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NIDSEC

STANDARDS AND SCORING GUIDELINES

AMERICAN NURSES ASSOCIATION

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Table Of Contents

Introduction

Overview

The American Nurses Association (ANA) established the Nursing Information and Data Set Evaluation Center (NIDSEC™) to develop and disseminate standards pertaining to information systems that support the documentation of nursing practice, and to evaluate voluntarily submitted information systems against these standards. NIDSEC™ was proposed by a Task Force appointed by the ANA Congress of Nursing Practice Steering Committee on Databases to Support Clinical Nursing Practice and the ANA Congress of Nursing Practice Committee on Nursing Practice Standards and Guidelines.

The need for an evaluation center arises out of a long history of calls for standards pertaining to nursing data and information systems. These calls have come from the Secretary of Health and Human Services Commission on Nursing, the National Commission on Nursing Implementation Project (NCNIP) , and the parent committees of the Task Force.

Ultimately, ANA hopes that the widespread use of information systems that meet NIDSEC™ standards will lead to the long-standing goal of achieving large, retrievable pools of patient data that reflect the nature, costs and effects of nursing practice.

Guidelines and Standards of Care

Information systems do more than display "laundry lists" of terms from which nurses select items to record their clinical judgments. Generally the terms are arranged in logical order, so that, for example, selecting the diagnosis "Risk for Impaired Skin Integrity" causes display of the defining characteristics for that diagnosis, followed by goals for that problem, followed by interventions for that problem. The Task Force terms these sequential displays "linkages." The appropriateness, completeness and accuracy of these linkages are as essential to practice as the actual terms that are on the screens.

The Task Force developed standards to evaluate four

dimensions of nursing data sets and the systems that contain them:

1. Nomenclature (the terms used);
2. Clinical content (the "linkages" among terms);
3. Clinical data repository (how the data are stored and made accessible for retrieval); and
4. General system characteristics (such as performance and attention to security and confidentiality).

Standards and scoring established for each of the four dimensions listed above are described in this document. The Task Force has employed the model of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). This model consists of standards with specific parameters, each of which is rated on a Likert-type scale.

The Future of NIDSEC™

The Task Force believes this document serves a dual purpose:

- helping information system vendors develop systems that accurately reflect nursing's vital contributions to patient outcomes; and
- informing registered nurses and other system users about nursing data set standards, thus making them more informed purchasers.

In today's competitive market, hospitals and health care systems must prove to consumers that quality is a top priority. Decisions on information systems that link nursing data to quality care become critical. By meeting the rigorous standards developed by NIDSEC™, vendors have an added marketing edge—a mark that tells hospitals, administrators, consumers and others that quality counts.

Yet, the importance of this initiative goes beyond the evaluation of specific information systems. Hospitals and health care systems, administrators, nurse executives, nurses and consumers all have a stake in assuring that value of nursing care is documented. The quality of health care depends on it.

For More Information

For general information on NIDSEC™, please contact D. Kathy Milholland, PhD, RN, Senior Policy Fellow in ANA's Department of Nursing Practice, at (202) 651-7060.

If you are a vendor of an information system which documents nursing practice, and you wish to submit your information system's nursing documentation data set for evaluation and recognition by NIDSEC™, please contact D. Kathy Milholland at the number listed above.

For additional copies of this document, please call American Nurses Publishing at (800) 637-0323. Ask for item Q-2. List price: $25. State nurses association price: $12.50. Visa and MasterCard accepted. Or send check, money order, or purchase order, to: American Nurses Publishing, P.O. Box 2244, Waldorf, MD 20604-2244. Shipping and handling are additional.

Section 1

NOMENCLATURES

Overview

Nomenclature refers to the terms supplied in the data set to document the planning and delivery of nursing care. Optimally these terms are stored in data dictionaries or tables.

- **N 1**
  Terminology in data dictionaries and tables is appropriate to the domain of nursing.
- **N 1.1**
  Terms from ANA recognized nomenclatures are used as a core for nursing vocabulary.
- **N 1.2**
  The system accommodates use of the UMLS to map nursing nomenclatures with other existing standardized nomenclatures.
- **N 1.2.1**
  When using a "local" language, those terms are mapped to appropriate ANA recognized nomenclatures when feasible.
- **N 1.3**
  The system allows for the development and addition of new terms as needed, without duplicating existing terms or disrupting the integrity of existing nomenclatures.

