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Sponsored by: Patient Care Work Group

Patient Care Co-Chairs
Elaine Ayres, National Institutes of Health
Stephen Chu, National eHealth Transition Authority (NEHTA) Australia
Kevin Coonan MD
Russell Leftwich MD, Office of eHealth Initiatives
Hugh Leslie MD, Ocean Informatics
Michael Tan, NICTIZ
Klaus Veil, HL7 Australia

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Modelers

Luigi Sison (TC Associates)
Jay Lyle (JP Systems)

Terminologists

Donna DuLong (Apelon)
Patricia Greim (US Department of Veterans Affairs)
Catherine Hoang (US Department of Veterans Affairs)
Moon Hee Lee (Kaiser Permanente)
Susan Matney (Intermountain Healthcare)
Holly Miller (US Department of Veterans Affairs)
Mary Seggerman (Kaiser Permanente)
Charlie Selhorst (Kaiser Permanente)

Subject Matter Experts

Elaine Ayres (National Institutes of Health)
Dr. Mona Baharestani (US Department of Veterans Affairs)
Diane Bedacarre (US Department of Veterans Affairs)
Dr. Nancy Collins (RD411.com, Inc.)
Deborah Francis (Kaiser Permanente)
Mimi Haberfelde (US Department of Veterans Affairs)
Dr. Peter Hendler (Kaiser Permanente)
Young Hee Kim (Acute Care Dietitian)
Mary Litchford (Dietitian)
Nancy Munoz (Dietitian, Genesis HealthCare)
Ann O'Brien (Kaiser Permanente)
Evelyn Phillips (Magee Rehabilitation)
Maryellen Posthauer (Dietitian, SupremeCare West)
Sherri Simons (US Department of Veterans Affairs)
Dr. Walter Suarez (Kaiser Permanente)
Colleen Sulewki (Dietetics student, FIU)

Foreword

Publication of this Technical Report that has been registered with ANSI has been approved by the accredited standards developer Health Level Seven International (HL7), 3300 Washtenaw Ave., Suite 227, Ann Arbor MI 48104, USA. This document is registered as a Technical Report according to the procedures for the Registration of Technical Reports with ANSI. This document is not an American National Standard and the material contained herein is not normative in nature. Comments on the content of this document should be sent to the HL7 Clinical Interoperability Council Work Group, 3300 Washtenaw Ave., Suite 227, Ann Arbor MI 48104-4261 or hq@hl7.org. This document was registered as a Technical Report to provide specification developers with consistent ways to represent elements of interest in pressure ulcer risk assessment.

1. Introduction

This project defines a domain analysis model for the concepts of pressure ulcer risk assessment and preventative interventions. The model will support both internal uses—internal integration, quality control and decision support—and semantic interoperability among providers and between providers and other stakeholders.

Pressure ulcers are a significant problem

Pressure ulcers are a major threat to the healthcare system and represent a serious safety concern to patients. As many as 3 million patients are treated in U.S. healthcare facilities each year for pressure ulcers at an estimated cost as high as \$15.6 billion¹.

Pressure ulcers are one of the most serious safety concerns related to hospitalizations⁴. Approximately 3 million adults are affected by pressure ulcers in the U.S. and this adverse event causes increased healthcare costs² and a great deal of pain and suffering to patients³. The average treatment cost per hospital stay of a pressure ulcer in 2008 was estimated to be \$44,141⁸.

Pressure ulcers are a quality indicator

Accurate identification of the risk and prevention strategies for pressure ulcers crosses many of the high-priority measure concepts, including care coordination, patient health outcomes, care transitions, and effective preventive services. The prevalence of pressure ulcers is widespread in all settings, with estimates of 10-18% in acute care, 2.3-28% in long term care, and 0-29% in

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1. Dorner, B., Posthauer, M. E., & Thomas, D. (2009). The role of nutrition in pressure ulcer prevention and treatment: National Pressure Ulcer Advisory Panel white paper. *Advances in Skin and Wound Care*, 22(5), 212-221.
 2. Russo, A., Steiner, C., & Spector, W. (2008). *Hospitalizations Related to Pressure Ulcers Among Adults 18 Years and Older*. Healthcare Cost and Utilization Project, Agency for Healthcare Research and Quality. Retrieved on December 14, 2010 from <http://hcupnet.ahrq.gov>
 3. Hopkins, A., Dealey, C., Bale, S., Defloor, T., & Worboys, F. (2006). Patient stories of living with a pressure ulcer. *Journal of Advanced Nursing*, 56(4), 345-353.

home care⁴. In addition, about 50% of all adult patients in acute care facilities are at high risk for developing pressure ulcers⁵. The prevalence of pressure ulcers is generally considered a proxy for the quality of care⁶. Better communication about the patient's risk factors and effective preventive interventions is critical to reducing this risk.

The Centers for Medicare and Medicaid Services (CMS)⁷ has labeled pressure ulcers as one of the “never events”, and considers skin integrity as a reflection of quality of nursing care. As a result, as of October 2008, CMS will no longer reimburse for hospital-acquired pressure ulcers.

Pressure ulcer prevention is listed as one of the National Priorities Partnership top healthcare reform priorities. Pressure ulcers appear on the both National Quality Forum’s Serious Reportable Events (SREs)⁸ and the CMS’s serious Hospital Acquired Conditions (HACs)¹⁰. As a result, acute care hospitals and nursing homes will soon be required to publicly report the number of these events that occur within their facility⁹.

Pressure ulcers are largely preventable

Accurately assessing the patient’s risk of developing a pressure ulcer is the first step in prevention. Most of the existing NQF-endorsed quality measures related to pressure ulcers only track the prevalence of late-stage pressure ulcers, but not the process (assessment and intervention) necessary to prevent this common HAC. What is needed is the ability to track and trend patient outcomes suitable for comparison by health care professionals. EHRs that provide evidence-based guidelines at the point of care; make it easier to find and share best practices;

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4. Cuddigan, J., Ayello, E. A., Sussman, C., Baronoski, S. eds. (2001). *Pressure Ulcers in America: Prevalence, Incidence, and Implications for the Future*. Reston, VA: National Pressure Ulcer Advisory Panel.
 5. Hill-Rom. (2007). Hospitals could improve outcomes for patients and save millions according to Hill-Rom, in *10th Annual Pressure Ulcer Survey*. Retrieved on December 17, 2010 from <http://ir.hill-rom.com/releasedetail.cfm?ReleaseID=302241>.
 6. Gunningberg, L., Brudin, L., & Idvall, E. (2010). Nurse Manager’s prerequisite for nursing development: a survey on pressure ulcers and contextual factors in hospital organizations. *Journal of Nursing Management*, 18, 757-766. doi:10.1111/j.1365-2834.2010.01149.x
 7. Centers for Medicare and Medicaid Services (CMS). (2008). *Eliminating Serious, Preventable, and Costly Medical Errors – Never Events*. Retrieved on December 14, 2010 from <http://www.cms.hhs.gov/apps/media/press/release.asp?Counter=1863>
 8. National Quality Forum (NQF). (2008). *Serious reportable events*. Retrieved on December 8, 2010 from http://www.qualityforum.org/ations/2008/10/Serious_Reportable_Events.aspx
 9. Hospital Inpatient Quality Reporting Program (formerly known as RHQDAPU). (2010). *FY2012 Reporting Quarters*. Retrieved on December 9, 2010 from <http://www.qualitynet.org/dcs/ContentServer?cid=1138115987129&pagename=Qnet%2FPa ge%2FQnetTier2&c=Page>

help reduce healthcare-associated preventable conditions; promote ongoing research on the effectiveness of practices; and allow monitoring and analysis of how individual clinicians and systems are performing relative to peers exemplify the type of functionality required to demonstrate meaningful use today. The collection of quality measures needs to be an automated byproduct of electronic documentation at the point of care, not a manual, retrospective, and costly process as it exists today.

Currently, there is no single quality measure that addresses the pressure ulcer risk identification and prevention for all environments. NQF-endorsed quality measures #538, 539, 540, 0201, and 0181¹⁰ all offer slightly different views of the problem. A modification, combination, or bundle of these measures that applies to all environments (acute care as and long-term care) is a step the right direction. This quality measure gap can start to be addressed in the next phase of meaningful use criteria with a national focus on capturing select data within an EHR that measures the impact of nursing care on patient outcomes.

Nursing data is critical

A significant part of documentation is completed by nurses, the largest single group of EHR users. The sheer volume of documentation by nurses provides an excellent opportunity to use health information technology (HIT) to improve decision-making during the process of care delivery, where it can have the greatest impact on preventing pressure ulcer occurrence.

HIT, specifically the use of an EHR-enabled standardized risk assessment tool can facilitate the consistent identification of at risk patients, documentation, decision making, and timely communication of these findings to other providers. This is especially true if the system is based on expert rules or clinical guidelines and integrated within the nurses' workflow¹¹.

2. Scope

This effort is based on many organizations' observations that nursing data is critical to quality of care, and any EHR vision that purports to improve quality must include this vital source of knowledge. While some efforts, as at the US Department of Veterans Affairs (VA), aim at a comprehensive codification of nursing information, this project focuses on a small first step, and for that step has chosen the domain of pressure ulcer prevention.

The use cases, described below, include observations to support a pressure ulcer risk assessment and creating and updating interventions designed to reduce pressure ulcer risk in the patient's care plan. These activities will support a variety of uses, including better-informed clinical care,

10. National Quality Forum (NQF). (2010). *NQF-Endorsed Standards*. Retrieved on December 17, 2010 from http://www.qualityforum.org/Measures_List.aspx

11. Kim, H., Choi, J., Thompson, S., Meeker, L., Dykes, P., Goldsmith, D., & Ohno-Machado, L. (2010). Automatic pressure ulcer risk assessment using documented patient data. *International Journal of Medical Informatics*. doi:10.1016/j.ijmedinf.2010.08.005

quality management and quality reporting, better communication of risks to transfer or consultative partners, and clinical decision support.

The model is based on work done by experienced clinical nurses and informaticists aimed at representing information required for pressure ulcer risk assessment and prevention in terms that are clear and intuitive to practicing nurses.

A significant part of the value is that the terminology defines the semantics of the properties: for this reason, terminology is included in the model. It might have been possible to “bind” these properties as coded elements to standard terminologies, if a) there were a convention for doing so and b) most of the terms existed in standard terminologies: neither of these is true. Still, it is the intent of the team that the values be drawn from standardized terminologies; to this end, we adopt the conventions outlined in the Vocabulary section, below. For terms not encoded, the LOINC Nursing Subcommittee is proposing the terms listed herein be added to LOINC and to SNOMED.

3. Current Effort

In 2009, the VA’s Office of Nursing Services conducted a project to create a nationally standardized clinical terminology catalog to be used by all clinical documentation systems within VA (such as flow sheets, anesthesia, and ICU). Initial terms were collected from Clinical Observation Flowsheet application and National Patient Assessment templates. At the end of the project, 3688 terms over 15 domain areas were identified for use by VA developers. Building on this effort, the LOINC Nursing Subcommittee embarked on an effort to standardize integumentary assessment information (specifically, generalized skin assessment, skin risk assessment, and skin alteration (wound) assessment). This effort is ongoing, and it consists primarily of the harmonization of data sets across multiple health care organizations. Most of the content has been organized into question/answer pairs, using Clinical LOINC concepts for the question and SNOMED CT for the answers. Where the group has identified content gaps, they have submitted requests for content additions to Clinical LOINC and SNOMED CT (through the NLM as the US National Release Center for SNOMED CT).

The VA has also teamed up with Kaiser Permanente to ‘standardize the nursing information model’—i.e., in addition to ensuring the appropriate terms are available, agreeing on the shape of the information for use in communication. This project prioritizes pressure ulcer assessment over skin and wound assessment in general and adds pressure ulcer treatment. As pressure ulcers are a subset of the wound domain, terminologies identified by that project play a key role in the development of this model. This effort has also made it a priority to engage other bodies, having presented multiple gatherings to gain acceptance of this work within the broader nursing community, including

- National Pressure Ulcer Advisory Panel (NPUAP): Several members of the workgroup are present or former members
- Wound, Ostomy, and Continence Nursing Certification Board: Several members of the workgroup are present or former members

- Annual American Nursing Informatics Association (ANIA/CARING): Members described work effort at annual conference
- Summer Institute in Nursing Informatics (SINI): KP-VA representatives delivered keynote addresses
- American Organization of Peri-Operative Registered Nurses (AORN): Members described work effort at annual conference
- Health Information Management and Systems Society (HIMSS): Members described work effort at annual conference
- American Organization of Nurse Executives (AONE): Members described work effort at annual conference
- American Nurses Association (ANA): Convened second Tipping Point meeting partly in response to team advocacy; takes responsibility for nursing policy related to Meaningful Use.
- International Healthcare Terminology Standards Development Organization (IHTSDO) Nursing Special Interest Group: Engaged to provide international review of concepts
- Logical Observation Identifiers, Names, and Codes (LOINC) Nursing Subcommittee: Engaged to review concepts and models
- Office of the National Coordinator for Healthcare Information technology (ONC): the KP-VA collaborative and the relationships developed among all of these organizations was instrumental in positioning pressure ulcers as a likely candidate for defining Meaningful Use of EHRs.

One thread of this effort has been the activity to prepare the model for balloting at HL7 as a domain analysis model, as represented in this document.

It is anticipated that this effort will support very concrete actions in the near term, i.e., a pressure ulcer risk assessment document to be used for admission as well as ongoing care and transfers of care. How much this document will owe to or conform with existing specifications has yet to be determined; a list can be found in the Requirements package of the model.

The interventions package overlaps with a nascent effort at HL7 to extend the Care Provision domain to include Care Plans. We believe this model provides requirements for that effort, but remain open to suggestions for modeling our facet of the care plan process.

4. Metamodel

In the interest of clarity and ease of access for clinicians and others who may not be modeling experts, we endeavor to keep the number of UML constructs to a minimum.

We recognize that it can be difficult to read such a long document, so we also provide an html rendering of the model.

Package

Package group information into comprehensible chunks. At this stage, packaging supports legibility, not system boundary definition. Class diagrams are created for packages, and these

diagrams should fit legibly on a page; hence, packages must not be excessively large. If you view a class diagram in this model, you are usually viewing a package.

Use Case

Use cases describe business functionality. They are the primary method of scoping the model. They include Actors, Triggers, Outcomes, and, for two key cases, Activity Diagrams.

Use Case Diagram

The use case diagram illustrates what actors participate in use cases and how use cases relate in terms of composition.

Activity

Activities are the steps in use cases.

Activity Diagram

The activity diagram illustrates how activities are related in the flow of the use case.


Class

Classes are business entities, the nouns of the conceptual space.

Class Diagram


A class diagram illustrates how classes are related.

Association

Associations indicate that classes have relationships. They should indicate the cardinality (e.g., ) of each end: blank cardinalities are assumed to be “1:1” (required and unique). They may also indicate the nature of the association with a label (typically a verb), or label the ends to indicate the roles played by the two classes: these labels are rarely necessary.

We do not adopt specialized relationships possible in UML, with the exception of Generalization (and see also the approach to enumerations, below).

Generalization

A generalization, indicated with an open arrowhead () asserts that one class (the “specialization”) is a special kind of another class (also called the “generalization”).

Property

Properties are the data elements of interest, grouped into the classes to which they pertain.

Data type

Each property will declare a data type (text string, integer, date/time, etc.). Types are taken from the HL7 Abstract Data Types R2. See the concise table of data types used in this document in the Data Type Table section, below.

Enumeration

As noted above, this model includes terms identified by a team of clinical nurses to specify the semantics of the model properties. While enumeration is not the ideal tool for doing so, it is expedient for requirements elicitation. Enumerations are associated with the classes containing

the property whose values they enumerate. See the Vocabulary section, below, for further discussion.

Scope

The tool in which this model was built represents a property called “scope” that is used for software engineering. Briefly, it declares what sorts of program can see the affected attribute. It is not relevant for our analysis model, but the tool assigns it, so we leave it at the default. The only impact on the analysis model will be a hyphen or plus sign (“-” or “+”) prepended to class attributes.

Naming Conventions

It is customary to use camel case for class and property names in the interest of facilitating “model-driven architecture.” In other words, if a model is to be used for development, it is useful to use the naming conventions that support both requirements analysis (legibility) and the development team (no white space) so that they do not have to re-name elements or regenerate the whole model. The Domain Analysis Model, however, has no programmatic transform into the development process: that step is not taken until the constrained model is developed. Further, the point of the analysis model is to represent the concept space clearly back to the domain experts, a task which should be facilitated by the clearest possible statement of the space. As a result, we do not use camel case in this model.

We do, however, need to be able *to distinguish easily between artifact types* in ballot comments and other written communications.

In order to support these two requirements, we suggest the following for domain analysis models in general and we adopt it for this one:

- Class and enumeration names: title case nouns (e.g., “Skin Inspection”)
- Property and enumeration literal names: lower case nouns (e.g., “skin turgor”)
- Association labels: lower case verbs, indicative (e.g., “evaluates”)
- Use cases and activities: title case verb phrases, imperative (“e.g., “Answer Question”).

Data type list

Name	Symbol	Description
Boolean	BL	A binary value for use in boolean logic. A <i>BL</i> value can be either <i>true</i> or <i>false</i> , or, as any other value, <i>MAY</i> be <i>NULL</i> .
EncapsulatedData	ED	Data that is primarily intended for human interpretation or for further machine processing outside the scope of HL7.
CharacterString	ST	Text data, primarily intended for machine processing (e.g., sorting, querying, indexing, presentation, etc.).
ConceptDescriptor	CD	A reference to a concept defined in a code system
InstanceIdentifier	II	An identifier that uniquely identifies a thing or object.

Name	Symbol	Description
		Examples are object identifier for HL7 RIM objects, medical record number, order id, service catalog item id, Vehicle Identification Number (VIN), etc.
TelecommunicationAddress	TEL	A locatable resource that is identified by a URI. The address is specified as a Universal Resource Identifier (URL) qualified by time specification and use codes that help in deciding which address to use for a given time and purpose. TEL may be used to designate a retrievable resource such as a web page, a telephone number (voice, fax or some other resource mediated by telecommunication equipment), an e-mail address, or any other locatable resource that can be specified by a URL.
PostalAddress	AD	Mailing and home or office addresses. A sequence of address parts, such as street or post office box, city, postal code, country, etc.
EntityName	EN	A name for a person, organization, place or thing. A sequence of name parts, such as given name or family name, prefix, suffix, etc. Examples for entity name values are "Jim Bob Walton, Jr.", "Health Level Seven, Inc.", "Lake Tahoe", etc. An entity name may be as simple as a character string or may consist of several entity name parts, such as, "Jim", "Bob", "Walton", and "Jr.", "Health Level Seven" and "Inc.", "Lake" and "Tahoe".
IntegerNumber	INT	Integer numbers (-1,0,1,2, 100, 3398129, etc.) are precise numbers that are results of counting and enumerating. Integer numbers are discrete, the set of integers is infinite but countable. No arbitrary limit is imposed on the range of integer numbers. Two NULL flavors are defined for the positive and negative infinity.
RealNumber	REAL	A scalar magnitude. Typically used whenever quantities are measured, estimated, or computed from other real numbers. The typical representation is decimal, where the number of significant decimal digits is known as the precision.
PhysicalQuantity	PQ	A dimensioned quantity expressing the result of measuring.
MonetaryAmount	MO	A quantity expressing an amount of money in some currency. While the monetary amount is a single kind of quantity (money) the exchange rates between the

Name	Symbol	Description
		different units are variable. This is the principle difference between PQ and <i>MO</i> , and the reason why currency units are not physical units.
PointInTime	TS	A quantity specifying a point on the axis of natural time. A point in time is most often represented as a calendar expression.
Interval	IVL	A set of consecutive values of an ordered base data type.

5. Vocabulary

This model pilots the practice of specifying semantics (i.e., vocabulary) in a domain information model. The team felt this was important to the clear communication of the meaning of the model. While we are agnostic on questions of binding formalism, we maintain that the terms listed here at least clarify and in some cases constitute the meaning of their associated properties.

HL7 has articulated a process (in *Core Principles*) whereby an analysis team may define a concept subdomain, binding an attribute to that subdomain, rather than to a list of values. The values can be documented separately as a value set, and then, if appropriate, the realm can bind the value set to the subdomain. This way, the model is available for use in other realms, the realm and analysis team have asserted the semantics of the model in detail, and the two are decoupled: changes in the value set do not require model maintenance. For now, however, there is no body administering US Realm bindings, so we have adopted this interim approach.

Certain properties in the model have values that are constitutive of the model's meaning as a representation of the clinical process of pressure ulcer risk assessment. For example, the skin assessment package contains a skin color observation. This observation should not support all colors. The values enumerated for that property were defined by practicing nurses to be clinically correct for the purpose of risk assessment as well as clear and perspicuous to the nursing community. This property is associated with an enumeration that is intended to represent the correct range of the property "skin color." These value sets are represented as enumerations related to their classes with dependencies.

