



technology in practice



Making nursing visible

Valuing our contribution to high quality patient-centred care



Royal College
of Nursing

Introduction



Contents

Introduction **1**

Background **2**

Electronic patient records **3**

Standardised terminologies **5**

- Clinical terminology **5**
- Evaluating terminologies **6**
- Classifications **7**
- Reference terminologies **7**

Application to nursing practice **8**

Conclusion **8**

Appendix 1: Glossary **9**

Appendix 2: List of terminologies/classifications **11**

Appendix 3: References **17**

How can you get the best out of the clinical records that you invest time and effort completing? How can you ensure that the information you record about a patient's nursing care can be used to promote safe and effective care? How can you ensure that the records help to safeguard vulnerable adults and children and demonstrate outcomes of care? How can you accurately share information between electronic clinical systems, and be sure it is interpreted and understood by all involved?

If nursing is properly represented within clinical records the impact of nursing practice on patient outcomes can be measured. The effect of different skill levels can also be identified and nursing data can be re-used to improve nursing knowledge. This all requires the use of standardised terminology. This is not a technical issue; it is a nursing issue that all nursing staff can influence.

This publication aims to raise awareness of electronic patient records and the structured information needed to make them effective. It provides guidance and clarifies the language and issues relating to structured information and standardised terminology. It also describes the value of ensuring that nursing concepts can be captured within electronic clinical records in order to make nursing visible and valued.

Background

Health care is becoming increasingly complex, with more multi-disciplinary and inter-agency working, with a faster turnover of patients. There is more focus on patient-centred safe care, quality indicators and clinical outcomes. Electronic Patient Records (EPRs) are being adopted by health care organisations across the UK to meet these challenges. They are also used to manage the complexity and volume of data generated more easily and efficiently, with constrained budgets and increasing public expectations.

Multidisciplinary EPRs should contain nursing terms that reflect nursing practice. This allows it to be distinguished, if necessary, from that of other disciplines and professions involved in the patient's care. The use of a standardised nursing terminology, representing nursing concepts, would help to achieve this by providing consistent descriptions relevant to nursing staff. In doing so, the unique nursing contribution to a patient's care would be effectively represented.

This guidance aims to inform nurses, midwives and health care assistants who use or are involved in the development of EPRs. It is of importance to staff in all specialties, including health or social care management, independent/third sector as well as pre-registration education. It relates to UK nursing and refers to the use of terminology within the context of electronic record systems only.





Electronic patient records

An EPR is the term used to describe electronic clinical systems that allow information about assessment, care planning, implementation and outcomes of care to be recorded.

EPRs support health care staff and organisations to:

Care

Information concerning patients and clinical contacts is recorded as a basis for clinical decision making, as evidence of professional accountability and as a means of ensuring continuity of care and communication between professionals. It is important to note that record keeping standards apply equally to EPRs as to paper-based records. *‘Good record keeping is an integral part of nursing and midwifery practice, and is essential to the provision of safe and effective care. It is not an optional extra to be fitted in if circumstances allow’* (NMC, 2009).

Share

Good communication about the patient’s care improves continuity and contributes to better outcomes and an improved patient experience. It is also essential for patient safety. Shared access to information makes EPRs more versatile than paper records for staff in different locations.

Measure and compare

Health and social care organisations generate and manage huge amounts of data, some of which requires conversion

into usable information that can be analysed for managing services (both internally and externally). Clinicians also use anonymised patient data to improve quality and advance knowledge, for example through clinical audit and research. These processes are easier, faster and less costly to implement with computerised data. If the source data is extracted directly from EPRs it has the potential to be more accurate and complete than if it is first recorded on paper and transcribed into a computer by a coding clerk.

Data quality

As you work it is important for you to have the right information, at the right time and at the right place. Complete, accurate, accessible and timely data is vital for effective decision making.

Imagine a clinical record where the patient’s name is wrong or their address is out of date, their blood pressure is recorded incompletely or their diagnosis has been wrongly coded. These are all examples of poor data quality and, at the least, they could waste your’s or the patient’s time; at worst, they could lead to serious errors in health care decision making.

Further examples of poor data quality are available from the Care Quality Commission and the NHS Information Centre.

Good quality data, however, can support high quality, safe patient care by forming the basis of appropriate clinical decisions. Other drivers for good quality data include:

- mobile, flexible, multi-disciplinary teams using different electronic systems to communicate and share information electronically
- commissioning and planning services
- measuring clinical indicators and outcomes
- data requirements of researchers.

