



CAMS

THE READ CODES

A USER GUIDE FOR GENERAL PRACTITIONERS

The Read Clinical Classification (Read Codes) is distributed solely by Computer Aided Medical Systems Limited (CAMS). Any enquiries should be addressed to CAMS at Tannery Buildings, Woodgate, Loughborough, Leicestershire, LE11 2TQ.

The Read Clinical Classification:

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The contents of this User Guide are intended to be of general assistance to those using Read Code based computer systems in General Practice and are correct as at January 96. This Guide is issued without prejudice to future development of Read Codes or the manner of their supply and to the necessity of users to fully familiarise themselves with their own systems and their operation.

1. WHAT IS THE PURPOSE OF THIS GUIDE?

Computer Aided Medical Systems Limited (CAMS) have produced this guide to provide GPs with basic information on the Read Codes, to enable them to use and benefit from their use in General Practice. The guide is "generic" in that it is intended to be relevant to any general practice computer system that makes use of the Read Codes. The reader should therefore bear in mind that the particular mechanisms used to exploit the Read Codes and their features will vary from system to system. The guide provides information on the 4 character and the 5 character Read Codes, since both versions are currently in use in General Practice.

When using this guide you will observe that in places, 4 and 5 character versions have different instructions. At these points read the part relevant to your system.

2. WHAT ARE THE READ CODES?

Their full name is "The Read Clinical Classification", although they are more commonly called the Read Codes. They are a coded thesaurus of clinical terms designed by a former GP (Dr James Read) to enable clinicians in all sectors of healthcare to make effective use of computer systems as adjuncts to clinical practice. They allow the clinical information contained in medical records to be coded and stored in computer systems, thus facilitating access to information contained within patient records. This enables computerised information systems to offer a wide range of functions including comprehensive reporting, audit and research utilities, automation and semi-automation of repetitive tasks, electronic communication, and decision support. In addition the Read Codes contain cross-reference fields to enable data to be linked to, and reviewed by, the structures of other commonly used national and international statistical classifications. Use of information technology in this way has the potential to provide considerable benefits to the delivery of patient care.

They are not a "book of codes" but rather they exist as a computer file and are thus amenable to regular improvement and updating as clinicians request new terms. Nor are they a software application; to use them requires someone else to provide the "system" on which they are implemented.

They are presented as a clinical thesaurus in computer files. This thesaurus comprises the Read terms, a comprehensive list of clinical terminology, which is linked to the Read Codes.

3. WHY USE THE READ CODES?

There are four important advantages of using a coding system for recording patient information.

- recording data more consistently
- retrieving data more easily

- analysing data more thoroughly
- communicating data by use of a common clinical language

The Read Codes were originally developed by James Read, starting in the early 1980s when he was a GP, as a thesaurus designed specifically to enable GPs to code and record relevant information arising from a patient encounter. They cover symptoms, morbidity, laboratory tests, procedures, medication and much more.

The Read Codes will also enable GP and hospital clinicians to communicate clinical information about patients. A number of pilot projects are currently developing such applications, for example the links between GPs and pathology labs.

The Read Codes are cross-referenced to the main national and international classifications (e.g. ICD-10 (International Classification of Diseases - Version 10) and OPCS-4 (Office of Population Censuses and Surveys, Classification of Surgical Operations and Procedures Version 4.2). This "gateway" facility enables clinicians to record data in their own language and then transfer it into other systems for other purposes. Examples include fundholding, and hospital systems which use the Read Codes and then map across into ICD-10 and OPCS-4 for the production of their Contract Minimum Data Sets (CMDS).

In addition to being **comprehensive**, the Read Codes are also **flexible** and **dynamic**. That is, they are regularly updated and distributed to users. Procedures have been established to enable users to request new terms and synonyms and have them included in future releases of the Read Codes.

4. WHO DEVELOPS AND SUPPORTS THE READ CODES?

In 1988 the Joint Computing Group of the Royal College of General Practitioners and the GMSC of the BMA recommended that the Read Codes should become the standard in General Practice and that their use should be considered throughout the NHS.

