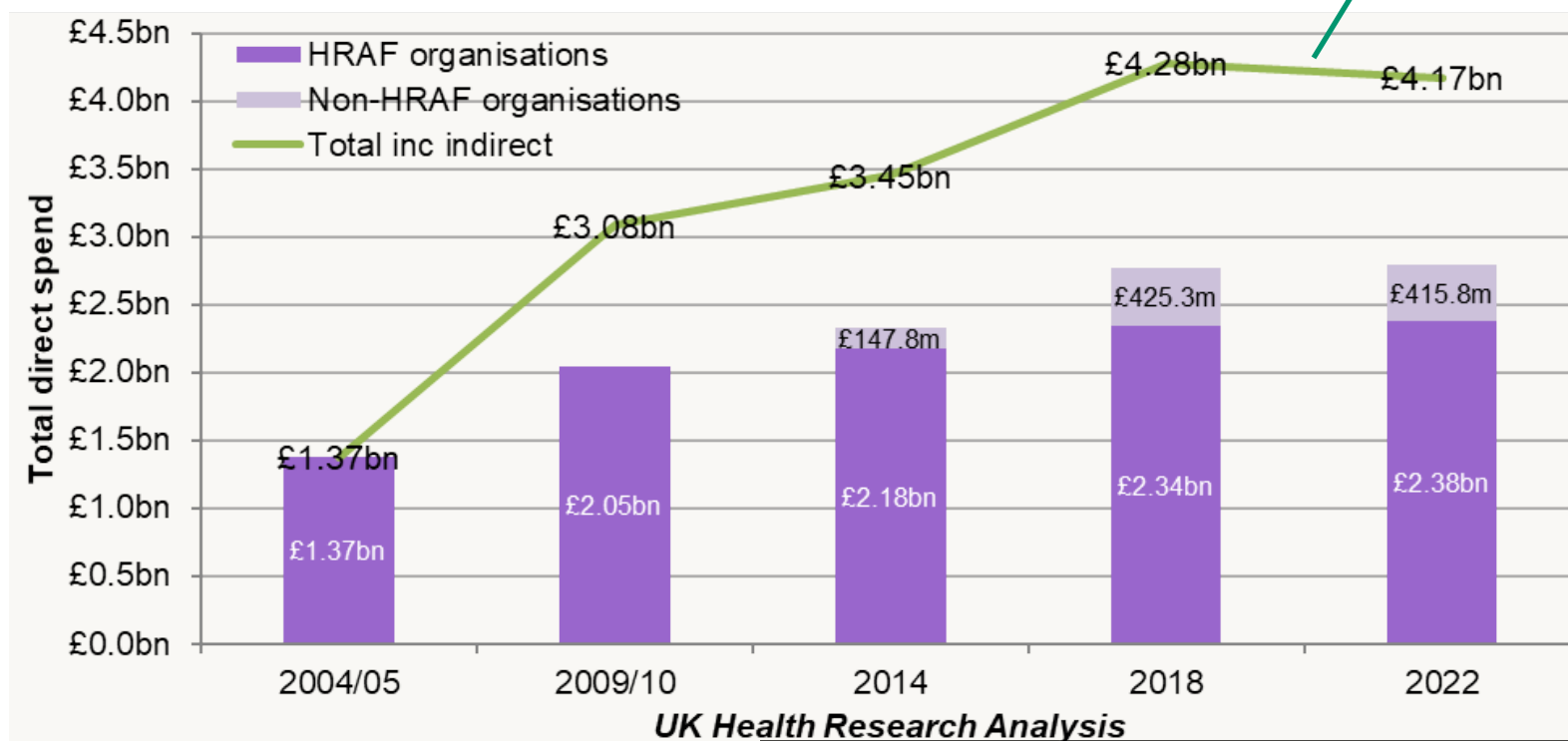
2022 analysis – overview (vs time)

- Comparisons across all five analyses in this series
- Participation has grown over time; from 12 to 173 organisations
- Original 12 funders (HRAF) accounts for ~90% spend
- Award value growth since 2004/05 has slowed