Rationale N 1 through N 1.3

In order to reflect the nursing component of patient care, nomenclatures specific to the domain of nursing must be used. Several nomenclatures have been developed to reflect the domain of nursing which contain the terms used in the planning and delivery of the care. The following have been recognized by the American Nurses Association:

For Nursing Diagnoses: The North American Nursing Diagnosis Association's Approved List of Nursing Diagnoses (NANDA), The Omaha System, and Georgetown University's Home Health Care Classification (HHCC)

For Nursing Interventions: the University of Iowa's Nursing Intervention Classification (NIC), The Omaha System, and Georgetown University's Home Health Care Classification (HHCC)

For Nursing Outcomes: The Nursing Minimum Data Set (classification of nursing outcomes), the Omaha System, and Georgetown University's Home Health Care Classification (HHCC)

There are several good reasons for using the ANA-recognized nomenclatures. Using one or more standard nomenclatures can decrease the development time for the vendor, can improve the quality of nursing documentation, and can facilitate sharing, transfer, and pooling of data across sites of care.

The National Library of Medicine (NLM) has developed a Unified Medical Language System (UMLS) which incorporates many health care vocabularies to facilitate access to data in disparate computer-based information sources. The UMLS incorporates all of the ANA-recognized nursing nomenclatures. The UMLS is available through arrangement with the NLM. If an entire nursing nomenclature is not incorporated into the vendor-supplied data set, then terminology that exists in the UMLS and that reflects nursing could be used.

No nomenclature is exhaustive. Each site implementing a particular nomenclature may require site-specific or application-specific terms. Therefore, the vendor-supplied data set must allow for the addition of new terms. However, since duplicative terms and codes impede the ability to retrieve data accurately or transfer data between information sources, new terms must be unique in both wording and coding.

The ability to pool data across sites and settings of care, and to transfer data as appropriate, may require mapping the terms used at one site to terms used at another. The UMLS has features that make this possible, when all nomenclatures to be mapped are included in the UMLS.

In cases where local terminology is used, mapping the terms to appropriate ANA-recognized nomenclatures would likewise enable local data to be pooled with data collected at other sites, or transferred when appropriate.

Evidence of performance

- Documentation of the data set is provided that demonstrates that NANDA, NIC, OMAHA, or HHCC or other ANA recognized nomenclature(s) are used to represent the nursing component of patient care.

  —If an entire ANA-recognized nomenclature is not used, terms that reflect nursing from the NLM's Unified Medical Language System (UMLS) are used.

  —Provision is made for the addition of new terms as needed, but safeguards are in place to prevent duplication of terms and codes.

  —Terms in the data set are identified with unique codes.

- Documentation is provided to show how new terms are added to the data set, and to show that mechanisms that are in place to prevent duplicative terms and codes from being added.

- Documentation is provided that demonstrates the ability to map an ANA-recognized nomenclature to an appropriate external nomenclature (for example, NANDA to SNOMED, NIC to CPT-4, etc.)

- If a local terminology is used, documentation is provided that demonstrates the ability to map local terms to an appropriate ANA-recognized nomenclature.

Scoring

Scoring for N 1

Does documentation of the data set show that terminology is appropriate to the domain of nursing?

Score 1 Yes

Score 3 Not consistently

Score 5 No

Scoring for N 1.1

Does the data set use one or more of the ANA-recognized nomenclatures for documenting the nursing component of patient care?

Score 1 At least one ANA-recognized nomenclature is used

Score 5 No ANA-recognized nursing nomenclature is used

Scoring for N 1.2

Is there evidence that the system can map ANA-recognized nomenclature(s) to an appropriate external nomenclature?

Score 1 Mapping present between all nomenclatures

Score 3 Mapping present between 2 nomenclatures, one specific to nursing

Score 5 No mapping present between nomenclatures

N/A No ANA-recognized nomenclature is used

Scoring for N 1.2.1

Does the system map local terms used to an appropriate ANA-recognized nomenclature?

Score 1 Yes

Score 5 No

N/A Local terms are not used

Scoring for N 1.3

Does the documentation show that new terms can be added to the data set without duplicating existing terms or codes?

Score 1 Yes

Score 5 No

■ N 2
Structured terminology represented in data dictionaries or tables is available to document all phases of the nursing process.