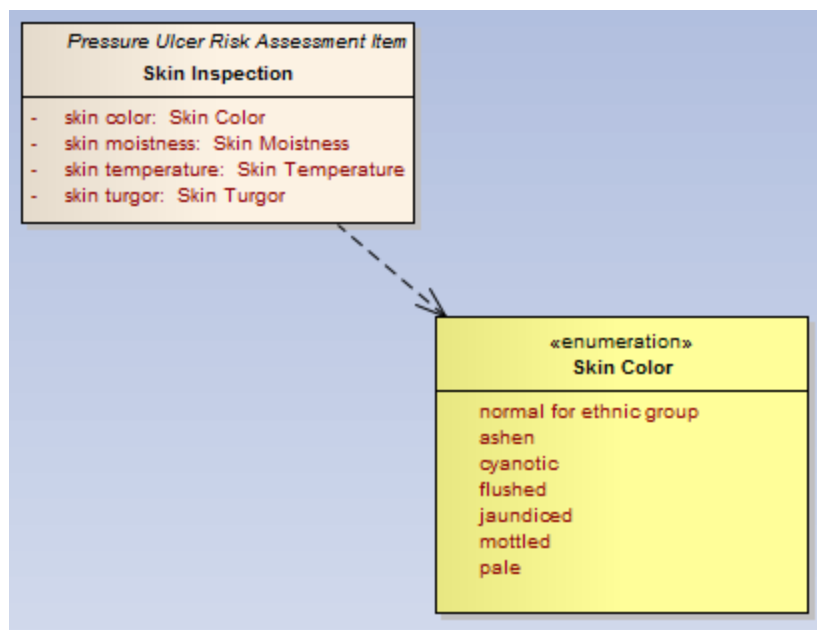


Figure 1: “Enumeration” formalism

In addition, these values are encoded with SNOMED CT concept identifiers, where possible, annotated in the model as “vocabulary” constraints. Concepts not found in SNOMED CT have been submitted to IHTSDO (or, for this US-realm model, the NLM) for inclusion. In certain cases (e.g., pressure points), concepts have been constructed by post-coordination in the SNOMED CT compositional grammar. Requests for pre-coordinated codes for these concepts may be submitted to the NLM as well.

The primary rationale for including SNOMED CT codes is disambiguation, much as one might adopt a practice of including definitions from a standard medical dictionary. A secondary rationale was to identify gaps in the reference terminology that need filling. We note that readers might infer a third use: it is possible to use these codes as implementation specifications. While downstream uses might adopt these values appropriately, specification is not appropriate for an analysis model for reasons of flexibility and maintenance, and we are evaluating this practice in light of the risk of this misapplication.

For other properties, the team either was unable to determine a recommended value range or did not believe that such a recommendation was feasible within our schedule, due to the size of the concept space, its volatility over time, or differences in practice among clinicians. Yet, for many of these properties, the team felt that example values would help illustrate the conceptual intent of the property. These value sets are represented as “examples,” related to their classes with dependencies. Where possible, example sets have also been encoded in SNOMED CT, for the convenience of implementers who choose to use the values provided.

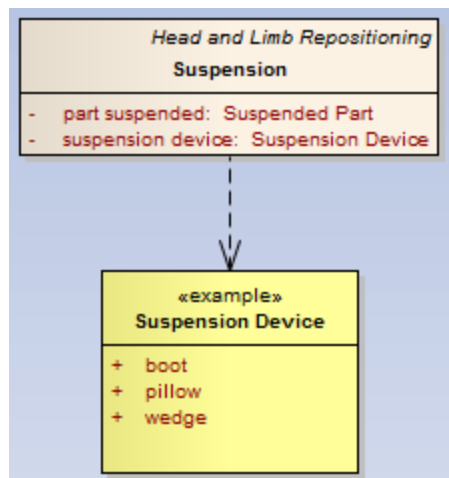


Figure 2: “Example” formalism

In some cases, while the entire example set cannot be proposed as a defining range of the property, the value of the property itself is constrained. In the above example, the property “suspension device” has a vocabulary constraint of “SNOMED CT: 223394001 equipment for positioning (physical object) (BT).” Properties have also been submitted to LOINC for identifiers. Neither the example set nor the values explicitly modeled in SNOMED CT include all pertinent values, but the concept space implied by the name and relationships of the head code is semantically appropriate (even if, as in this case, broad).

In many cases, a SNOMED CT term or expression was identified that did not seem to be a perfect match, but which may be close enough to support the use case, or which may prompt the submission of additional terms to IHTSDO. In these cases, the issue is noted. Due to a quirk of the publishing tool, the notes are written directly in the concept description text, not, as would be preferable from a modeling standpoint, in a note on the vocabulary constraint itself.

We generally adopt the *Term Info* direction for using LOINC for observation questions, SNOMED CT for answers, where possible. We depart from this direction where we model a ‘tightly bound’ instrument, e.g. the Braden scale for predicting pressure ulcer risk, which is represented fully in LOINC. We also sometimes provide SNOMED CT equivalents for LOINC identifiers.

We recognize that specifying these terms within the information model raises may be seen to introduce two problems: reusability across realms and version control problems. With reference to reusability, we do not assert that these codes must be used in an implementation: they are provided purely to clarify the semantics of the property. That said, where we have provided sets we deem complete, an implementer may use the values as provided.

With respect to version control, the loose coupling allows usage to change without necessitating changes to the model. In cases where a change might affect the semantics of the property, the change should be propagated to the analysis model, irrespective of convenience.

We draw the reader's attention to an approach for enumerating values using an ontology-like hierarchy. The *Medical Device* package illustrates this approach: a parent class has an attribute of type Device Kind, with six general values. But Device Kind enumeration has dependencies with six other classes, each of them listing more granular values for each of the six values of Device Kind. Either level—the more general Kind, or the more specific Type—could be used in an implementation, giving flexibility to the implementor..

We do not at this time know how difficult encoding will be in implementations, how important consistent granularity will be for information consumers, or how existing terminological representations may evolve. We predict that this model will change, but do not know how.

6. Licensing

Certain features of this model use existing intellectual property.

The Braden scale does not require permission for use. Those wishing to cite or republish will find instructions from Prevention Plus at bradenscale.com.

The pediatric Braden scale, or Braden Q, does not require permission for use. Those wishing to cite or republish will find instructions at <http://www.marthaaqcurley.com/braden-q.html>.

The Neonatal Skin Risk Assessment Scale does not require permission for use. Those wishing to cite or republish will find instructions at [----].

6. Pressure Ulcer Prevention Model

Use Case Model

Type: Package

Actors

Type: Package

Package: Use Case Model

Actors - (Use Case diagram)

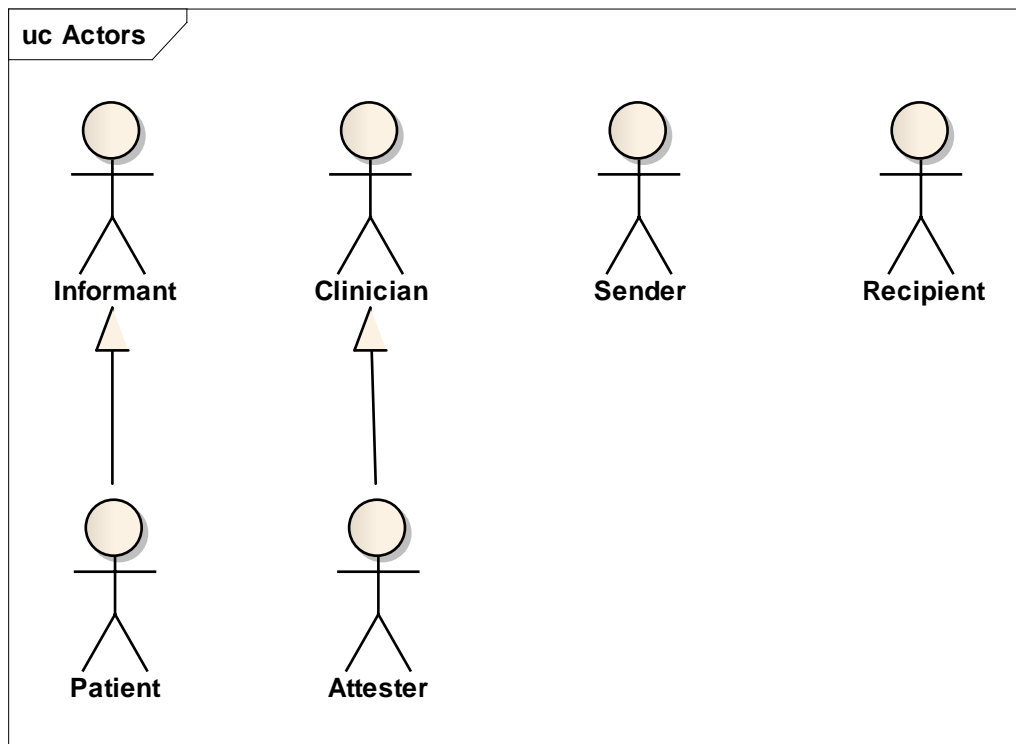


Figure: 1

Attester

Type: Actor

A clinician with sufficient authority to attest that recorded information is correct

Clinician

Type: **Actor**

A person who provides clinical care for the patient, and who may also record information in the course of care provision

Informant

Type: **Actor**

A person who can answer questions about the patient's condition

Patient

Type: **Actor**

The recipient of care and subject of the reporting activities

Recipient

Type: **Actor**

A clinician or representative of a clinical service provider who needs information about the patient to support a transfer, consultation, or other activity

Sender

Type: **Actor**

A person responsible for providing clinical information to partners (referred providers, payers, transfer providers, etc.)

Requirements

Type: **Package**

The following have not been programmatically duplicated, but they serve as candidate target interactions.

IHE Functional Status Assessment

http://wiki.ihe.net/index.php?title=PCC_TF-1/FSA

IHE e-Nursing Summary

http://www.ihe.net/Technical_Framework/upload/IHE_PCC_Suppl_ENS_Rev1-1_TI_2010-08-30.pdf

CMS Minimum Data Set

https://www.cms.gov/NursingHomeQualityInits/25_NHQIMDS30.asp

NQF quality measures (0181, 0187, 0198, 0199, 0201, 0538, 0539, 0540)
http://www.qualityforum.org/Measures_List.aspx

VA Skin risk assessment template

Use Cases

Type: **Package**

Use Cases - (Use Case diagram)

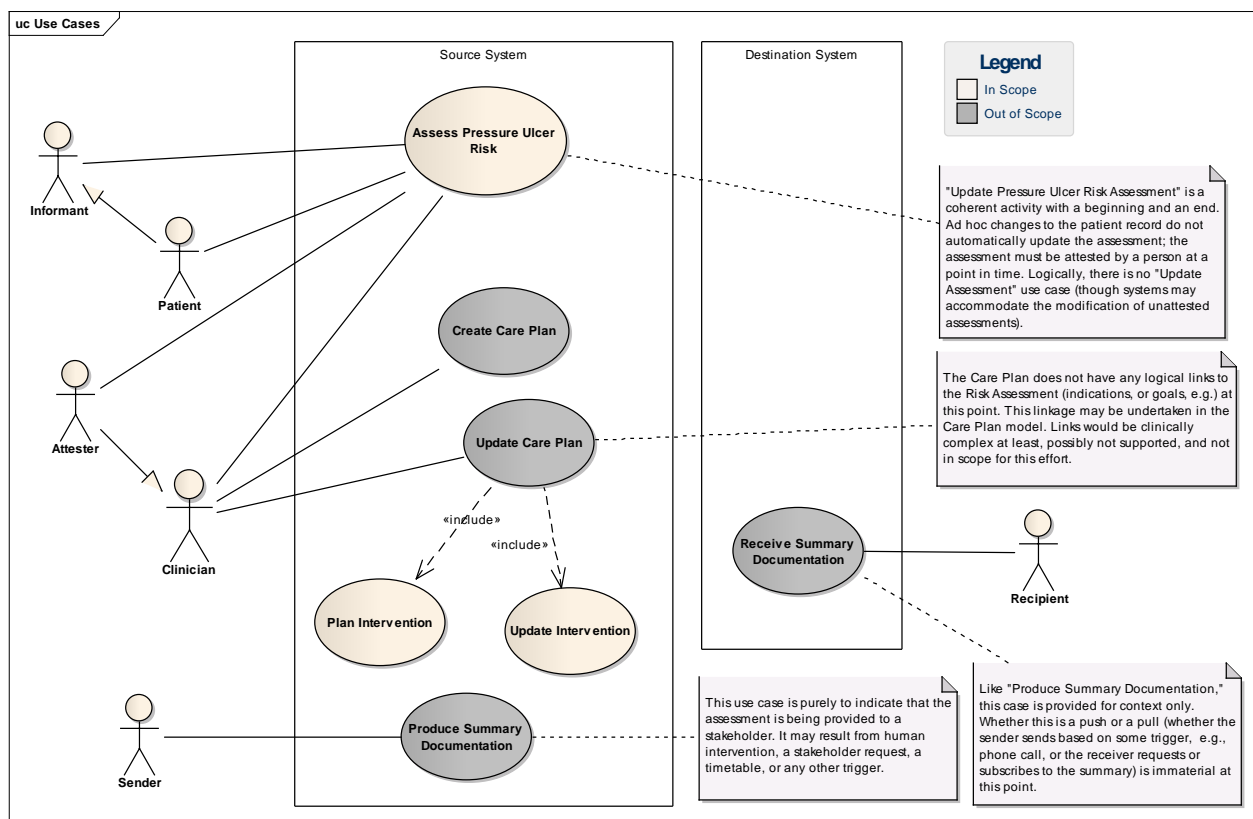


Figure: 2

Assess Pressure Ulcer Risk

Type: **UseCase**

A clinician examines a patient to assess pressure ulcer risk. The clinician records the findings. Some findings will be directly observed in the patient; others (medications, conditions) may be derived from the patient's record.

Activity diagram: Assess Pressure Ulcer Risk AD

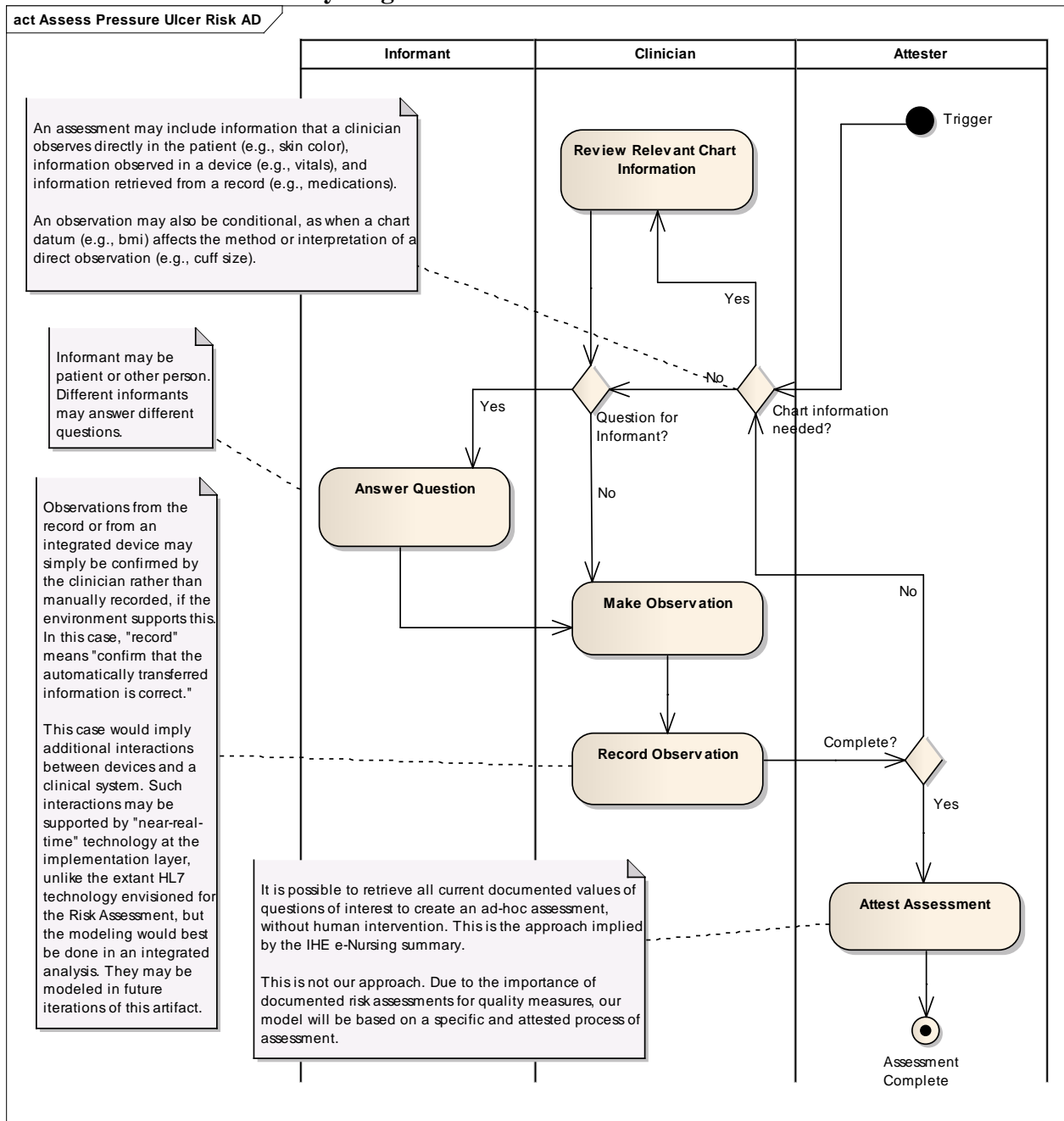


Figure: 3

Informant

Type: **ActivityPartition**

Answer Question

Type: **Activity**

The informant provides the observation

Attester

Type: **ActivityPartition**

Attest Assessment

Type: **Activity**

A clinician attests that an assessment is complete and accurate

Complete?

Type: **DecisionNode**

Assessment Complete

Type: **ActivityFinal**

Trigger

Type: **ActivityInitial**

A trigger event prompting the assessment. Triggers may include admission, identification of a risk factor, shift change, a schedule, or other factors.

Clinician

Type: **ActivityPartition**

Question for Informant?

Type: **DecisionNode**

Make Observation

Type: **Activity**

Record Observation

Type: **Activity**

A system user records an observation about a patient

Review Relevant Chart Information

Type: **Activity**

A clinician reviews patient information in order to identify relevant information for an assessment or to identify questions or criteria for use in clinical observation

Chart information needed?

Type: **DecisionNode**

Create Care Plan

Type: **UseCase**

A clinician establishes a set of planned interventions for a patient. The plan may include goals.

Plan Intervention

Type: **UseCase**

A clinician determines that a particular intervention is appropriate for a patient. The clinician records the intervention as planned and associates it with relevant observations and goals.

Produce Summary Documentation

Type: **UseCase**

A system user causes a nursing summary for a patient to be generated to support a transfer, consultation, or other communication.