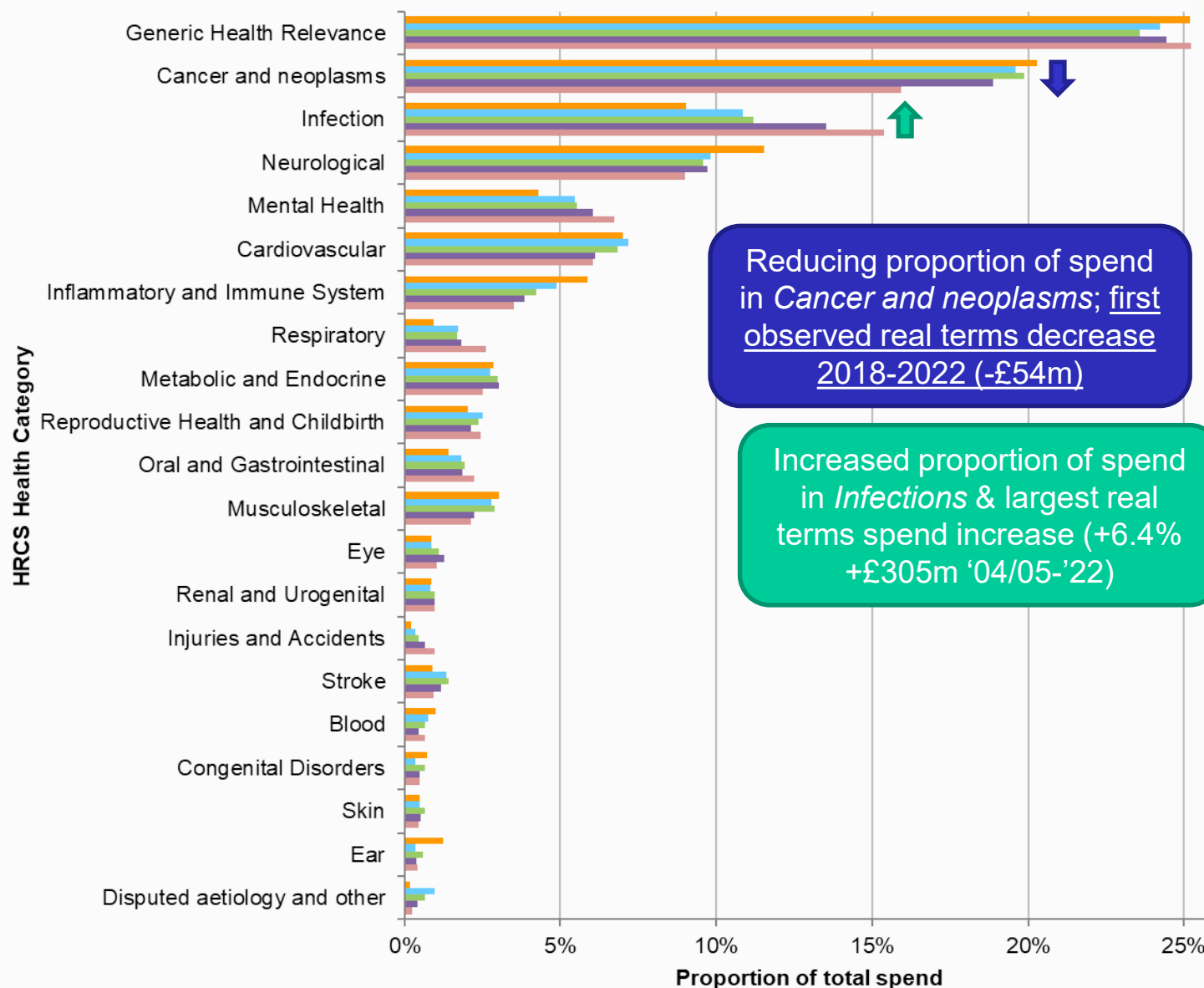
**First observed
decrease in real terms
funding:**