■ N 2.1
When available, an ANA-recognized nomenclature is used to document each phase of the nursing process.

■ N 2.1.1
When an ANA-recognized nomenclature is used, all required elements of that nomenclature are present.

■ N 2.2
Standard terminology present in the data set is used appropriately in the various components of the nursing process.

■ N 2.3
When standard terminology is present in the data set, it is used in all relevant methods of nursing documentation: standardized care plans, flowsheets, critical paths, etc.

Rationale for N 2 to N 2.3

Nursing is a cognitive profession. In order to make clinical decisions, nurses collect data at each step of the nursing process: assessment, diagnosis, setting expected outcomes or goals, planning and executing interventions, and evaluating actual outcomes. It is essential that structured terminology represented in data dictionaries or tables be available for recording all five of the components of the nursing process, or key data elements related to patient care will be missing.

The ANA-recognized nomenclatures have different structural elements. For example, a diagnostic statement using the NANDA nomenclature includes not only the diagnostic term itself, but the defining characteristics of the diagnosis as well as the etiology or related factors. In the Omaha System, the problem term should be amplified by one or more modifiers, and, when the modifier denotes an actual problem, by one or more signs or symptoms. When a standard nomenclature is selected for use in a system, the system should provide the ability to record all of the required elements of that nomenclature.

Furthermore, the different ANA-recognized nomenclatures represent various components of the nursing process. While NANDA represents only nursing diagnoses, and NIC only nursing interventions, both Omaha and HHCC represent diagnoses/problems, interventions, and outcomes. Each system is designed to be used in its entirety. Use of only parts of a nomenclature limits the comprehensiveness and comparability of data. If either of the latter two is used in the data set, then all of the components of the nomenclature should be used.

The ANA-recognized nomenclatures are designed for use in specific components of the nursing process. It is not appropriate,

for example, to use NIC terms as diagnosis labels, because it is a nomenclature of nursing interventions. Diagnosis terms should be used to describe diagnoses; interventions terms should be used to describe nurse-prescribed actions; and outcome terms should be used for describing patient outcomes

There are many methods and tools used for nursing care planning and documentation: standardized care plans, flowsheets, check-off lists, critical pathways etc. When these tools call for documentation of assessments, nursing diagnoses, expected outcomes or goals, interventions, or actual outcomes, and when an ANA-recognized nomenclature is in use in one part of the system, then those terms should be carried over to all appropriate forms of documentation. It is expected, for example, that critical pathways based on medical diagnoses will also contain nursing diagnoses, interventions, and outcome measures based on ANA-recognized nomenclatures.

Evidence of Performance

- Documentation of the data dictionaries or tables show terms available to nurses for recording assessments, diagnoses, expected outcomes or goals, interventions, and actual outcomes. If the data set is very large, representative portions from each phase of the nursing process can be provided.
- Documentation demonstrates that if an ANA-recognized nomenclature is used, all required elements of that nomenclature can be recorded in the system.
- Documentation shows that when standardized terms are provided in the data set, they are used in the appropriate component of the nursing process: assessment terms for assessment data, diagnosis or problem labels for diagnosis, intervention terms for interventions, etc.
- Documentation demonstrates that when an ANA-recognized nomenclature is used in one part of the system, and when multiples methods of documentation are present, that these methods also use the ANA-recognized nomenclatures as appropriate.

Scoring

Scoring for N 2

How many of the following are represented in data dictionaries or tables? 1) assessments; 2) nursing diagnoses; 3) expected outcomes or goals; 4) interventions; 5) actual outcomes.

Score 1 Four or five

Score 2 Two or three of the five

Score 3 One of the five

Score 5 No data dictionaries or tables are used

Scoring for N 2.1

How many of the following are true?

1) The data dictionaries or tables use terms for nursing assessment that are based on current nursing knowledge.

2) The data dictionaries or tables use terms for nursing diagnosis that are from an *ANA-recognized nomenclature.*

3) The data dictionaries or tables use terms for expected outcomes or goals that are based on *current nursing knowledge or from an ANA-recognized nomenclature.*

4) The data dictionaries or tables use terms for nursing interventions that are based on an *ANA recognized nomenclature.*

5) The data dictionaries or tables use terms for actual outcomes that are based on *current nursing knowledge or an ANA-recognized nomenclature.*

Score 1 Four or five of the above are true

Score 2 Two or three of the above are true

Score 3 One of the above is true

Score 5 None are true, or no data dictionaries or tables are used

Scoring for N 2.1.1

When an ANA-recognized nomenclature is used, are all required elements of the nomenclature present?

