HRCS Training:
Example Abstract Notes

igniting our potential

How to Approach Coding by Title and Abstract

Before starting, remember that codes should be based on the lifetime of the award i.e. to reflect what the money will be used for. The context, downstream consequences or future impact of the research should be considered not relevant when applying codes. However be aware that this information may be helpful to you in understanding the work itself.

STEP 1 – identify the aim

- First task is to identify the aim of the study
- To achieve this, you must deconstruct the abstract by ignoring background work and future proposals.
- In the example here, we would deconstruct as follows:
    - First four sentences – ignore - background / context
    - Next sentence "In preliminary studies …" – ignore – the past
    - Last sentence – "… will be … of value …" – ignore – the future
- This leaves the remaining five sentences with relevance to the lifetime of the award – "We now wish …. … regulation of BMD."
- Don't forget the title itself can often highlight the main purpose of the award

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In this case, the aim of this award could be summarised as "To characterise genes involved in the development of osteoporosis"

STEP 2 – identify health category

- Remember always apply the minimum number of codes to adequately and accurately convey the aim of the award
- Note: Most coders find the health categories easier to apply – fewer categories, based on finding relevant terms
- Note: understanding the disease/condition of focus can also help when determining the research activity codes.
- In most cases, identifying the health category requires finding the relevant terms, e.g. the disease name, the tissue being assessed
- In this example, it should (we hope) be relatively easy - osteoporosis is directly mentioned. There are also references to skeleton, bones and fractures
- This should allow you to identify this as **Musculoskeletal 100%**

How to Approach Coding by Title and Abstract (cont.)

STEP 3 – identify research activity group

- When determining the type of research being conducted, we recommend identifying the RA Group (1-8) first, then assign one of the sub-codes
- RA Codes (RACs) are numerous and have many similar names (e.g. methodology, resources, endogenous) – this makes them difficult to code accurately without determining the main group first
- In this case, the award is for the "study of the genetic basis of osteoporosis"
- As this award concerns the life course of an abnormal disease process, it should be assigned to *Aetiology*, RA Group 2.
    - Note there might be debate whether this falls into *Underpinning* (RA Group 1) (i.e. normal characterisation of BMD)
    - However in that case identifying the aim would help – is this project focused on "normal genetic regulation of BMD"?
- There are several additional pieces of evidence confirm Aetiology as the most appropriate RA Group here:
    - previous study was about normal BMD regulation – this would've been coded as Underpinning.
    - his study therefore represents the next step in the development path
    - The PI suggests a future study would involve use of their findings in diagnosis (Group 4) or therapy (Group 5-6)
    - The title specifically mentions mapping of osteoporosis genes – basic causal elements of disease (or basis for genetic epidemiology, which would also be covered in Aetiology)
    - It's looking for mutations – abnormal or disease mechanisms – cause/development of disease = Aetiology
- Therefore **Aetiology (RA Group 2)** gives the most accurate representation of the main focus of the award
- Remember always apply the minimum number of codes to adequately and accurately convey the aim of the award
- Without more information to substantiate the study of normal gene function in BMD, we should only use Aetiology
- this best conveys the aim of the award with the smallest number of codes

How to Approach Coding by Title and Abstract (cont.)

STEP 4 – assign research activity code (X.1 to X.9)

- Once you have a definitive RA group, you must chose a suitable sub-code to use
- Remember each RA group has between 4 and 9 sub-codes – too many to cover adequately in this training
- there is more information in your handbooks and on the HRCS website that explain what topics/areas/circumstances each sub-code is used for
- We thoroughly recommend you familiarise yourself with these before starting coding
- Aetiology has six potential sub-codes (2.1 to 2.6)
- Studies of genes and their function would be considered an endogenous, biological process therefore should be coded **2.1 – biological and endogenous factors**
    - If Underpinning had been chosen as a RA group, the normal regulation of BMD genes would added the coded 1.1
    - Therefore final coding could be 50% 1.1 and 50% 2.1
    - BUT… follow instincts regarding minimum number of codes described above we would recommend 2.1 alone (100%) for this award.

NOW IT'S YOUR TURN!!

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ABSTRACT M1

- Aim: "Study of normal biology of the uterus"
- Issue: technical details can be a distraction – SR and myometrium - broad brush strategic summary
- Issue: normal or abnormal – 1 or 2?