Direct: +£22m, 0.8%

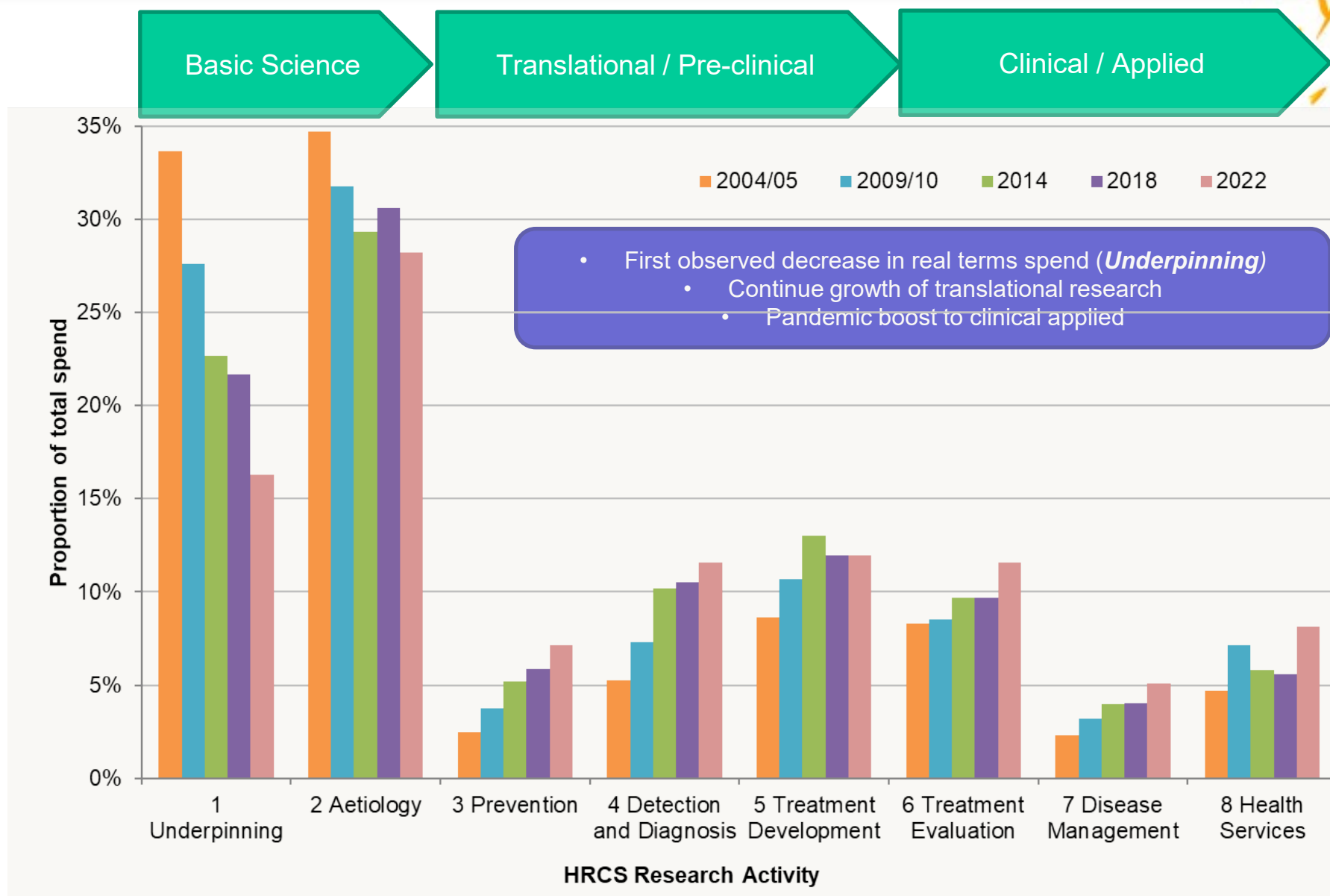
Indirect: -£133m, -9%



2022 analysis – Health Categories



2022 analysis – Research Activities



Impact of the analyses

- Evidence base for bespoke reporting
- Resource for development of automated coding (auto-coding) algorithms
- Referenced in a wide range of annual reports, publications and Government papers
- Increasing visibility of the 'whole environment' of funding
- Increased uptake of system internationally



Does current palliative and end of life care research match the priorities of patients, carers and clinicians?