Receive Summary Documentation

Type: **UseCase**

An interested person receives and reviews a nursing summary from another service provider

Update Care Plan

Type: **UseCase**

A clinician indicates needed interventions, with recommended timing and other operational information, updates their completion, and records their effectiveness

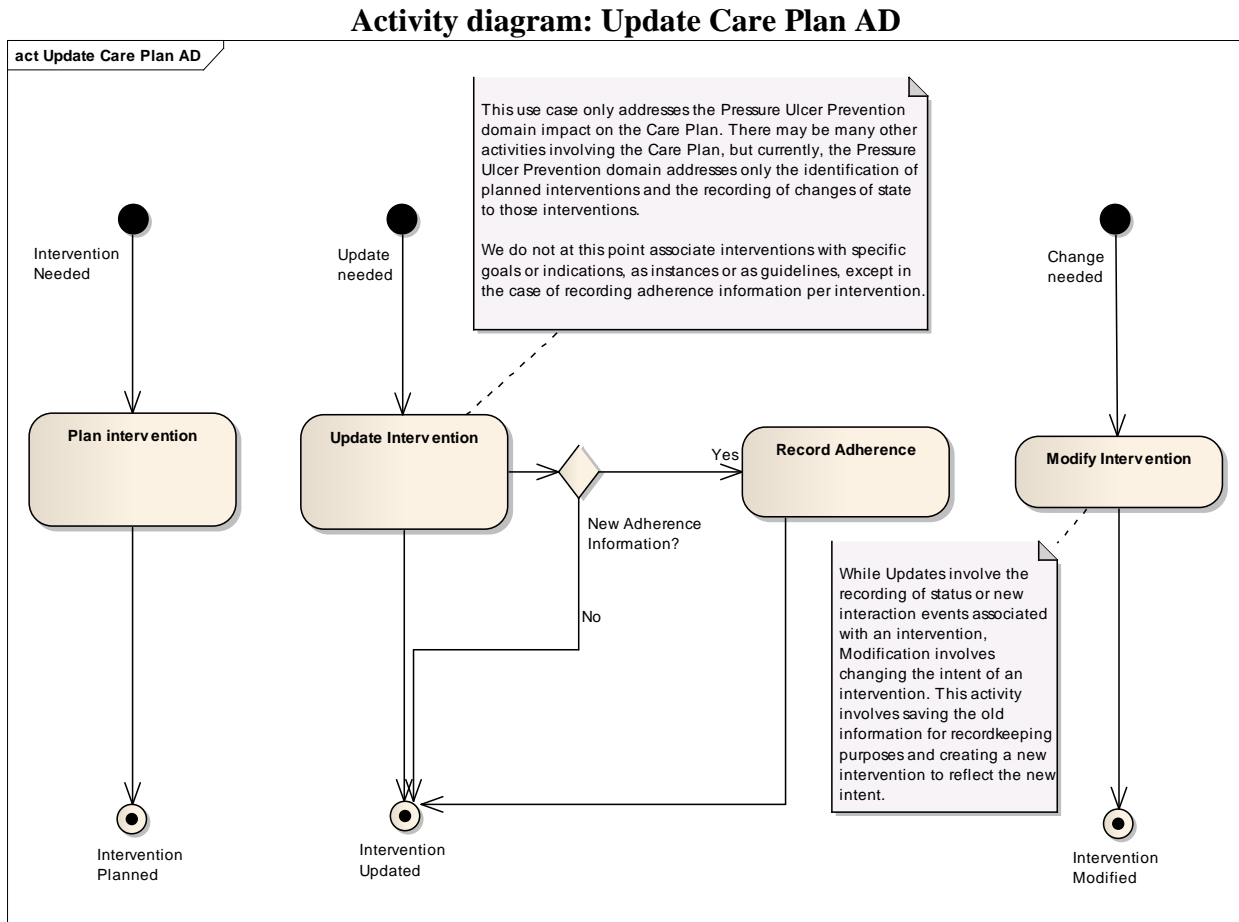


Figure: 4

Sequence diagram: Update Care Plan ID

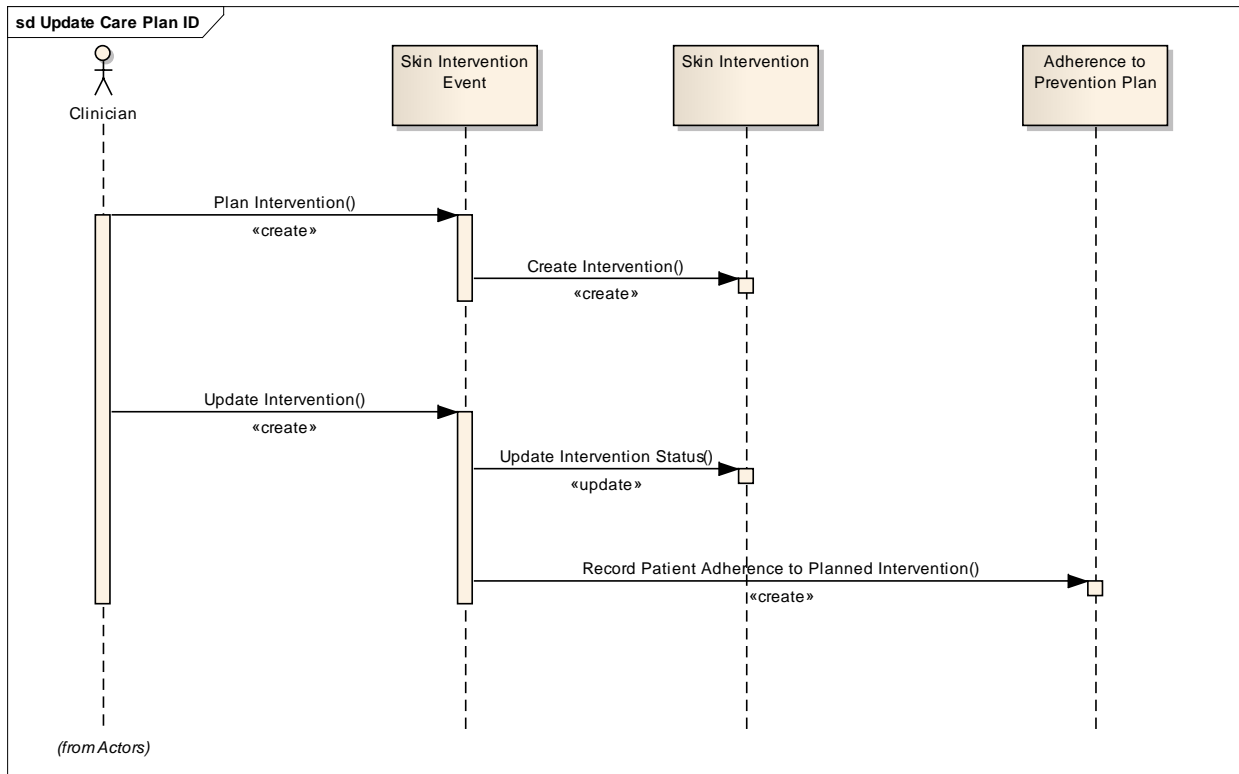


Figure: 5

Modify Intervention

Type: Activity

An intervention needs to be modified. This activity copies the intervention and cancels it, preserving a record of the previous intervention intent, while allowing the clinician to record a new intent.

Record Adherence

Type: Activity

New Adherence Information?

Type: DecisionNode

Change needed

Type: **ActivityInitial**

An intervention must be modified in its definition or intent.

Intervention Modified

Type: **ActivityFinal**

Plan intervention

Type: **Activity**

A clinician defines an intervention intended to reduce the risk of pressure ulcers and adds it to the patient's care plan

Record intervention results

Type: **Activity**

Update Intervention

Type: **Activity**

A clinician records a change to an intervention's state or patient interactions. If the nature of the intervention is to be modified, it should be cancelled and superseded with a new intervention.

Intervention Needed

Type: **ActivityInitial**

A Pressure Ulcer Risk Assessment suggests that a patient needs a care plan to reduce the risk of pressure ulcers. The clinician determines that the care plan should include certain interventions.

Intervention Planned

Type: **ActivityFinal**

The care plan contains the intervention planned by the clinician

Intervention Updated

Type: **ActivityFinal**

The intervention has been updated

Update needed

Type: **ActivityInitial**

An intervention needs to have its status updated or be associated with a new intervention event.

Update Intervention

Type: **UseCase**

A clinician changes an existing intervention record, whether to modify its definition, to update its status (e.g., to "completed"), or to change its association with an observation or goal.

Update Pressure Ulcer Risk Assessment

Type: **UseCase**

Class Model

Type: **Package**

Common Elements

Type: **Package**

Patient

Type: **Class**

The subject of care being assessed for ulcer risk

Attributes

Attribute	Notes	Constraints and tags
age PQ	The patient's age. May be calculated from date of birth; used in BMI calculation.	Vocabulary: { LOINC: <u>Age:Time:Pt:Patient:Qn: (30525-0)</u> } Vocabulary: { SNOMED CT: <u>Current chronological age (observable entity) (424144002)</u> }
date of birth TS	The patient's date of birth	
gender CD	The patient's gender	Vocabulary: { LOINC: <u>Gender:Type:Pt:Patient:Nom: (21840-4)</u> } Vocabulary: { SNOMED CT: <u>Gender (observable entity) (263495000)</u> }
gestational age PQ	For neonatal patients, the patient's gestational age	
name ST	The patient's name	

Attribute	Notes	Constraints and tags
patient id II	An identifier for the patient	

Performer

Type: **Class** **Person**

A clinician performing clinical tasks, e.g., observations or procedures

Attributes

Attribute	Notes	Constraints and tags
role Role Kind		

Person

Type: **Class**

A human being

Attributes

Attribute	Notes	Constraints and tags
name ST	The name of the person	

Attribute	Notes	Constraints and tags
title Professional Title	For licensed clinicians, the practicing title	

Professional Title

Type: **Class**

The official title or credential of the assessment observation performer or recorder

Attributes

Attribute	Notes	Constraints and tags
licensed practical nurse		Vocabulary: { SNOMED CT: not found }
registered nurse		Vocabulary: { SNOMED CT: 224535009 registered nurse (social context) }

Role Type

Type: **Class**

Role type is a level of participation in patient care. It differs from consultant type, which is a specialty area of expertise.

Attributes

Attribute	Notes	Constraints and tags
staff nurse		<u>Vocabulary: { SNOMED CT: not found }</u>
wound care nurse		<u>Vocabulary: { SNOMED CT: not found }</u>
advanced practice nurse		<u>Vocabulary: { SNOMED CT: not found }</u>
nursing attendant	A nursing attendant is not qualified to conduct an assessment, but may make observations that trigger an assessment.	<u>Vocabulary: { SNOMED CT: not found }</u>

changes

Type: **Issue**

1. in pressure redistribution, changed 'position' to 'body position'
2. in support surface, changed 'support surface feature' to 'Support Surface Pressure Redistribution Mechanism'

Pressure Ulcer Prevention Intervention

Type: **Package**

Pressure Ulcer Prevention Intervention - (Package diagram)

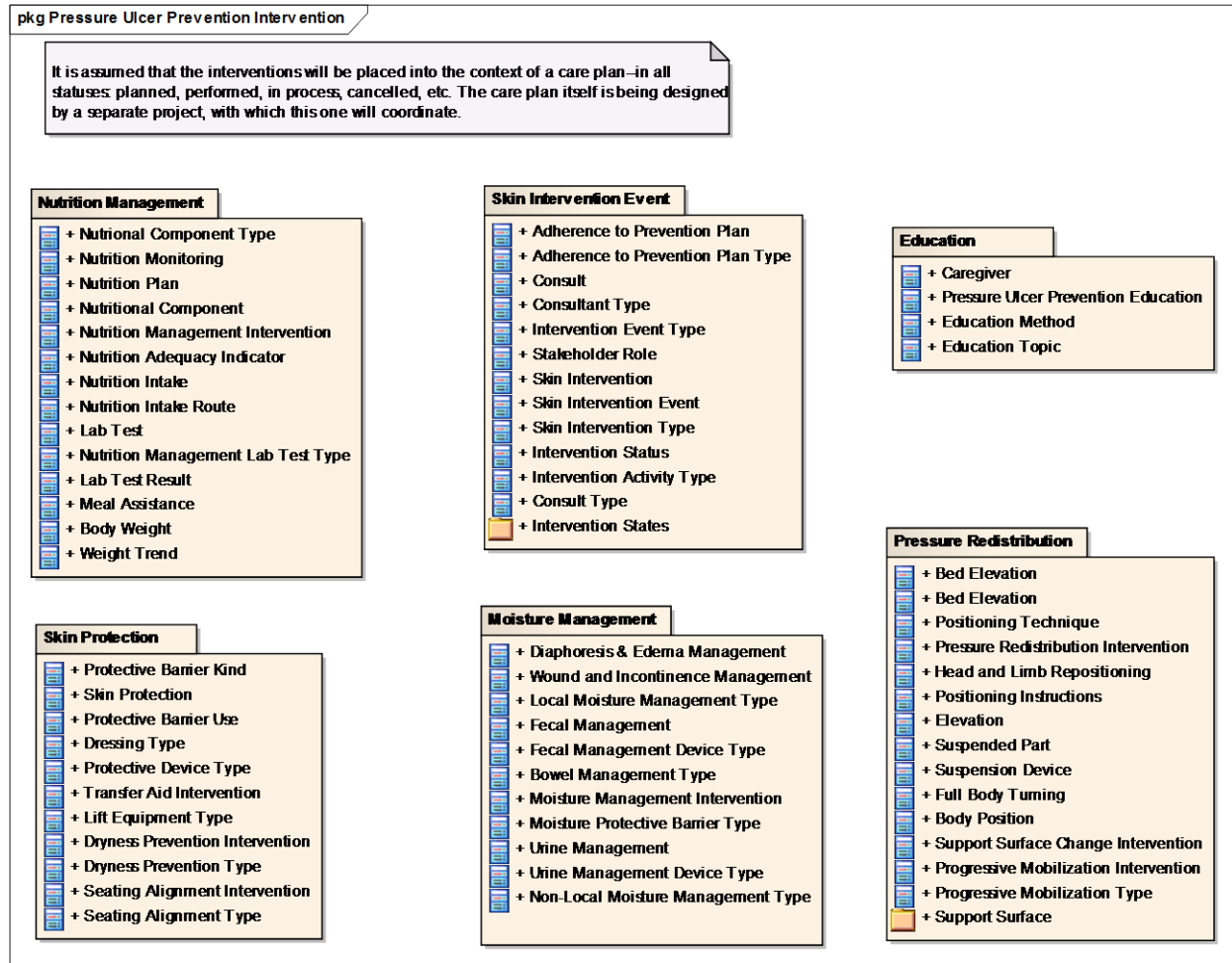


Figure: 6

Pressure Ulcer Prevention Intervention - (Logical diagram)

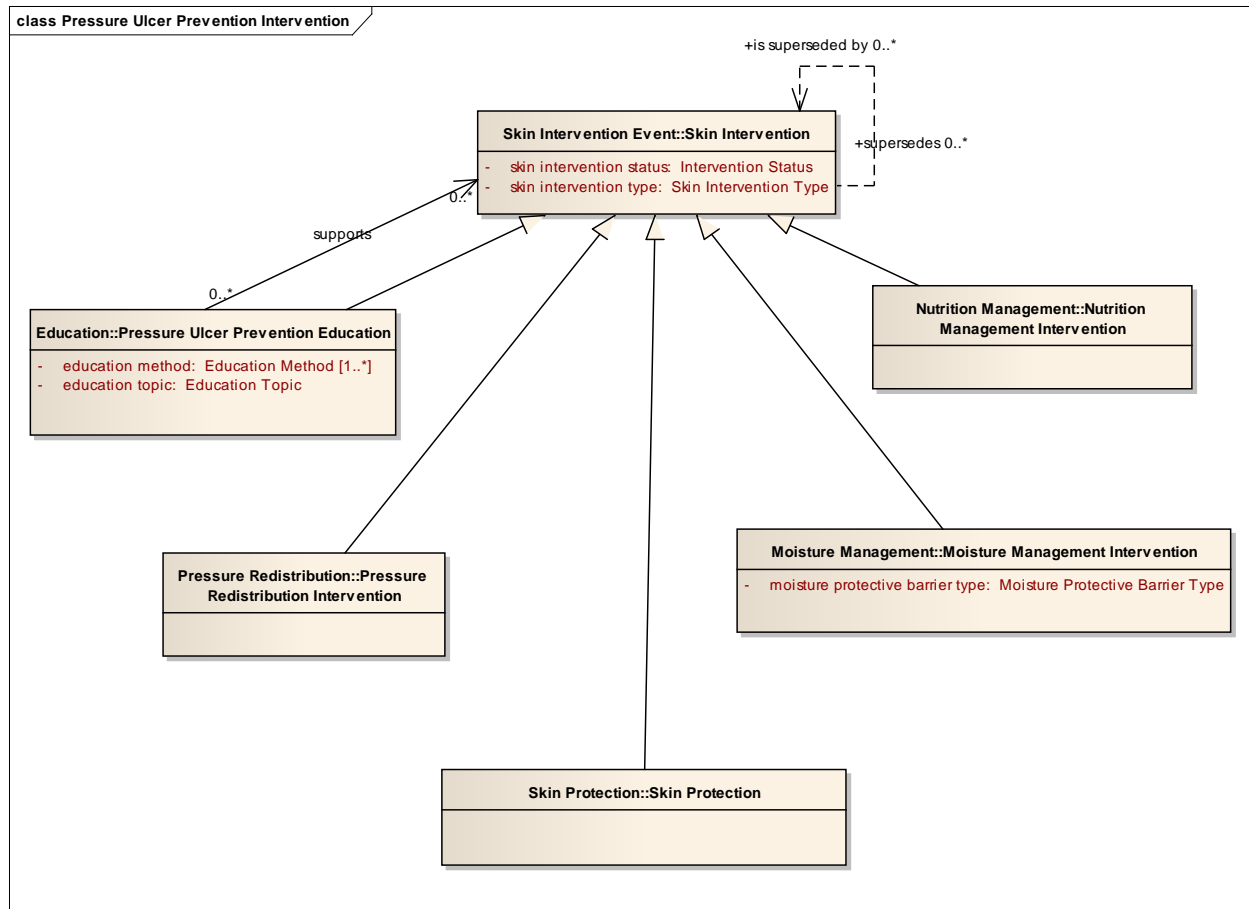


Figure: 7

Skin Intervention Event

Type: **Package**

Skin Intervention Event - (Logical diagram)

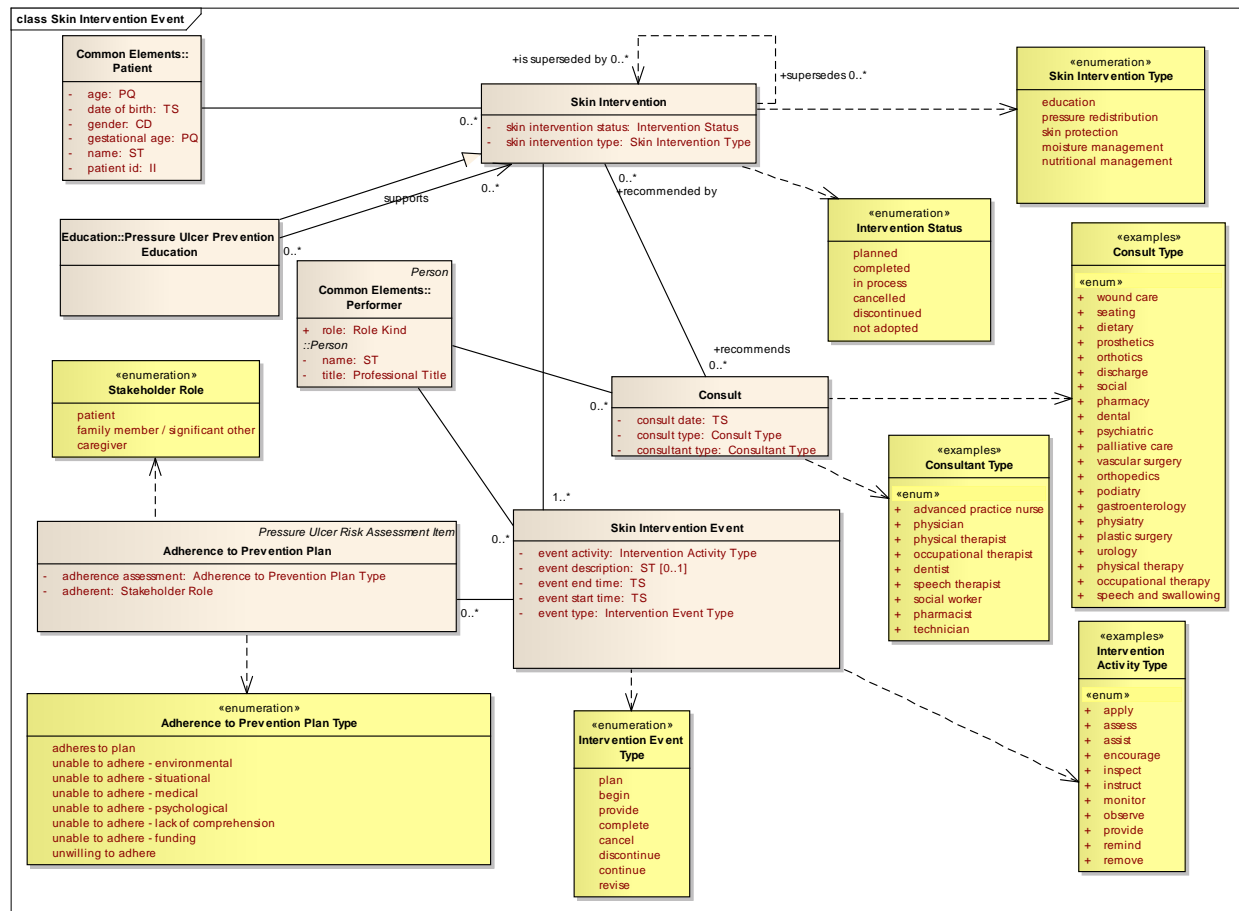


Figure: 8

Adherence to Prevention Plan

Type: **Class** Pressure Ulcer Risk Assessment Item

An evaluation of how well the patient complies with treatment instructions

Attributes

Attribute	Notes	Constraints and tags
adherence assessment Adherence to Prevention Plan Type	Judgment of whether and why the patient follows the planned interventions	Vocabulary: { SNOMED CT 397695000 (Finding related to ability to comply with treatment (finding)) }

Attribute	Notes	Constraints and tags
adherent Stakeholder Role		

Adherence to Prevention Plan Type

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
adheres to plan		Vocabulary: { SNOMED CT 386673006 does comply with treatment (finding) }
unable to adhere - environmental	Inability to adhere caused by physical environment, e.g., residence too small for recommended support system	Vocabulary: { SNOMED CT: 182891003 Patient misunderstood treatment instructions (finding) } [Comment = Code refers only to medication, not other interventions]

Attribute	Notes	Constraints and tags
unable to adhere - situational	Inability to adhere caused by patient's situation, e.g., lack of social support	<p>Vocabulary: { <u>SNOMED CT: 225465005 Unwilling (finding)</u> }</p> <p>[<u>Comment</u> = Other coded values specify the predicate of the patient's aspect; is the aspect alone sufficient?]</p>
unable to adhere - medical	inability to adhere caused by medical problem or lack of strength	<p>Vocabulary: { <u>SNOMED CT: 397745006 Medical contraindication (finding)</u> }</p> <p>[<u>Comment</u> = Instability is a kind of contraindication, but is this much broader term appropriate? We don't do this elsewhere.]</p>
unable to adhere - psychological	inability to adhere caused by psychological issues	<p>Vocabulary: { <u>SNOMED CT: not found</u> }</p>
unable to adhere - lack of comprehension	inability to adhere caused by inability to understand direction	<p>Vocabulary: { <u>SNOMED CT: not found</u> }</p>
unable to adhere - funding	inability to adhere caused by lack of funds, whether by property, coverage, administrative problem, or other issue	<p>Vocabulary: { <u>SNOMED CT: not found</u> }</p>

Attribute	Notes	Constraints and tags
unwilling to adhere	patient or caregiver unwilling to perform expected action	Vocabulary: { SNOMED CT: not found }

Consult

Type: **Class**

Attributes

Attribute	Notes	Constraints and tags
consult date TS	The date of the consult	
consult type Consult Type		
consultant type Consultant Type		

Consultant Type

Type: **Class**

Consultant type is a specialty; it differs from role type, which is a level of participation in patient care.