- **Resolution:**
- Note: the focus is on healthy function of normal myometrium
- HC: lots of mentions for labour, uterus, myometrium – should be clear as **Reproduction**
- HC: also specific guidance on pregnancy – code as Reproduction unless focus is on STIs or long term effects (children or adults)

- RA: specific guidance on **Underpinning (1)** – states use this code group for 'normal' and 'healthy' processes
- RA: advice for underpinning states pain, immune responses, pregnancy, ageing, cell cycle and DNA repair are 'normal'
- RA: exclude where main aim is to investigate cause/development of disease.
- RA: Therefore should be RA Group 1, then **1.1** for normal biological function.

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ABSTRACT M2

- Aim: "Biological factors in the development of a circulatory disorder"
- Issue: circulatory context but atherosclerosis involves immune system dysfunction, study is looking at macrophages = parts of immune system what about Inflammatory and Immune code?
- Issue: also mentions stroke
- Issue: use of animal models so maybe Detection or Treatment Dev. (RA Groups 4 or 5)?

- **Resolution:**
- HC: remember advice to code for the main disorder - overall as a disease of circulation – hence **Cardiovascular**
- HC: additional advice that causation, site of action or pathogenesis may not always be relevant to Health Categories coding
- HC: additional website guidance - immune system code is about studies of the system, code for the main condition being studied
- HC: specific guidance on atherosclerosis

- RA: note the sentence "aim of this project… determine the role of…. in atherosclerosis".
- RA: should immediately narrow your group (upper level) choice to **Aetiology (2)** – looking at causal/developmental element in a disease
- RA: ignore mention of animal models, often used pre-clinical for diagnosis (what would they be diagnosing?) or treatment dev. (what treatment?) – clearly looking at basic pathology here.
- RA: therefore if Aetiology (2), it's fairly clear it's a biological/endogenous factor so coded **2.1**

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ABSTRACT M5

- Aim: "Study of the psychological/social determinants of a behavioural disorder"
- Issue: can "antisocial behaviour" be considered abnormal? Isn't it something that all of us could exhibit at some point so could be normal ie Underpinning
- Issue: is antisocial behaviour really a mental health condition? Is it really a clinical mental health syndrome like depression?
- Issue: mention of birth cohort – is this surveillance / epidemiology?

- **Resolution:**
- HC: training / guidance notes all normal and abnormal conditions defined by reference to behaviour or cognition should be coded **Mental Health**

- RA: debatable about whether it's abnormal BUT issue is whether the researchers define it as a disorder (Aetiology 2) or normal (Underpinning 1)
- RA: however in this case it's clearly aberrant context, so should be coded as **Aetiology (2)**
- RA: mention of cohorts can sometimes confuse with epidemiology (surveillance 2.4) considered but cohort used as a data source not main aim
- RA: therefore should be psychological development of abnormal behaviour = **2.3** psychological aetiology

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ABSTRACT M6

- Aim: "Study to test if an intervention can modify behaviour and prevent uptake of smoking"
- Issue: no indication of specific health effects – is it Generic - relevant to all diseases and areas?
- Issue: not Normal and not Aetiology but is this therapy (treatment of existing smoking behaviours) or prevention (acting against the uptake of smoking behaviour)?
- Issue: mentions economic evaluation – does that mean it is RA group 8?
- Issue: mentions trial – does that mean it is RA group 6?

- **Resolution:**
- Note: Consider if it is valid to consider if this intervention is a treatment therapy – what would the aim be in that case?
- Note: Consider what is the 'disease' here? Smoking is not a disease, it's a risk factor for other diseases
- HC: training identifies specific guidance on Smoking and provides arbitrary assignment of HCs
- HC: also available for Alcohol & Diet/Exercise/Obesity, but remember these all should only be used in absence of specified disease focus
- HC: for smoking, this is given as **Cancer**, **Cardio**, **Respiratory** and **Stroke** – 25% each

- RA: If smoking not treated as itself a disease, but a risk factor, then anti-smoking interventions are usually coded under **Prevention (3)**
- RA: also note this is in schools – the balance must be towards prevention
- RA: Note: you may see anti-smoking interventions to prevent secondary conditions – but remember secondary preventions are excluded from Prevention (3)
- RA: don't be tricked by 'health economics' topic – can feature in multiple RA Groups (see guidance)
- RA: same with 'Trials' - not all trials are therapeutic trials (see guidance)
- RA: if narrowed to Prevention, it should be fairly clear this is a primary intervention, so **3.1**

