# Consolidated Health Informatics

## Standards Adoption Recommendation

## Interventions & Procedures
## PART A:  NON-Laboratory

### Index

1. **Part I – Sub-team & Domain Scope Identification** – basic information defining the team and the scope of its investigation.
2. **Part II – Standards Adoption Recommendation** – team-based advice on standard(s) to adopt.
3. **Part III – Adoption & Deployment Information** – supporting information gathered to assist with deployment of the standard (may be partial).

# Summary

## Domain: Non-Laboratory Interventions and Procedures

## Standards Adoption Recommendation:
Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT®)

**SCOPE**
This standard will be used to describe specific non-laboratory interventions and procedures performed / delivered. Interventions represent the purposeful activities performed in the provision of health care. Procedures are concepts that represent the purposeful activities performed in the provision of health care.

**RECOMMENDATION**
SNOMED CT®

**OWNERSHIP**
SNOMED CT® is a copyrighted work of the College of American Pathologists (CAP).

The CAP and the National Library of Medicine (NLM) entered into an agreement to provide SNOMED CT® core content via the UMLS® at no charge to those who execute a license agreement. This agreement is for healthcare applications and uses within the US and any application of use of SNOMED CT® by any US government facility or office, whether permanent or temporary, wherever located.

**APPROVALS AND ACCREDITATIONS**
The CAP is an ANSI Standards Development Organization. The SNOMED CT® Healthcare Terminology Structure is ANSI approved.

**ACQUISITION AND COST**
The CAP and the National Library of Medicine (NLM) entered into an agreement to provide SNOMED CT® core content (English and Spanish language editions) via the UMLS® at no charge to those who execute a license agreement. This agreement is for healthcare applications and uses within the US and any application of use of SNOMED CT® by any US government facility or office, whether permanent or temporary, wherever located. This no-charge feature has been supported by HHS (NLM, NIH/OD, CDC, ASPE, AHRQ, CMS, FDA, HIS, SAMSHA, HRSA), DoD and VA.

Health care entities can also choose to obtain SNOMED CT® as a stand-alone terminology directly from SNOMED® International at (http://www.snomed.org)

**REVISION HISTORY**

| DATE | VERSION | COMMENT |
|---|---|---|
| 11/21/2003 | Public Document | Final Recommendation |
| 2/24/2006 | 1.1 | AHRQ reference added |

## Part I – Team & Domain Scope Identification

**Target Vocabulary Domain**

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|---|
| *Common name used to describe the clinical/medical domain or messaging standard requirement that has been examined.*<br><br>Non-laboratory Interventions and Procedures |

| |
|---|
| *Describe the specific purpose/primary use of this standard in the federal health care sector (100 words or less)*<br><br>This standard will be used to describe specific <u>non-laboratory</u> interventions and procedures performed / delivered. Interventions represent the purposeful activities performed in the provision of health care. Procedures are concepts that represent the purposeful activities performed in the provision of health care. |

**Sub-domains** *Identify/dissect the domain into sub-domains, if any. For each, indicate if standards recommendations are or are not included in the scope of this recommendation.*

| Domain/Sub-domain | In-Scope (Y/N) |
|---|---|
| Procedure by site (on body system, on body part, on organ) | Y |
| Procedure by method | Y |
| Procedure by intent (therapeutic, preventive, palliative, diagnostic, monitoring, surveillance, screening) | Y |
| Procedure by focus | Y |
| Regime / Therapy | Y |
| Procedure by device | Y |
| Dental | N |
| Alternative Medicine | N |
| Laboratory Procedures (addressed in Part B report) | N |
| Administrative / Management procedure | N |

**Information Exchange Requirements (IERs)** *Using the table at Appendix A, list the IERs involved when using this vocabulary.*

| |
|---|
| Encounter (Administrative) Data |
| Customer Health Care Information |
| Care Management Information |
| Customer Risk Factors |
| Referral Information |
| Tailored Education Materials |
| Patient Satisfaction Information |
| Case Management Information |

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| |
|---|
| Cost Accounting Information |
| Population Member Health Data |
| Population Risk Reduction Plan |
| Provider Metrics |
| Improvement Strategy |
| Resource Availability |
| Labor Productivity Information |
| Clinical Guidelines |
| Customer Approved Care Plan |
| Beneficiary Inquiry Information |
| Body of Health Services Knowledge |
| Patient Schedule |
| Provider Demographics |

**Team Members** *Team members' names and agency names with phone numbers.*

| Name | Agency/Department |
|---|---|
| **Jorge Ferrer (Team Lead)** | **HHS/CMS** |
| Donna Pickett | HHS/NCHS |
| Marjorie Greenberg | HHS/NCHS |
| Michael Lincoln | VA |
| Al Toya | HHS/IHS |
| Ann Fagan | HHS/CMS |
| Nancy Orvis | DoD |
| Bart Harmon | DoD |

**Work Period** *Dates work began/ended.*

| Start | End |
|---|---|
| February 4, 2003 | Nov, 2003 |

## Part II – Standards Adoption Recommendation

**Recommendation** *Identify the solution recommended.*

The workgroup recommends the adoption of Systematized Nomenclature Medicine-Clinical Terms® (SNOMED CT®), a comprehensive health care reference terminology that includes concepts for procedures/interventions, findings and disorders, measurable and observable entities, social and administrative concepts, body structures, organisms, substances, physical objects, events, environments and geographical locations, specimens, attributes, and qualifier values.

The specific locations in SNOMED CT® that form the basis of our recommendation are contained within the Procedures axis:

**EXCLUDING** the hierarchies of:
1. Procedures by method: Evaluation procedure: subtype hierarchy: **Laboratory test**
   - Covered by the Laboratory Domain
2. Administrative procedures
   - Covered by HIPAA and the Billing Domain
3. Laboratory Procedures
   - Covered by the Laboratory Domain

Terminology found in SNOMED CT® extends beyond the domain of interventions and procedures. Therefore, the entirety of SNOMED CT® is not being recommended, only the content that pertains to interventions and procedures, found within specific hierarchies in the **procedure axis** of SNOMED CT® (**excluding** those listed above).

**Ownership Structure** *Describe who "owns" the standard, how it is managed and controlled.*

Recently, the National Library of Medicine (NLM) enacted an agreement with the College of American Pathologists (CAP) for the distribution of SNOMED CT® that effectively makes it a perpetual Category 0 code set in the Unified Medical Language System® (UMLS®) for use in the United States. The CAP owns SNOMED® and maintains both the content and structure of the terminology. (See www.snomed.org for more information.)

UMLS® is maintained by the NLM and is available at no charge to those who execute a license agreement. They have an extensive internal and contracted group that maintains content. (See www.nlm.nih.gov/research/umls/ for more information.)

