Guidance for recording problems and diagnoses in electronic health records

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Introduction

The purpose of this guidance is to provide principles and suggestions of good practice to help clinicians record problems and diagnoses in a way that supports good clinical care, audit, research and interoperability. Problem oriented records have been used for many years in primary care, but their use in secondary care and shared care are new, and this guidance aims to describe a common professional way of working with such records across clinical specialties.

The guidance may be useful for training clinicians in the use of electronic health records, and may be tailored to the features of the system used in a particular institution. Patients and carers are increasingly being enabled to access and engage with their health records, and this should be considered in the way information is recorded.

It is acknowledged that many existing systems lack important features or have poor usability, and the full project report contains recommendations for health services, system developers and national bodies in improving systems in the future.

Scope

This guidance covers general recommendations for recording problems and diagnoses in all patient groups, care settings and specialties, choosing problem titles from a clinical terminology, and maintaining accurate records over time. It does not cover nursing or therapy diagnoses, or detailed specialty requirements for recording diagnoses in particular disease areas, although the intention is that the general principles will be applicable in many cases.

Definitions

Different electronic health record systems currently use different terminology to refer to problems, diagnoses, comorbidities, past medical history etc. To make this guidance clear, a brief description of the structure of electronic health records and a standard set of definitions is provided here.

Description of terms

Problem or issue: Any condition pertaining to a patient (such as a symptom, sign, noteworthy investigation result, risk factor, psychological factor, social factor, health-related issue or diagnosis) that the clinician feels is important enough to be entered in the healthcare record. Problems and issues may be active (currently relevant to care or under active healthcare management; prominent in the record) or inactive (past conditions or those which do not currently require active healthcare management; less prominent in the record).

Problem list: A current list of a patient's problems or health issues, ideally with dates and stating which are active and inactive, which is intended to give clinicians a quick and accurate summary in future encounters. Problem entries in the list may optionally have links to other information in the health record such as consultation notes, treatments or investigations. It may be possible to filter the list by active / inactive problem, or by date, diagnosis category or specialty.

Symptom: An abnormal experience perceived by a patient or subjective evidence that may be due to a disorder of structure or function of the body.

Sign: An abnormal finding on clinical examination or objective evidence that may be due to a disorder of structure or function of the body.

Noteworthy investigation result: A radiographic or laboratory finding, for example a shadow on a chest X-ray or a low blood sodium level. This may have no associated symptoms or signs but may need to be brought to the attention of clinicians, for example if there is a need for further investigation.

Diagnosis: A label assigned to a patient's health condition by a clinician based on clinical evidence and reasoning (e.g. type 2 diabetes). The diagnosis may describe the underlying disease process if known.

Confirmed diagnosis: Medical diagnoses can rarely be certain, but 'confirmed' means that the patient is being treated as though the diagnosis is true, and clinicians have sufficient confidence in the diagnosis that there is no current plan of further investigation to confirm or refute it.

Suspected diagnosis: A diagnosis which is thought to be a possibility, and for which further investigation may be planned.

Differential diagnosis: A list of suspected, unconfirmed diagnoses that the clinician is considering as possible causes of a patient's symptoms or other health condition.

Refuted diagnosis: A diagnosis which may have been suspected previously, but which is now known to be incorrect.

Disputed diagnosis: A diagnosis over which there is persistent disagreement between professionals or between professionals and a patient, which is important to know when making any clinical decisions relating to the diagnosis.

Structure of medical records

Medical records can be structured in different ways:

- **Encounter-based:** one record per healthcare visit (such as emergency department records, or secondary care outpatient records)

- **Longitudinal:** a continuous record over time (such as general practice records)

- **Problem-oriented:** longitudinal records where items of clinical information (such as prescriptions or consultations) are linked to entries in a problem list. This is intended to make it easy to view or filter information relevant to a particular problem or diagnosis.

General practice records have features of all three paradigms; individual consultations are recorded in an encounter-based way, but a sequence of consultations comprises a longitudinal record with the capability to be problem-oriented. The level to which clinical information is organised and linked to problems varies by practice and practitioner.

Secondary care organisations have different levels of maturity of electronic health records. Typically outpatient records are encounter-based and the inpatient record is longitudinal within admissions, but some systems have the ability to persist problem lists between encounters.

Encounter-based records
Records of healthcare encounters typically contain the following items of information:

Presenting complaint: The reason that a patient seeks a healthcare consultation, such as a symptom that is concerning them (commonly recorded in emergency care, but may not be recorded for routine appointments).

Encounter problems or diagnoses: The final problems or diagnoses for which the patient received care during this encounter.

Other problems: Problems that were not the particular focus of this encounter, sometimes referred to as 'comorbidities'.