As a result, in April 1990 the Read Clinical Classification became Crown Copyright and the NHS Centre for Coding and Classification (NHS CCC) was established. The NHS CCC forms part of the Information Management Group of the NHS Executive. The main function of the NHS CCC is to maintain and further develop the Read Codes by collaboration with the clinical professions. This development work has been the purpose of the Clinical Terms Project comprising more than 40 medical specialty groups, each with responsibility for expansion of the Read Codes within their specialty. One such specialty group worked on General Practice codes. The Clinical Terms project was initiated in 1992 and continued until 1994.

In addition the NHS CCC is working with the nursing professions on the Nursing Terms Project (NTP) to define and agree terms and concepts used by nurses, midwives and health visitors, and the Professions Allied to Medicine Terms Project (PAMS) to include the terms for Chiropody, Dietetics, Occupational Therapy, Physiotherapy and Speech and Language Therapy.

Support of the Read Codes in the NHS and elsewhere is the responsibility of Computer Aided Medical Systems Limited (CAMS); that is why we have produced this guide. We regard it as vital that all users, hospital or GP, are aware of the most effective way of using the Read Codes.

NEW READ CODE REQUESTS AND UPDATES

CAMS receives requests from users for new terms to be added to the classification. (In the case of GPs this is done in conjunction with their GP system supplier.) Requests are assessed and then passed to the NHS CCC for inclusion in future releases. Occasionally user requests reveal a need for more extensive development work at the NHS CCC - such requests may require longer to process. Updated code sets are released on a quarterly cycle and are distributed by CAMS to direct users and to suppliers; GPs receive their updates from their system suppliers.

Whilst users are waiting for new terms to be added to the Read Codes, it is possible (subject to suitable software) to add codes and terms in chapter "Z". This is an area of the Read Codes reserved for temporary codes which can be used immediately. Temporary codes should be replaced by the equivalent Read Code when it becomes available. At this point any "Z" codes that have been used for recording patient information will need converting to the new Read Code. This conversion process is important in order to maintain compatibility with the standard Read Code set, ensuring suitability of coded information for communication or reporting across the NHS.

5. HOW ARE THE READ CODES STRUCTURED?

The Read Clinical Classification has a hierarchical structure comprising 5 levels of detail in the 5 character version of the codes and 4 levels in the earlier 4 character version. The characters used are the numbers 0 to 9 and the letters A to Z and a to z. The codes are, therefore, case-sensitive and care should be taken in situations where codes are entered directly.)

Examples of the hierarchy for both 4 and 5 character versions are shown overleaf.

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5 character Read Code	Term	4 character Read Code
C...	<i>Endoc/nutr/metab/immun. disease</i>	C....
C0..	Disorders of thyroid gland	C1...
C05.	Thyroiditis	C14..
C050	Acute thyroiditis	C141.
C0502	Abscess of thyroid	C0502
H...	<i>Respiratory system diseases</i>	H....
H0..	Acute respiratory infections	H1...
H06.	Acute bronchitis/bronchiolitis	H16..
H060	Acute bronchitis	H161.
H0606	Acute pneumococcal bronchitis	

These examples illustrate a number of points.

Each successive level of the hierarchy provides more detail to a concept (in these examples, diagnosis). The 5 character version has an extra level of detail available, but the whole coding structure and numbering is also different. The change occurred when the classification terms of ICD and OPCS-4 were incorporated into the Read Codes in order to broaden the scope of the codes.

Full stops are used as “padding” characters to ensure that all codes contain 4 characters (in the 4 Byte set) or 5 characters (in later versions). The top level of the hierarchy is known as the chapter (chapters “C” and “H” in the examples above).

It is important that users are aware of the chapter structure of the Read Codes. Knowledge of this can help when selecting the appropriate code for recording patient details (see next section).