Terminology found in both the UMLS® and SNOMED® extends beyond the domain of interventions and procedures.  It is only the domain of interventions and procedures to which this recommendation applies. The specific axes are enumerated above.

**Summary Basis for Recommendation** *Summarize the team's basis for making the recommendation (300 words or less).*

The Team compiled a list of ten terminologies and code sets that included procedure code sets adopted under HIPAA.  As a starting point, the team used the criteria for PMRI put forth by the Subcommittee on Standards and Security (SSS) of the NCVHS. The CHI workgroup then expanded its criteria and collected information on additional items (content coverage, scope, settings, ownership, cost/availability, usage, mappings, and other relevant considerations) to evaluate all candidate terminologies.

The resulting distinction (or differentiation) of the analysis conducted by the CHI workgroup from that of the NCVHS SSS, is that the latter used the criteria to identify terminologies that would be considered further for recommendation as a core PMRI terminology, while CHI considered all the PMRI criteria and gathered information regarding additional items in order to make recommendations concerning the most robust and comprehensive terminology.  This resulted in identification of the "best" solution for the government.

Each terminology was analyzed for its ability to handle current procedures /interventions as well as emerging techniques and devices.  The procedure hierarchy of SNOMED CT® covers a wide range of clinical actions that represent the purposeful activities performed in the provision of health care.  This hierarchy includes a broad variety of activities, including but not limited to invasive procedures (*Excision of intracranial artery*), administration of medicines (*Pertussis vaccination*), imaging procedures (*Radiography of chest*), education procedures (*Instruction in use of cane*), and administrative procedures (*Medical records transfer*).  Procedures concepts are organized by site, method, intent, focus, device and others characteristics.

Examples:       -   Diagnostic endoscopy
                 -   Fetal manipulation
                 -   Procedure on hand
                 -   Therapeutic procedure
                 -   Arthrotomy
Removal of device

        The following table provides several more detailed examples, including some in Spanish.

| Concept Identifier | Representation of Meaning |
|---|---|
| 45211000 | Descriptions<br>  782426019 Catheterization (procedure)<br>  75385013 Catheterization<br>  75386014 Insertion of catheter<br>  954234018 cateterismo<br>  954235017 inserción de un catéter<br>  954236016 cateterismo (procedimiento)<br>  494127014 Catheterisation |

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|---|
| Relationships<br>116680003 (Is a) 276272002 (Catheter procedure)<br>116680003 (Is a) 71861002 (Implantation)<br>Group-1<br>363699004 (Direct device) 19923001 (Catheter)<br>260686004 (Method) 129336009 (Implantation – action) |

The structure of SNOMED CT® and the broad content coverage of the procedure hierarchy supports the various use cases for procedure data that include documentation, order entry, decision support, and messaging. SNOMED CT® allows procedure data to be interoperable for accurate data retrieval and analysis, and for sharing of knowledge and data across applications. The January 2003 release of SNOMED CT® procedure hierarchy consists of 50,139 concepts and 178,814 descriptions.

The Interventions and Procedure administrative code sets that were evaluated by NCVHS SSS did not meet all of the essential criteria for patient medical record terminologies. The reference terminology, SNOMED CT®, and the reference terminology component of MEDCIN® met all essential criteria. Content coverage in MEDCIN® (which contains CPT-4®) and CPT-4® is limited to procedures and interventions performed by physicians for the purpose of generating bills. SNOMED CT® has the most comprehensive content coverage including interventions and procedures for nurses and allied health care providers, therapists, social workers, dieticians, etc. CPT® and MEDCIN® terminologies are available for fees, whereas SNOMED CT® is now available to all US users without additional charge. All available alternatives require work to be done for mapping to other essential code sets. Therefore, the overall analysis of available alternatives resulted in SNOMED CT® being selected as the best choice for use in the Federal Government as a PMRI terminology. This will need to be used in conjunction with administrative code sets used for billing purposes under HIPAA and with interface terminologies (developed by a host of other parties such as vendors, government agencies, etc.)

**Conditional Recommendation** *If this is a conditional recommendation, describe conditions upon which the recommendation is predicated.*

| |
|---|
| This is not a conditional recommendation. The standard is ready for use and identified gaps are identified in the gaps section of this report. |

**Approvals & Accreditations**
Indicate the status of various accreditations and approvals:

| Approvals & Accreditations | Yes/Approved | Applied | Not Approved |
|---|---|---|---|
| Full SDO Ballot | Y | | |
| ANSI | Y | | |

**Options Considered** *Inventory solution options considered and summarize the basis for not recommending the alternative(s). SNOMED CT® must be specifically discussed.*

*SNOMED CT®--***Selected**
*CPT-4®-* **Not Recommended**
*ICD-10-PCS-* **Not Recommended**
**MEDCIN®** *(terminology component only)* **-** *Not* **Recommended**

## Additional analysis of alternatives:

**Comparison Table**

*Interventions and Procedures*

| Criteria | SNOMED CT® | MEDCIN® (terminology component) | CPT® | ICD-10-PCS |
|---|---|---|---|---|
| Concept Orientation | 1 | 1 | 0 | 0 |
| Concept Permanence | 1 | 1 | 0 | |
| Non-Ambiguity | 1 | 1 | 0 | 0 |
| Explicit Version IDs | 1 | 1 | 1 | 1 |
| Content Coverage | The January 2003 release of SNOMED CT® procedure hierarchy consists of 50,139 concepts and 178,814 descriptions. | MEDCIN® contains the entire content of Current Procedural Terminology-IV® (CPT®) and CPT modifiers. Less than 20% of HCPCS are included. | 4,000 | 197,000 |
| Settings (inpatient, outpatient, etc.) | All Settings | All Settings | Outpatient claims and physician inpatient bills | Developed for use in inpatient setting |
| Scope | Includes content for multiple disciplines involved in health care | MEDCIN® content applies to physician documentation and appears to | Physician based coding system | Hospital based coding system |