Attributes

Attribute	Notes	Constraints and tags
advanced practice nurse		Vocabulary: { <u>SNOMED CT: not found</u> }
physician		Vocabulary: { <u>SNOMED CT: 309343006 physician (social context)</u> }
physical therapist		Vocabulary: { <u>SNOMED CT: 36682004 physiotherapist (social context)</u> }
occupational therapist		Vocabulary: { <u>SNOMED CT: 80546007 occupational therapist (social context)</u> }
dentist		Vocabulary: { <u>SNOMED CT: 106289002 dentist (social context)</u> }

Attribute	Notes	Constraints and tags
speech therapist		Vocabulary: { SNOMED CT: <u>159026005 speech/language therapist (social context)</u> }
social worker		Vocabulary: { SNOMED CT: <u>106328005 social worker (social context)</u> }
pharmacist		Vocabulary: { SNOMED CT: <u>46255001 pharmacist (social context)</u> }
technician		Vocabulary: { SNOMED CT: <u>224606009 technical healthcare occupation (social context)</u> }

Intervention Event Type

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
plan	Document intent to provide care	Vocabulary: { SNOMED CT: <u>399684003 development of care plan (procedure)</u> }

Attribute	Notes	Constraints and tags
begin	Begin provision of planned care	<u>Vocabulary: { SNOMED CT: not found }</u>
provide	Deliver complete intervention whether planned or not	<u>Vocabulary: { SNOMED CT: 225304007 implementation of planned interventions (procedure) }</u>
complete	Provide fulfillment of care already begun	<u>Vocabulary: { SNOMED CT: not found }</u>
cancel	Nullify intent to provide existing planned intervention	<u>Vocabulary: { SNOMED CT: not found }</u>
discontinue	Cease providing and nullify intent to continue providing an intervention that has been started	<u>Vocabulary: { SNOMED CT: not found }</u>
continue	Provide care in an ongoing intervention	<u>Vocabulary: { SNOMED CT: not found }</u>

Attribute	Notes	Constraints and tags
revise	Modify the planned intervention	Vocabulary: { SNOMED CT: not found }

Stakeholder Role

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
patient		Vocabulary: { SNOMED CT: 116154003 patient (social context) }
family member / significant other		Vocabulary: { SNOMED CT: not found }
caregiver		Vocabulary: { SNOMED CT: 133932002 caregiver (social context) }

Skin Intervention

Type: **Class**

An intervention designed to reduce the patient's risk of developing a pressure ulcer

Custom Properties

- isActive = False

Attributes

Attribute	Notes	Constraints and tags
skin intervention status Intervention Status	The life cycle stage of the intervention	
skin intervention type Skin Intervention Type	The kind of intervention	

Skin Intervention Event

Type: Class

An event in the life cycle of an intervention

Attributes

Attribute	Notes	Constraints and tags
event activity Intervention Activity Type	The kind of interaction that has occurred	

Attribute	Notes	Constraints and tags
event description ST [0..1]	A textual description of the intervention event	
event end time TS	The time at which the intervention event was completed	
event start time TS	The time at which the intervention event was begun	
event type Intervention Event Type	The kind of event	

Skin Intervention Type

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
education		Vocabulary: { <u>SNOMED CT: 372919008 patient education based on identified need (procedure)</u> }
pressure redistribution		Vocabulary: { <u>SNOMED CT: 225359006 pressure area care (regime/therapy)</u> }
skin protection		Vocabulary: { <u>SNOMED CT: not found</u> }
moisture management		Vocabulary: { <u>SNOMED CT: not found</u> }
nutritional management		Vocabulary: { <u>SNOMED CT: 386372009 nutrition management (regime/therapy) (procedure)</u> }

Intervention Status

Type: **Enumeration**

Note: these are clinically defined statuses. Mappings to SNOMED CT and HL7 actStatus values are listed as constraints.

Attributes

Attribute	Notes	Constraints and tags
planned	Intended and documented	Vocabulary: { SNOMED CT: 397943006 planned (qualifier value) } Vocabulary: { HL7 actStatus: new } }
completed	Fully implemented. For education, an intervention is not complete until the patient or caregiver has demonstrated comprehension.	Vocabulary: { SNOMED CT: 398166005 performed (qualifier value) } Vocabulary: { HL7 actStatus: completed } }
in process	Begun but not completed	Vocabulary: { SNOMED CT: 385651009 in progress (qualifier value) } Vocabulary: { HL7 actStatus: active } }
cancelled	Cancelled before implementation begun	: { SNOMED CT: 89925002 cancelled (qualifier value) } Vocabulary: { HL7 actStatus: cancelled } }
discontinued	Cancelled after implementation begun	Vocabulary: { SNOMED CT: 410546004 discontinued (qualifier value) } Vocabulary: { HL7 actStatus: aborted } }

Attribute	Notes	Constraints and tags
not adopted		Vocabulary: { SNOMED CT: 410521004 not to be done (qualifier value) } Vocabulary: { HL7 actStatus: specialization of 'cancelled' }

Intervention Activity Type

Type: **Class**

Type of activity performed by the clinician

Attributes

Attribute	Notes	Constraints and tags
apply		Vocabulary: { SNOMED CT: not <u>found</u> }
assess		Vocabulary: { SNOMED CT: not <u>found</u> }
assist		Vocabulary: { SNOMED CT: not <u>found</u> }

Attribute	Notes	Constraints and tags
encourage		Vocabulary: { <u>SNOMED CT: 225222007 giving encouragement (procedure)</u> }
inspect		Vocabulary: { <u>SNOMED CT: 225222007 inspection (procedure)</u> }
instruct		Vocabulary: { <u>SNOMED CT: 409073007 instruction (procedure)</u> }
monitor		Vocabulary: { <u>SNOMED CT: 182777000 monitoring of patient</u> }
observe		Vocabulary: { <u>SNOMED CT: not found</u> }
provide		Vocabulary: { <u>SNOMED CT: 225351009 provision of care (procedure)</u> }

Attribute	Notes	Constraints and tags
remind		Vocabulary: { SNOMED CT: <u>223452003 reminding (procedure)</u> }
remove		Vocabulary: { SNOMED CT: <u>118292001 removal (procedure)</u> }

Consult Type

Type: Class

Attributes

Attribute	Notes	Constraints and tags
wound care		Vocabulary: { SNOMED CT: not <u>found</u> }
seating		Vocabulary: { SNOMED CT: not <u>found</u> }
dietary		Vocabulary: { SNOMED CT: not <u>found</u> }

Attribute	Notes	Constraints and tags
prosthetics		<u>Vocabulary: { SNOMED CT: not found }</u>
orthotics		<u>Vocabulary: { SNOMED CT: not found }</u>
discharge		<u>Vocabulary: { SNOMED CT: not found }</u>
social		<u>Vocabulary: { SNOMED CT: not found }</u>
pharmacy		<u>Vocabulary: { SNOMED CT: not found }</u>
dental		<u>Vocabulary: { SNOMED CT: 34043003 dental consultation and report (procedure) }</u>

Attribute	Notes	Constraints and tags
psychiatric		<u>Vocabulary: { SNOMED CT: not found }</u>
palliative care		<u>Vocabulary: { SNOMED CT: not found }</u>
vascular surgery		<u>Vocabulary: { SNOMED CT: not found }</u>
orthopedics		<u>Vocabulary: { SNOMED CT: not found }</u>
podiatry		<u>Vocabulary: { SNOMED CT: not found }</u>
gastroenterology		<u>Vocabulary: { SNOMED CT: not found }</u>

Attribute	Notes	Constraints and tags
physiatry		Vocabulary: { <u>SNOMED CT: 71318009 physical medicine consultation and report (procedure)</u> }
plastic surgery		Vocabulary: { <u>SNOMED CT: not found</u> }
urology		Vocabulary: { <u>SNOMED CT: not found</u> }
physical therapy		Vocabulary: { <u>SNOMED CT: not found</u> }
occupational therapy		Vocabulary: { <u>SNOMED CT: not found</u> }
speech and swallowing		Vocabulary: { <u>SNOMED CT: not found</u> }

Intervention States

Type: Package

Skin Intervention State Diagram - (StateMachine diagram)

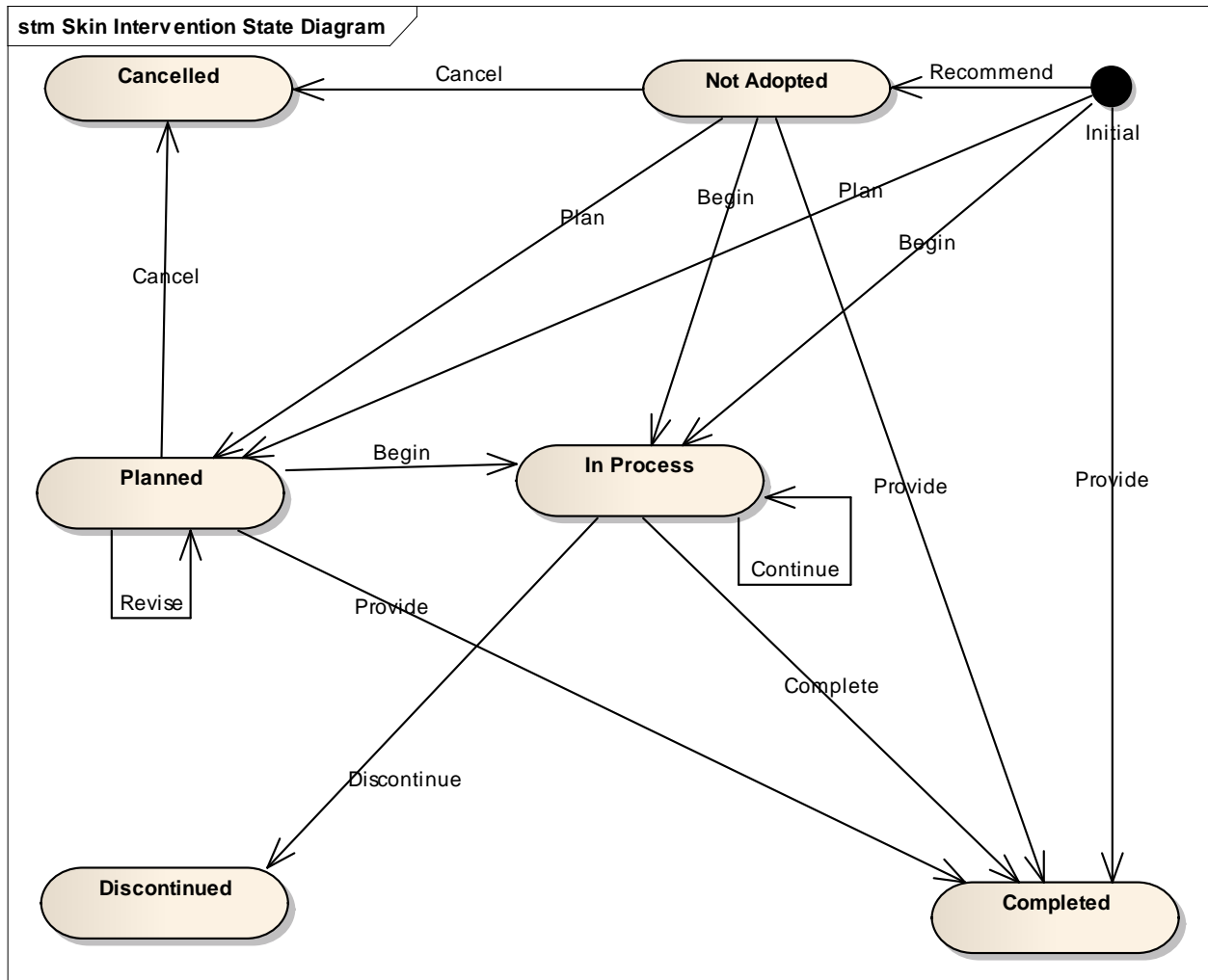


Figure: 9

Cancelled

Type: State

Cancelled

Type: State

Completed

Type: **State**

Discontinued

Type: **State**

In Process

Type: **State**

Not Adopted

Type: **State**

Planned

Type: **State**

Initial

Type: **Initial State**

Education

Type: **Package**

Education - (*Logical diagram*)

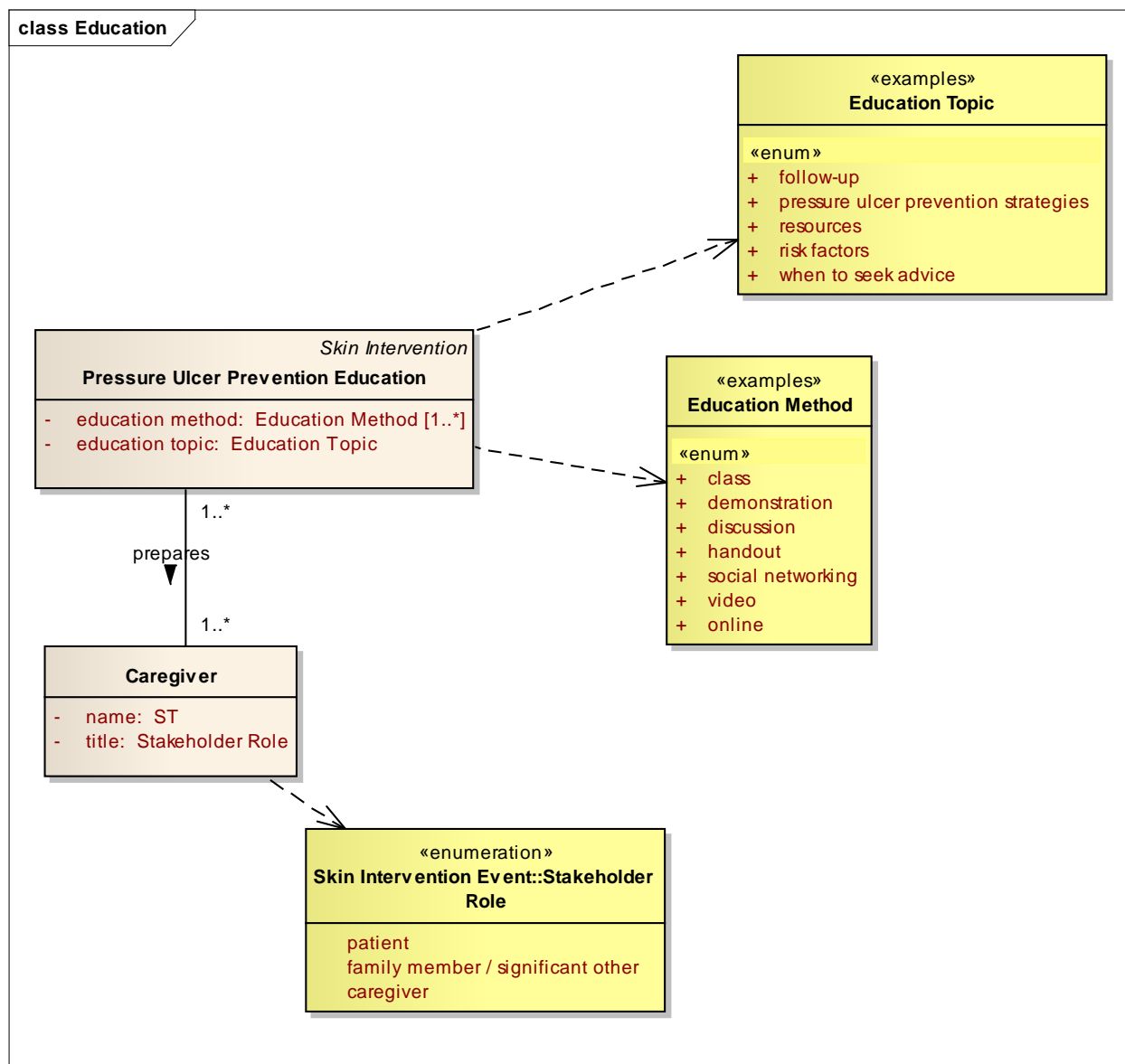


Figure: 10

Caregiver

Type: **Class**

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
name ST		
title Stakeholder Role		

Pressure Ulcer Prevention Education

Type: Class Skin Intervention

An effort to inform the patient about ways to reduce the patient's risk of developing a pressure ulcer

Attributes

Attribute	Notes	Constraints and tags
education method Education Method [1..*]	The method or channel by which educational information is delivered	
education topic Education Topic	The subject of the education	

Education Method*Type:* **Class****Attributes**

Attribute	Notes	Constraints and tags
class		Vocabulary: { <u>SNOMED CT: not found</u> }
demonstration		Vocabulary: { <u>SNOMED CT: not found</u> }
discussion		Vocabulary: { <u>SNOMED CT: not found</u> }
handout		Vocabulary: { <u>SNOMED CT: not found</u> }
social networking		Vocabulary: { <u>SNOMED CT: not found</u> }

Attribute	Notes	Constraints and tags
video		<u>Vocabulary: { SNOMED CT: not found }</u>
online		<u>Vocabulary: { SNOMED CT: not found }</u>

Education Topic

Type: Class

Attributes

Attribute	Notes	Constraints and tags
follow-up		<u>Vocabulary: { SNOMED CT: not found }</u>
pressure ulcer prevention strategies		<u>Vocabulary: { SNOMED CT: not found }</u>
resources		<u>Vocabulary: { SNOMED CT: not found }</u>

Attribute	Notes	Constraints and tags
risk factors		Vocabulary: { SNOMED CT: not found }
when to seek advice		Vocabulary: { SNOMED CT: not found }

Pressure Redistribution

Type: **Package**

Pressure Redistribution - (Logical diagram)

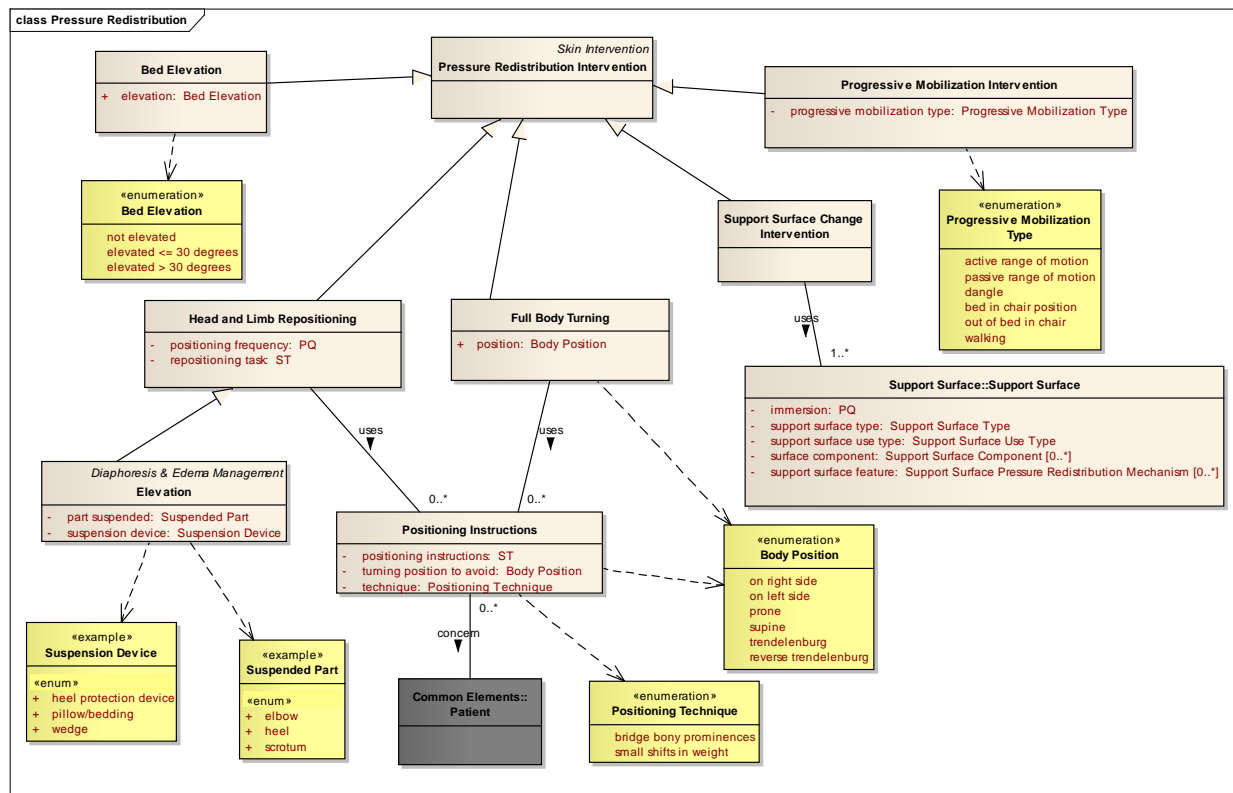


Figure: 11

Bed Elevation*Type:* **Enumeration****Attributes**

Attribute	Notes	Constraints and tags
not elevated		Vocabulary: { <u>SNOMED CT: not found</u> }
elevated <= 30 degrees		Vocabulary: { <u>SNOMED CT: not found</u> }
elevated > 30 degrees		Vocabulary: { <u>SNOMED CT: not found</u> }

Bed Elevation*Type:* **Class** **Pressure Redistribution Intervention****Attributes**

Attribute	Notes	Constraints and tags
------------------	--------------	-----------------------------

Attribute	Notes	Constraints and tags
elevation Bed Elevation	Bed part elevated (head, foot, etc.)	