Problem-oriented records
Clinical information in the health record is linked to a problem list which persists between encounters.

Problem list: A summary list of a patient's problems, categorised as active or inactive.

Problem title: A word or phrase identifying or summarising the problem.

Active problems: Patient problems that currently require healthcare input, and a clinician considers that they should be prominent in the record.

Inactive problems: Problems that do not require ongoing healthcare input, and are less prominent in the record.

Clinical coding

Problems and diagnoses in encounter records and problem lists should be encoded with the prevailing methodology mandated by the NHS. In 2019 this may be achieved using either SNOMED CT (a structured clinical terminology vocabulary for use in electronic health records), or a statistical classification such as ICD-10 (International Classification of Diseases, World Health Organisation). Going forward the preferred route will be for clinicians to record entries based on a clinical terminology (SNOMED CT) with the electronic system handling the mapping / conversion to classification codes (ICD) in the background. The combination of these makes it easier to use this information for purposes such as identifying groups of patients with specific diagnoses, clinical decision support, audit and research.

Capability of clinical systems

Creating accurate problem and diagnosis lists requires time and resources at the point of data entry, but in well-designed systems it should reduce the need for subsequent duplication, repetition or transcription. This guidance does not specify a particular system but has implications for the functionality of such a system. It assumes that the electronic health record system allows the creation of a persistent longitudinal record of problems and diagnoses with dates, active / inactive status and additional information. The College is working with the Professional Records Standards Body and other agencies to promote

improvements in the capability of electronic health record systems, as well as further work on defining the technical specifications of systems.

Principles and recommendations

Accurate and precise recording of problems and diagnoses is essential for safe patient care including clinical decision support, and to improve health, care and NHS services. Problem lists should be complete, consistent, accurate, relevant, accessible, timely, unambiguous, and where appropriate and possible, linked to treatments and other information. The indications for medication and other treatments that a patient is currently receiving should be included among the conditions listed in the problem list.

Creating problem and diagnosis records

What to record as a problem

Problem lists may be created incrementally, over a number of healthcare encounters, or may be created based on patient history and historical records when a patient presents to a new care setting.

The function of a problem list is to ensure that important summary information about a patient's past and present conditions, that is relevant to their current care, is readily available to clinicians treating the patient.

In order to fulfil this function, problem lists typically need to include the following:

- Any condition which is relevant to a patient's current care, such as those for which they are currently receiving treatment or follow-up

- Major past conditions that may have long term consequences or complications, such as myocardial infarction (heart attack).

- Chronic medical conditions (e.g. diabetes, hypertension).

- Operations that may have long term consequences or complications (unless these are recorded separately in a surgical history section).

- Any other issues that may impact on care, including social, psychological and lifestyle issues that are not recorded in immediately visible structured data areas. An example might be an abnormal test result which needs to be further investigated, and flagging it as a problem would be a reliable way to alert the next clinician taking over care.

Electronic health records typically have structured areas for recording contact details, allergies and medication, and may have areas for recording family history, social history, health behaviours, referrals, care plans, patient preferences, reasonable adjustments and alerts. Using these structured areas will ensure that the information is available to different parts of the system, such as clinical decision support, and is aggregated correctly for audit and service planning.

However, it is good practice to also create problem list entries for information that needs to be brought to a clinician's attention quickly, such as history of a severe allergic reaction (anaphylaxis) or heavy drinking, but absence of a problem list entry should not be interpreted as absence of information in these categories.

When using a shared problem / diagnosis list, be careful not to create unnecessary duplicate entries.

Episode management and chronic problems

In a problem list there should be only one entry for each occurrence of a problem. Thus for chronic problems such as diabetes, there should only ever be one entry. Acute problems such as heart attacks may occur multiple times in the problem list, but each entry should represent a separate clinical event and not merely a new consultation relating to that event.

To support care for chronic conditions with exacerbations (such as asthma), the record should allow clinicians to easily identify the chronic condition as well as the dates and nature of exacerbations. This can be achieved by recording exacerbations as acute problems (inactive after the acute episode is over) linked to the problem entry for the chronic condition (which stays active). Some systems may have alternative specific ways to record this information, such as encounter-based records with attributes 'first', 'new' and 'continuing', which can be used to document the time course of a problem.

This will enable the number of acute episodes and the date of the most recent episode to be accurately represented. It will also allow other clinical information such as prescriptions and clinical notes to be linked to the correct episode of the problem in the record. This will assist clinical decision making and also enable accurate audit.