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| __Criteria__ | SNOMED CT® | MEDCIN® (terminology component) | CPT® | ICD-10-PCS |
|---|---|---|---|---|
| | | contain little content for nurses and allied health care providers, therapists, social workers, dieticians, etc. | | |
| Ownership | College of American Pathologists, Multidisciplinary Editorial Board | Proprietary, Internal Editorial Board, Physicians Only | Proprietary, AMA Review Board CMS assigns codes for Level II HCPCS | CMS |
| Availability Cost | No additional cost (beyond funds expended by Gov't) to US users. Available through UMLS® in January 2004 | Small cost for reference terminology, interface application costly | Available from AMA with charges to users (VA pays approx. $12,000/year) | Available free from CMS |
| Use | Limited current usage | Limited Deployment DoD uses interface application | Widely deployed for billing (required for HIPAA) | Not being used but has been tested |
| Mapping | Mapped to ICD-9-CM and ICD-10: Needs work if map to be used for billing. Older map to CPT-4® available in UMLS®. NLM negotiating with AMA to update. | MEDCIN® does not include mappings to ICD-10, HCPCS level I or II codes, SNOMED® procedures, the various dental procedure terminologies, or ABC codes. | Maps being developed by AMA to SNOMED® (Unknown if procedures will be included) Prototype scheduled to be available November 2003 | More comprehensive system than ICD-9-CM Volume III for billing purpose |

| **Criteria** | **SNOMED CT®** | **MEDCIN® (terminology component)** | **CPT®** | **ICD-10-PCS** |
|---|---|---|---|---|
| Considerations | Missing some newer therapies. Needs interface to enhance use in clinical setting. UK developing hierarchies. | Lack of formal terminology structures other than the is-a relationships in its poly-hierarchies means that aggregation of like procedure terms will probably be unreliable or difficult. | Billing purposes only | Billing purposes |

***\*\*\*\*ENDS  "Options Considered" Evaluation\*\*\*\****

**Current Deployment**

*Summarize the degree of market penetration today; i.e., where is this solution installed today?*
CAP holds 317 direct licenses for the use of SNOMED CT®.  Additionally, more than 1200 sublicense agreements are held by vendors who have distribution rights to SNOMED CT®. It is being adopted by the UK's National Health Service (NHS) for use in any computerized information system being developed to support clinical information system.  Has users in the public sector (e.g., CDC, Public Health Laboratory of Hong Kong), non-profit private sector (e.g., University of Texas Houston, Duke University); and for profit sector (e.g. Cerner, Oracle ) in over 40 countries today.

*What number of or percentage of relevant vendors have adopted the standard?*
As of April 2003, the College holds 59 commercial licenses for SNOMED®. The state of incorporation into vendor systems varies and is largely dependent on the vendor's development cycle. Following is a representative list of the vendors who have licensed SNOMED®, it should be noted that license does not equate to adoption.

| | |
|---|---|
| Cerner Corporation | Apelon, Inc. |
| ComMedica Limited | Health Language, Inc. |
| Eclipsys Corporation | Intelligent Medical Objects |
| Epic Systems Corporation | Language & Computing |
| GE Medical Systems Information | A4 Health Systems |
| Technologies | ABLESoft |

| | |
|---|---|
| IDX Systems Corporation | AssistMed |
| McKesson Information Solutions | Clinical & Biomedical Computing, |
| MEDITECH, Inc. | Ltd. |
| Oracle Corporation | Cogient Corporation |
| Per-Se Technologies | Creative Computer Applications |
| Siemens Medical Solutions Health | Détente Systems Limited (Australia) |
| Services | ibex Healthdata Systems, Inc. |
| deCode Genetics | IMPATH Inc. |
| Egton Medical Information Systems | iSOFT |
| (UK) | Misys Healthcare Systems |
| GeneLogic, Inc. | Monarch Medical International Ltd. |
| In Practice Systems (UK) | Picis |
| Institute for Medical Knowledge | Sysmex Delphic Ltd. (New Zealand) |
| Implementation (IMKI) | Torex Laboratory Systems Ltd. |
| Reuters Health Information, Inc. | (Scotland) |
| Safescript Ltd (UK) | Triple G Systems Group, Inc. |
| TheraDoc, Inc. | VISICU, Inc. |
| TherapyEdge | Dictaphone |
| WellMed, Inc. | Berkeley Computer Systems |
| | William Woodward |

***What number or percentage of healthcare institutions have adopted the standard?***
More than 50 commercial healthcare software developers have incorporated SNOMED CT® into their systems.  As of April, 2003, approximately 1500 health care institutions have licensed the standard. The College holds 244 direct end-user licenses for the use of SNOMED® and 1,234 sublicenses through the vendors who are licensed for distribution, for a total of 1,478 end-user institutions, ranging in size from country wide health care systems to small community facilities.

Two examples of the extent of support for SNOMED® are Kaiser Permanente and the National Health Service (NHS) of the United Kingdom. Kaiser Permanente, who provides health care coverage to 3% of the U.S. population, has actively participated in the development of SNOMED® and is actively rolling out SNOMED® compatible solutions throughout its organization. Kaiser is using SNOMED® within domain-specific standard documentation templates for use throughout the organization.  Also, as of April 1, 2003, the NHS, representing a population of 56 million covered lives, officially stated that: "Subject to successful development and testing of implementability, after April 1, 2003 any computerized information system being developed to support any clinical information system, such as EPRs and EHRs, should use the NHS preferred clinical terminology, SNOMED Clinical Terms®."

Other examples of health care institutions that have adopted SNOMED® are summarized as follows: The University of Nebraska Medical Center is using SNOMED CT® in the development of problem lists which are then mapped to ICD-9; Cedars Sinai Medical Center used SNOMED CT® in its web-based order entry system which processed

700,000 orders for over 8,000 patients between October 2002 and January 2003; HCA is implementing SNOMED CT® within its laboratory network, consisting of over 200 sites in both the US and Canada, for lab test results and diagnosis;  University of Tennessee used SNOMED® in the lab to improve patient safety by detecting cases for which follow-up intervention did not occur despite abnormal Pap tests;  Barnes Jewish Christian Health Care is using SNOMED CT® within its perioperative and surgery suites for medical transcription.

***What number or percentage of federal agencies have adopted the standard?***
Versions of SNOMED® are currently used by: the Centers for Disease Control and Prevention (CDC), Department of Defense (DoD), Indian Health Services (IHS) and the Department of Veterans (DVA) in specific applications.  As SNOMED CT® was first released a year ago, in January 2002, most of the government applications for which SNOMED CT® has been licensed are in evaluation or developmental stages.

| Agency/Organization | Approved | Description |
|---|---|---|
| ANSI | | The structure of SNOMED CT® is in the process of being balloted as an ANSI standard. On the initial canvass, 72% of the list responded to the ballot, with 86% voting to approve the SNOMED CT® Structure as an American National Standard. A standard proposal addressing the concerns raised increased the favorable vote to 89%. |
| CDC | 10/1/2002<br><br><br>9/22/1999<br><br>7/11/2002 | 1.  Licensure of SNOMED® for reporting bioterrorism and infectious disease data from up to 500 sites plus 150 back-up laptops<br>2.  Licensure of SNOMED® for reporting cancer data from up to 100 cancer registries<br>3.  Licensure of SNOMED® for internal evaluation purposes |
| DoD | 1/31/2003 | Licensure of SNOMED® for use in standardization of medical data and treatment protocols in the Special Operations Forces Medical Handbook |
| NIH/NCI | 1/7/2003 | Licensure of SNOMED® for use in NCI's Apelon DTS server to evaluate the use of SNOMED codes in reporting NCI-sponsored clinical trials. |
| Quality Practice Groups | | Upon request of the National Quality Forum, the "never events" have been integrated into SNOMED®. |
| Tumor Registries | 9/22/1999 | Licensure by CDC of SNOMED® for reporting cancer data from up to 100 cancer |