Score 1 Yes

Score 5 No

N/A No ANA-recognized nomenclature is used

Scoring for N 2.2

When standard terms are present in the data set, are all of the following true:

1) Assessment terms are used to represent the assessment phase of the nursing process.

2) Diagnosis terms are used to represent the diagnosis phase.

3) Expected outcomes/goals terms are used to represent the goals-setting phase.

4) Intervention terms are used to represent the intervention phase.

5) Outcome terms are used to represent the evaluation of actual outcomes phase.

Score 1 Yes

Score 5 No

N/A No standard terms are used in the data set

Scoring for N 2.3

When standard terminology is present in the data set, is it used in all relevant methods of nursing documentation: standardized care plans, flowsheets, critical paths, etc.?

Score 1 Yes

Score 5 No

N/A No standard terminology is used in any part of the data set

■ N 3

System provides for creation of a unique identifier of each nurse provider.

Rationale for N3

Many functions related to data security, confidentiality, and quality monitoring depend on the existence of a unique identifier for each RN provider. While the system itself cannot dictate how a particular user site will implement the capability, the system

should provide for the creation and use of a unique identifier for each RN user.

Evidence of performance

- Documentation is provided that demonstrates the ability to create a unique identifier for each RN provider.

Scoring

Scoring for N 3

Does the system provide the ability to create a unique identifier for each RN provider?

Score 1 Yes

Score 5 No

Section 2

CLINICAL CONTENT ASSOCIATIONS

Overview

The clinical content of data sets refers to the choices displayed on data entry screens to record assessments, diagnoses, expected outcomes or goals, interventions (planned and delivered), and actual outcomes. A system may contain branching pathways for navigating among screens. For example, the selection of certain assessment findings may result in the presentation of possible nursing diagnoses. Or, the selection of a nursing diagnosis may lead to listings of appropriate nursing interventions. These branching pathways may also be termed "clinical content associations."

When a pathway branches according to the choices made on previous screens, it is important that the choices displayed as a result of the branching are *complete, clinically appropriate, and accurate.*

■ CCA 1
Branching pathways exist that make associations from: 1) assessments to diagnoses, 2) diagnoses to expected outcomes or goals, 3) diagnoses to interventions planned, 4) interventions planned to interventions delivered, and 5) expected outcomes or goals to actual outcomes.

Rationale for CCA 1

Branching pathways support clinical decision making and promote efficiency in documenting care. They are therefore desirable.

Evidence of Performance

- The vendor supplies printouts of screens or tables that illustrate each pathway used for recording assessments, diagnoses, expected outcomes or goals, interventions (planned and delivered), and actual outcomes *for five nursing diagnoses or problems.*

Scoring

Scoring for CCA 1

Is there evidence that branching pathways exist that make associations from: 1) assessments to diagnoses, 2) diagnoses to expected outcomes or goals, 3) diagnoses to interventions planned, 4) interventions planned to interventions delivered, and 5) expected outcomes or goals to actual outcomes?

Score 1	Yes, for four or five of the associations noted above
Score 2	For three of the associations
Score 3	For one or two associations
Score 5	There are no branching pathways OR No documentation of branching pathways is provided

■ CCA 2
Choices displayed as a result of branching pathways among assessments, diagnoses, expected outcomes or goals, interventions, and actual outcomes reflect current knowledge, and are, therefore, *complete, appropriate* and *accurate.*

Rationale for CCA 2

The choices displayed in a predetermined pathway of screens act as cues to nurses, and support clinical decision making. Therefore it is important that the choices displayed as a result of the branching rules be *complete, appropriate* and *accurate. Completeness* means that all choices one would expect to find in the context of the pathway are present on the screen, and that all components of the nomenclature being used are present (e.g., defining characteristics can be recorded when using the NANDA nomenclature, or signs and symptoms can be recorded when using the Omaha System). *Appropriateness* means that the choices reflect both the structure of the nomenclature as well as the clinical specialty or setting or patient population served by the system. *Accuracy* means that there are no errors of omission or commission in the choices displayed, given the context of the branching.