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The chapters are divided into three areas.

i) Chapters which start with a number (0 to 9) refer to the process of medicine

Chapter	Chapter Name
0	Occupations
1	History/symptoms
2	Examination/Signs
3	Diagnostic procedures
4	Laboratory procedures
5	Radiology/physics in medicine
6	Preventive procedures
7	Operations, procedures, sites
8	Other therapeutic procedures
9	Administration

**ii) Diagnosis chapters which start with a capital letter (A to Z)
(these differ slightly between the 4 character and 5 character versions)**

5 character Chapter	Chapter Name	4 character Chapter
A	Infectious/parasitic diseases	A
B	Neoplasms	B
C	Endocr/nutr/metab/immun. diseas	C
D	Blood/blood forming organs dis	D
E	Mental disorders	E
F	Nervous system/sense organ dis	F
G	Circulatory system diseases	G
H	Respiratory system diseases	H
J	Digestive system diseases	I
K	Genitourinary system diseases	J
L	Pregnancy/childbirth/puerperium	K
M	Skin/subcutaneous tissue diseases	L
N	Musculoskelet/connectiv tissue	M
P	Congenital anomalies	N
Q	Perinatal conditions	O
R	[D] Symptoms, signs, ill-def. cond	R
S	Injury and poisoning	P
T	Causes of injury/poisoning	Q
U	[X] Extern caus morbid/mortal	--
Z	Unspecified conditions	--

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Chapter R is of particular note since it contains symptoms and ill-defined conditions which are used as diagnoses of exclusion when no specific detailed diagnosis can be made. It is of particular importance to hospital users since it cross-references to a section in ICD-10

iii) Medication and appliance chapters which start with a small letter (a to y)

Chapter	Chapter name
a	GASTRO-INTESTINAL DRUGS
b	CARDIOVASCULAR DRUGS
c	RESPIRATORY DRUGS
d	CENTRAL NERVOUS SYSTEM DRUGS
e	DRUGS USED IN INFECTIONS
f	ENDOCRINE DRUGS
g	OBS/GYNAE/UTI DRUGS
h	CHEMOTHERAPY/IMMUNOSUPP DRUGS
I	HAEMATOLOGY/DIETETIC DRUGS
j	MUSCULOSKELETAL DRUGS
k	EYE DRUGS
l	ENT DRUGS
m	SKIN DRUGS
n	IMMUNOLOGY DRUGS AND VACCINES
o	ANAESTHETIC DRUGS
p	APPLIANCES & REAGENTS, ETC
q	INCONTINENCE APPLIANCES
s	STOMA APPLIANCES
y	DRUG ADMINISTRATION

6. WHAT IS THE BEST WAY OF USING THE READ CODES?

To some extent this will depend on the way that your GP system has implemented the Read Codes. However, here are some general strategies.

STRATEGY 1: TERM SEARCH: "TERMING"

This strategy is normally the preferred one since it does not require the user to know or use any codes directly - all encoding is done "behind the scenes". **This is why we refer to the process as "termining" rather than "coding". The aim is to choose and record the correct medical term.**

The Read Codes have been designed to allow a rapid search for the term required by keying in part of one of the words that represent that medical concept. Thus in term searching the first few characters of the term you are looking for are typed in. These characters form the "clue" or "key" used by the computer to search for the term.

It is not always necessary to enter the full word, the first few characters of the word are often sufficient. This is because related words often start with the same character pattern. However plurals and other variants (e.g. words like tuberculous and tuberculoid) imply that if you include the last few characters of the word you may exclude important choices.

Example:

The term key "SMOK" will produce a picking list which includes:

- Smokers' cough
- Smoker - amount smoked
- Smoking - health ed.
- Smoking and pregnancy - advice
- Stop smoking monitoring admin

CASE AND POSITION OF KEY IN THE TERM

As you can see, the case (upper or lower) of the key and its position in the target term are not important. Although the key will often be the first letters of the first word of the term, some words from within the term can be used as keys when searching.