Positioning Technique

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
bridge bony prominences		Vocabulary: { <u>SNOMED CT: not found</u> }
small shifts in weight		Vocabulary: { <u>SNOMED CT: not found</u> }

Pressure Redistribution Intervention

Type: **Class** **Skin Intervention**

An effort to reduce the patient's risk of developing a pressure ulcer by changing the pattern of normal force against the patient's skin

Head and Limb Repositioning

Type: **Class** **Pressure Redistribution Intervention**

Attributes

Attribute	Notes	Constraints and tags
positioning frequency PQ	The frequency with which the repositioning should be performed. This may be better served by an enumerated list than a physical quantity (e.g., per shift, when turned, etc.)	
repositioning task ST	A description of what should be repositioned and how	

Positioning Instructions

Type: **Class**

Direction to perform or avoid performing specified actions

Attributes

Attribute	Notes	Constraints and tags
positioning instructions ST	Directions regarding a concern specific to a patient that may involve in internal or external injury or other limitation on or criteria for positioning the patient	
turning position to avoid Body Position	A position that the patient should not be placed in	

Attribute	Notes	Constraints and tags
technique Positioning Technique		

Elevation

Type: **Class Diaphoresis & Edema Management, Head and Limb Repositioning**

An effort to change the pattern of normal force against the patient's skin by suspending part of the patient's body. A.k.a. "float"

Constraints

- SNOMED CT: 223394001 equipment for positioning (physical object): (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
part suspended Suspended Part		Vocabulary: { <u>SNOMED CT:</u> 38866009 body part structure (body structure) (BT) }

Attribute	Notes	Constraints and tags
suspension device Suspension Device		Vocabulary: { SNOMED CT: <u>223394001 equipment for positioning (physical object) (BT)</u> }

Suspended Part

Type: **Class**

Attributes

Attribute	Notes	Constraints and tags
elbow		Vocabulary: { SNOMED CT: <u>76248009 entire elbow region (body structure)</u> }
heel		Vocabulary: { SNOMED CT: <u>362804005 entire heel (body structure)</u> }
scrotum		Vocabulary: { SNOMED CT: <u>265794003 entire scrotum (body structure)</u> }

Suspension Device

Type: **Class**

Attributes

Attribute	Notes	Constraints and tags
heel protection device		Vocabulary: { <u>SNOMED CT: not found</u> }
pillow/bedding		Vocabulary: { <u>SNOMED CT: not found</u> }
wedge		Vocabulary: { <u>SNOMED CT: 255296002 wedge (physical object)</u> }

Full Body Turning

Type: **Class** **Pressure Redistribution Intervention**

An effort to reduce the patient's risk of developing a pressure ulcer by changing the pattern of normal force against the patient's skin by rotating the patient

Attributes

Attribute	Notes	Constraints and tags
position Body Position	Position into which the patient is placed	

Body Position

Type:

Enumeration**Attributes**

Attribute	Notes	Constraints and tags
on right side		Vocabulary: { SNOMED CT: <u>102535000 right lateral decubitus position (finding)</u> }
on left side		Vocabulary: { SNOMED CT: <u>102536004 left lateral decubitus position (finding)</u> }
prone		: { SNOMED CT: <u>1240000 prone body position (finding)</u> }
supine		: { SNOMED CT: <u>40199007 supine body position (finding)</u> }
trendelenburg		Vocabulary: { SNOMED CT: <u>34106002 Trendelenburg position (finding)</u> }

Attribute	Notes	Constraints and tags
reverse trendelenburg		Vocabulary: { SNOMED CT: 26527006 (reverse Trendelenburg position: clinical finding) }

Support Surface Change Intervention

Type: **Class** **Pressure Redistribution Intervention**

An effort to reduce the patient's risk of developing a pressure ulcer by changing the pattern of normal force against the patient's skin by changing the support surface

Progressive Mobilization Intervention

Type: **Class** **Pressure Redistribution Intervention**

Attributes

Attribute	Notes	Constraints and tags
progressive mobilization type Progressive Mobilization Type		

Progressive Mobilization Type

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
active range of motion		<u>Vocabulary: { SNOMED CT: not found }</u>
passive range of motion		<u>Vocabulary: { SNOMED CT: not found }</u>
dangle		<u>Vocabulary: { SNOMED CT: not found }</u>
bed in chair position		<u>Vocabulary: { SNOMED CT: not found }</u>
out of bed in chair		<u>Vocabulary: { SNOMED CT: not found }</u>
walking		<u>Vocabulary: { SNOMED CT: not found }</u>

Support Surface

Type: Package

Source: National Pressure Ulcer Advisory Panel, Support Surface Standards Initiative, Ver 1/29/2007

Support Surface - (Logical diagram)

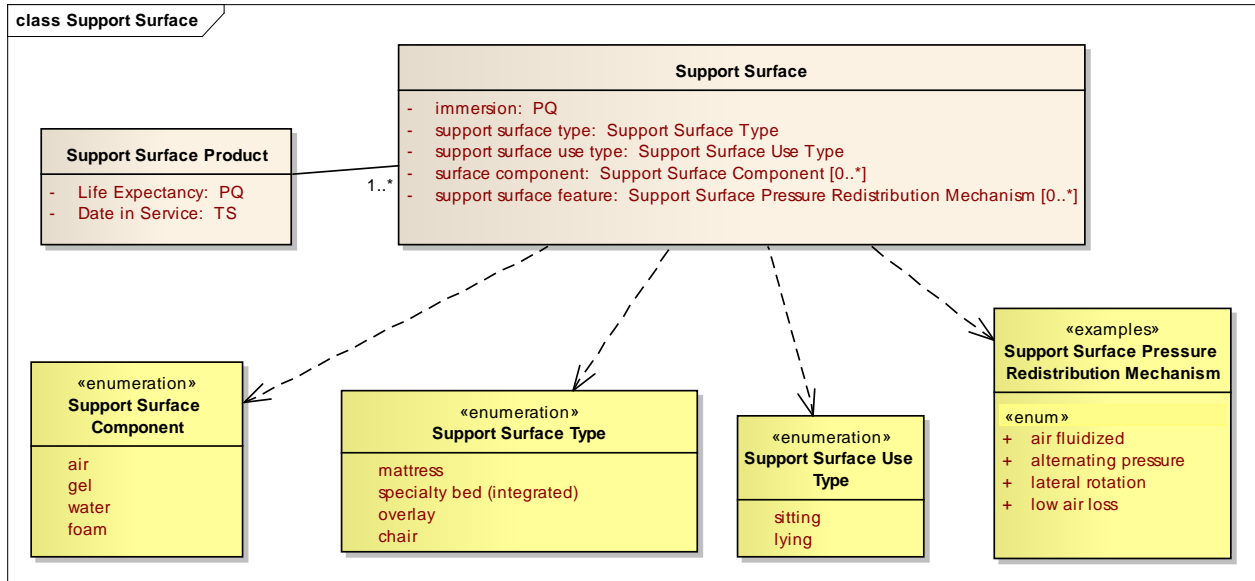


Figure: 12

Support Surface Type

Type: Enumeration

Attributes

Attribute	Notes	Constraints and tags
mattress	A support surface designed to be placed directly on the existing bed frame. <i>Ref: NPUAP</i>	Vocabulary: { SNOMED CT: <u>Mattress, device (physical object) (17207004)</u> }

Attribute	Notes	Constraints and tags
specialty bed (integrated)	A bed frame and support surface that are combined into a single unit whereby the surface is unable to function separately. <i>Ref: NPUAP</i> Note on vocabulary constraint: Parent concept found (SNOMED CT: Bed (physical object) (229772003)). Term differs from NPUAP term ("integrated bed system")	<u>Vocabulary: { SNOMED CT: not found }</u>
overlay	An additional support surface designed to be placed directly on top of an existing surface. <i>Ref: NPUAP</i> Note on vocabulary constraint: proposed value is qualifier only (SNOMED CT: Overlay (qualifier value) (255547006))	<u>Vocabulary: { SNOMED CT: not found }</u>
chair		<u>Vocabulary: { SNOMED CT: not found }</u>

Support Surface Use Type

Type: **Enumeration**

The corporal position supported by the surface

Attributes

Attribute	Notes	Constraints and tags
sitting	Intended to support a sitting patient	<u>Vocabulary: { SNOMED CT: not found }</u>

Attribute	Notes	Constraints and tags
lying	Intended to support a patient lying down	Vocabulary: { SNOMED CT: not found }

Support Surface

Type: **Class**

A specialized device for pressure redistribution designed for management of tissue loads, micro-climate, and/or other therapeutic functions (i.e., any mattresses, integrated bed system, mattress replacement, overlay, or seat cushion, or seat cushion overlay. This class describes concepts related to support services that assist in the redistribution of pressure. These terms refer to basic physical concepts and design considerations as well as product characteristics.

A terminology such as CMS' HCPCS may provide terms to support a user interface using items that clinicians order today. Such a terminology might be mapped to the more atomic concepts included here.

Constraints

- SNOMED CT: << 272243001 support equipment (physical object): (*Vocabulary*)
More detailed concepts not available in SNOMED
- SNOMED CT: Support, device (physical object) (9096001) + Surface (qualifier value) (410679008): (*Vocabulary*)

Tagged Values

- Reference = National Pressure Ulcer Advisory Panel (2007). Support Surface Standards Initiative, Terms and definitions related to support surfaces. Version 01/29/2007. Retrieved from http://www.npuap.org/NPUAP_S3I_TD.pdf .

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
immersion PQ	Depth of penetration (sinking) into a support surface.	
support surface type Support Surface Type		
support surface use type Support Surface Use Type		
surface component Support Surface Component [0..*]	A physical material, structure, or system used alone or in combination with other components to fashion a support surface	
support surface feature Support Surface Pressure Redistribution Mechanism [0..*]		

Support Surface Pressure Redistribution Mechanism

Type: **Class**

SCT coding is made difficult by the complexity of the concept: it is a set of functional capabilities that do not map cleanly to SCT axes. Post-coordination may be possible, but only with the addition of several values, and with consensus on how a "feature" is to be semantically composed.

Attributes

Attribute	Notes	Constraints and tags
air fluidized	A feature of a support surface that provides pressure redistribution via a fluid-like medium created by forcing air through beads as characterized by immersion and envelopment. <i>Ref: NPUAP</i>	Vocabulary: { SNOMED CT: not found }
alternating pressure	A feature of a support surface that provides pressure redistribution via cyclic changes in loading <i>and unloading</i> as characterized by frequency, duration, amplitude, and rate of change parameters. <i>Ref: NPUAP</i> Note on vocabulary constraint: Proposed expression is qualifier only (SNOMED CT: Pressure - action (qualifier value) (257893003) + Alternating (qualifier value) (49572008))	Vocabulary: { SNOMED CT: not found }
lateral rotation	A feature of a support surface that provides rotation about a longitudinal axis as characterized by degree of patient turn, duration, and frequency. <i>Ref: NPUAP</i> Note on vocabulary constraint: Proposed expression is qualifier only: SNOMED CT: Lateral rotation - action (qualifier value) (264730003)	Vocabulary: { SNOMED CT: not found }

Attribute	Notes	Constraints and tags
low air loss	A feature of a support surface that provides a flow of air to assist in managing the heat and humidity (microclimate) of the skin. <i>Ref: NPUAP</i> Note on vocabulary constraint: Proposed expression does not capture the air flow: SNOMED CT: Low air pressure (physical force) (285405000)	<u>Vocabulary: { SNOMED CT: not found }</u>

Support Surface Product

Type: **Class**

A clinician will not know the age or life expectancy of a device, but if this information could be retrieved from an inventory system, it would be valuable to the clinician.

Attributes

Attribute	Notes	Constraints and tags
Life Expectancy PQ	The defined period of time during which a product is able to effectively fulfill its designated purpose.	
Date in Service TS	The date the product was put in service from which life expectancy can be estimated	

Support Surface Component

Type: **Enumeration**

Some definitions taken from "Terms and Definitions Related to Support Surfaces" (NPUAP 2007; http://www.npuap.org/NPUAP_S3I_TD.pdf). This resource provides only specialized descriptions of "foam."

Attributes

Attribute	Notes	Constraints and tags
air	A low density fluid with minimal resistance to flow. <i>Ref: NPUAP</i> Note: the NPUAP definition seems to allow for liquid state fluids, but the SNOMED CT concept identifier clearly refers to gases. Clarify.	Vocabulary: { <u>SNOMED CT: Air (substance) (15158005)</u> }
gel	A semisolid system consisting of a network of solid aggregates, colloidal dispersions or polymers, which may exhibit elastic properties. (Can range from a hard gel to a soft gel). <i>Ref: NPUAP</i> Note on vocabulary constraint: Expression found is qualifier, not substance: SNOMED CT: Gel (qualifier value) (385100002)	Vocabulary: { <u>SNOMED CT: not found</u> }
water	A moderate density fluid with moderate resistance to flow. <i>Ref: NPUAP</i> Note: NPUAP definition allows for mixtures, suspensions, and substitutes, but the SNOMED CT concept identifier clearly refers to H2O. Clarify.	Vocabulary: { <u>SNOMED CT: water (substance) (11713004)</u> }
foam		Vocabulary: { <u>SNOMED CT: not found</u> }

Skin Protection

Type: **Package**

Skin Protection - (Logical diagram)

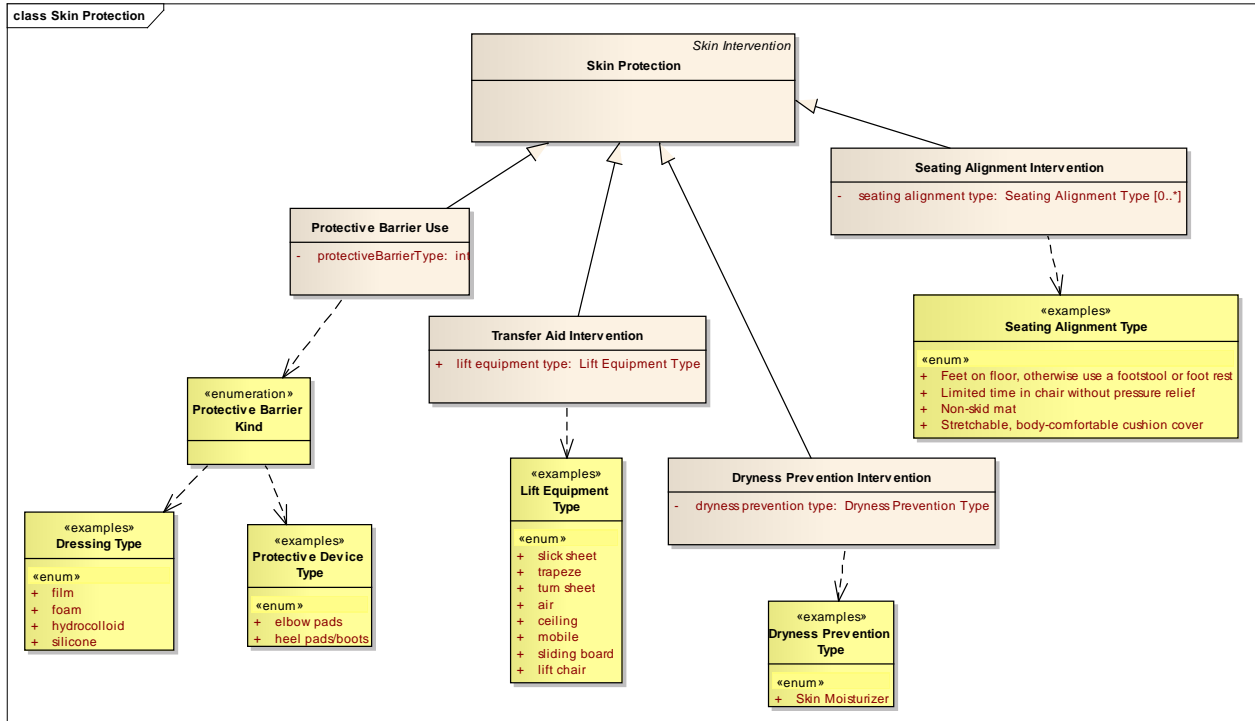


Figure: 13

Protective Barrier Kind

Type: Enumeration

Skin Protection

Type: Class Skin Intervention

An effort to reduce the patient's risk of developing a pressure ulcer by reducing the magnitude of lateral forces between the patient's skin and sheets or other surfaces

Protective Barrier Use

Type: Class Skin Protection

The placing of a physical object between the patient and a source of friction or shear

Attributes

Attribute	Notes	Constraints and tags
protectiveBarrierType e int		

Dressing TypeType: Class

A material applied to a wound to protect against further skin breakdown and contamination

Attributes

Attribute	Notes	Constraints and tags
film		Vocabulary: { <u>SNOMED CT: not found</u> }
foam		Vocabulary: { <u>SNOMED CT: not found</u> }
hydrocolloid		Vocabulary: { <u>SNOMED CT: 334582005 hydrocolloid dressing (physical object)</u> }

Attribute	Notes	Constraints and tags
silicone		Vocabulary: { SNOMED CT: 391865002 silicone dressing (physical object) }

Protective Device Type

Type: **Class**

A device designed to reduce friction against the patient

Attributes

Attribute	Notes	Constraints and tags
elbow pads		Vocabulary: { SNOMED CT: not found }
heel pads/boots		Vocabulary: { SNOMED CT: not found }

Transfer Aid Intervention

Type: **Class** **Skin Protection**

Use of a device to help move a patient in order to avoid the friction that may attend manual movement of the patient

Attributes

Attribute	Notes	Constraints and tags
lift equipment type Lift Equipment Type		

Lift Equipment Type

Type: Class

Attributes

Attribute	Notes	Constraints and tags
slick sheet		Vocabulary: { SNOMED CT: not found }
trapeze		Vocabulary: { SNOMED CT: 422915004 overbed trapeze device (physical object) }
turn sheet		Vocabulary: { SNOMED CT: not found }
air		Vocabulary: { SNOMED CT: not found }

Attribute	Notes	Constraints and tags
ceiling		Vocabulary: { SNOMED CT: not found }
mobile		Vocabulary: { SNOMED CT: not found }
sliding board		Vocabulary: { SNOMED CT: not found }
lift chair		Vocabulary: { SNOMED CT: not found }

Dryness Prevention Intervention

Type: Class Skin Protection

Attributes

Attribute	Notes	Constraints and tags
dryness prevention type Dryness Prevention Type		

Attribute	Notes	Constraints and tags

Dryness Prevention Type

Type: Class

Attributes

Attribute	Notes	Constraints and tags
Skin Moisturizer		Vocabulary: { SNOMED CT: not found }

Seating Alignment Intervention

Type: Class Skin Protection

Attributes

Attribute	Notes	Constraints and tags
seating alignment type Seating Alignment Type [0..*]		

Seating Alignment Type

Type: **Class**

Attributes

Attribute	Notes	Constraints and tags
Feet on floor, otherwise use a footstool or foot rest		Vocabulary: { <u>SNOMED CT: not found</u> }
Limited time in chair without pressure relief		Vocabulary: { <u>SNOMED CT: not found</u> }
Non-skid mat		Vocabulary: { <u>SNOMED CT: not found</u> }
Stretchable, body-comfortable cushion cover		Vocabulary: { <u>SNOMED CT: not found</u> }

Moisture Management

Type: **Package**

Moisture Management - (Logical diagram)