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ABSTRACT M7

- Aim: "Study to discover and evaluate biological markers with predictive value in ovarian and breast cancer"
- Issue: Aim 2 may involve trials in humans - so is this code group 6 which is focused in trials Phases I-IV
- Issue: It's clearly cancer – but ovarian, shouldn't we reflect that by including the Reproduction code?
- Issue: Involves development of 'methods for expression analysis'
- Issue: Is it a study in patients (clinical/evaluation) or patient samples (lab/discovery/pre-clinical) – 4.1 vs 4.2

- **Resolution:**
- Note: Use of phrase 'will be used' meaning in lifetime of award in this case and not 'the future'
- Note: Remember past/present/future tenses may help but these are still prospective award applications – the work itself will still happen in the future <u>at time of writing.</u>
- HC: **Cancer** is clearly mentioned – remember guidance on cancer – do not code for the site (same for Infection)

- RA: remember not all trials are therapy – not 5 or 6 in this context
- RA: Note: as an extra hint Cancer is, in the majority of case, not normal so is rarely coded as Underpinning
- RA: use of markers often fall into Aetiology or Detection – depends on context of use
- RA: this award should be clearly **Detection (4)** – looking at marker discover and validation of potential screening in a prognostic setting
- RA: methodology for population screening possible (4.4), but <u>main focus of award</u> is clearly on <u>use of markers</u> **not** development of screening methods
- RA: as study uses both samples in the lab and from the clinic (patients in clinical trial) it should be both **4.1** and **4.2** for pre-clinical and clinical

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ABSTRACT M8

- Aim: "Pilot study in patients to evaluate a new diagnostic marker technology for cystic fibrosis"
- Issue: clearly group 4 = diagnostic BUT not discovery and not pre-clinical = evaluation study in humans so 4.2 not 4.1
- Issue: Mentions lung function/asthma and technique assesses lung volume

- **Resolution:**
- HC: normally ignore main site of action as patients are all cystic fibrosis
- HC: note guidance that CF is in Congenital and title implies only relevant to CF – listed in HC summaries under Congenital too
- HC: however case to be made for 50% Respiratory code if study is relevant to lung patients generally (i.e. without CF)
- HC: more detail required to confirm – e.g. if coding to full project application?
- HC: However based on this abstract alone, minimum codes rule applies = 100% **Congenital** only

- RA: study is on a diagnostic technology, so should be **Detection (4)**
- RA: definitely not a therapy – what is the scan used for / treating?
- RA: Use of the diagnostic technology is on patients (paed and adult CF units) so clinical, therefore **4.2**

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ABSTRACT M9

- Aim: "Study in model systems and patient samples of the mechanisms of action of steroid drug therapy for Crohn's disease"
- Issue: immuno-regulatory genes so maybe Inflammatory/Immune?
- Issue: investigating mechanisms and efficacy of what? Aetiology (2), Treatment Dev (5) or Treatment Eval (6)?
- Issue: mentions human patients and controls but also animal model – RA5 or 6?

- **Resolutions:**
- HC: Immune context is only as part of pathology of diseases of the gut, so 100% **Oral**.

- RA: Gene expression often suggests Aetiology, and it is sometimes applicable that drugs (steroids here) used as experimental tool (e.g. to investigate life course of IBD) (also Aetiology)
- RA: HOWEVER clearly treatment context here (RA Group 5 or 6)
- RA: Use of human patients and controls but not in a clinical setting = pre-clinical, mentions samples and rat models, so **Treatment Development (5)** not Evaluation (6)
- RA: Therefore as looking at steroid efficacy in treatment development context = **5.1**
- RA: note mention of 'pharmacogenetics' under 5.1 Pharmaceuticals – prediction of genetic variation and responses to drugs

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ABSTRACT M10

- Aim: "Study to develop stem cell line for potential therapeutic application in the retina and test in a model system"
- Issue: Stem cells – are they treatments, underpinning, aetiological?

- **Resolution:**
- HC: should be fairly straightforward – mention of retina, photoreceptors – 100% **Eye**

- RA: Stems Cells have their own guidance
- RA: if studying normal stem cell development it would be 1 Underpinning
- RA: however this study is in a potential treatment context, but pre-clinical/animal model = **5 Treatment Dev**
- RA: mentions surgical transplantation but not 5.4 – **5.2** covers both gene and cellular therapy

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ABSTRACT R2A

- Aim: "Clinical test of new therapy for foot ulcers resulting from diabetes"
- Issue: Diabetes or Ulcers? When to assign two codes or just one? Can happen when one abstract has two aims (as we have seen – M7)?
- Issue: Mentions Quality of Life and patient/carer interactions – maybe 7 Disease Management?