Accuracy and precision of problem titles

Summary views of the record may show only the problem titles, so it is important that they are correct summaries of the patient's condition, even if they are quite general. If coding using a clinical terminology such as SNOMED-CT, the term should be drawn from the correct part of the terminology hierarchy. For example, if a person has a family history of colon cancer, the problem title 'Family history of cancer' is acceptable (accurate but imprecise), but 'Colon cancer' is not, because it implies that the person has colon cancer, which may be untrue.

Problems should be recorded at the highest available level of precision and pathological understanding that is feasible within the care setting, but not at the expense of accuracy. For example, a histopathologist may be able to record a pathological subtype and genotype of a lung cancer, but an emergency doctor may record it simply as 'lung cancer'.

When updating a problem list, if you find more than one entry for one episode of a problem, possibly with different coded terms, the two entries should be merged and

usually the onset date of the earliest entry should be made the onset date of the remaining entry.

If additional detail is required (such as laterality or severity), and there is no code or structured way of recording it, it should be added in a text comment. For example, the term 'Asthma' can be accompanied by text 'triggered by neighbour's cat'.

However, text comments associated with a term should never modify the meaning of the original term. For example, the term 'Asthma' should not be accompanied by text such as 'father has' (because problems should only apply to the patient), 'suspected' or 'excluded' (see below).

Suspected and differential diagnoses

It is important to record suspected and differential diagnoses in the clinical notes, but they must not be confused with confirmed diagnoses. They should be documented using a specific flag for suspected diagnoses, or a pre-coordinated SNOMED CT term for a suspected condition, or if there is no structured option they can be entered as text in the clinical notes alongside the symptom, sign or abnormal investigation result that suggested the diagnosis (e.g. Problem: Shortness of breath; Comment: Suspected heart failure).

However a text comment such as 'suspected' must never be used to try to change the meaning of a SNOMED CT term for the actual condition; this will convey an inaccurate meaning if the text is not shown and will be counted incorrectly when data are aggregated for audit or research.

Refuted diagnoses

When reviewing a problem list, remove any problems or diagnoses that are incorrect because they were entered in error, and add a text comment documenting why (the system will retain a log of the original entry in the audit trail). However, if a diagnosis is part of a differential and is refuted, i.e. found to be untrue, or if clinical decisions were based on it when it was thought to be true, it is important to document that the diagnosis was actively refuted. This will help to inform further investigations.

If the system does not provide a structured method of recording refuted diagnoses, record as the problem title the symptom, sign or abnormal investigation result which originally suggested the diagnosis, and add a comment stating which diagnosis was refuted and why.

Disputed diagnoses

If there is persistent disagreement as to the nature of a diagnosis between healthcare professionals, or between healthcare professionals and a patient with capacity to understand the diagnosis, this should be documented in free text comments associated with the diagnosis. If the EHR has a flag to identify disputed diagnoses, it should be used in such cases, to draw this fact to the attention of healthcare professionals treating the patient.

Important attributes to record about problems

Record the date of onset (or an approximate date if the exact date is not known) for all problems and diagnoses, if possible.

Ensure that information about the care team responsible for managing a problem is easily accessible, if it is not the general practitioner or primary team for an inpatient. This may be recorded in a care plan linked to the problem.

For problems that are diagnoses, also record the following information about the diagnostic process, where possible and appropriate:

- A way to easily locate the evidence (such as history or investigations) underlying the diagnosis; this could be in the form of a link (if the system has the capability), or a brief statement.

- Which clinician, team or service made the diagnosis, if known.

The exact location where this information can be recorded will vary between electronic health record systems. If no structured field is available, record it in a comment associated with the problem.

Maintaining problem and diagnosis records

Problem list maintenance is essential in order to ensure that it remains relevant, up-to-date and uncluttered. Problem list maintenance should include the following actions:

- Add missing problems

- Delete incorrect problems

- Convert problems to inactive if they are no longer relevant

- Combine or merge problems that are duplicates

- Evolve each problem into the most up-to-date diagnosis

- Ensure that all problems have correct attributes

- Group related problems together

Problem list reviews

The general principle is that problem lists should be able to quickly provide appropriate information to clinicians who are seeing the patient, to support patient care. In order to achieve this, clinicians seeing a patient should review, verify and edit problem list entries within their domain, prioritising the most important problems and diagnoses.

Consider checking that the problem list is complete and up to date at any time the patient is seen by a clinician, but particularly at the following points in a patient's journey:

In primary care:

- First appointment after registration

- Review of chronic condition or medication review

In secondary care:

- Pre-admission clinic

- Admission to hospital

- Discharge from hospital

In any care setting:

- When writing a medical report based on the patient record, such as a transfer of care document

- When assuring the record for patient access

- When receiving a transfer of care document

Current, past, active and inactive problems

Clinicians should be able to rapidly assimilate important information needed to treat patients safely by viewing the active problem list. Problems that have resolved should be marked as such (or given a resolution date) so that they will appear as 'past' rather than 'current' problems.