The choice of keys and the number of characters typed is important. The length of the picking list produced by a key is inversely proportional to the 'uniqueness' of the key. It follows that it is easier to produce shorter picking lists by choosing words which are less commonly used and ensuring that an adequate number of characters is entered (there are many more words beginning with "EX" than there are beginning with "EXTEN"). By selecting the most specific elements of the term it should be possible to achieve short picking lists in which the required term is easy to find.

For example, "Acute frontal sinusitis" is better searched for with the term keys "front" or "sinus" for frontal or sinusitis. This is because acute is a word that is used so frequently in medicine it cannot usefully provide a short list to choose from.

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Other words that are frequently used in medicine and are therefore unsuitable keys are prefixes of words such as "hyper" or "hypo".

If you wish to search for terms containing "hypertension" you could use the term key "HYPERTEN" (provided your software permits term keys of this length).

NB: The precise operation of term key search, and the number of characters permitted in the term key will depend on the mechanism of the GP system and which version of Read Codes you are using.

ABBREVIATIONS, ACRONYMS AND EPONYMS

The key can also be an abbreviation of a medical term. This makes it possible to search for commonly accepted abbreviations.

For example:

IHD Ischaemic heart disease

LVF Left ventricular failure

The Read Codes also include acronyms as term keys.

For example:

CAT Computerised axial tomography

Eponyms are used extensively.

For example:

Pott's fracture

Dressler's syndrome

USE OF ANATOMICAL OR LAY TERMS

It is also possible to search using parts of the body such as "nose" when searching for fracture of nasal bones.

Many common terms have also been coded, examples include "boil" and "athlete's foot".

READ CODES AS KEYS

If the appropriate Read Code or even the first few characters of the code are known, these can be used as a key. It is important that the term is displayed and chosen, because this ensures that the operator is reading and selecting text and not codes, with which it would be easier to make an error. Remember too that a Read Code has to be in the correct case "A61.." is different from "a61..".

USEFUL TIP

When using term searching it is helpful to explore different ways of finding a term. There are usually several routes to find what you want. These, to some extent, depend on your particular interest and also on the way your software supplier has implemented the Read Codes in the system you are using. With experience you will find what works best!

STRATEGY 2: HIERARCHY SEARCH

The second search strategy uses your knowledge of the logical structure on which the Read Clinical Classification is based. For example, Respiratory system diseases are contained in Chapter H (the chapter structure has been illustrated in Section 5).

Hierarchy search uses knowledge of this structure to find the clinical term you want. Thus, if you know that "7" represents operations, you can start at this level. If you cannot remember the character with which a chapter starts, you can start at the full list of the Read Code chapters. Select the chapter that you want and then progressively select a greater level of detail as it is presented, as illustrated in the examples of the hierarchy in Section 5. Note that when entering Read Codes directly it is necessary to distinguish between upper and lower case letters.

This method requires a comprehensive understanding of both the Read Code structure and also of medicine; terming is usually both quicker and easier (by making the computer do the work).

7. SUMMARY

The term search and the hierarchy search strategies are the principal methods of using Read Codes to record clinical information. It is therefore important that you understand both of them.

When term searching you type in the first few characters of a word that is, in some way, part of the clinical description. For example, you could find Ischaemic heart disease either by entering "Ischaemic" (or "Isch" for short), by entering "Heart", or by using an alternative common description such as "IHD".

An alternative strategy would be to search for "Acute subendocardial infarct" by finding the chapter heading for Circulatory system diseases (Chapter "G") and then choosing Ischaemic heart disease at the next level down, then Acute myocardial infarction, and finally locating the specific term you require using a process of gradual refinement.

A common practice is to combine the two strategies, initially using a term key search and then moving up or down the hierarchy to find the term with the detail that you need.

CHOOSING THE RIGHT CHAPTER

An awareness of the chapter structure is important when selecting the appropriate term.