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| | | registries |
|---|---|---|
| DVA | 9/14/2000 | Many DVA hospitals have used earlier versions of SNOMED® for many years, particularly for laboratory applications, and have made extensive local extensions to reflect their specific need.<br>The DVA, in conjunction with the DoD and Indian Health Service, licensed SNOMED® RT for use in the pilot phase of the GCPR project, which has now been replaced by the CHI initiative. |
| NASA (contract held by Wyle Laboratories) | 1/31/2002 | Use of SNOMED® in the Astronaut Longitudinal Database |
| AFIP | 5/26/1999 | Use of SNOMED® in coding of pathology specimens |

*Is the standard used in other countries?*
As of April 2003, the CAP has licensed users of SNOMED CT® in 31 countries. Earlier editions of SNOMED® have been licensed in over 40 countries.  Following are the countries in which SNOMED CT® has been licensed:

| | |
|---|---|
| Argentina | Mexico |
| Australia | The Netherlands |
| Belgium | New Zealand |
| Brazil | Norway |
| Canada | Peru |
| China | Portugal |
| Colombia | Puerto Rico |
| Denmark | Scotland |
| Hong Kong | South Korea |
| Iceland | Spain |
| India | Sweden |
| Ireland | Turkey |
| Israel | United Kingdom |
| Italy | United States |
| Japan | Venezuela |
| Kuwait | |

As previously noted, the UK's National Health Service has officially stated that any computerized information system being developed to support any clinical information system, should use the NHS preferred clinical terminology, SNOMED Clinical Terms®. In Australia, where the use of electronic health cares systems to support general practice

is relatively advanced, a "Coding Jury" had been established to select a single coding system to support GP clinical systems.  Currently, the GP Vocabulary Project is underway, and is designed to assist in the building and support of a standard general practice interface terminology suitable for the management of information collected during the clinical encounter. Phase 2 of this project will include the mapping of a subset of the GP Vocabulary to SNOMED CT®.

*Are there other relevant indicators of market acceptance?*
Market share information provided by CAP indicates that 79% of computerized patient record systems and 85% of laboratory systems vendors have made licensing commitment. Although, a licensing commitment does not indicate current system implementation status.

Following are other relevant indicators of SNOMED®'s market acceptance:
- Both HL7® and DICOM® have formally recognized SNOMED® as a standard code set within their messaging standard. SNOMED is embedded in the DICOM® Structured Reporting Standard for Wave Forms.
- The American Nursing Association (ANA) has recognized SNOMED RT ® (1999) and SNOMED CT® (2003) as the concept-based reference terminology to support the integrated electronic medical record for nursing. Standardized nursing languages recognized by the ANA are integrated within SNOMED® (e.g., NIC and NANDA).
- The American Veterinary Medical Association (AVMA) has adopted SNOMED® CT as the official terminology for veterinary practice in the US. It has been used extensively by the veterinary community in a collaborative product to track health care data on a national basis.
- WASPalm, the World Association of Societies of Pathology and Laboratory Medicine, representing 59 member societies throughout the world, has endorsed SNOMED® as the preferred reference language for laboratory clinicians.

## Part III – Adoption & Deployment Information

*Provide all information gathered in the course of making the recommendation that may assist with adoption of the standard in the federal health care sector.  This information will support the work of an implementation team.*

### Existing Need & Use Environment

*Measure the need for this standard and the extent of existing exchange among federal users.  Provide information regarding federal departments and agencies use or non-use of this health information in paper or electronic form, summarize their primary reason for using the information, and indicate if they exchange the information internally or externally with other federal or non-federal entities*

Column A:    Agency or Department Identity (name)
Column B:    Use data in this domain today? (Y or N)
Column C:    Is use of data a core mission requirement? (Y or N)
Column D:    Exchange with others in federal sector now? (Y or N)
Column E:    Currently exchange paper or electronic (P, E, B (both), N/Ap)
Column F:    Name of paper/electronic vocabulary, if any (name)
Column G:    Basis/purposes for data use (research, patient care, benefits)

| Department/Agency | B | C | D | E | F | G |
|---|---|---|---|---|---|---|
| Department of Veterans Affairs | Y | ? | N | | | Many DVA hospitals have used earlier versions of SNOMED® Since 2000, the DVA in conjunction with DoD and HIS, licensed SNOMED RT® for use in pilot phase of GCPR project, which has now been replaced by the CHI initiative |
| Department of Defense | Y | ? | | | | As of 1/31/03, DoD has secured licensure for SNOMED® use in |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | standardization of medical data and treatment protocols in the Special Operations Forces Medical Handbook |
| HHS Office of the Secretary | | | | | | |
| Administration for Children and Families (ACF) | | | | | | |
| Administration on Aging (AOA) | | | | | | |
| Agency for Healthcare Research and Quality (AHRQ) | | | | | | |
| Agency for Toxic Substances and Disease Registry (ATSDR) | | | | | | |
| Centers for Disease Control and Prevention (CDC) | Y | Y | | | | Since 10/02. licensure of SNOMED® for reporting bioterrorism and infectious disease data Since 9/99 licensure of SNOMED® for reporting cancer data Since 7/02, licensure for internal evaluation purposes |
| Centers for Medicare and Medicaid Services (CMS) | | | | | | |
| Food and Drug Administration (FDA) | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Health Resources and Services Administration (HRSA) | | | | | | |
| Indian Health Service (IHS) | Y | ? | | | | See DVA |
| National Institutes of Health (NIH) | | | | | | |
| Substance Abuse and Mental Health Services Administration (SAMHSA) | | | | | | |
| Social Security Administration | | | | | | |
| Department of Agriculture | | | | | | |
| State Department | | | | | | |
| US Agency for International Development | | | | | | |
| Justice Department | | | | | | |
| Treasury Department | | | | | | |
| Department of Education | | | | | | |
| General Services Administration | | | | | | |
| Environmental Protection Agency | | | | | | |
| Department of Housing & Urban Development | | | | | | |
| Department of Transportation | | | | | | |
| Homeland Security | | | | | | |

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**Number of Terms**

***Quantify the number of vocabulary terms, range of terms or other order of magnitude.***
Of the 344,549 concepts and 913,696 terms in SNOMED CT® approximately 50,139 concepts are related to procedures (representing approximately 178,814 terms). These numbers exclude lab and imaging procedures/interventions.