A grant mapping analysis of the UK Clinical Research Collaboration's Health Research Classification System dataset 2014

Largest study of UK health research funding released today

Related content

→ UK Health Research Analysis 2022

Improving the health of the public by 2040

Optimising the research for a healthier, fairer future
September 2016

The Academy of Medical Sciences



NHSA Analysis of the UK Clinical Research Landscape in 2022

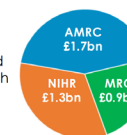
Author Dr Ben Martyn, Northern Health Science Alliance

Medical research charities: Our sector's footprint in 2023

AMRC charities are a major contributor to medical research across the UK



150
AMRC charities fund high-quality research that saves and improves lives.



£1.7 billion
was invested by AMRC charities in UK medical research in 2023.

Future of HRCS

- Improving the speed & frequency of analyses
- More bespoke 'sub-analyses' and data re-use
 - Prevention
 - UKRI health review
 - Place agenda
- Automated coding – WiP
 - Other developments to data automation





Igniting our potential

Health Research Classification System

Understanding the System

What is the HRCS?

Definition

“A system for classifying and analysing health and biomedical research funding”

Purpose

A common classification system applied to award funding which gives an overview of funding patterns covering the full spectrum of all types of research across all areas of health and disease

Uses

Gives meaningful comparisons across time, between different portfolios,
and different organisations

Allows us to answer strategic questions about investment

Key aspects of HRCS coding process

- **Tried and Tested**

- Accumulated experience begun in 2005
- Several major analyses, thousands of awards
- Range of organisations, award types and settings

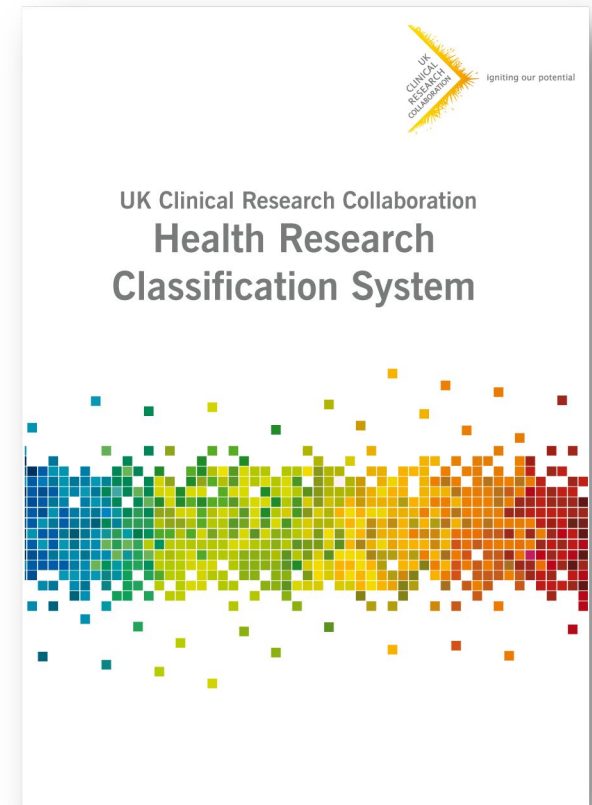
- **Stable and Consistent**

- Approach suits all funders (low bar for entry)
- HRCS is openly available (but not for alteration)
- Simple reproducible rules (equal proportions, minimum number of codes, etc.)