For example, the term key "FIBRILL" will produce a picking list which includes (in the 5 character version):

14AD.	H/O ventricular fibrillation
3283.	ECG: ventricular fibrillation
G5740	Ventricular fibrillation

It is important to use the correct code to record information appropriately. Do not therefore use a symptom code as a diagnosis code or a diagnosis code as a symptom code. The potential future use of data depends on the accuracy of its original record.

STRUCTURED RECORD KEEPING

Many aspects of a patient's medical record can be stored by using a Read Code. It is therefore important that users are clear about what they wish to record, how they will organise it, **and to do it consistently**.

For example, a comprehensive record might include:

- symptoms presented by the patient (chapter 1)
- findings from the examination (chapter 2)
- requests for investigation or therapeutic procedures (chapters 3 to 8)
- administrative details (chapter 9)
- diagnostic information (chapters A to T)
- medication prescribed (chapters a to y)

A single consultation could involve codes in each of these chapters. The purpose of the Read Codes is to enable the compilation of a coded record and such use will evolve as GP systems become capable of maintaining a fully computerised patient record. At this time, however, many users simply wish to record limited clinical details using mainly the diagnostic and medication chapters.

When recording a diagnosis, a code from chapters A to T should be selected.

The user should bear in mind that the analysis of data, for audit or similar purposes, is likely to examine each chapter separately. **Users are therefore advised, when choosing a term, to select the chapter appropriately and consistently. Otherwise, audit procedures may "miss" an occurrence of a condition recorded because it has been classified in an inappropriate chapter.**

8. DEVELOPMENTS

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In 1991 Version 2 file structure was released to support use of the Read Codes. It was designed to improve the usability of codes for clinical purposes. It has three features that are of particular interest to GPs.

1. The "term keys" used for finding terms are extended from 4 to 10 characters in length. This enables faster and more efficient look-up of terms when displaying a picking list.
2. A "term code" was introduced. This enables the system to record the actual term used by the clinician (eg Heart attack) so that it can be used for retrieval and reporting rather than defaulting to the preferred term (eg Acute myocardial infarction).
3. A 60 or 198 character version of terms was introduced, in addition to the 30 character form, to enable terms to accurately reflect the concept and avoid abbreviation.

This increased functionality was designed to make the use of Read Codes easier.

Completion of the Clinical Terms, Nursing Terms and Professions Allied to Medicine Terms projects (see section 4) has necessitated the expansion of the Read Codes and the development of Version 3 file format.

VERSION 3

Version 3 of the Read Codes involves a radical change in structure designed to increase the flexibility of the codes and address the use of qualifiers to express extra detail. Both of these will make the Read Codes more flexible. For details of Version 3 see separate documentation.

9. SUPPORT

The NHSCCC will maintain the 4 character and 5 character sets in both versions 1 and 2 over the foreseeable future. This support will include all new major concepts, drugs, immunisations and administrative requirements.

10. CONVERSION AND MAPPING .

Mapping tables to convert from early to later versions of the Read Codes are available from CAMS. There are also tables available to map other coding systems used in General Practice (Oxmis and RCGP) to Read Codes. Mapping of coded information is a complex process which requires care in order to avoid loss or corruption of information. CAMS are able to provide detailed guidance on mapping and associated issues to both software houses and end-users. It is strongly recommended that mapping is not carried out until appropriate advice has been obtained.

11. TRAINING

CAMS have earned a good reputation for providing high calibre training on the use of the Read Codes to produce good quality clinical and management information.

PGEA approved training courses for GPs and practice staff are held regularly at our fully equipped training centre in Loughborough.

These courses include sessions on the structure and hierarchy of the Read Codes, their role in the NHS Information Strategy, an appreciation of the broader issues of coding medical data, how to find the correct code, discussion on data flow paths and analysis of data requirements. The training is interspersed with hands-on exercises, an important part of any computer based training course.

Please contact our Client Services Department, telephone 01509 611006, for course programmes and dates.