Evidence of Performance

- The vendor supplies documentation of reference materials and processes used to define the rules for branching pathways for recording assessments, diagnoses, expected outcomes or goals, interventions, and actual outcomes. These references may include, for example, citations of current empirical research, AHCPR clinical practice guidelines, other nationally recognized guidelines, clinical literature review, or consultation with clinical and domain experts.
- The vendor supplies documentation of the intended clinical specialty, or setting, or patient population to be served by the system (e.g., general acute care, or cardiac intensive care, or obstetrics/labor/delivery, or geriatric long term care, or general home care, etc.).
- When only selected portions of a standard nomenclature are used, rationale is provided.
- The vendor supplies printouts of screens or tables that illustrate each pathway used for recording assessments, diagnoses, expected outcomes or goals, interventions (planned and delivered), and actual outcomes *for five nursing diagnoses or problems.*

Scoring

Scoring for CCA 2

Do the choices displayed as a result of branching pathways among assessment, diagnoses, expected outcomes/goals, interventions, and outcomes reflect current knowledge (that is, are they *complete, appropriate* and *accurate)*?

Score 1	Yes, consistently for all five diagnoses
Score 2	Yes, with few, minor exceptions
Score 4	Not consistently
Score 5	Major errors or omissions exist OR Insufficient documentation is provided
N/A	There are no branching pathways

■ CCA 3
The system provides the ability to record all actions prescribed by the plan of care, including progress notes, flow sheets, critical paths, and other forms of nursing documentation.

■ CCA 3.1
Information about care delivered is associated with information about care planned.

■ CCA 3.2
Information about care planned and care delivered is stored permanently in the patient's integrated health record.

Rationale for CCA 3 through CCA 3.2

Delivering the plan of care is equally as important as planning of that care. Nursing datasets should include items for recording the delivery of care. In addition, the system in which the dataset is used should maintain the association between the care planned and the care delivered at each patient encounter, and should store that data in the patient's permanent integrated health record. Systems that maintain this association between planned and delivered care facilitate evaluation of clinical decision making and the process and outcome of care delivery.

Evidence of Performance

- The vendor supplies documentation or examples of the following:
  —Items for recording actions on planned interventions
  —Items for recording rationale for nursing actions
  —Items for recording patient responses to care
  —Items for recording status of expected outcomes or goals
- The vendor supplies documentation that demonstrates the ability to maintain the association between care planned and care delivered.
- The vendor supplies documentation that verifies that nursing documentation of care delivered is stored permanently in the patient's integrated health record.

Scoring

Scoring for CCA 3

How many of the following does the vendor show evidence of: 1) items for recording actions on planned interventions; 2) items for recording rationale for nursing actions; 3) items for recording patient responses to care; 4) items for recording status of expected outcomes or goals?

Score 1 Items for recording all four aspects are demonstrated

Score 2 Items for recording three of the four are demonstrated

Score 3 Items for recording two of the four are demonstrated

Score 4 Items for recording one of the four are demonstrated

Score 5 No items for recording any of the four aspects are demonstrated OR Insufficient documentation is provided

Scoring for CCA 3.1

Is there evidence that demonstrates the ability to maintain the association between care planned and care delivered?

Score 1 Yes

Score 5 No

N/A There is no ability to record care delivered

Scoring for CCA 3.2

Is there evidence that nursing documentation of care delivered is stored permanently in the patient's integrated health record?

Score 1 Yes

Score 5 No

N/A There is no ability to record care delivered

Section 3

CLINICAL DATA REPOSITORY

Overview

Clinical data repository (CDR) is a physical or logical compendium of patient data pertaining to health. It has been termed an "information warehouse." The CDR stores data longitudinally; that is, over multiple episodes of health care for a particular patient. Ideally, the CDR stores data in multiple forms, including text, voice and images. A primary purpose of the CDR is to facilitate easy retrieval of data that would normally be stored in multiple systems in varying formats.

■ CDR 1
Patient-specific data are stored permanently in electronic form in an accepted (e.g., ANSI) standard database format. If data are not stored in a standard database format, evidence is provided that data can be exported to standard databases.