***Value lies in ability to compare over time
and between settings***

Structure of the HRCS

- Two dimensional system
 - Health Categories
 - Research Activity Codes
- Health Categories
 - All areas of health or disease
 - 21 individual categories
 - Based on **WHO International Classification of Diseases**
- Research Activity Codes
 - All types of research activity from basic to applied
 - 8 groups with 48 codes in X.X format
 - Based on cancer **Common Scientific Outline**



Key features of the HRCS

- Coding is based on the main research objective
 - Not an automatic keyword system
 - Does not capture all potential downstream outcomes
 - “within the lifetime of the award”
 - Can complement existing coding systems
 - Fit for purpose as overview tool (it can't do everything!)
- Coding is (usually) linked directly to associated funding
 - Codes based on lifetime of award & spend annualised to match
 - *Annualised Spend = (Commitment/Duration) * time active in analysis year*
 - Exact percentages with every code – equal spend weighting
 - Research management tool **not** a financial audit tool
 - FEC, supporting infrastructure, capital funding
- System designed to provide broad overview of research
 - Provides a “one-size-fits” all approach to classification
 - Scientific expertise not required – technical distractions???



About HRCS

This website is an information resource for those who want to learn how to use the Health Research Classification System (HRCS) and a reference source and manual for those already using the system. It provides online access to all the codes and categories of the HRCS.

- You can get a copy of the [HRCS manual](#) in PDF format for review or printing.
- You can read our [reports](#), showing how the HRCS has been used to strategically assess health research funding in the UK
- You can download [the data from these reports](#) to conduct your own meta-analyses

Quick link to the main HRCS coding manual



Top

Getting Started



HRCS
ONLINE

[Home](#)[Getting started](#)[Health categories](#)[Research activities](#)[Guidance](#)[Reports](#)

UKCRC Health Research Classification System



[Home](#) > [Getting started](#)

Getting started

[Purpose of the HRCS](#)[General approach to coding](#)[Training](#)

Getting started

The Health Research Classification System (HRCS) website is designed to incorporate all aspects of the use of HRCS; from the principles and guidance for coders to access to our reports to replicating the system in your own organisation. Below are some likely scenarios for users of this site, but you can always [contact us](#) if you have any specific questions.

- [Brand new to the HRCS?](#)
 - [Interested in coding?](#)
 - [Are you an experienced coder?](#)
 - [Looking to replicate the HRCS analysis?](#)
- [Want to learn more about how the HRCS is used?](#)

Brand new to HRCS?

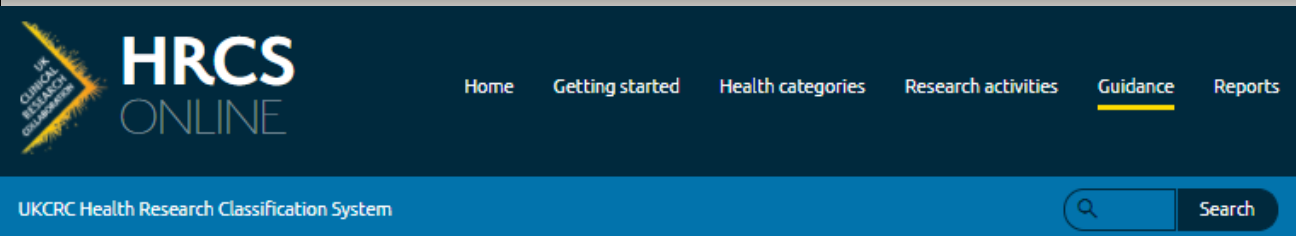
If you've never heard of the HRCS before and want to learn more, we suggest starting with the [Purpose of the HRCS](#). This will give you some of the background to the 'why' and the 'how' of the HRCS. You may also want to

General approach pages
includes 'common
mistakes' page & PDF



Top

Guidance Topics



[Home](#) > [Guidance](#)

Guidance

The HRCS Guidance Topics contain advice about concepts which can be encountered when coding using the HRCS. They describe how codes are applied in practise under a variety of different circumstances. They are also intended to answer frequently asked questions about the system and indicate how the different parts of the HRCS relate to each other.

The guidance topics are listed in alphabetical order. We also recommend using the search function for additional terms. Remember that HRCS is not a keyword system, so consider including alternative acronyms and synonyms as part of your searches if you don't find what you need first time.

As with Health Categories and Research Activities, each HRCS Guidance Topics have official full name, short name and unique identifier. A list of these are available [here](#).