Structured clinical records

The use of structured clinical records with standardised data increases the likelihood of good data quality. As described in *Nursing content of eHealth records* (RCN, 2010) the use of structured information within EPRs is key to supporting integrated records and the re-use of vast amounts of clinical information for managing and commissioning patient care services, monitoring outcomes and research.

The structure of a clinical record refers to the way the information is organised within a form or on a screen. No matter how good the data quality within a record, if it is poorly structured the data will be difficult to find and even harder to re-use. If the nursing problem is not recorded, there is no rationale to support the nursing

intervention, and no way to assess its effect.

The way the information is entered can be structured and controlled by asking for it in a specific format, for example, date of birth in dd/mm/yyyy format rather than mm/dd/yyyy, or using predetermined lists to capture specific information in a specific way. This type of structure makes it easier for computer systems to share and re-use the information.

It is important to note that not all information in an EPR needs to be structured. There is still a place for free text narrative information which captures the rich context of a patient-clinician exchange in a way that no drop-down menu or picklist can. However, free text is less easy to re-use because:

- it is difficult to extract specific terms
- there may be different terms used for the same concept, for example, pressure sore, pressure ulcer and decubitus ulcer
- it is prone to errors such as typing or spelling mistakes.

In general, if the information is likely to be shared with other systems or re-used for other purposes then it should be structured. However, clinicians who are using the systems should have a say in whether the content is to be free text or structured, along with other considerations for clinical content.



Standardised terminology

This section aims to clarify some of the more common words and phrases used in the context of standardised terminology. Some explanation is given in the main text with links to further information in the glossary in Appendix 1.

Standardisation

We have discussed the need for structure and standardisation of format within electronic records. Many clinical areas use a number of paper and electronic forms where the same information is duplicated but lacks consistency of structure. This therefore creates extra work and slows down the flow of information (Gogler et al, 2010).

A patient's weight may be needed for a number of forms such as pressure ulcer risk assessment, nutritional assessment and moving and handling assessment. Some forms may ask for weight in stones and pounds, others in kilograms. To reduce this problem electronic systems can allow automatic updating by re-using the same information recorded in one form, in an agreed standardised format, to be updated in a different form where appropriate, for example, with a patient's latest weight.

Clinical terminology

Another type of standardisation occurs with clinical terminology and clinical coding. In the past many clinical electronic systems did not share information with other systems. Minimal use was therefore made of the clinical information contained within them. There is now more requirement for integration and re-use of information for clinical and business purposes and it is possible to retrieve and link data from different systems.

However, if the data is to make sense when it is brought together there has to be a way of ensuring that the words and phrases being used mean the same in all of the source systems. For example, one system may record personal care as including dressing/ undressing and bathing. In another system personal care may mean bathing only. Therefore a lack of standardised clinical terminologies can lead to misunderstandings during electronic clinical communication and when measuring and comparing information from different systems.

A clinical terminology is a list of concepts or terms (i.e. vocabulary) for use in clinical practice.

Within clinical terminologies each term may be associated with one or more of the following characteristics:

- text comprising a word or phrase describing the concept, for example ‘risk for acute confusion’. This is the part which users view on the screen or select from a pre-determined list
- a numeric or alphanumeric clinical code (unique identifier) which sits behind the screen. Codes make it easier and faster for computer systems to recognise, process and locate the text
- many clinical terminologies also include descriptions or definitions for each term so that their meaning is unambiguous and transparent to users.
- demonstrate evidence of reliability and validity for clinical purposes
- have a systematic development methodology
- have a process for periodic review and provision for adding, revising, or deleting terms
- provide descriptions of individual terms and a unique identifier or code for each term.

In addition they should:

- be appropriate to the user group
- match the organisational context of their use
- be applicable for inclusion in electronic record systems and extracting data from documentation
- have domain completeness (the degree to which the classification system covers the domain of nursing practice and patient types) (Von Krogh, 2008).

Standardising clinical terminology is essential for using EPRs efficiently and safely. A standardised clinical terminology helps with data retrieval because the computer can find the information. It supports clinical governance and patient safety by linking with a range of knowledge sources, including decision support systems, clinical pathways and clinical practice guidelines.