Rationale for CDR 1

Data stored in proprietary formats are not easily accessible to other applications without special programming. Storing data in standard database formats facilitates access by other applications, as well as retrieval and analysis for clinical and research purposes

The system may not itself provide for accumulation of a CDR. In this case, evidence should be provided that the database accumulated as a result of use of the system can be extracted and placed in an agency's CDR. This implies that the system being evaluated will provide good documentation of the file structures, data model or schema; coding of items stored; and, ability to export data in standard formats.

Evidence of Performance

- Documentation of the data model or schema of the

CDR, showing evidence that data are stored longitudinally for a patient over multiple episodes of care.

- Documentation of the format of the database (relational, hierarchical, etc.) and of the particular software environment (Oracle, Ingres, Sybase, MUMPS, proprietary, etc) and whether the database is SQL-compliant.
- Documentation of the types of data stored in the database or CDR (text, voice, images, graphics, etc.)

Scoring

Scoring for CDR 1

How many of the following does the documentation show evidence of: 1) Ability to store data longitudinally for a patient over multiple episodes of care; 2) Ability to store data in an ANSI-standard database format, or to export data into ANSI-standard formats; 3) Ability to store multiple types of data (text, voice, images, graphics, etc.).

Score 1 All three

Score 2 Two of the three

Score 3 One of the three

Score 5 No documentation of the CDR or database; or documentation shows none of the three

■ CDR 1.1
Patient-specific data elements are stored in coded format, using recognized coding schemes.

Rationale for CDR 1.1

The intent of a CDR or clinical database is to not only store data, but to facilitate retrieval for a variety of purposes. Storing data as linear strings of text renders the data difficult if not impossible to retrieve and manipulate. Storing the data in coded format makes the data more amenable to automated retrieval, aggregation and analysis. To every degree possible, the codes used for clinical data should be consistent with accepted coding schemes (such as NANDA, the Nursing Intervention Classification, and the Unified Medical Language System) so that data can be pooled across cooperating agencies or passed to appropriate third parties.

Evidence of Performance

- Documentation of the storage format demonstrates that data are stored in coded form.
- Standard codes as supplied with standard nomenclatures are used for storage, OR, when vendor-supplied codes are used, mapping protocols are supplied so that data can be pooled with data across cooperating agencies that use the same vocabularies.
- Data entered as narrative text is stored permanently, and is indexed appropriately so that it can be retrieved and printed for examination.

Scoring

Scoring for CDR 1.1

How many of the three items listed in the "Evidence of Performance" are present?

Score 1 All three

Score 2 Two of the three

Score 3 One of the three

Score 5 No documentation is provided, or when provided, shows that none of the three is present

■ CDR 1.2
All clinical data elements specified in the Nursing Minimum Data Set and related nursing data are stored permanently in the Clinical Data Repository or database.

Rationale for CDR 1.2

Often the only nursing data stored permanently are those pertaining to charged items, and not those pertaining to assessment, diagnosis, patient progress, or patient outcomes. The intent of this Standard is to assure that data reflecting patient status and nursing judgments are retained permanently. At a minimum, the clinical elements of the Nursing Minimum Data Set (NMDS) should

be permanently retained. Elements of the NMDS pertaining to clinical status of the patient are 1) Nursing Diagnosis; 2) Nursing Interventions; 3) Patient Outcome. Ideally, data pertaining to patient assessments that led to particular nursing diagnoses are also retained, as is documentation against the plan of care (i.e., performance of the nursing interventions). If the CDR contains only an abstract of the patient record, then links from the abstracted data to the full database should be retained so that the detail can be recalled if needed.

Evidence of Performance

- Documentation that nursing assessment data is stored in the database or CDR.
- Documentation that nursing diagnoses are stored in the database or CDR.
- Documentation that expected outcomes or goals are stored in the database or CDR.
- Documentation that nursing interventions for particular nursing diagnoses are stored in the CDR.
- Documentation that nursing documentation against the plan of care (performance of interventions) is stored in the CDR.
- Documentation that patient outcomes for particular nursing diagnoses are stored in the CDR. This may include actual outcomes, or simply the resolution status of the nursing diagnosis.
- When abstracted data only are stored in the CDR, documentation of pointers from abstracted data to full detail are provided.

Scoring

Scoring for CDR 1.2

How many of the "Evidence of Performance" listed above are present?