Single page and A-to-Z quick-link bar

- Top Tips:**
- Use A-to-Z + 'Top' button
 - Single page great for Ctrl+F
 - or use new site search



Ageing

Advice on research activities

Studies of the normal ageing process should be coded within the [1 Underpinning](#) code group.

Studies investigating diseases or conditions associated with ageing should not be coded within the [1 Underpinning](#) code group.






Igniting our potential

Health Research Classification System

How to code using HRCS

Approach to Coding – “How to code”

- ▶ Identify **main** aim(s) and health focus(es) of research **within lifetime of award**
 - ▶ Be wary of keywords or terms
- ▶ Allocate the **minimum** number of codes to reflect these
 - ▶ 1-5 Health Categories
 - ▶ 1-2 (max. 4) Research Activities
- ▶ Assign **equal** percentages adding to 100% for both Health Categories and Research Activity Codes
 - ▶ Analyses use this to assign equal spend weighting
- ▶ Remember HRCS context = landscaping tool
 - ▶ Used only to identify main research focus i.e. not auditing
 - ▶ Complements other systems for additional granularity



The screenshot displays the HRCS ONLINE interface. The top navigation bar includes links for Home, Getting started (highlighted), Health categories, Research activities, Guidance, and Reports. Below the navigation bar, the page title is 'UKCRC Health Research Classification System'. The main content area is titled 'General approach to coding' and includes a 'Getting started' sidebar with links to Purpose of the HRCS, General approach to coding (highlighted), Assigning health categories, Assigning research activities, Common mistakes, and Training. The main text explains the strategic aim of coding, the classification system, and the requirements for assigning codes and percentages.

HRCS ONLINE

Home **Getting started** Health categories Research activities Guidance Reports

UKCRC Health Research Classification System

Home > Getting started > General approach to coding

Getting started

- Purpose of the HRCS
- General approach to coding**
- Assigning health categories
- Assigning research activities
- Common mistakes
- Training

General approach to coding

The strategic aim of coding using the Health Research Classification System is to capture the **main objective of the research taking place during the lifetime of the award** and not the background or future potential downstream applications of the research (often referred to in the first or last sentence of the abstract).

Every research award is classified using the two dimensions of the coding system, both **Research Activity Codes** and **Health Categories**.

All the assigned **Research Activity Codes** and **Health Categories** must also be allocated a percentage relevance to the research.

The percentage allocated for each code represents a proportion of the total award value. The **total percentage allocated on each dimension must add up to 100%** to ensure there is no double counting of award funds.

Use the minimum number of codes to reflect the main focus of the research.

Multiple codes and percentage allocations

Multiple codes should be equally apportioned across the assigned codes e.g. two codes should be apportioned 50% each. This means apportioning equal percentages should be limited to the following options:

- Two codes = 50%, 50%
- Three codes = 33.33%, 33.33%, 33.33%
- Four codes = 25%, 25%, 25%, 25%
- Five codes = 20%, 20%, 20%, 20%, 20%

- Blood
- Cancer and neoplasms
- Cardiovascular
- Congenital Disorders
- Ear
- Eye
- Infection
- Inflammatory and Immune System
- Injuries and Accidents
- Mental Health
- Metabolic and Endocrine
- Musculoskeletal
- Neurological
- Oral and Gastrointestinal
- Renal and Urogenital
- Reproductive Health and Childbirth
- Respiratory
- Skin
- Stroke
- *Generic Health Relevance*
- *Disputed Aetiology and Other*

Each category includes normal/healthy **and** disease processes

Categories not always deducible from causation, symptoms, or location

Notes on Health Categories (1)

- Cancer and neoplasms
 - all types - not coded by site e.g. lung cancer
- Cardiovascular
 - includes atherosclerosis
- Congenital Disorders
 - multiple syndromes - excludes single focus syndromes like congenital heart disorders
- Infection
 - all types - not coded by site e.g. respiratory tract infections
- Inflammatory and Immune System
 - about immune system (not just immune response) - includes rheumatoid arthritis
- Musculoskeletal
 - includes osteoarthritis