Evaluating terminologies

According to the American Nurses’ Association in Criteria for ANA Recognition standardised clinical terminologies should:

- be clinically useful for making diagnostic, intervention, and outcome decisions
- be stated in clear and unambiguous terms, with terms defined precisely

A list of recognised standardised clinical terminologies evaluated by the American Nurses’ Association is available at www.nursinginsider.com/npii/

There are clinical terminologies that provide standardised descriptions for specific professions or clinical specialties. For example, the READ Codes which is generally used in primary care or OMAHA for community nursing. These provide clinicians with a way of describing their contribution to patient care using a structure and semantics that are acceptable

to them. Therefore, a nursing terminology describes concepts that represent nursing.

Classifications

A classification is a type of standardised clinical terminology. It is a systematic arrangement of similar concepts or terms arranged according to agreed criteria. The grouping helps the user to find their way around and allows entities to be grouped together. Different classification systems are in use in the UK, for example, ICD10 and OPCS4, which cover medical diagnoses and surgical procedures respectively, and ICF which describes functioning. Classifications that describe nursing are available, but are not yet widely used in the UK.

Classifications were originally developed to facilitate the management of aggregate data for policy and public health use. Standardised clinical terminologies were intended to support care delivery at patient level. However, this distinction seems to

be less of an issue when the data can be recorded directly into an electronic record and combined with data from other patients to be re-used (Bramley, 2005). There are a number of standardised clinical terminologies and classifications (see Appendix 2), many of them valid for international use, but the choice of which one to use depends on the clinical needs and professional groups involved (Saranto & Kinnunen, 2009).

Reference terminologies

Using standardised clinical terminologies in an effort to rationalise and streamline information management has created dilemmas for their implementation. This is particularly noticeable when electronic records are used in multi-disciplinary teams, where individual terminologies do not contain the breadth of coverage to satisfy all user groups (Dykes et al, 2009).

To address this issue reference terminologies exist where the concepts in different classifications and standardised clinical terminologies are related to each other. Another solution is to map different standardised clinical terminologies to each other. Therefore clinical terminologies, including nursing terminologies, can be used in combination with these reference terminologies in EPRs to enhance communication and the accurate retrieval of data. Whichever method is used it is essential to have clinical consensus about the semantic meaning and the context of their use.





Application to nursing practice

Good quality data extracted from integrated electronic clinical systems can contribute to nursing practice in a number of ways.

Patient safety

- Safeguarding vulnerable adults and children through electronic information sharing between agencies involved in care.
- Reducing prescribing errors through out of hours and emergency services accessing essential summary information on medications and allergies.

Patient centred care

- Links to patient information sources where patients can find appropriate information on their condition or situation.
- Patient access to their health records to empower patients to self care and make shared decisions with clinicians.

Effective care

- Links to decision support software within electronic records giving access to knowledge sources for clinicians.
- Use of quality indicators to improve care outcomes.

Efficient care

- The right person having the right information where and when needed.
- Automatic electronic alerts to inform community nurses if their patient is admitted to hospital, thereby reducing waste visits.

Conclusion

Nurses may think that they do not need to be involved in standardised clinical terminologies. That is, until they try to use an electronic clinical record and find that it does not fit with their ways of working, that the terms used do not reflect the problems they deal with or the nursing care they deliver. The developers of the electronic records need to be guided by nurses about nursing practice decisions and which terminology to use should be part of this. In line with the NMC's *Record Keeping Guidance* (2009), consideration also needs to be given to patient access to records and ensuring that the terms are capable of being understood by non-clinicians. This would support patients as partners in health care.

This guidance should be used in conjunction with other RCN eHealth guidance available at www.rcn.org.uk/publications

Further information on EPR and eHealth is available at www.rcn.org.uk/development/practice/e-health



Appendix 1: Glossary

Classifications provide a method of ordering information within a defined area or domain:

- systematic arrangement of concepts into categories with shared characteristics
- each category has a name (rubric)
- rubrics may have codes attached.

Classification systems match the clinician's understanding of an experience or observable fact to an appropriate term in the classification system (Moen, Henry & Warren, 1999).