Score 1 At least six of the seven

Score 2 At least three of the seven

Score 3 At least two of the seven

Score 4 One of the seven

Score 5 No documentation is provided, or documentation shows that no elements of the Nursing Minimum Data Set are stored in the database or CDR

■ CDR 1.3

Associations during data entry that reflect clinical decision making are retained in the Clinical Data Repository.

Rationale for CDR 1.3

In order to reflect clinical judgment, data stored in the system must retain the associations made by the clinician during the documentation process. Therefore, the following linkages are made in the database when the NANDA nomenclature is used for diagnoses:

Nursing Diagnosis #1
Defining Characteristics of Nursing Diagnosis #1
Etiology and Risk Factors Nursing Diagnosis #1
Expected Outcomes or Goals of Diagnosis #1
Interventions for Problem # 1
Documentation against the Plan of Care for Diagnosis #1
Actual Outcomes of Diagnosis #1
Nursing Diagnosis #2
etc.

Evidence of Performance

- Documentation of the structure of the CDR, showing the data stored and the associations among them.

Scoring

Scoring for CDR 1.3

Is there evidence that data stored in the database or CDR retain the associations that reflect clinical judgment?

Score 1 Yes, linkages are retained completely and consistently

Score 2 Most linkages are retained, and some are not

Score 3 Some linkages are retained, but most are not

Score 4 There is no linkage between a Nursing Diagnosis, its etiology or risk factors, expected outcomes or goals, the interventions for that diagnosis, or the documentation of care provided or outcomes achieved for that diagnosis

Score 5 No documentation is provided

■ CDR 2
Patient data can be retrieved by standard reports and via ad hoc query capability

■ CDR 2.1
Data on individual patients can be retrieved by standard reports and via ad hoc query capability

■ CDR 2.2
Aggregated data on patient populations filtered according to specified parameters can be retrieved by standard reports and via ad hoc query capability

Rationale for CDR 2 through CDR 2.2

While all systems provide the ability to present data in standard (pre-programmed) reports, it is becoming increasingly important to be able to create ad hoc reports to fill a site-specific need. The ability for authorized personnel to query the clinical database for a variety of purposes is a necessity, not a luxury. The ideal system will provide a query facility that is relatively easy to learn and to use. This query tool will provide access to data about individual patients, as well as to data about patient populations filtered according to specified parameters.

Evidence of Performance

- Examples of pre-programmed individual patient reports available as standard features of the product.
- Examples of pre-programmed aggregate reports available as standard features of the product.
- Examples of ad hoc reports on individual patients, with documentation of the query that produced each report.

- Examples of ad hoc reports on patient populations, with documentation of the query that produced each report.
- Documentation of the query tool or report writer provided with the product.
- Documentation of amount of training required to learn query tool.
- Documentation of end-user satisfaction with ad hoc query tool.

Scoring

Scoring for CDR 2

This standard is not scored. CDR 2.1 and CDR 2.2 are used to measure compliance with this standard.

Scoring for CDR 2.1

Is there evidence that both pre-programmed reports and ad hoc reports are available on *individual* patients?

Score 1 Preprogrammed reports are provided, ad hoc reports are demonstrated

Score 3 Preprogrammed reports are provided, but there is no query facility for creating ad hoc reports

Score 5 No reports have been provided

Scoring for CDR 2.2

Is there evidence that both pre-programmed reports and ad hoc reports are available on *groups* of patients?

Score 1 Preprogrammed reports are provided, ad hoc reports are demonstrated

Score 3 Preprogrammed reports are provided, but there is no query facility for creating ad hoc reports

Score 5 No reports have been provided

■ CDR 3
Data are stored according to established standards that permit electronic data interchange for pooling, transmission, communication and reporting (e.g., HL7, ACR/NEMA, ASTM E31, etc.)

Rationale for CDR 3

There is an increasing need to be able to transmit data electronically for billing, for communication with other systems and facilities, and for data pooling. Nursing data are structured according to emerging standards to facilitate electronic transmission.

Evidence of Performance

- Documentation of compliance with standards for electronic transmission of nursing data.

Scoring

Scoring for CDR 3

Is documentation provided of compliance with standards for electronic transmission of nursing data?

Score 1 Yes

Score 3 Yes, for at least one standard, but not for all that would be appropriate

Score 5 No

■ CDR 4
Mechanisms to assure patient confidentiality and security of data are provided.