Notes on Health Categories (2)

▶ Mental Health

- ▶ includes normal behavioural and cognitive function and all abnormal conditions defined by behavior – distinct from *Neurological*
- ▶ Depression, schizophrenia, psychosis and personality disorders, addiction, suicide, anxiety, eating disorders, learning disabilities, autistic spectrum disorders and studies of normal psychology, cognitive function and behavior
- ▶ Any studies coded exclusively to *1.2 Psychological / Socioeconomic*

▶ Neurological

- ▶ Brain function / 'wiring' – distinct from *Mental Health*
- ▶ Includes neurodegenerative conditions: Dementias, Parkinson's, Alzheimer's.
- ▶ Also includes TSEs, epilepsy, multiple sclerosis prions/BSE/CJD and studies of the normal brain and nervous system
- ▶ Can include studies of circadian rhythm, headaches/migraines (usually, not exclusively)
- ▶ Exclude studies of the brain with psychological conditions listed in *Mental Health*

▶ Examples of dual coding (N/MH)

- ▶ Mapping of brain structure (should also be *1.1 Biological* and *1.2 Psychological*)

Notes on Health Categories (3)

- Reproductive Health and Childbirth
 - includes all aspects of pregnancy and the new born
- Respiratory
 - includes asthma
- Generic Health Relevance
 - **all** areas of health or general health
 - Or >5 Health Categories
- Disputed Aetiology and Other
 - A **few** very specific areas including Gulf War syndrome and chronic fatigue syndrome
 - Not a dustbin category

Guidance Topics on Health Categories

See specific guidance on:

- Sequelae
 - When a condition is a consequence or side effect of a pre-existing condition
 - If double coding, does one code make sense without the other?
- Multiple diseases and conditions
 - Health category list for use in four areas – Alcohol; Diet / nutrition; Physical activity / exercise; Tobacco / smoking
 - **Use only in the absence of other information**

1	Underpinning Research	Research that underpins investigations into the cause, development, detection, treatment and management of diseases, conditions and ill health	Discovery
2	Aetiology	Identification of determinants that are involved in the cause, risk or development of disease, conditions and ill health	
3	Prevention of Disease and Conditions, and Promotion of Well-Being	Research aimed at the primary prevention of disease, conditions or ill health, or promotion of well-being	Translational
4	Detection, Screening and Diagnosis	Discovery, development and evaluation of diagnostic, prognostic and predictive markers and technologies	
5	Development of Treatments and Therapeutic Interventions	Discovery and development of therapeutic interventions and testing in model systems and preclinical settings	
6	Evaluation of Treatments and Therapeutic Interventions	Testing and evaluation of therapeutic interventions in clinical, community or applied settings	Applied/Clinical
7	Management of Diseases and Conditions	Research into individual care needs and management of disease, conditions or ill health	
8	Health and Social Care Services Research	Research into the provision and delivery of health and social care services or health policy at an organisational level	

Notes on Research Activity Codes (1)

- **1 Underpinning**

- normal / healthy / non-diseased
 - Excludes Cancer & Infection?
- pain, immune responses, pregnancy, ageing, cell death DNA repair are considered normal
- not just biological = chemistry, psychology, social

- **2 Aetiology**

- “mechanism of disease”
- not just causation – describing development, progression and life course of disease
- includes epidemiology and observational studies

Notes on Research Activity Codes (2)

- **3 Prevention**

- excludes secondary prevention (early detection) and tertiary prevention (prevention of a condition recurring)

- **4 Detection and Diagnosis**

- markers / screening / monitoring / prediction
- 4.1 – pre-clinical / lab based
- 4.2 – clinical studies in humans

- **5 Treatment Development**

- pre-clinical / lab based - including patient samples

Notes on Research Activity Codes (3)

- **6 Treatment Evaluation**

- clinical studies in humans – including all **therapeutic** trials phases I-IV
- includes economic evaluation and assessing quality of life as part of study measures