Clinical terminology is a structured list of concepts and their associated descriptions for use in clinical practice. These describe the care and treatment of patients and cover areas like diseases, operations, treatments, drugs, and healthcare administration. Clinical terminology is sometimes also referred to as:

- a dictionary of clinical concepts
- a thesaurus of terms
- a health lexicon
- a controlled clinical vocabulary.

www.connectingforhealth.nhs.uk/systemsandservices/data/uktc/snomed/snomed-ct.pdf

Standardisation refers to creation of accepted specifications (e.g. definitions, norms, units, rules) that establishes

a common language as a basis for understanding and exchange of information between different parties (WHO, 2006, eHealth: standardised terminology, World Health Organization, Executive Board 118/8, 25 May 2006.) http://apps.who.int/gb/ebwha/pdf_files/EB118/B118_8-en.pdf

A standardised clinical terminology

is a compilation of terms used in the clinical assessment, management and care of patients, which includes agreed definitions that adequately represent the knowledge behind these terms and link with a standardized coding and classification system. (WHO, 2006, eHealth: standardized terminology, World Health Organization, Executive Board 118/8, 25 May 2006.) http://apps.who.int/gb/ebwha/pdf_files/EB118/B118_8-en.pdf

Clinical coding is the translation of medical terminology, as written by the clinician, to describe a patient's complaint, problem, diagnosis, treatment or reason for seeking medical attention, into a coded format which is nationally and internationally recognised. (Connecting for Health, Clinical Coding Instruction Manual)

A reference terminology is defined as "a set of concepts and relationships that provides a common reference point for comparisons and aggregation of data about the entire health care process, recorded by multiple different individuals, systems or

institutions.” (Spackman, 1997). Reference terminologies reduce ambiguity (Ozolt 2004) and directly integrate specialty classification systems, e.g. SNOMED CT and ICNP. (Watkins et al, 2009)

Mapping is a complex process of identifying equivalent concepts or terms in related health classifications or terminologies, or in different ones. (Bramley, 2005)



Appendix 2:

List of terminologies/classifications

What it is?	Area of practice supported?	Scope, i.e. diagnosis, intervention and/or outcomes?	Evidence of reliability and validity?	Capable of being embedded in a clinical system?
<p>NANDA -I (North American Nursing Diagnosis Association International) Standardized nursing diagnostic terminology www.nanda.org</p>	All areas of nursing: community and acute; children and adults	Nursing diagnosis	Yes. Rigorous assessment process with stringent criteria	NANDA-I concepts are included in SNOMED
<p>NIC (Nursing Interventions Classification) Describes the activities that nurses perform www.nursing.uiowa.edu/excellence/nursing_knowledge/clinical_effectiveness/index.htm</p>	Nursing in all settings and all specialities	433 interventions each allocated its own unique number to create coded interventions	Over 40 US nursing organisations contribute to the development and maintenance of the system. It was field tested in 5 sites	Yes
<p>NOC (Nursing Outcomes Classification) A standardised classification of patient/client outcomes www.nursing.uiowa.edu/excellence/nursing_knowledge/clinical_effectiveness/noc.htm</p>	Developed for use in all settings and with all patient populations. Mainly nursing but may be useful to other disciplines	330 outcomes	Reliability, validity, and sensitivity of the outcome measures in clinical sites currently being evaluated	Yes
<p>OMAHA System A standardised health care terminology www.omahasystem.org CCC (Clinical Care Classification System Version 2.0) A national nursing terminology with a standardised framework & coding structure www.sabacare.com/</p>	A multidisciplinary tool intended for use across the care continuum	3 components that cover problems, interventions and outcomes	Yes, wide research base	Yes
<p>CCC (Clinical Care Classification System Version 2.0) A national nursing terminology with a standardised framework & coding structure www.sabacare.com</p>	For use by nurses and other clinical professionals in any health care setting	182 Nursing Diagnoses & 546 Nursing Outcomes and the 792 CCC of Nursing Interventions and 4 Actions. Documents nursing. Practice following the 5 steps of the nursing process	Yes, studies in a variety of clinical settings	Yes, is an Interface Terminology

Maintained/ updated?	Actual/ potential mapping to Snomed?	Relevant to local nursing culture/ language?	Sub classification for easy retrieval?
Updated every 2 years	Yes	Translations available in several languages	Yes, since it is compatible with Snomed CT
Has established process and structure for continued refinement	Yes	Translations available in several languages	A three level taxonomy consisting of 27 classes and 6 domains
Continually updated with new outcomes and revised older outcomes on a 4 year cycle	Yes	Translations available in several languages	330 outcomes are listed alphabetically and are grouped into 31 classes and 7 domains for ease of use
Revised on an ongoing basis	Yes	Yes	Arranged in hierarchy from general to specific
CCC National Scientific Advisory Board meets annually	Yes, integrated in SNOMED. Mapping available	Yes, has been translated into several languages	Framework of 21 Care Components categorised into four Patterns of Care