Rationale for CDR 4

Retrieval of data is the primary intent of having a structured, coded CDR or clinical database. The very ease of retrieval that is sought also brings with it the danger of abuse of privacy and confidentiality. The system should provide mechanisms that enable site-specific policies to be enforced, i.e., password protection and other forms of security that inhibit unauthorized access while also not imposing an unacceptable burden on authorized users.

Evidence of Performance

- Documentation of the ability to provide passwords or other forms of security to assure that data access is provided only to authorized users.
- Data security is provided at the levels of a) the physical machine or port being used, b) the user class or group, and c) the individual user.

Scoring

Scoring for CDR 4

Is documentation provided that demonstrates the ability to control access to patient data, whether via normal clinical duties or for reporting and query capabilities?

Score 1 Yes, mechanisms for controlling access are demonstrated at all three levels, and for all major access points to patient data

Score 3 Some mechanisms for controlling access to patient data are demonstrated

Score 5 No documentation is provided OR no mechanisms for limiting access to patient data are demonstrated

■ CDR 5
All data stored in the CDR are linked to the unique identifier of the responsible nurse provider.

Rationale for CDR 5

The ability to identify the person responsible for recording of specific patient data is essential for regulatory requirements, for quality assurance, and for cost effectiveness evaluation.

Evidence of Performance

- Documentation of CDR structure or schema or data model showing linkage of patient data entered to unique ID of responsible nurse provider.

Scoring

Scoring for CDR 5

Does the documentation show the linkage of patient data entered to unique ID of the responsible nurse provider?

Score 1 Yes

Score 5 No

Section 4

GENERAL SYSTEM REQUIREMENTS

Overview

General system characteristics refer to the hardware/software system requirements for supporting use of the Clinical Data Repository (CDR). The system used to support the CDR must have the storage and processing capacity to retrieve any single nursing data element or ad hoc specification of nursing data. While it is not necessarily the responsibility of the software vendor to supply the hardware, the customer should have adequate information for estimating the hardware that will be required to meet their storage and processing needs, given their estimates of volume of nursing-related data.

■ GSC 1
The vendor supplies documentation of the formula(s) for computing hardware requirements needed to meet the storage requirements of the CDR, given an estimated data volume.

Rationale for GSC 1

A customer should be able to estimate the hardware needed for storing nursing data, given the likely volume of data at that site. Often, sites have insufficient information from vendors for estimating the hardware requirements needed for storing and processing large volumes of nursing-related data. Without sufficient storage, data are likely to be purged, defeating the ability to accumulate a database of nursing-related data.

Evidence of Performance

- The vendor supplies the formula for estimating hardware requirements for CDR storage, given a site's estimated volume of data.

Scoring

Scoring of GSC 1

Is there documentation of formula(s) for computing hardware requirements needed to meet the storage requirements of the CDR, given an estimated data volume?

Score 1 Yes, documentation is adequate for computing storage requirements

Score 3 Documentation is provided, but is not adequate for computing storage requirements

Score 5 No documentation is provided OR system does not accumulate data for a CDR

■ GSC 2
The vendor supplies documentation of the formula(s) for computing hardware requirements needed to meet the *processing* requirements of the CDR, given a specific customer's estimated transaction volume.

Rationale for GSC 2

An agency considering the purchase of a specific system should be able to estimate the hardware requirements that are likely to be needed for processing pre-programmed and ad hoc queries on nursing data, given the volume of transactions that are generated at that site. Often, sites have insufficient information from vendors for estimating the hardware requirements needed for processing large volumes of nursing-related transactions. Without sufficient processing capability, retrieval of data will be cumbersome at best, crippling at worst. This defeats the purpose of having a large database of nursing-related data.

Evidence of Performance

- The vendor supplies the documentation that is provided to potential customer sites for estimating hardware requirements for processing pre-programmed and ad hoc queries on nursing data, given a site's estimated volume of transactions.

Scoring

Scoring of GSC 2

Is there documentation of formula(s) for computing hardware requirements needed for processing pre-programmed and ad hoc queries on nursing data, given a site's estimated volume of transactions?

Score 1 Yes, documentation is adequate for computing storage requirements

Score 3 Documentation is provided, but is not adequate for computing processing requirements

Score 5 No documentation is provided OR system does not accumulate data for a CDR