- **7 Disease Management**

- personal perspective – research into activities of health professionals and/or needs of patients

- **8 Health Services**

- institutional perspective – research into organisations and service delivery

Guidance Topics on Research Activity Codes

See specific guidance on:

- **Repeated terms and concepts**

- *e.g. trials, policy, education, evaluation etc.*

- **Methodology**

- *Appears in three groups (1,2,8)*

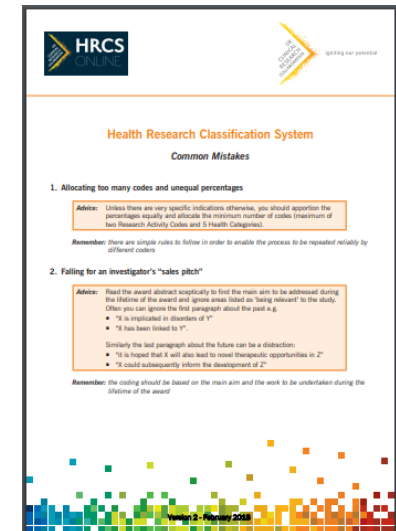
- **Resources and infrastructure**

- *Appears in all eight groups*

- **Coding Mistakes document**

- *Contains some common examples of coding errors*

- *E.g. identifying preventative interventions (RA3) as treatments (RA5 or 6)*





Igniting our potential

Health Research Classification System

Coding Summary

Approach to Coding – Final Reminder

- Identify **main** aim(s) and health focus(es) of research **within lifetime of award**
- Allocate the **minimum** number of codes to reflect these
 - 1-5 Health Categories
 - Consider the 19 disease/physiological system codes before Generic/Other
 - 1-2 (max. 4) Research Activities
 - Chose the Research Activity Group before selecting a sub-code
- Assign **equal** percentages adding to 100% for both Health Categories and Research Activity Codes (unless there are clear reasons not to)

Rules For assigning Health Categories

- **EXAMPLE:** *A clinical trial in humans to test a new drug therapy for treating lung cancer*
- Identify the main health or disease focus(es) of the award
 - Ignore background work often listed as **being relevant** and future potential downstream outcomes
- Match each to a Health Category obeying the specific inclusion criteria
 - e.g. “testing a treatment for **lung cancer**” -> *Cancer not Respiratory*
 - Knowledge of pathogenesis, symptoms and disease site may not always be relevant
- Assign up to five Health Categories and apply equal percentages
 - *Generic Health Relevance* should be assigned if more than five categories apply or there is wide health relevance
 - The *Other* category is only for **very** specific cases – do not use if you are uncertain
- Be aware of special rules and guidance to help with certain topics
 - e.g. studies of alcohol, diet, exercise and smoking
 - e.g. consequences or side effects of a pre-existing condition

Rules for assigning Research Activity Codes

- **EXAMPLE (cont.):** *A clinical trial in humans to test a new drug therapy for treating lung cancer*
- Identify the main aim(s) of the award
 - Ignore background work often listed as **being relevant** and future potential downstream outcomes
- Match each to a Research Activity Code **group (1-8)**
 - e.g. “a trial in humans testing a new therapy” -> *6 Treatment Evaluation*
 - Note that HRCS code names and research concepts are repeated across code groups
 - e.g. **trials** are not always therapeutic trials
 - e.g. studies of **therapies** can be in humans or pre-clinical
- Then select appropriate sub-code from within that group
 - e.g. “it is a drug trial” -> *6.1 Pharmaceuticals*
- Assign up to two Research Activity Codes and equal percentages
 - There is an upper limit of four RACs for large programmes

Some final advice...

Don't panic!	It's a complex system, you won't be expected to learn it instantly
Be your own quality control	Re-check the awards you coded first once you're familiar with the system... do you agree with your past self?
Use a buddy system	Discuss tricky awards, potentially share your homework to get consistency with colleagues
Find experienced coders in your organisation	Your organisation may have some specific tips and tricks experienced coders are great sources for advice

Ask me... sparingly!



Igniting our potential

www.hrcsonline.net

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