- **Resolution:**
- HC: Guidance on Sequelae suggests checking relevance of each individual condition
- is this relevant exclusively to cases of Diabetes? – no
- is this relevant to all aspects of ulcer healing? – probably not
- HC: so would be appropriate to code for both – Diabetes is **Metabolic**
- HC: ulcers are usually coded as Skin, but could be considered an outcome of defective circulation
- HC: in this case the inhibition of peripheral circulation is related to diabetes. Therefore the secondary focus is the ulcers themselves, therefore use **Skin**

- RA: remember quality of life coded as 7 Disease Management only if the main focus is on QOL
- RA: however this assessment is part of the dressing regimen, which is a treatment in human/clinical setting, so **6 Treatment Evaluation**
- RA: sub code not obvious from titles, however **6.3** (Medical Devices) includes dressings in the list of topics covered.

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ABSTRACT M11

- Aim: "Clinical comparison of drug therapy and psychological therapy for treatment of depression following birth"
- Issue: As with previous example not one unitary condition – a condition (PND) which is a consequence of another (birth)
- Issue: two aims – drug and therapy? Which is correct? Is one being tested against the other?
- Issue: community setting or assessment of quality of life makes it 7 Disease Management?
- Issue: economic analysis suggests 8 Health Services?

- **Resolution:**
- HC: as with previous, use the guidance for sequelae to judge if one/both codes should be used:
    - is this relevant to all depression patients? – no
    - is this relevant to all aspects of pregnancy/reproduction? – no
- HC: therefore under these conditions, dual code of **Mental Health and Reproduction** is best

- RA: study assesses two clinical therapies so all in **6 Treatment Evaluation**
- RA: also note that many clinical therapies have economic and/or quality of life assessments within them.
- RA: The main aim here is to test treatments. Only use RA7/RA8 in this context if the economic/QoL elements were the main focus of the award.
- RA: If Treatment Evaluation, which is being tested, drug (6.1) or psychosocial therapy (6.6)?
- RA: If it's know that one (e.g. the drug) is the drug treatment standard of care – i.e. the control – we might exclude 6.1 as the focus is to test the new counselling therapy (6.6).
- RA: in this case, we do not know if one or the other is standard care, therefore the use both codes: **6.1** & **6.6**

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ABSTRACT M12

- Aim: "Study of needs and social impact in patients with communication impairments as part of a stroke"
- Issue: Stroke – but mentions Cardio to reflect circulation or Neuro to reflect brain function. Rule to use min no. of codes to reflect condition studied
- Issue: is this evaluating a treatment or looking at disease management?
- Issue: is it focused on patients/carers or doctors/diagnosticians?

Resolution:

- HC: Stroke can be a difficult category to code, because it does involve other elements relating to Cardiovascular (blood flow) and Neurological (neuron damage/loss and it's impact)
- HC: If you focus on the pathology, Stroke can also relate to Blood (clotting, platelet function), Mental Health (behavioural changes) and Muscle (loss of movements)
- HC: however remember guidance for Stroke in relation to using the minimum number of codes for the condition being studied
    - Therefore stroke used in most studies of stroke, unless context of award focuses heavily on other topics
    - Also remember pathology should not be used when applying health categories, so Blood/Mental/Muscle very unlikely to be applicable
- HC: Also note that Dysarthria is not really considered 'sequelae' here, i.e. not a separate condition as a consequence of Stroke, but a description of stroke symptoms
    - this differs to previous sequelae examples as dysarthria only occurs as the result of stroke (coded 'Stroke') or other neuron damage (developmental or injury, coded 'Neurological')
- HC: therefore, in this study, we are exclusively dealing with post-stroke dysarthria, so should be coded **Stroke** only.

- RA: this study is not reflecting on a therapy but studies the impact of disease, so should be **7 Disease Management**
- RA: the study mentions both needs of patients and carers, so should be either/both 7.1 and 7.3
- RA: the intent of the study appears to be more on patients, as the final sentence states, however this could be considered outside the lifetime of the study.
- RA: therefore, without definitive information, we would recommend you apply the minimum codes rule and use only **7.1**

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ABSTRACT M13

- Aim: "Study of communication processes during doctor-patient consultations for upper respiratory tract infection"
- Issue: Respiratory or Infection or both?
- Issue: is it relevant to all types of doctor patient consultation (i.e. using infections as a case study)?