***How often are terms updated?***
Semiannually (January 31st and July 31st)

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**Range of Coverage**

***Within the recommended vocabulary, what portions of the standard are complete and can be implemented now? (300 words or less)***

The procedure/intervention domain includes all purposeful activities performed in the provision of health care.  The hierarchy appears to be well populated and able to handle concepts and all portions could be implemented.  SNOMED® is a fully functional database and is being fully deployed now. The quality process is continuously supplemented by feedback from users. Parallel to domain specialist review, US and UK editors continue to review the content and are actively making adjustments and refinements as needed.

The heart of SNOMED CT®'s quality is the involvement of key stakeholders at each step of the process. The large body of key stakeholders has been comprised of members and leadership from the College of American Pathologists; clinical content experts; medical informatics experts from the US and the UK's National Health Service; professional medical translators, editors and validators; physicians, and nurses.  These individuals bring expertise in national and international standards, medical informatics, software development and implementation, database licensing, biotechnology, clinical and academic medicine, managed care, laboratory medicine, pharmacy, nursing, education and database services.  A formal testing process was structured over the course of three years to "build in" quality into the terminology and to ensure vendor and end-user input into the development of SNOMED CT®. This followed a consultative period in which interested stakeholders could review and comment on the SNOMED CT® design documents posted on the SNOMED® web site.  Written and oral feedback from a total of 42 test sites in six countries confirmed that all the objectives had indeed been achieved. The test sites included healthcare software vendors, NHS trusts, non-UK acute care hospitals, individual practitioners, renowned university academic centers, and government entities. There were a total of twenty-three test sites in the UK, nine in Australia coordinated through the Commonwealth Department of Health and Aged Care, seven in the U.S., one in The Netherlands, one in Iceland and one in Germany.  The quality assurance process has found that content errors in SNOMED CT® have been reduced to less than a fraction of 1%. Continuous improvement is the aim: updating the breadth and scope of the content to reflect changes in clinical care and advances in medical science; refining the content to deliver greater precision for data collection, retrieval and aggregation; and enhancing the functionality to serve our users better.

In order to reflect the continually evolving change of medicine, health care terminology must also be dynamic and responsive to this evolutionary process. This is evidenced by the editorial process described earlier that involves the input of experts from many different fields in order to determine the best direction for continued development. From this perspective, then, SNOMED® will never be "complete", nor would this be a desirable state, as the result would be a terminology that is no longer responsive to the latest medical developments.  We expect that the flexibility of the SNOMED CT® structure will encourage the continued enhancement and development of the content through the extension development process.  An additional benefit to the SNOMED® structure is the end-user's ability to register for a name space to build extensions in order to reflect individual needs. The extension will reflect the same structure as SNOMED CT® so that

consistency is maintained.

**Acquisition**

*How are the data sets/codes acquired and use licensed?*
This section needs to be updated with the details of the NLM licensing
It will soon be in the UMLS®, anticipated January 2004, free of charge to anyone who agrees to the license terms. UMLS® license terms allow for all patient record uses and messaging. An in-principal agreement. SNOMED® has been reached that provides, in the US, SNOMED CT® as one of the Category 0 code sets essentially allowing free distribution and use in the US.

## Cost

*What is the direct cost to obtain permission to use the data sets/codes? (licensure, acquisition, other external data sets required, training and education, updates and maintenance, etc.)*
With the current federal agreement, SNOMED CT® has no acquisition cost. We have no knowledge of the cost of implementing SNOMED® as a source terminology from UMLS® but it is our understanding that it will be able to be extracted easily and then implemented as the current stand-alone version. Successful implementation of the current version of SNOMED CT® requires knowledge of the file and data structure that can be obtained from extensive provided documentation or training courses, offered for a fee, on-site or at the CAP offices on a regular basis. Similarly, full use of the hierarchies and relationships in SNOMED® also require extensive training, education and in many cases extensive software changes. The United Kingdom has been working with CAP for 3+ years on implementation, Kaiser Permanente in US has for 5+ years, and various other prototype sites exist. To our knowledge, none have successfully used all features of SNOMED CT®. Hence; no estimates on cost in this area can be offered.

SNOMED® has been successfully implemented in many sites simply as a source of code values. The cost for this type of implementation is basically the mapping of current results to the appropriate SNOMED® codes. If result mapping is not possible and conversion to SNOMED® codes requires natural language processing, the cost is much higher and success is limited.

Training needs vary from basic to advanced, developer to end user, and face-to-face versus online delivery. Training programs are designed for software developers, knowledge base developers, sales teams and implementation support staff, physicians and other clinician end users. They are designed to empower development and deployment of SNOMED® compliant works. Programs are offered at SNOMED® headquarters, or are customized and delivered at the user's location of choice. The cost of the two-day development-training program at SNOMED® headquarters is $1,000 per person. Group rates are provided as follows:

**Training at CAP**

| # Persons | Cost Per Person | % Discount | Total Cost |
|---|---|---|---|
| 1 | $1,000 | 0 | $1,000 |
| 2 | $1,000 | 0 | $2,000 |
| 5 | $900 | 10% | $4,500 |
| 10 | $750 | 25% | $7,500 |
| 20 | $500 | 50% | $10,000 |
| 25 | $500 | 50% | $12,500 |

(Plus expenses)

**Training at Customer Site**

| # Persons | Cost Per Person | % Discount | Extra Fixed Charge | Total Cost* |
|---|---|---|---|---|
| 1 | $1,000 | 0 | $5,000 | $6,000 |
| 2 | $1,000 | 0 | $5,000 | $7,000 |
| 5 | $900 | 10% | $5,000 | $9,500 |
| 10 | $750 | 25% | $5,000 | $12,500 |
| 20 | $500 | 50% | $5,000 | $15,000 |
| 25 | $500 | 50% | $5,000 | $17,500 |

(Plus expenses)

The cost of the SNOMED® User's Group is $695 per person. This or other standard English language training programs can be conducted at a client's designated site for an additional $5,000 plus expenses. Custom training programs are developed upon request.

**Systems Requirements**

***Is the standard associated with or limited to a specific hardware or software technology or other protocol?***
SNOMED® is both vendor and platform neutral, and can thus be implemented into systems based on any technology.

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**Guidance:**

***What public domain and implementation and user guides, implementation tools or other assistance is available and are they approved by the SDO?***
SNOMED® publishes and offers a number of products and service to support successful implementation. Following are prices for these services:

**SNOMED Compatible Products & Services**
**PRICE LIST**

| | |
|---|---|
| Technical Implementation Guide | $1,000 |
|     Updates | $200 |
| | |
| Developer Toolkit | $1,000 |
|     Updates | $200 |
| | |
| Users Guide | $50 |
| | |
| Member Name Space | $100/annually |
| | |
| Canonical Table for Advance Retrieval | $5,000 |
|     Updates | $1,000 |
| | |
| SNOMED® II Bridge File for Pathology | $250 |
|     (Includes documentation) | |

*Fees exclusive of applicable taxes, shipping and handling
(note: CD-ROM taxed in all states; Internet services taxed in 17 states)

***Is a conformance standard specified?***
Yes, SNOMED CT® utilizes the Terminology Structure Standard that is in the process of being accepted as ANSI standard.   The SNOMED CT® team has tools to verify that the released files are in this standard format.