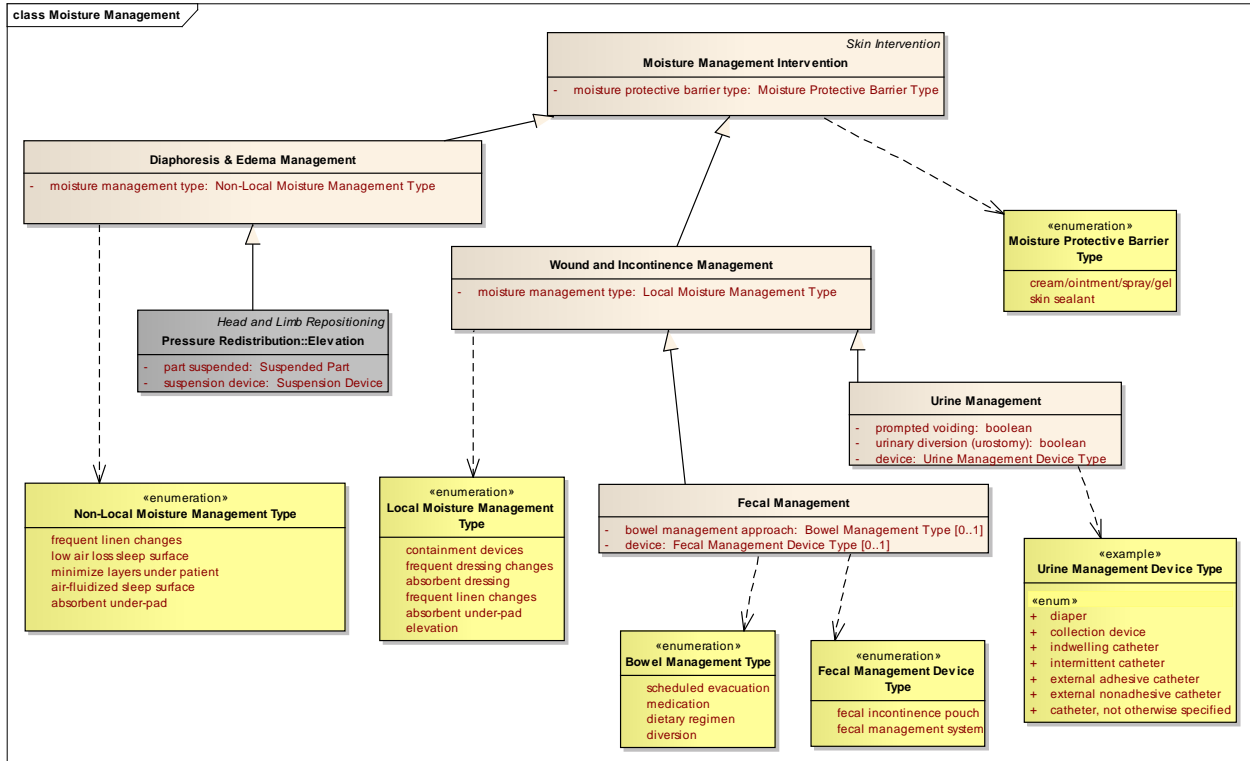


Figure: 14

Diaphoresis & Edema Management

Type: Class Moisture Management Intervention

Attributes

Attribute	Notes	Constraints and tags
<p>moisture management type Non-Local Moisture Management Type</p>		

Wound and Incontinence Management

Type: **Class** **Moisture Management Intervention**

Attributes

Attribute	Notes	Constraints and tags
moisture management type Local Moisture Management Type		

Local Moisture Management Type

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
containment devices		Vocabulary: { <u>SNOMED CT: not found</u> }
frequent dressing changes		Vocabulary: { <u>SNOMED CT: not found</u> }
absorbent dressing		Vocabulary: { <u>SNOMED CT: not found</u> }

Attribute	Notes	Constraints and tags
frequent linen changes		Vocabulary: { SNOMED CT: not found }
absorbent under-pad		Vocabulary: { SNOMED CT: not found }
elevation		Vocabulary: { SNOMED CT: 103720008 elevation (procedure) }

Fecal Management

Type: Class **Wound and Incontinence Management**

Attributes

Attribute	Notes	Constraints and tags
bowel management approach Bowel Management Type [0..1]	Approach for ensuring bowels move when intended	

Attribute	Notes	Constraints and tags
device Fecal Management Device Type [0..1]	The type of anatomical configuration used to conduct fecal matter from the patient	

Fecal Management Device Type

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
fecal incontinence pouch		Vocabulary: { <u>SNOMED CT: not found</u> }
fecal management system		Vocabulary: { <u>SNOMED CT: not found</u> }

Bowel Management Type

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
scheduled evacuation		Vocabulary: { SNOMED CT: not found }
medication		Vocabulary: { SNOMED CT: 18629005 administration of medication }
dietary regimen		Vocabulary: { SNOMED CT: 410175003 dietary regime management }
diversion	e.g., colostomy, ileostomy	Vocabulary: { SNOMED CT: not found }

Moisture Management Intervention

Type: **Class** **Skin Intervention**

An effort to reduce the patient's risk of developing a pressure ulcer by controlling the moisture of the patient's skin

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
moisture protective barrier type Moisture Protective Barrier Type		

Moisture Protective Barrier Type

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
cream/ointment/spray/gel		Vocabulary: { <u>SNOMED CT</u> : not found }
skin sealant		Vocabulary: { <u>SNOMED CT</u> : not found }

Urine Management

Type: **Class** **Wound and Incontinence Management**

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
prompted voiding boolean		
urinary diversion (urostomy) boolean		
device Urine Management Device Type		

Urine Management Device Type

Type: **Class**

Attributes

Attribute	Notes	Constraints and tags
diaper		Vocabulary: { SNOMED CT: <u>52065008 diaper, device (physical object)</u> }

Attribute	Notes	Constraints and tags
collection device		<u>Vocabulary: { SNOMED CT: not found }</u>
indwelling catheter	A catheter designed to drain urine over an extended period, without attendance, maintaining its position by use of a balloon or other placement device. Also called a Foley catheter.	<u>Vocabulary: { SNOMED CT: 23973005 indwelling urinary catheter (physical object) }</u>
intermittent catheter	A catheter designed for short-term drainage, without a balloon or other device to keep it in place when not attended. Also called a Robinson catheter.	<u>Vocabulary: { SNOMED CT: not found }</u>
external adhesive catheter	A non-intrusive urine collection device that maintains its position with the aid of an adhesive substance.	<u>Vocabulary: { SNOMED CT: not found }</u>
external nonadhesive catheter	A non-intrusive urine collection device that maintains its position without the aid of an adhesive substance, e.g., a condom catheter.	<u>Vocabulary: { SNOMED CT: not found }</u>
catheter, not otherwise specified		<u>Vocabulary: { SNOMED CT: 20568009 urinary catheter, device (physical object) }</u>

Non-Local Moisture Management Type*Type:* **Enumeration*****Attributes***

Attribute	Notes	Constraints and tags
frequent linen changes		Vocabulary: { <u>SNOMED CT: not found</u> }
low air loss sleep surface		Vocabulary: { <u>SNOMED CT: not found</u> }
minimize layers under patient		Vocabulary: { <u>SNOMED CT: not found</u> }
air-fluidized sleep surface		Vocabulary: { <u>SNOMED CT: not found</u> }

Attribute	Notes	Constraints and tags
absorbent under-pad		Vocabulary: { SNOMED CT: not found }

Nutrition Management

Type: Package

Nutrition Management - (Logical diagram)

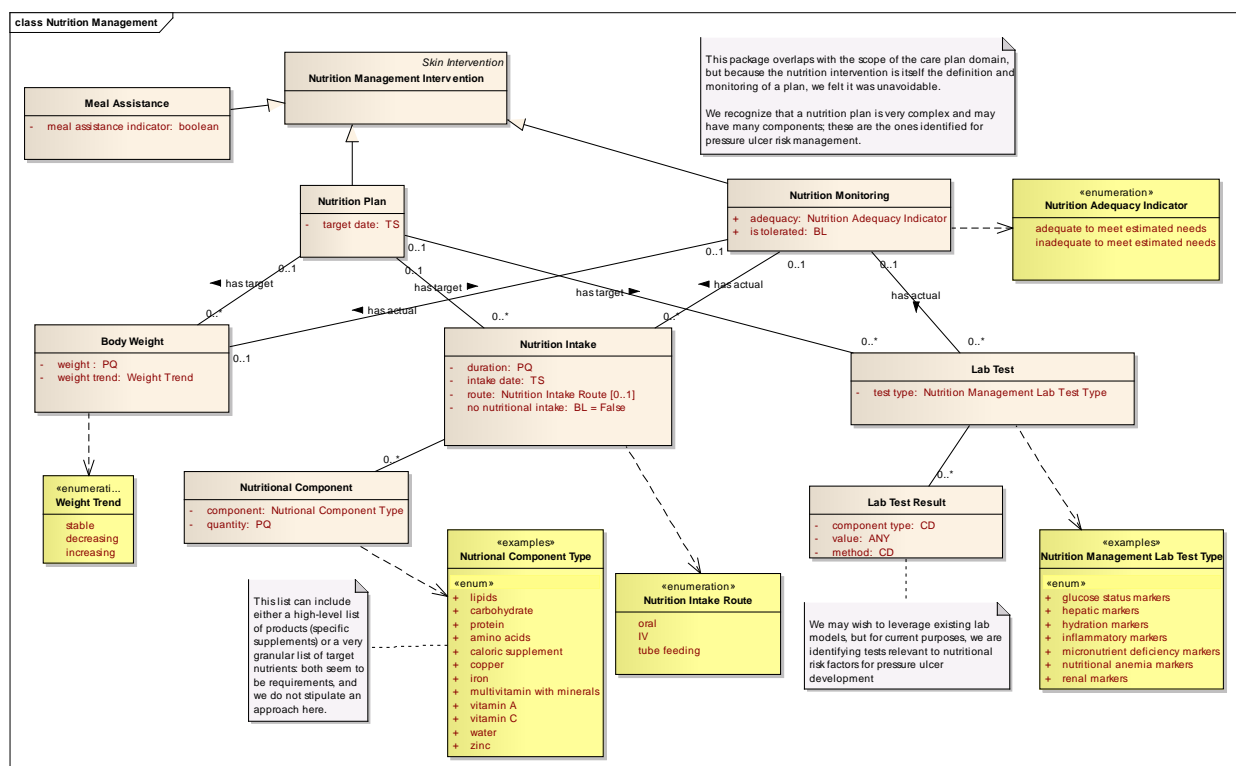


Figure: 15

Nutritional Component Type

Type: Class

Attributes

Attribute	Notes	Constraints and tags
lipids		Vocabulary: { <u>SNOMED CT: not found</u> }
carbohydrate		Vocabulary: { <u>SNOMED CT: 162535007 dietary carbohydrate intake (observable entity)</u> }
protein		Vocabulary: { <u>SNOMED CT: 162534006 dietary protein intake (observable entity)</u> }
amino acids		Vocabulary: { <u>SNOMED CT: 226321006 amino acid intake (observable entity)</u> }
caloric supplement		Vocabulary: { <u>SNOMED CT: 226280007 energy supplementation (pharmaceutical / biologic product)</u> }
copper		Vocabulary: { <u>SNOMED CT: 286615007 copper intake (observable entity)</u> }

Attribute	Notes	Constraints and tags
iron		Vocabulary: { SNOMED CT: <u>286614006 iron intake (observable entity)</u> }
multivitamin with minerals		Vocabulary: { SNOMED CT: <u>329453001 multivitamin+mineral preparations (pharmaceutical / biologic product)</u> }
vitamin A		Vocabulary: { SNOMED CT: <u>286604002 vitamin A intake (observable entity)</u> }
vitamin C		Vocabulary: { SNOMED CT: <u>286586005 vitamin C intake (observable entity)</u> }
water		Vocabulary: { SNOMED CT: <u>226354008 water intake (observable entity)</u> }
zinc		Vocabulary: { SNOMED CT: <u>286617004 zinc intake (observable entity)</u> }

Nutrition Monitoring

Type: **Class** **Nutrition Management Intervention**

Attributes

Attribute	Notes	Constraints and tags
adequacy Nutrition Adequacy Indicator	Whether the nutrition intake is adequate for the patient's health	Vocabulary: { SNOMED CT: 366364004 finding of nutritional status (finding) (BT) }
is tolerated BL	Whether the patient tolerated the indicated nutrient administration	

Nutrition Plan

Type: **Class** **Nutrition Management Intervention**

A set of target nutrition values identified as goals for the patient

Attributes

Attribute	Notes	Constraints and tags
target date TS	The time at which the planner desires or expects to measure the specified nutrition values	

Nutritional Component

Type: **Class**

Attributes

Attribute	Notes	Constraints and tags
component Nutritional Component Type	The name of the nutritional component (fiber, vitamin, mineral, etc.) of interest	
quantity PQ	The quantity of the nutritional component (fiber, vitamin, mineral, etc.) of interest	

Nutrition Management Intervention

Type: Class Skin Intervention

An effort to reduce the patient's risk of developing a pressure ulcer by ensuring adequate nutrition and hydration

Nutrition Adequacy Indicator

Type: Enumeration

Attributes

Attribute	Notes	Constraints and tags
adequate to meet estimated needs		Vocabulary: { SNOMED CT: 248324001 well nourished (finding) (clinical finding) } Vocabulary: { SNOMED CT: 88323005 adequate (qualifier value) }

Attribute	Notes	Constraints and tags
inadequate to meet estimated needs		Vocabulary: { SNOMED CT: 248325000 <u>undernourished (finding) (clinical finding)</u> } Vocabulary: { SNOMED CT: 71978007 <u>inadequate (Type:= qualifier value)</u> }

Nutrition Intake

Type: **Class**

Attributes

Attribute	Notes	Constraints and tags
duration PQ	The amount of time in which the nutrition was consumed, e.g., number of hours on IV	
intake date TS	The date and time the patient consumed the nutrition	
route Nutrition Intake Route [0..1]	The route by which the patient consumed the nutrition	

Attribute	Notes	Constraints and tags
no nutritional intake BL		False

Nutrition Intake Route

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
oral	Nourishment of a patient who chews and swallows	Vocabulary: { SNOMED CT: <u>not found</u> }
IV	The nourishment of the patient via intravenous line	Vocabulary: { SNOMED CT: <u>25156005 intravenous feeding of patient (regime/therapy) (procedure)</u> }
tube feeding	The feeding of the patient with a tube, whether naso-gastrically or gastrically	Vocabulary: { SNOMED CT: <u>61420007 tube feeding of patient (regime/therapy) (procedure)</u> }

Lab Test

Type: **Class**

Attributes

Attribute	Notes	Constraints and tags
test type Nutrition Management Lab Test Type		

Nutrition Management Lab Test Type

Type: Class

Attributes

Attribute	Notes	Constraints and tags
glucose status markers		Vocabulary: { SNOMED CT: <u>36048009 glucose measurement (procedure)</u> }
hepatic markers		Vocabulary: { SNOMED CT: <u>not found</u> }
hydration markers		Vocabulary: { SNOMED CT: <u>not found</u> }

Attribute	Notes	Constraints and tags
inflammatory markers		Vocabulary: { <u>SNOMED CT: not found</u> }
micronutrient deficiency markers		Vocabulary: { <u>SNOMED CT: not found</u> }
nutritional anemia markers		Vocabulary: { <u>SNOMED CT: not found</u> }
renal markers		Vocabulary: { <u>SNOMED CT: 269858003 biochemical evaluation of blood urea/renal function (procedure)</u> }

Lab Test Result

Type: **Class**

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
component type CD	The component type, if the lab is a panel	
value ANY	The result value of the test, of whatever datatype necessary	
method CD	The method by which the test was conducted	

Meal Assistance

Type: **Class** **Nutrition Management Intervention**

Attributes

Attribute	Notes	Constraints and tags
meal assistance indicator boolean	Whether the patient receives assistance eating meals	

Body Weight

Type: **Class**

Attributes

Attribute	Notes	Constraints and tags
weight PQ	The patient's body weight	
weight trend Weight Trend	The increase, decrease, or stability of the patient's weight	Vocabulary: { SNOMED CT: 365910001 <u>weight trend finding (finding)</u> }

Weight Trend

Type: **Enumeration**

Working note: should be harmonized with Nutritional Status: Weight Trend Finding

Attributes

Attribute	Notes	Constraints and tags
stable		Vocabulary: { SNOMED CT: 271398006 <u>weight steady (clinical finding)</u> }
decreasing		Vocabulary: { SNOMED CT: 89362005 <u>weight loss finding (clinical finding)</u> }

Attribute	Notes	Constraints and tags
increasing		Vocabulary: { SNOMED CT: 8943002 weight gain finding (clinical finding) }

Pressure Ulcer Risk Assessment

Type: Package

Pressure Ulcer Risk Assessment - (Package diagram)

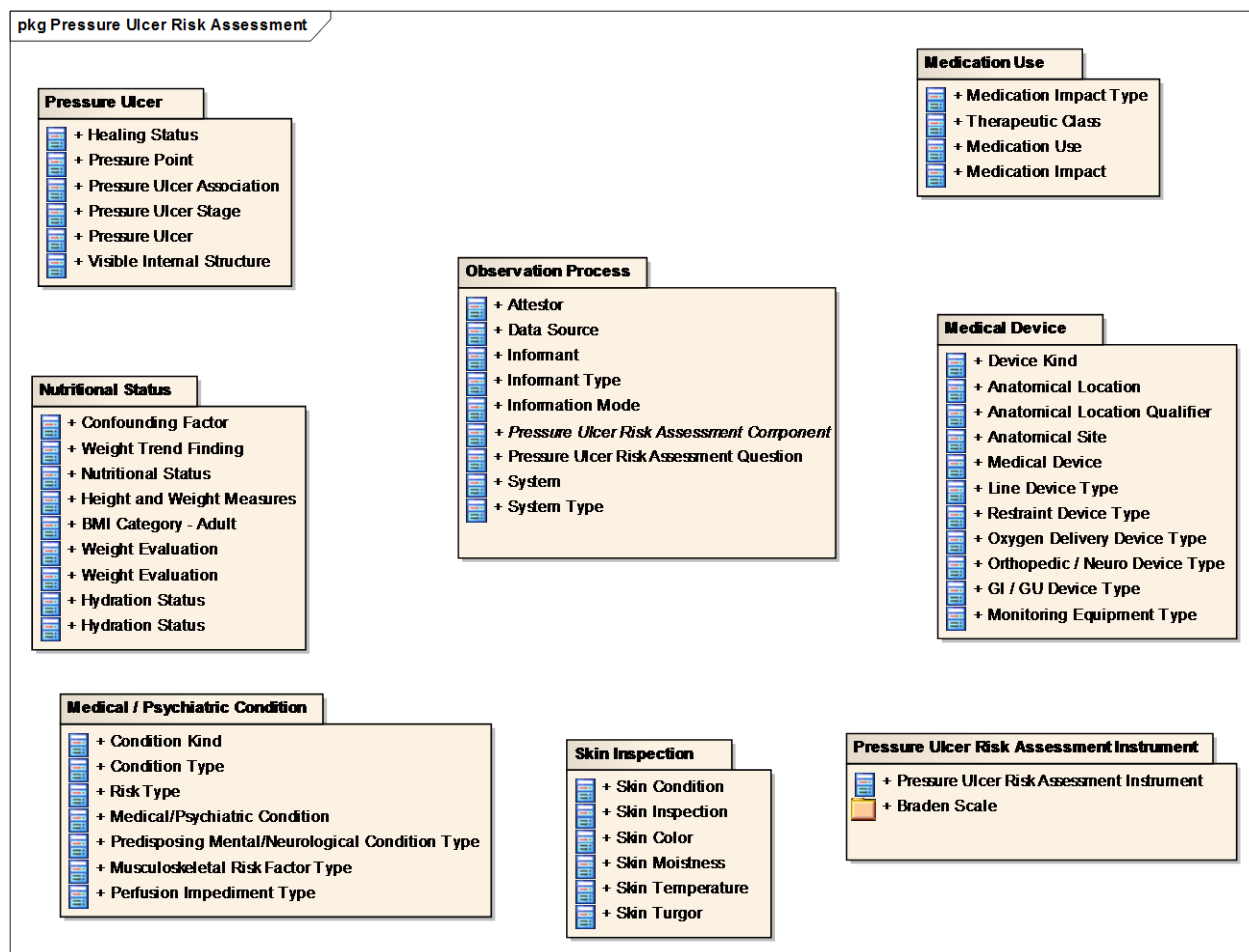


Figure: 16

Pressure Ulcer Risk Assessment: High Level - (Logical diagram)