APPENDIX

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GLOSSARY OF READ CODE ABBREVIATIONS

The following abbreviations appear in the preferred terms that 'define' Read Codes. They are included in the terms and listed here as an aid to accurate classification.

ACOF	Accident; clothes on fire
ADVA	Animal drawn vehicle accident
A/P	Accident or poisoning
AR	Adverse reaction
CFIO	Controlled fire in open
CFOS	Controlled fire in other structure
CFPD	Controlled fire in private dwelling
C/O	Complaining of
Comm.	Commercial (aircraft)
[D]	Working diagnosis
EC	Elsewhere classified
FB	Foreign body
FH	Family history
FH *	Family history of malignancy
HFQ	However further qualified
H/O	History of
+i/c	With intracranial (injury)
-i/c	No intracranial (injury)
LOC	Loss of consciousness
[M]	Morphology of neoplasms
M-cyclist	Motor cyclist
MC pass.	Motor cycle passenger
MVNTA	Motor vehicle non-traffic accident
MVTA	Motor vehicle traffic accident
NEC	Not elsewhere classified
NFQ	Not further qualified
NOC	Not otherwise classifiable
NOS	Not otherwise specified
O.Cr	Other type of watercraft (liner, lifeboat, yacht, tanker - not another watercraft)
Occ.	Occupant
O/E	On examination
OS	Other specified
PCA	Pedal cycle accident
PH	Personal history of
PH *	Personal history of malignancy

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PVA	Powered vehicle accident
[Q]	Qualifiers
RV	Road vehicle
S-A	Surface to air (aircraft)
SII	Self-inflicted injury
[SO]	Site of
[SP]	Surgical procedure
SPB	Small powered boat (speedboat)
SUB	Small unpowered boat (rowing boat, canoe)
UP	Unpowered
[V]	Supplementary factors influencing health status or contact with health services other than for illness
WT	Water transport
[X]	Terms derived from ICD-10
#	Fracture

DEFINITION OF THE MOST COMMON ABBREVIATIONS

- EC:** Elsewhere classified
This abbreviation refers to an entity that is classified elsewhere in the codes. It is usually the underlying cause of the particular disorder and is a hint that you may wish to code this cause as a second code to make it more specific.
- [M]:** "Morphology of neoplasms"
Occurs in the sub-chapter BB... Terms that contain this symbol are the same as the tumour morphology sections of ICD-9 and ICD-10 and are for recording the cell type of the neoplasm.
- NEC:** Not elsewhere classified
This means that specific varieties of this entity appear elsewhere in the classification. These will usually be shown on the picking list after a term key search. If none of the others match the concept to be coded, use this code.

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- NOS:** Not otherwise specified
This option appears at the end of a list of entities at a given level. It should be selected if not enough detail is known about the data being recorded to choose one of the more specific options. It means the same as recording the code one level higher but may be useful if a more detailed cross-reference code needs to be generated.
- OS:** Other specified
This option appears at the end of a list of entities at a given level. It should be selected if enough detail is known about the data being recorded to say that it is not one of the other specific options at this level.
- [SO]:** "Site of"
Occurs in the sub-chapter 7N... of the Read Codes. Codes with this included equate to chapter "Z" in OPCS4 and provide a way of coding the site of operation as a subsidiary code.
- [V]:** Occurs in sub-chapter ZV ... of the Read Codes (5 character version). Terms that contain this symbol correspond to the ICD-10 chapter that allows the recording of "Supplementary factors influencing health status or contact with health services other than for illness" (for example "normal pregnancy" ZV22.).
- [X]:** Terms which have been derived from ICD-10 have been added to the Read Codes to enable central return clinical coding requirements to be met; these are marked with [X].
- For 2 sections the [X] identified codes should be used instead of the original ICD-9 derived Read Codes, these are for Mental and behavioural disorders where the [X] identified chapter Eu... replaces chapters E0... - E3..., and for the External causes of injury and poisoning where [X] identified chapter U... replaces chapter T...