***Are conformance tools available?***
None know to date

**Maintenance**

*How do you coordinate inclusion and maintenance with the standards developer/owners?*

The College of American Pathologists (CAP) is an ANSI standards development organization and is the sponsor of the Terminology Structure Standard. SNOMED® International is a division of the CAP and has an integral role in maintaining this standard and SNOMED CT®'s use of it. The College has been an active participant in standard development organizations.

Following is a summary of this involvement:

- ANSI: approved as an ANSI accredited standards developer; the SNOMED CT® terminology structure is ANSI approved
- American Nurses Association: SNOMED CT® has been recognized as an ANA nomenclature;
- DICOM®: Secretariat of Working Group 8 (Structured Reporting) and participant in Working Group 13 (Visible Light Images);
- HL7®: SNOMED RT® is registered and SNOMED CT® registration is in progress;
- ISO: Participation in ISO Technical Advisory Group on Health Concept Representation;
- X12: Approved as a code source for ASC X12 version 4010 for the purpose of reporting more precise terms of medical results primarily for statistical purposes in the public health system;
- NCHS: SNOMED CT® monitors and integrates updates to ICD-9-CM as available;
- NCVHS: SNOMED CT® has consistently testified and responded to NCVHS requests in its evaluation of standards. In the February, 2003 NCVHS questionnaire, SNOMED CT® was identified as the most comprehensive nomenclature;
- NQF: SNOMED CT® has frequently been in attendance at NQF hearings and has testified whenever requested. At the request of the NQF, SNOMED CT® has also identified and incorporated "never events" into the SNOMED CT® structure;
- IOM: SNOMED CT® continues to testify and monitor deliberations regarding development of data standards applicable to the collection, coding and classification of patient safety information.

*What is the process for adding new capabilities or fixes?*

The SNOMED® International Editorial Board (SIEB) recommends content direction, which is then sent to the SNOMED® International Authority for approval. Proposals come from requests from individual users, user groups, professional societies, internal editorial staff, and external consultants/advisors

The process includes:

- Collection of requests for changes and enhancements

- Prioritization of requests
- Implementation of changes
- Distribution to the relevant user base
- Quality assurance of the change.

Request for changes to SNOMED CT® come from many industry sources. To date, key contributors have been the result of close working partnerships with Kaiser Permanente, a large US healthcare organization, and the UK's National Health Service. SNOMED® International also partners with specialty medical groups including the American Dental Association, the American Academy of Ophthalmologists, DICOM®, and the American Veterinary Medical Association. SNOMED CT® has over 200 licensees that also provide detailed suggestions about new concepts and terms. An annual User's Group is a focal point for collecting input about the overall direction, although content submissions can be made at any time. SNOMED® also benefits from the detailed review of the terminology conducted during the translation to other languages. The scientific experts of the SNOMED® team, as part of its day-to-day work with SNOMED®, proactively scan new developments in healthcare and clinical treatments. In addition, SNOMED® sponsors a series of Convergent Terminology Groups (CTGs) to advise the Editorial Board. The CTGs recommend direction and priorities for a specialty area. Example CTGs include nursing, mapping, pathology, and imaging. SNOMED® has developed a web-based application for submitting change requests and recommending improvements to the vocabulary. This process will provide the end-user with better management of change requests and improved communication regarding its status. The status of requests can be viewed online 24x7 and email notifications are sent to the requestor at selected checkpoints as the request is processed. The process will acknowledge submissions within 1 working day, with most requests accepted or declined within a month. This application has been in pilot with several licensees since November 2002, and is being used actively within the SNOMED® team. All terminology suggestions are compiled and prioritized with input of the Editorial Board. If accepted, they are then scheduled to be addressed by the SNOMED® Clinical Editor team for a future release. Suggestions to other components of SNOMED CT®, such as documentation or file changes, are managed by other members of the SNOMED® team using a similar process. Major changes to content or technical structure are researched, documented and submitted to the SNOMED® International Editorial Board for formal consideration. Once scheduled, the change is made, reviewed, and incorporated into the next release. History files, subsets, cross-mappings, documentation, training, and release materials are all updated to reflect the change.

*What is the average time between versions?*
The average time between versions of SNOMED® is 6 months, January and July for English editions; April and October for Spanish editions. New editions have been released less frequently. For example, SNOMED® has published five editions over the last 40 years. The first edition, SNOMED® for Pathology (known as SNOP) was developed in 1965. SNOMED® II was released in 1979, followed by SNOMED® International in 1997. SNOMED Reference Terminology® (SNOMED RT®), which revolutionized the structure of SNOMED®, was released in July, 2000, followed by SNOMED Clinical Terms® (SNOMED CT®) in January, 2002, essentially doubling the

content.  There are no plans for an edition to replace SNOMED CT®. Predating the launch of SNOMED RT®, SNOMED® has issued updates (version releases) on a twice annual basis. This practice is expected to continue.

*What methods or tools are used to expedite the standards development cycle?*
SNOMED CT® infrastructure comprises a unified set of tools, structures and processes used to create, maintain and build upon the SNOMED CT® Core. The infrastructure includes a range of third party proprietary tools as well as CAP developed tools including the following:

**SNOMED® Terminology Platform Tools**
- Terminology Development (editor and classifier, QA tools, subset editor, release process tools, QA scripts);
- Mapping tools (mapping master);
- Content tools (editor style guides, authors web site);
- Translation tools (translation master, validator web site, memory tools);
- Documentation tool;
- Back-up/recovery.

**License Deployment Tools**
- License terminology tools (browser, request submission toolkits).

As an ANSI approved developer of standards, SNOMED® has a formalized set of procedures for the development and coordination of standards, and specifically SNOMED®. An integral part of this standard is the function of the SNOMED® International Editorial Board, which holds regularly scheduled meetings, and is consulted by email and phone conference as needed.  As previously discussed, the Editorial Board consists of experts from a number of medical disciplines, thus enhancing the breadth and scope of the content. Working groups are formed as required and then dissolved when their mission is accomplished.  As an example, a "context of care" working group has worked for the past several months to create an approach and guidelines for how terminology can be used in the context of a healthcare record.  In addition to exposing these ideas for dialog in the informatics research community through such forums as AMIA (American Medical Informatics Association), SNOMED® holds memberships in standards groups such as HL7® and ISO to ensure alignment with evolving standards.  To ensure that the standards can be used in a practical way, the SNOMED® team uses the broad experience of SNOMED CT® licensees, the SNOMED® Industry Advisory Group, SNOMED® CTGs, and the SNOMED® International Editorial Board to shorten the cycle from idea to standard discussion, and most importantly, to standard adoption.  Other processes that are used to expedite the development of the terminology include the use of alpha and beta tests, validation studies, consultative reviews and focus groups. The ANSI guideline document also outlines both quality assurance and continual quality indicator processes.