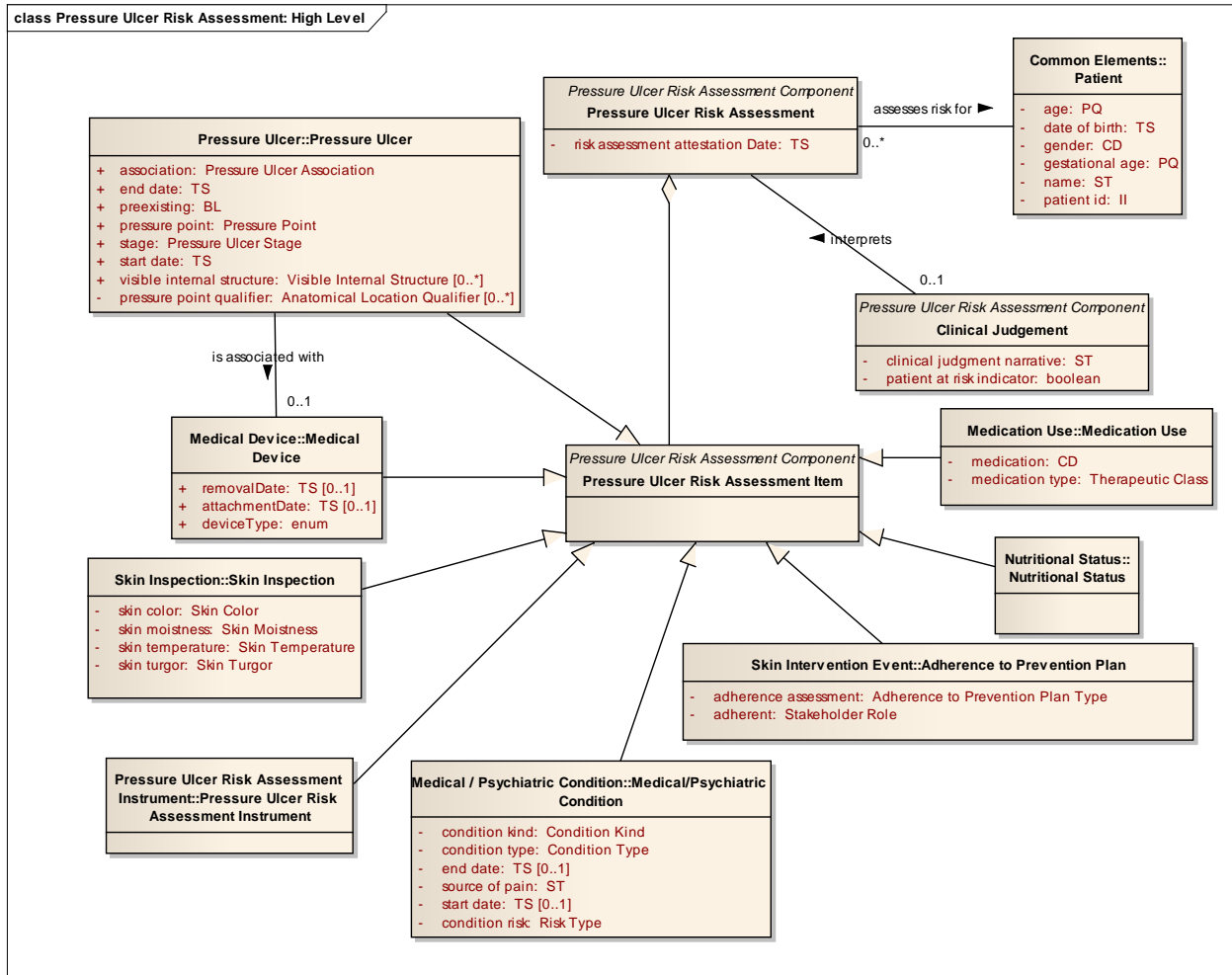


Figure: 17

Pressure Ulcer Risk Assessment

Type: **Class Pressure Ulcer Risk Assessment Component**

A comprehensive, attested assessment of the risk factors for a patient to develop a pressure ulcer

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
risk assessment attestation Date TS	The date the completed assessment was confirmed by an authorized clinician	

Pressure Ulcer Risk Assessment Item

Type: **Class Pressure Ulcer Risk Assessment Component**

A set of related risk assessment questions

Clinical Judgement

Type: **Class Pressure Ulcer Risk Assessment Component**

A statement of risk made by a qualified clinician, especially useful when treatment decisions are made in exception to documented protocols

Attributes

Attribute	Notes	Constraints and tags
clinical judgment narrative ST	Prose explaining the clinical judgement of risk	
patient at risk indicator boolean	Whether the patient is judged to be at risk for developing a pressure ulcer	

Pressure Ulcer

Type: **Package**

Pressure Ulcer - (Logical diagram)

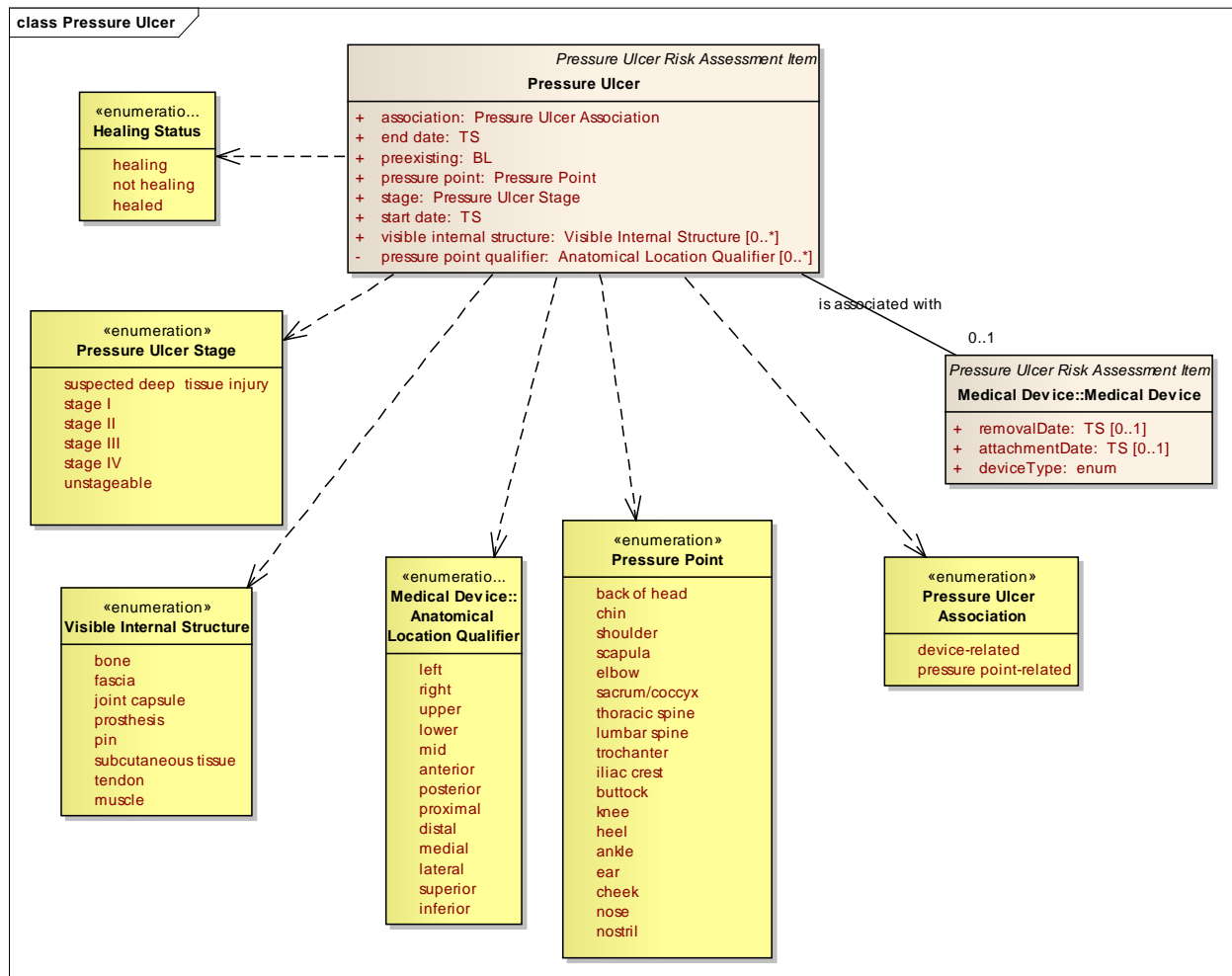


Figure: 18

Healing Status

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
healing		Vocabulary: { SNOMED CT: <u>298005009 finding of wound healing (clinical finding)</u> }
not healing		Vocabulary: { SNOMED CT: <u>271618001 impaired wound healing (clinical finding)</u> }
healed		Vocabulary: { SNOMED CT: <u>298006005 wound healed (clinical finding)</u> }

Pressure Point

Type: **Enumeration**

Points on the body that are susceptible to pressure ulcer formation

Attributes

Attribute	Notes	Constraints and tags
back of head		Vocabulary: { SNOMED CT: <u>181486008 occipital region of scalp (Type:= body structure)</u> }

Attribute	Notes	Constraints and tags
chin		Vocabulary: { <u>SNOMED CT: 23747009 skin structure of chin</u> (Type:= body structure) }
shoulder		Vocabulary: { <u>SNOMED CT: 76552005 skin of shoulder</u> (Type:= body structure) }
scapula		Vocabulary: { <u>SNOMED CT: 181516000 skin over scapula</u> (Type:= body structure) }
elbow		Vocabulary: { <u>SNOMED CT: 74757004 skin of elbow</u> (Type:= body structure) }
sacrum/coccyx		Vocabulary: { <u>SNOMED CT: 50938007 skin structure of sacrococcygeal region</u> (Type:= body structure) }
thoracic spine		Vocabulary: { <u>SNOMED CT: 181512003 skin of dorsal region</u> (Type:= body structure) }

Attribute	Notes	Constraints and tags
lumbar spine		Vocabulary: { <u>SNOMED CT: 286591006 skin of lumbar region (Type:= body structure)</u> }
trochanter	Specifically, the skin over the greater trochanter	Vocabulary: { <u>SNOMED CT: 49812005 skin structure of hip (Type:= body structure)</u> }
iliac crest		Vocabulary: { <u>SNOMED CT: 39937001 skin (Type:= body structure) + [region? Location refinement?] + 29850006 iliac crest (Type:= body structure)</u> }
buttock		Vocabulary: { <u>SNOMED CT: 22180002 skin of buttock (Type:= body structure)</u> }
knee		Vocabulary: { <u>SNOMED CT: 63464009 skin of knee (Type:= body structure)</u> }
heel		Vocabulary: { <u>SNOMED CT: 84607009 skin of heel (Type:= body structure)</u> }

Attribute	Notes	Constraints and tags
ankle		Vocabulary: { SNOMED CT: 67269001 skin of ankle (Type:= body structure) }
ear		Vocabulary: { SNOMED CT: 1902009 skin of ear (Type:= body structure) }
cheek		Vocabulary: { SNOMED CT: 36141000 skin of cheek (Type:= body structure) }
nose		Vocabulary: { SNOMED CT: 113179006 skin of nose (Type:= body structure) }
nostril		Vocabulary: { SNOMED CT: 244091003 skin of external naris (Type:= body structure) }

Pressure Ulcer Association

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
device-related		<u>Vocabulary: { SNOMED CT: not found }</u>
pressure point-related		<u>Vocabulary: { SNOMED CT: not found }</u>

Pressure Ulcer Stage

Type: **Enumeration**

Stage definitions were developed to guide clinical description of the depth of tissue destruction that occurs with pressure ulcers.

These definitions are taken from "National Pressure Ulcer Advisory Panel's Updated Pressure Ulcer Staging System." Joyce Black, PhD, RN, CWCN, CPSN; Mona Baharestani, PhD, ANP, CWOCN, CWS, FAPWCA, FCCWS; Janet Cuddigan, PhD, RN, CWCN, CCCN; Becky Dorner, RD, LD; Laura Edsberg, PhD; Diane Langemo, PhD, RN, FAAN; Mary Ellen Posthauer, RN, CD, LD; Catherine Ratliff, PhD, APRN-BC, CWOCN; George Taler, MD. Urol Nurs. 2007;27(2):144-150. © 2007 Society of Urologic Nurses and Associates

Attributes

Attribute	Notes	Constraints and tags
suspected deep tissue injury	Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue. Reference: www.npuap.org	<u>Vocabulary: { SNOMED CT: not found }</u>

Attribute	Notes	Constraints and tags
stage I	Intact skin with nonblanchable redness of a localized area, usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its color may differ from the surrounding area. Reference: www.npuap.org	Vocabulary: { SNOMED CT: 421076008 Pressure ulcer stage 1 (disorder) }
stage II	Partial thickness loss of dermis presenting as a shallow open ulcer with a red-pink wound bed, without slough. It may also present as an intact or open/ruptured serum-filled blister. Reference: www.npuap.org	Vocabulary: { SNOMED CT: 420324007 Pressure ulcer stage 2 (disorder) }
stage III	Full thickness tissue loss. Subcutaneous fat may be visible, but bone, tendon, or muscle is not exposed. Slough may be present but does not obscure the depth of tissue loss. It may include undermining and tunneling. Reference: www.npuap.org	Vocabulary: { SNOMED CT: 421927004 Pressure ulcer stage 3 (disorder) }
stage IV	Full thickness tissue loss with exposed bone, tendon, or muscle. Slough or exchar may be present on some parts of the wound bed. It often includes undermining and tunneling. Reference: www.npuap.org	Vocabulary: { SNOMED CT: 420597008 Pressure ulcer stage 4 (disorder) }
unstageable	Full thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown, or black) in the wound base. Reference: www.npuap.org	Vocabulary: { SNOMED CT: 421594008 Nonstageable pressure ulcer (disorder) }

Pressure Ulcer

Type: **Class Pressure Ulcer Risk Assessment Item**

An area of skin that breaks down when constant pressure is placed against the skin (Medline Plus)

Attributes

Attribute	Notes	Constraints and tags
association Pressure Ulcer Association	Whether the ulcer is related to a device or a pressure point	
end date TS	The date on which the ulcer was healed	
preexisting BL	Whether the pressure ulcer was present on admission to the encounter for which the information is recorded	
pressure point Pressure Point		
stage Pressure Ulcer Stage	The stage of the ulcer, per the AHCPR Guidelines, following the recommendations of the National Pressure Ulcer Advisory Panel (NPUAP) Consensus Development Conference	

Attribute	Notes	Constraints and tags
start date TS	The date on which the ulcer was identified	
visible internal structure Visible Internal Structure [0..*]	An internal anatomical structure or device that is exposed to view by a pressure ulcer	
pressure point qualifier Anatomical Location Qualifier [0..*]		

Visible Internal Structure

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
bone	A hard connective tissue consisting of cells embedded in a matrix of mineralized ground substance and collagen fibers. A portion of osseous tissue of definite shape and size, forming a part of the skeleton. Ref: Stedman's Medical Dictionary	: { SNOMED CT: 3138006 bone (tissue) structure (body structure) }

Attribute	Notes	Constraints and tags
fascia	A sheet of fibrous tissue that envelops the body beneath the skin; it also encloses muscles and groups of muscles, and separates their several layers or groups. Ref: Stedman's Medical Dictionary	Vocabulary: { SNOMED CT: 84820005 structure of fascia (body structure) }
joint capsule	A sac enclosing a joint, formed by an outer fibrous articular capsule and an inner synovial membrane. Syn: Articular capsule. Ref: Stedman's medical dictionary	Vocabulary: { SNOMED CT: 32551008 structure of articular capsule (body structure) }
prosthesis	Fabricated substitute for a diseased or missing part of the body. Ref: Stedman's Medical Dictionary	Vocabulary: { SNOMED CT: 53350007 prosthesis, device (physical object) }
pin	Rod used in surgical treatment of bone fractures. Syn: pin. Ref: Stedman's Medical Dictionary	Vocabulary: { SNOMED CT: 77444004 bone pin, device (physical object) }
subcutaneous tissue	A layer of loose, irregular connective tissue immediately beneath the skin and closely attached to the corium by coarse fibrous bands. Ref: Stedman's Medical Dictionary	Vocabulary: { SNOMED CT: 71966008 subcutaneous tissue structure (body structure) }
tendon	A nondistensible fibrous cord or band of variable length that is part of the muscle that connects the fleshy (contractile) part of muscle with its bony attachment or other structure. Ref: Stedman's Medical Dictionary	Vocabulary: { SNOMED CT: 13024002 tendon structure (body structure) }

Attribute	Notes	Constraints and tags
muscle	A primary tissue, consisting predominantly of highly specialized contractile cells. <i>Stedman's Medical Dictionary</i>	Vocabulary: { SNOMED CT: <u>71616004 muscle (body structure)</u> }

Medical / Psychiatric Condition

Type: **Package**

Medical Psychiatric Condition Detail - (Logical diagram)

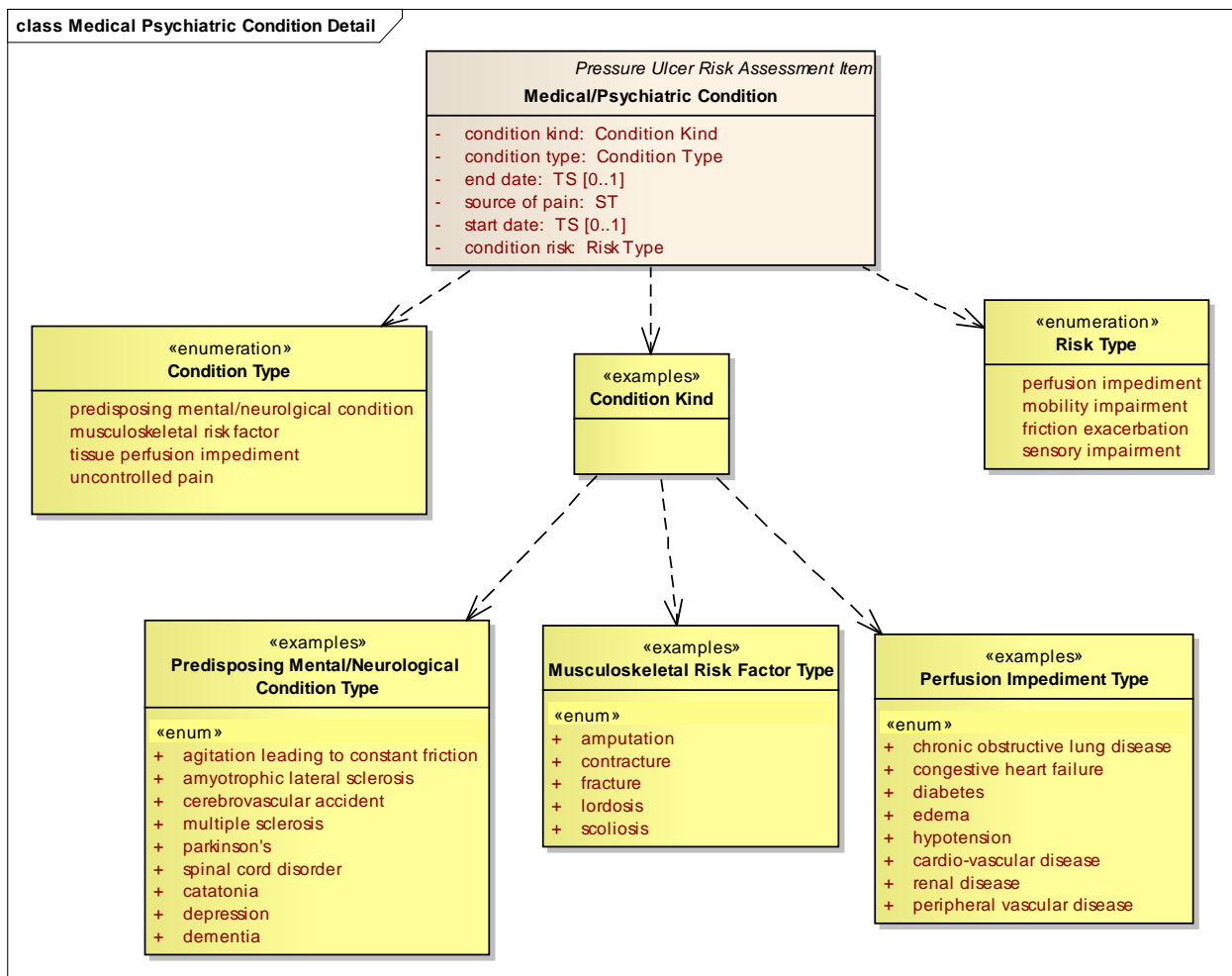


Figure: 19

Condition Kind*Type:* **Class****Attributes**

Attribute	Notes	Constraints and tags
predisposing mental/neurological condition	A neurological condition that increases pressure ulcer risk	Vocabulary: { <u>SNOMED CT: not found</u> }
musculoskeletal risk factor	A condition affecting the musculoskeletal systems and thereby impairing the patient's mobility	Vocabulary: { <u>SNOMED CT: 928000 disorder of musculoskeletal system (disorder)</u> }
tissue perfusion impediment	A condition that impairs perfusion in body tissue	Vocabulary: { <u>SNOMED CT: not found</u> }
uncontrolled pain	Pain that cannot be or is not effectively controlled with medication or other interventions	Vocabulary: { <u>SNOMED CT: 274665008 chronic intractable pain (finding)</u> }

Risk Type*Type:* **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
perfusion impediment		Vocabulary: { SNOMED CT: 409055009 ineffective tissue perfusion (clinical finding) }
mobility impairment		Vocabulary: { SNOMED CT: 82971005 impaired mobility (clinical finding) }
friction exacerbation		Vocabulary: { SNOMED CT: not found }
sensory impairment		Vocabulary: { SNOMED CT: not found }

Medical/Psychiatric Condition

Type: **Class Pressure Ulcer Risk Assessment Item**

A pathological state of the patient, whether a diagnosis, problem, or complaint

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
condition kind Condition Kind	The specific condition affecting pressure ulcer risk	
condition type Condition Type	The general category of condition affecting pressure ulcer risk	
end date TS [0..1]	The date on which the condition was healed or otherwise ceased to afflict the patient	
source of pain ST	A description of the source of pain, if applicable	
start date TS [0..1]	The date of onset of the condition	
condition risk Risk Type		

Predisposing Mental/Neurological Condition TypeType: ClassConstraints

- SNOMED CT 118940003 (Disorder of nervous system (disorder))
: (Vocabulary)

Attributes

Attribute	Notes	Constraints and tags
agitation leading to constant friction		Vocabulary: { <u>SNOMED CT: not found</u> }
amyotrophic lateral sclerosis		Vocabulary: { <u>SNOMED CT 86044005 amyotrophic lateral sclerosis (disorder)</u> }
cerebrovascular accident		Vocabulary: { <u>SNOMED CT 230690007 cerebrovascular accident (disorder)</u> }
multiple sclerosis		Vocabulary: { <u>SNOMED CT 24700007 multiple sclerosis (disorder)</u> }

Attribute	Notes	Constraints and tags
parkinson's		Vocabulary: { <u>SNOMED CT: 49049000 parkinson's disease (disorder)</u> }
spinal cord disorder		Vocabulary: { <u>SNOMED CT: 48522003 (spinal cord disorder (clinical finding))</u> }
catatonia		Vocabulary: { <u>SNOMED CT: not found</u> }
depression		Vocabulary: { <u>SNOMED CT: 35489007 depressive disorder (clinical finding)</u> }
dementia		Vocabulary: { <u>SNOMED CT: 52448006 dementia (clinical finding)</u> }

Musculoskeletal Risk Factor Type

Type: Class

Constraints

Constraints

- SNOMED CT 928000 (Disorder of musculoskeletal system (disorder))
: (Vocabulary)

Attributes

Attribute	Notes	Constraints and tags
amputation		Vocabulary: { SNOMED CT: <u>41944006 amputee (clinical finding)</u> }
contracture		Vocabulary: { SNOMED CT <u>7890003 contracture of joint (disorder)</u> }
fracture		Vocabulary: { SNOMED CT <u>125605004 fracture of bone (disorder)</u> }
lordosis		Vocabulary: { SNOMED CT <u>281377003 lordosis finding (finding)</u> }
scoliosis		Vocabulary: { SNOMED CT <u>298382003 scoliosis deformity of spine (disorder)</u> }

Perfusion Impediment Type

Type: **Class**

Constraints

- SNOMED CT 66354006 (Complication of perfusion (disorder))
: (*Vocabulary*)

This code is not intended to constrain the allowable values, but to indicate a semantic space. Diabetes, e.g., is a critically relevant value, but it is not a child of this code.