Chronic conditions and past conditions requiring ongoing input or consideration in clinical care should be marked as 'active'. Classification of a problem as active or inactive is separate from the underlying disease activity. For example, cancer in remission that still requires ongoing follow-up should have a problem activity status of 'active'.

Problems should be marked as 'inactive' when they no longer require consideration during clinical care. Timely conversion of problems to inactive status is important to avoid cluttering the problem list, and to ensure that important problems are always prominent.

Problem lists in inpatient settings

Problem lists should be created or updated as part of the clerking process, taking into account the patient's history, their general practice record (if available) and other previous documentation.

Problem lists should be kept up to date during the hospital admission, so that at any time a doctor called to see the patient can know what the active problems are.

Some systems allow diagnoses on the problem list to be transferred easily to a discharge summary. Before writing the discharge summary, the problem list should be updated, marking as inactive any problems specific to the hospital stay that are not relevant for the long term or for the GP to know.

Problem lists in secondary care outpatients

Outpatient secondary care episodes may be infrequent and relate to specific clinical issues, and patients may be discharged after one or two appointments. Given the time constraints in many outpatient clinics, it is unreasonable to expect clinicians to create and update a comprehensive problem list for all patients. However, it is important that conditions being actively managed in secondary care are included.

When viewing a problem list in secondary care, bear in mind when it was last updated and that it may not be comprehensive. Seek confirmation by asking the patient or reviewing the general practice record, if available, as it is likely to be more up to date.

Communicating problems and diagnoses

Encounter problems must be recorded on all discharge letters and clinic letters. Other problems should also be recorded if they impacted on the patient's care during the episode, but it is not necessary to include a comprehensive list of inactive problems that have no ongoing impact.

Using advanced features of problem-oriented records

Some electronic health record systems have the following features, which may be helpful to make the record easier to assimilate and search.

Linking documentation to problems

Problem oriented documentation (linking individual items of clinical documentation to problems) can be useful to link problems to:

- Medication
- Test results
- History and examination specific to the problem
- Clinical decisions
- Other clinical documentation

General information should not be forced to relate to a problem if it is inappropriate, and 'non-problems' should not be created purely to link to generic healthcare activities. If a consultation or intervention relates to multiple problems, and there is no facility to link it to multiple problems, it should remain unlinked, and if appropriate brief comments can be entered alongside each problem.

Major and minor problems

Some systems provide the ability to categorise problems as 'major' or 'minor', or assign a priority number. 'Minor' problems may automatically become inactive after a period of time. The use of these classifications is not standardised, so it should not be relied upon to identify all serious conditions.

Relationships between problems

Merging, nesting and semantic linking functions of the electronic health record system can be used to improve the organisation of the problem list, to make it easier to understand quickly. For example, if a patient has angina and previous myocardial infarctions (heart attacks), they can be nested under 'ischaemic heart disease'. However, beware that nesting may result in serious conditions being hidden, so always expand the list to ensure that no problems are missed.

Example

A patient visits the GP and complains of shortness of breath. The GP examines the patient and suspects that s/he has heart failure, in which the heart is unable to pump enough blood to stay healthy. The GP also notes that the patient has an irregular pulse, and might have atrial fibrillation. These symptoms and signs are recorded in the problem list, with the suspected diagnoses in text comments:

Shortness of breath *suspected heart failure*

Irregular pulse *suspected atrial fibrillation*

It is important to note that 'heart failure' and 'atrial fibrillation' are not entered as diagnoses or problems in their own right, because they are not yet confirmed.

The patient undergoes relevant investigations (ECG, B-type natriuretic peptide and echocardiogram), which confirm these diagnoses. The GP updates the signs and symptoms to confirmed diagnoses, and links them to supporting evidence (investigation results), or adds a comment if the system does not have functionality for linking:

Heart failure *confirmed on echo <date>*

Atrial fibrillation *confirmed on ECG <date>*

The patient visits the cardiologist who refines the heart failure diagnosis based on the echo report, which shows that the heart pumps well but fails to relax properly (Heart failure with preserved ejection fraction, HFpEF). The atrial fibrillation comes and goes, and is labelled as 'paroxysmal'. After reviewing the outpatient clinic letter, the GP converts the existing diagnoses in the problem list to the more specific diagnoses given by the cardiologist:

HFpEF *confirmed on echo <date>, under Dr X's heart failure clinic*

Paroxysmal atrial fibrillation *confirmed on ECG <date>, under Dr X (cardiologist)*