*How are local extensions, beyond the scope of the standard, supported if at all?*
Local extensions are supported within the SNOMED® structure.  They provide extensibility of SNOMED CT® for specialized organizational terminology.  Extensions may be developed by CAP or by one of its licensees who have applied to CAP for a

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designated name space in accordance with the SNOMED CT® extension policy.  Local concepts can be kept in separate extension files using the SNOMED CT® standard structure with locally assigned identifiers.  The identifiers are kept distinct from SNOMED CT® and from other local extensions utilizing a "namespace" that is assigned by SNOMED® International.  Currently, the US Drug extension and the UK Drug extension are maintained by the College of American Pathologists and the National Health Service respectively.  When content overlaps the scope of SNOMED CT, ® it is submitted to the SNOMED® International team for consideration for the core content, so that other SNOMED CT® licensees can also take advantage of this work. Similarly, this structure can also help organizations transfer responsibility for terminology not only to SNOMED® International but also to another organization as appropriate.

## **Customization**

 *Describe known implementations that have been achieved without user customization, if any.*

 A large number of SNOMED® end-users use SNOMED® in an as-delivered format as incorporated into software solutions. Perhaps the greatest number of these exist within the anatomic/clinical pathology environment, where numerous end-users have deployed SNOMED® as a standard component of their LIS.  Many of the software suppliers are also in various stages of implementing SNOMED CT® into other systems, such as EMR and Order Entry. Kaiser Permanente has also made extensive use of SNOMED® throughout its health care system.  As SNOMED CT® has been in the market for little over a year, many organizations have not yet completed their implementation process.

*If user customization is needed or desirable, how is this achieved? (e.g, optional fields, interface engines, etc.)*

Localization can be achieved throughout to development SNOMED CT® compliant subsets, mapping and extensions to content.  The SNOMED CT® structure supports this process by offering tools such as the subset editor, mapping master, and editor style guidelines. Additionally, the CAP supports consultative services that can assist customization efforts on an individual client basis.

**<u>Mapping Requirements</u>**

*Describe the extent to which user agencies will likely need to perform mapping from internal codes to this standard.*

CAP has indicated that SNOMED® has been mapped to CDT-2® and ICD-9-CM. The map to ICD-9-CM is currently undergoing a validation re-map. There is the caveat that the current mapping to ICD-9-CM is not for billing, but requires manual review to assure proper assignment of ICD-9-CM codes.  Mappings to other HIPAA code sets would be needed (CPT-4®; HCPCS).

*Identify the tools available to user agencies to automate or otherwise simplify mapping from existing codes to this standard.*

Under the guidance of the Mapping Convergent Terminology Group, predefined mappings have been developed between SNOMED CT® and existing code sets.  This can simplify the mapping process for organizations using the SNOMED CT® standard. These pre-defined mappings include ICD-9-CM, ICD-10, OPCS-4 (used in the UK), Nursing Intervention Classification scheme (NIC), and NANDA.   SNOMED® morphology codes were adopted by ICD-O for Oncology and are actually a part of SNOMED CT®; a predefined ICD-O mapping also exists.  LOINC® codes have been integrated into SNOMED CT® as well.  SNOMED CT®'s predecessor works, SNOMED RT® and the UK National Health Service's Clinical Terms Version 3 (CTV3), are fully integrated into the terminology.  Migration files are also available for earlier editions of SNOMED® terminology.  Documentation about the mapping structure and heuristics used to develop these mappings is available.  Internal tools assist the mappers and the validators of those pre-defined maps. Among the tools that are available to those interested in mapping are:

- The SNOMED® Registry of Subsets, Extensions and Mappings, which identifies who is or has developed a SNOMED CT® compliant work;

- The SNOMED® Mapping Kit, in development, which summarizes the key structure and content decision rules to consider when mapping;

- Consultative services available for custom mapping projects.

- Identify the extent of off-the-shelf conformity with other standards and requirements

- SNOMED® has developed a number of maps, such as those to ICD-9-CM, NIC, NOC, NANDA and OPCS-4.  SNOMED® has also integrated LOINC® and ICD-O-3 into the vocabulary.

**Compatibility**

*Identify the extent of off-the-shelf conformity with other standards and requirements:*

| Conformity with other Standards | Yes (100%) | No (0%) | Yes with exception |
|---|---|---|---|
| NEDSS requirements | **N/A** | | |
| HIPAA standards | | | |
| HL7® 2.x | **N/A** | | |

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**Implementation Timeframe**

*Estimate the number of months required to deploy this standard; identify unique considerations that will impact deployment schedules.*

Though currently not widely used in federal systems, it is anticipated that further deployment will occur once negotiations for a public use license for SNOMED CT® between CAP and NLM have been successfully completed.  The amount of time required for deployment of SNOMED CT® can vary dramatically.  Among the factors that can affect the length of time required are the scope and complexity of the system into which SNOMED® is being deployed, the internal resource commitment, testing, migration requirements, training schedules and the planned go-live date.

*If some data sets/code sets are under development, what are the projected dates of completion/deployment?*

The College of American Pathologists is updating its cancer protocols and related checklists for standard reporting.  The essential data elements of these checklists have been mandated by the American College of Surgeons Commission on Cancer as part of the accreditation process starting January 1, 2004. These cancer checklists will be fully supported by SNOMED CT®.  Almost all of this encoding will be reflected in the July 2003 release with the remainder in the January 2004 Release.

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**Gaps**

*Identify the gaps in data, vocabulary or interoperability.*

The SNOMED CT® content is dynamic and continually evolves to reflect current scientific and clinical developments. We tested SNOMED CT® capacity to identify to relatively new procedures for the management of GERD (gastroesophageal reflux disease).  The STRETTA and ENDO CINCH procedure were evaluated.  We were unable to identify the procedures, this might be due to the fact that these procedures are relatively new and cross several concepts. IE "ablation & radiofrequency".  STRETTA procedure is a minimally invasive outpatient procedure using radiofrequency ablation for treatment of gastroesophageal reflux disease (GERD).  Endo CINCH is a minimally invasive endoscopic outpatient procedure for treatment of gastroesophageal reflux disease (GERD).  As of this review these and other emerging technologically advanced surgical procedures are not included in the current version.  The timeliness by which

emerging procedures become standard health care needs to be incorporated in the updating of SNOMED CT®. At present, a map to CPT-4® does not exist. The workgroup recognizes the importance of mappings to be maintained between SNOMED CT®, CPT®, and ICD-10-PCS via the UMLS®.