Resolution:

- HC: Infections should not be differentiated by site of action so not respiratory, only code Infection
- We would only ever add Respiratory as a second code if this were relevant to other non-infection respiratory conditions
- HC: is this study using URTIs as a case study for consultations in general – if so it would be valid to code 50% Generic, 50% Infection?
- HC: guidance on case studies notes using Generic "where investigating the specific condition used in the patient group is not the main aim of carrying out the study"
- HC: in this case, the study remains focused on URTIs and does not suggest this could apply elsewhere
- HC: therefore, remains 100% **Infection**

- RA: is this looking at consultations from an individual or collective service perspective?
- RA: may be worth considering who will read the results – health professional to improve individual practice – not commissioners of services
- RA: the process of better communication to patients would be applicable to individual needs NOT on studying a health service, so should be **7 Disease Management**
- RA: focus of disease management is, in this case, on professional (**7.3**) not patient (7.1) perspectives

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ABSTRACT M15

- Aim: "To evaluate delivery of services by community pharmacies"
- Issue: is research on the elderly of generic relevance (all areas of health or disease) – yes we all get elderly – but not everyone goes into social care?
- Issue: focus on elderly patients and their experience (7.1) OR on pharmacists and their professional development (7.3) or on organisation of pharma services (8.1)?

Resolution:

- HC: ageing is considered a normal process in HRCS, so studies looking at 'elderly' should not be considered specific to a disease unless stated
- HC: no specified disease/condition of focus identified and/or applicable to all areas of health = **Generic Health Relevance**

- RA: difficult be certain if this is looking at pharmacist management decisions or the organisation of pharmacies in general
- RA: could consider who will read the results - probably those organising the services – but still debateable
- RA: As the intervention and analysis is not at an individual basis, but at a pharmacies (group) level, we would suggest this be treated as an **8 Health Services**
- RA: as a result, this would be considered as organisations of services, **8.1**
- RA: however, there is still a strong argument this would be applicable to individual pharmacists (7.3) – but minimal code rule should help you decide similar cases in the future

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ABSTRACT M16

- Aim: "To evaluate different economic models for assessing cost effectiveness of health technologies"
- Issue: methods and models could be 1.4, 2.5 or 8.4?
- Issue: evaluation of technologies could be RA Group 4, 5 or 6?

- **Resolution:**
- HC: no specified disease/condition of focus identified and/or applicable to all areas of health = **Generic Health Relevance**

- RA: guidelines on *Methodology* to help, but hopefully clear this is a study of **8 Health Services**
- RA: would only be considered as evaluation of a technology in other categories if specified as diagnostic/prognostic (4), or as a treatment (5 or 6)
- RA: exclusive focus on health economics, with elements of welfare assessment, so **8.2** – guidelines for economics evaluations also available
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ABSTRACT M4

- Aim: "To establish a resource for wide use by the research community"
- Issue: Should this be coded as HRCS, or left as 'indirect' as per the main analysis?
- Issue: What/how many research activities codes should this have?

- **Resolution:**
- HC: this study is purposefully designed to have a wide health relevance – so should be **Generic**
- HC: it is possible, with more detail, that this has a more specific focus and could assign different HCs – but nothing in abstract to suggest this

- RA: Although no further information available it should be clear the scope of this project is large (more information would be helpful though)
- RA: therefore as a large research project you can assign more than 2 RACs , i.e. up to 4 research activity codes
- RA: as a general resource for use by researchers and research community, the *Resources and Infrastructure* codes from each RA group would applicable
- RA: there are guidelines for this, identifying the three main uses of R&I codes i.e. shared resources, networks/consortia, and units with multiple projects
- RA: therefore the remaining choice is which 4 of the 8 possible R&I codes to use:
- RA: Here we recommend **1.5, 2.6, 4.5 and 5.9** for this award as DNA banks would most likely be used for:
    - Underpinning/Aetiology (1&2) for basic/causal gene expression/epidemiology
    - Potential prognostic/diagnostic markers (Detection - RA4)
    - markers for treatment efficacy (pharmacogenetics etc., Treatment Dev RA5).