Appendix 2: List of terminologies/classifications

What it is?	Area of practice supported?	Scope, i.e. diagnosis, intervention and/or outcomes?	Evidence of reliability and validity?	Capable of being embedded in a clinical system?
<p>ICNP (International Classification of Nursing Practice). A terminology for nursing practice that facilitates the development of and cross-mapping among local terms and existing terminologies www.icn.ch/pillarsprograms/international-classification-for-nursing-practicer/</p>	All areas of nursing	Nursing diagnosis, actions and outcomes	Yes	Yes
<p>ICF (International Classification of Functioning, Disability and Health). Developed by World Health Organization. A language for describing functioning and disabilities www.who.int/classifications/icf/en/index.html</p>	Multidisciplinary	Functional status assessment, goal setting, treatment planning and monitoring, outcome measurement	Yes, but less so in nursing	Yes but mainly intended as planning and policy tool
<p>ICD-10 (International Classification of Diseases 10th Revision). Used to classify diseases and other health problems recorded on many types of health and vital records including death certificates and health records www.who.int/classifications/icd/en/</p>	Multidisciplinary	Medical diagnoses mainly in acute sector	Yes	Yes

Maintained/ updated?	Actual/ potential mapping to Snomed?	Relevant to local nursing culture/ language?	Sub classification for easy retrieval?
Yes, open process for submission and review of new concepts or changes to existing concepts. Regular biennial release	Yes	Yes, represents nursing concepts used in practice, across languages and cultures	Yes, catalogues (subsets) can be developed for use in specific areas of nursing, e.g. community nursing
Yes	Yes	Has been used in a number of countries.	The domains of ICF are arranged in a hierarchy of chapters and sub-chapters
Yes, maintained by the World Health Organization, updates approved annually	Yes	Internationally accepted, available in many languages	ICD Adaptations (subsets) available for some specific areas, e.g. oncology, mental health

Appendix 2: List of terminologies/classifications

What it is?	Area of practice supported?	Scope, i.e. diagnosis, intervention and/or outcomes?	Evidence of reliability and validity?	Capable of being embedded in a clinical system?
<p>OPCS-4 (Classification of Interventions and Procedures, 4th Revision). A mandatory NHS data standard relating to operative procedures during an episode of hospital care www.connectingforhealth.nhs.uk/systemsandservices/data/clinicalcoding/codingstandards/opcs4/index.html</p>	UK NHS, mainly acute sector	Surgical operations and procedures	Quality assurance process in place to ensure development is fit for purpose	Yes
<p>SNOMED CT A Reference terminology. Concept-based - each concept has a distinct definition and a unique code identifier www.ihtsdo.org/about-ihtsdo/</p>	Can be used to cross-map standardized health care languages across healthcare disciplines	Disease, clinical findings, therapies, procedures, and outcomes	SNOMED CT content undergoes a quality assurance process	Aim is for all clinical computer systems within NHS England to use SNOMED CT
<p>READ Clinical Terms versions 2 & 3. A terminology arranged in a hierarchical structure, used to record clinical summary information for clinical audit, producing reports, meeting central returns, research, etc</p>	Widely used in the primary care sector, cross-maps to OPCS-4 and ICD-10	Comprehensive. Medical diagnosis, signs & symptoms, procedures, injury & poisoning, etc	Yes	Yes, mainly GP systems

Maintained/ updated?	Actual/ potential mapping to Snomed?	Relevant to local nursing culture/ language?	Sub classification for easy retrieval?
Maintained by NHS Classifications Service. Annual review of requests from stakeholders	Yes	UK only	No
Maintained by International Health Terminology Standards Development Organisation (IHTSDO). Updated every six months	n/a	Provides a framework to manage language dialects	Clinically relevant subsets, qualifiers and extensions
Maintained and distributed by the UK Terminology Centre. Updated twice yearly to reflect changes in clinical practice	Yes	UK only	Some locally defined subsets



Appendix 3: References

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Find out more and get involved

The Royal College of Nursing supports the direction of travel of eHealth in each of the four UK countries. And we recognise that the people who use IT are key to realising its potential.

The eHealth Forum is open to all RCN members, not just eHealth specialists. It is the source of front-line expertise in eHealth. As a member of the Forum, you will join a national network of members who share your interest in eHealth.

For more information on eHealth, and to discover how you can get involved, visit the RCN's eHealth web pages at the RCN website **www.rcn.org.uk/ehealth**

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