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**Obstacles**

***What obstacles, if any, have slowed penetration of this standard? (technical, financial, and/or cultural)***

Many software suppliers and health care providers have delayed adoption and deployment of SNOMED CT® pending positive conclusion of the relationship or of the NCVHS recommendations regarding clinical terminology. Experience has also shown that while organizations recognize the value of terminologies and the effort in developing and maintaining them, many also believe that funding should be at a national level. Also, the lifecycles of terminologies are very long. For example, many laboratory information systems in the U.S. still autoencode using SNOMED® II (circa 1979). Health care organizations need to be confident over long-term development, control, and costs of the terminology prior to making the commitment to their use. In some organizations, the scope and pace of implementation is determined by factors such as health priorities, the lifecycles of information systems, and their associated funding streams, legislation, accreditation, billing requirements as well as the level of market acceptance. As the hurdles to implementing electronic records are addressed, SNOMED CT® provides the framework for interoperability, at a local, regional, national, or global level. To manage the scale of the commitment and its associated risks, organizations need to be able to evaluate, experiment, make adaptations, and share the results with others. For many, industry is the distribution and implementation channel for SNOMED CT®. Software suppliers also need to assess the cost of system redesign with the benefits in their market sector. Past experience has revealed a number of associated risks that must be managed for suppliers to engage in the necessary systems development, including:

- Perceived high whole systems costs to migrate a health care enterprise to a new software platform;
- Uncertain realizable benefits from full use of the clinical richness of the terminology and the robustness of its infrastructure;
- Long time-scales (12-24 months to market);
- Diverse, potentially conflicting stakeholder requirements including the preservation of legacy information;
- Dependencies on other "user" initiatives, local priorities and information systems life cycles;
- Reluctance to commit to terminology produced by a terminology developer that is not committed to long-term maintenance using commercial grace processes.

## *Appendix A*

## Information Exchange Requirements (IERs)

| Information Exchange Requirement | Description of IER |
|---|---|
| Beneficiary Financial / Demographic Data | Beneficiary financial and demographic data used to support enrollment and eligibility into a Health Insurance Program. |
| Beneficiary Inquiry Information | Information relating to the inquiries made by beneficiaries as they relate to their interaction with the health organization. |
| Beneficiary Tracking Information | Information relating to the physical movement or potential movement of patients, beneficiaries, or active duty personnel due to changes in level of care or deployment, etc. |
| Body of Health Services Knowledge | Federal, state, professional association, or local policies and guidance regarding health services or any other health care information accessible to health care providers through research, journals, medical texts, on-line health care data bases, consultations, and provider expertise. This may include: (1) utilization management standards that monitor health care services and resources used in the delivery of health care to a customer; (2) case management guidelines; (3) clinical protocols based on forensic requirements; (4) clinical pathway guidelines; (5) uniform patient placement criteria, which are used to determine the level of risk for a customer and the level of mental disorders (6) standards set by health care oversight bodies such as the Joint Commission for Accreditation of Health Care Organizations (JCAHO) and Health Plan Employer Data and Information Set (HEDIS); (7) credentialing criteria; (8) privacy act standards; (9) Freedom of Information Act guidelines; and (10) the estimated time needed to perform health care procedures and services. |
| Care Management Information | Specific clinical information used to record and identify the stratification of Beneficiaries as they are assigned to varying levels of care. |
| Case Management Information | Specific clinical information used to record and manage the occurrences of high-risk level assignments of patients in the health delivery organization. |

| | |
|---|---|
| Clinical Guidelines | Treatment, screening, and clinical management guidelines used by clinicians in the decision-making processes for providing care and treatment of the beneficiary/patient. |
| Cost Accounting Information | All clinical and financial data collected for use in the calculation and assignment of costs in the health organization . |
| Customer Approved Care Plan | The plan of care (or set of intervention options) mutually selected by the provider and the customer (or responsible person). |
| Customer Demographic Data | Facts about the beneficiary population such as address, phone number, occupation, sex, age, race, mother's maiden name and SSN, father's name, and unit to which Service members are assigned |
| Customer Health Care Information | All information about customer health data, customer care information, and customer demographic data, and customer insurance information. Selected information is provided to both external and internal customers contingent upon confidentiality restrictions. Information provided includes immunization certifications and reports, birth information, and customer medical and dental readiness status |
| Customer Risk Factors | Factors in the environment or chemical, psychological, physiological, or genetic elements thought to predispose an individual to the development of a disease or injury. Includes occupational and lifestyle risk factors and risk of acquiring a disease due to travel to certain regions. |
| Encounter (Administrative) Data | Administrative and Financial data that is collected on patients as they move through the healthcare continuum. This information is largely used for administrative and financial activities such as reporting and billing. |
| Improvement Strategy | Approach for advancing or changing for the better the business rules or business functions of the health organization. Includes strategies for improving health organization employee performance (including training requirements), utilization management, workplace safety, and customer satisfaction. |
| Labor Productivity Information | Financial and clinical (acuity, etc.) data used to calculate and measure labor productivity of the workforce supporting the health organization. |

| Health Organization Direction | Goals, objectives, strategies, policies, plans, programs, and projects that control and direct health organization business function, including (1) direction derived from DoD policy and guidance and laws and regulations; and (2) health promotion programs. |
|---|---|
| Patient Satisfaction Information | Survey data gathered from beneficiaries that receive services from providers that the health organization wishes to use to measure satisfaction. |
| Patient Schedule | Scheduled procedure type, location, and date of service information related to scheduled interactions with the patient. |
| Population Member Health Data | Facts about the current and historical health conditions of the members of an organization. (Individuals' health data are grouped by the employing organization, with the expectation that the organization's operations pose similar health risks to all the organization's members.) |
| Population Risk Reduction Plan | Sets of actions proposed to an organization commander for his/her selection to reduce the effect of health risks on the organization's mission effectiveness and member health status. The proposed actions include: (1) resources required to carry out the actions, (2) expected mission impact, and (3) member's health status with and without the actions. |
| Provider Demographics | Specific demographic information relating to both internal and external providers associated with the health organization including location, credentialing, services, ratings, etc. |
| Provider Metrics | Key indicators that are used to measure performance of providers (internal and external) associated with the health organization. |
| Referral Information | Specific clinical and financial information necessary to refer beneficiaries to the appropriate services and level of care. |
| Resource Availability | The accessibility of all people, equipment, supplies, facilities, and automated systems needed to execute business activities. |
| Tailored Education Information | Approved TRICARE program education information / materials customized for distribution to existing beneficiaries to provide information on their selected health plan. Can also include risk factors, diseases, individual health care instructions, and driving instructions. |