Attributes

Attribute	Notes	Constraints and tags
chronic obstructive lung disease		Vocabulary: { <u>SNOMED CT 13645005 chronic obstructive lung disease (disorder)</u> }
congestive heart failure		Vocabulary: { <u>SNOMED CT 42343007 congestive heart failure (disorder)</u> }
diabetes		Vocabulary: { <u>SNOMED CT: 73211009 diabetes mellitus (clinical finding)</u> }
edema		Vocabulary: { <u>SNOMED CT 57609005 edema disease (disorder)</u> }

Attribute	Notes	Constraints and tags
hypotension		Vocabulary: { <u>SNOMED CT: 45007003 low blood pressure (disorder)</u> }
cardio-vascular disease		Vocabulary: { <u>SNOMED CT: 49601007 disorder of cardiovascular system (clinical finding)</u> }
renal disease		: { <u>SNOMED CT: 90708001 renal disease (clinical finding)</u> }
peripheral vascular disease		Vocabulary: { <u>SNOMED CT: 400047006 peripheral vascular disease (clinical finding)</u> }

Medical Device

Type: **Package**

Medical Device Detail - (Logical diagram)

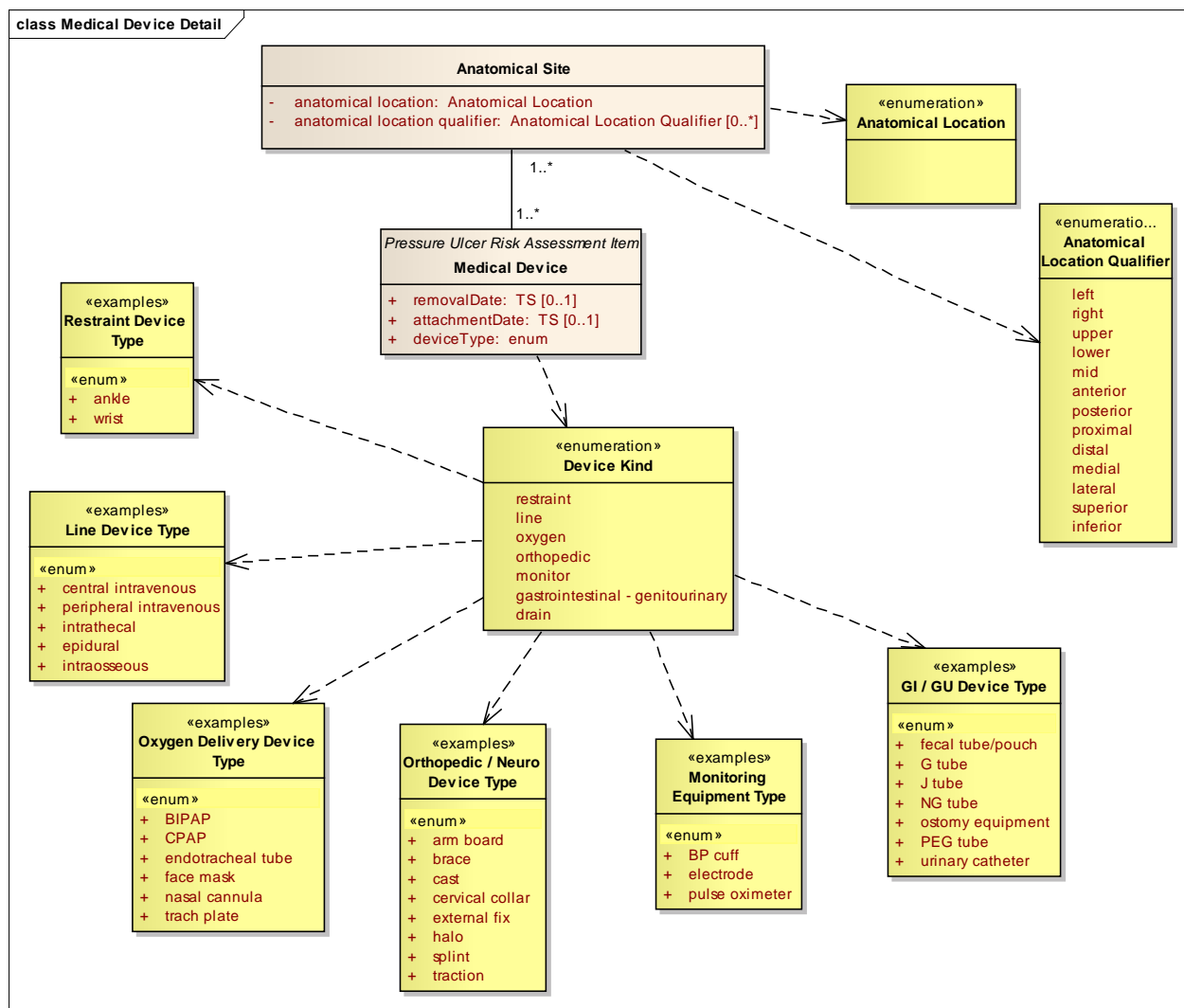


Figure: 20

Device Kind

Type: Enumeration

Attributes

Attribute	Notes	Constraints and tags
restraint		

Attribute	Notes	Constraints and tags
line		
oxygen		
orthopedic		
monitor		
gastrointestinal - genitourinary		
drain		

Anatomical Location

Type: **Enumeration**

Places on the exterior of the body. NB: Where possible, items in this list specify "skin of"; cases where the site does not have skin require specific consideration and review.

Attributes

Attribute	Notes	Constraints and tags
elbow		Vocabulary: { SNOMED CT: <u>74757004 skin structure of elbow</u> (body structure) }
heel		Vocabulary: { SNOMED CT: <u>84607009 skin structure of heel</u> (body structure) }
ischial tuberosity		Vocabulary: { SNOMED CT: not <u>found</u> }
knee		Vocabulary: { SNOMED CT: <u>63464009 skin structure of knee</u> (body structure) }
malleolus		Vocabulary: { SNOMED CT: <u>419975006 skin structure of</u> <u>malleolus (body structure)</u> }

Attribute	Notes	Constraints and tags
trochanter		Vocabulary: { <u>SNOMED CT: not found</u> }
occipital region		Vocabulary: { <u>SNOMED CT: 79951008 skin of occipital region (body structure)</u> }
forehead		Vocabulary: { <u>SNOMED CT: 68698007 skin structure of forehead (body structure)</u> }
scapula		Vocabulary: { <u>SNOMED CT: 45980000 skin structure of scapular region of back (body structure)</u> }
ear		Vocabulary: { <u>SNOMED CT: 1902009 skin structure of ear (body structure)</u> }
scrotum		Vocabulary: { <u>SNOMED CT: 81992007 skin structure of scrotum (body structure)</u> }

Attribute	Notes	Constraints and tags
sacrum		Vocabulary: { <u>SNOMED CT: not found</u> }
abdomen		Vocabulary: { <u>SNOMED CT: 75093004 skin structure of abdomen (body structure)</u> }
back		Vocabulary: { <u>SNOMED CT: 66643007 skin structure of back (body structure)</u> }
eye		Vocabulary: { <u>SNOMED CT: 362916000 skin of eye region (body structure)</u> }
wrist		Vocabulary: { <u>SNOMED CT: 24785000 skin structure of wrist (body structure)</u> }
face		Vocabulary: { <u>SNOMED CT: 73897004 skin structure of face (body structure)</u> }

Attribute	Notes	Constraints and tags
foot		Vocabulary: { <u>SNOMED CT: 60496002 skin structure of foot (body structure)</u> }
hand		Vocabulary: { <u>SNOMED CT: 33712006 skin structure of hand (body structure)</u> }
head		Vocabulary: { <u>SNOMED CT: 117551010 skin structure of head (body structure)</u> }
hip		Vocabulary: { <u>SNOMED CT: 49812005 skin structure of hip (body structure)</u> }
leg		Vocabulary: { <u>SNOMED CT: not found</u> }
neck		Vocabulary: { <u>SNOMED CT: 43081002 skin structure of neck (body structure)</u> }

Attribute	Notes	Constraints and tags
rectum		Vocabulary: { <u>SNOMED CT: not found</u> }
shoulder		Vocabulary: { <u>SNOMED CT: 76552005 skin structure of shoulder (body structure)</u> }
buttocks		Vocabulary: { <u>SNOMED CT: 22180002 skin structure of buttock (body structure)</u> }
chest		Vocabulary: { <u>SNOMED CT: not found</u> }
ankle		Vocabulary: { <u>SNOMED CT: 67269001 skin structure of ankle (body structure)</u> }
arm		Vocabulary: { <u>SNOMED CT: 371309009 skin structure of upper arm (body structure)</u> }

Attribute	Notes	Constraints and tags
mouth		Vocabulary: { <u>SNOMED CT: 284539009 skin of part of mouth region (body structure)</u> }
achilles		Vocabulary: { <u>SNOMED CT: not found</u> }
axilla		Vocabulary: { <u>SNOMED CT: 76261009 skin structure of axilla (body structure)</u> }
breast		Vocabulary: { <u>SNOMED CT: 82038008 skin structure of breast (body structure)</u> }
calf		Vocabulary: { <u>SNOMED CT: 51059006 skin structure of calf of leg (body structure)</u> }
chin		Vocabulary: { <u>SNOMED CT: 23747009 skin structure of chin (body structure)</u> }

Attribute	Notes	Constraints and tags
coccyx		Vocabulary: { <u>SNOMED CT: not found</u> }
finger		: { <u>SNOMED CT: 56213003 skin of finger (body structure)</u> }
flank		Vocabulary: { <u>SNOMED CT: 34284005 skin structure of flank (body structure)</u> }
groin		Vocabulary: { <u>SNOMED CT: 39687006 skin structure of inguinal region (body structure)</u> }
gum		Vocabulary: { <u>SNOMED CT: 113279002 gingival structure (body structure)</u> }
iliac crest		Vocabulary: { <u>SNOMED CT: not found</u> }

Attribute	Notes	Constraints and tags
jaw		Vocabulary: { SNOMED CT: <u>41935005 skin structure of jaw (body structure)</u> }
labia		Vocabulary: { SNOMED CT: <u>73058008 skin of structure of labium pudendum (body structure)</u> }
lip		Vocabulary: { SNOMED CT: <u>88089004 skin structure of lip (body structure)</u> }
lumbar		Vocabulary: { SNOMED CT: <u>286591006 skin of lumbar region (body structure)</u> }
mucous membrane		Vocabulary: { SNOMED CT: <u>414781009 mucous membrane structure (body structure)</u> }
nail		Vocabulary: { SNOMED CT: <u>72651009 nail structure (body structure)</u> }

Attribute	Notes	Constraints and tags
nares		Vocabulary: { <u>SNOMED CT: not found</u> }
nose		Vocabulary: { <u>SNOMED CT: 113179006 skin structure of nose (body structure)</u> }
parietal		Vocabulary: { <u>SNOMED CT: 21672008 skin of parietal region (body structure)</u> }
pelvic region		Vocabulary: { <u>SNOMED CT: 82654007 skin structure of pelvis (body structure)</u> }
penis		Vocabulary: { <u>SNOMED CT: 35900000 skin of penis (body structure)</u> }
perineum		Vocabulary: { <u>SNOMED CT: 48014002 skin structure of perineum (body structure)</u> }

Attribute	Notes	Constraints and tags
peri-rectum		Vocabulary: { <u>SNOMED CT: not found</u> }
scalp		Vocabulary: { <u>SNOMED CT: 43067004 skin structure of scalp (body structure)</u> }
sternum		Vocabulary: { <u>SNOMED CT: not found</u> }
suprapubic region		Vocabulary: { <u>SNOMED CT: 367578008 skin structure of hypogastric region (body structure)</u> }
temporal region		Vocabulary: { <u>SNOMED CT: 244081009 skin of temple (body structure)</u> }
thigh		Vocabulary: { <u>SNOMED CT: 371305003 skin structure of thigh (body structure)</u> }

Attribute	Notes	Constraints and tags
toes		Vocabulary: { SNOMED CT: <u>52034004 skin structure of toe</u> (body structure) }
tongue		Vocabulary: { SNOMED CT: <u>314870004 tongue surface region</u> (body structure) }
umbilicus		Vocabulary: { SNOMED CT: <u>315003 skin structure of umbilicus</u> (body structure) }
vagina		Vocabulary: { SNOMED CT: <u>76784001 vaginal structure (body structure)</u> }

Anatomical Location Qualifier

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
left		Vocabulary: { SNOMED CT: <u>7771000 left (qualifier value)</u> }

Attribute	Notes	Constraints and tags
right		Vocabulary: { SNOMED CT: <u>24028007 right (qualifier value)</u> }
upper		Vocabulary: { SNOMED CT: <u>261183002 upper (qualifier value)</u> }
lower		: { SNOMED CT: <u>261122009 lower (qualifier value)</u> }
mid		Vocabulary: { SNOMED CT: <u>255562008 mid (qualifier value)</u> }
anterior		Vocabulary: { SNOMED CT: <u>255549009 anterior (qualifier value)</u> }
posterior		: { SNOMED CT: <u>255551008 posterior (qualifier value)</u> }

Attribute	Notes	Constraints and tags
proximal		Vocabulary: { <u>SNOMED CT: 40415009 proximal (qualifier value)</u> }
distal		: { <u>SNOMED CT: 46053002 distal (qualifier value)</u> }
medial		Vocabulary: { <u>SNOMED CT: 255561001 medial (qualifier value)</u> }
lateral		Vocabulary: { <u>SNOMED CT: 49370004 lateral (qualifier value)</u> }
superior		Vocabulary: { <u>SNOMED CT: 264217000 superior (qualifier value)</u> }
inferior		Vocabulary: { <u>SNOMED CT: 261089000 inferior (qualifier value)</u> }

Anatomical Site*Type:* **Class**

An identified region of the patient's body

Attributes

Attribute	Notes	Constraints and tags
anatomical location Anatomical Location	A kind of anatomical structure	
anatomical location qualifier Anatomical Location Qualifier [0..*]	The laterality of the structure, if applicable	

Medical Device*Type:* **Class** **Pressure Ulcer Risk Assessment Item**

A medical device that has been used in contact with the patient

Attributes

Attribute	Notes	Constraints and tags
removalDate TS [0..1]	The date the device was removed, if it has been removed	

Attribute	Notes	Constraints and tags
attachmentDate TS [0..1]	The date the device was attached to the patient	
deviceType enum		

Line Device Type

Type: Class

Attributes

Attribute	Notes	Constraints and tags
central intravenous		Vocabulary: { SNOMED CT: <u>52124006 central venous catheter, device (physical object)</u> }
peripheral intravenous		Vocabulary: { SNOMED CT: <u>82449006 peripheral intravenous catheter, device (physical object)</u> }
intrathecal		Vocabulary: { SNOMED CT: <u>439069008 intrathecal catheter (physical object)</u> }

Attribute	Notes	Constraints and tags
epidural		Vocabulary: { <u>SNOMED CT: 30610008 epidural catheter (physical object)</u> }
intraosseous		Vocabulary: { <u>SNOMED CT: not found</u> }

Restraint Device Type

Type: **Class**

SNOMED CT: 57395004 physical restraint equipment, device (physical object)

Attributes

Attribute	Notes	Constraints and tags
ankle		Vocabulary: { <u>SNOMED CT: not found</u> }
wrist		Vocabulary: { <u>SNOMED CT: not found</u> }

Oxygen Delivery Device Type

Type: **Class**

Attributes

Attribute	Notes	Constraints and tags
BIPAP		Vocabulary: { <u>SNOMED CT: 425826004 biPAP oxygen nasal cannula</u> }
CPAP		Vocabulary: { <u>SNOMED CT: 426806007 CPAP oxygen nasal cannula</u> }
endotracheal tube		Vocabulary: { <u>SNOMED CT: 26412008 endotracheal tube</u> }
face mask		Vocabulary: { <u>SNOMED CT: not found</u> }
nasal cannula		Vocabulary: { <u>SNOMED CT: 336623009 oxygen nasal cannula</u> }
trach plate		Vocabulary: { <u>SNOMED CT: not found</u> }

Orthopedic / Neuro Device TypeType: **Class****Attributes**

Attribute	Notes	Constraints and tags
arm board		Vocabulary: { <u>SNOMED CT: not found</u> }
brace		Vocabulary: { <u>SNOMED CT: 360316004 brace (physical object)</u> }
cast		Vocabulary: { <u>SNOMED CT: 118643004 cast (physical object)</u> }
cervical collar		Vocabulary: { <u>SNOMED CT: 407741000 cervical collar (physical object)</u> }
external fix		Vocabulary: { <u>SNOMED CT: 118383002 external fixation device (physical object)</u> }

Attribute	Notes	Constraints and tags
halo		Vocabulary: { SNOMED CT: <u>183187001 halo brace (physical object)</u> }
splint		Vocabulary: { SNOMED CT: <u>16650009 splint (physical object)</u> }
traction		Vocabulary: { SNOMED CT: <u>63797009 traction unit</u> }

GI / GU Device Type

Type: Class

Attributes

Attribute	Notes	Constraints and tags
fecal tube/pouch		Vocabulary: { SNOMED CT: <u>not found</u> }
G tube		Vocabulary: { SNOMED CT: <u>not found</u> }

Attribute	Notes	Constraints and tags
J tube		Vocabulary: { SNOMED CT: <u>126065006 jejunostomy tube, device (physical object)</u> }
NG tube		Vocabulary: { SNOMED CT: <u>17102003 nasogastric tube, device (physical object)</u> }
ostomy equipment		Vocabulary: { SNOMED CT: <u>35398009 ostomy appliance, device (physical object)</u> or <u>24697008 ostomy belt, device (physical object)</u> or <u>32711007 ostomy collection bag, device (physical object)</u> }
PEG tube		Vocabulary: { SNOMED CT: <u>not found</u> }
urinary catheter		Vocabulary: { SNOMED CT: <u>20568009 urinary catheter, device (physical object)</u> }

Monitoring Equipment Type

Type: Class

Attributes

Attribute	Notes	Constraints and tags
BP cuff		Vocabulary: { <u>SNOMED CT: 70665002 blood pressure cuff</u> }
electrode		Vocabulary: { <u>SNOMED CT: 16470007 electrode (physical object)</u> }
pulse oximeter		Vocabulary: { <u>SNOMED CT: not found</u> }

Medication Use

Type: **Package**

Medication Use Detail - (Logical diagram)

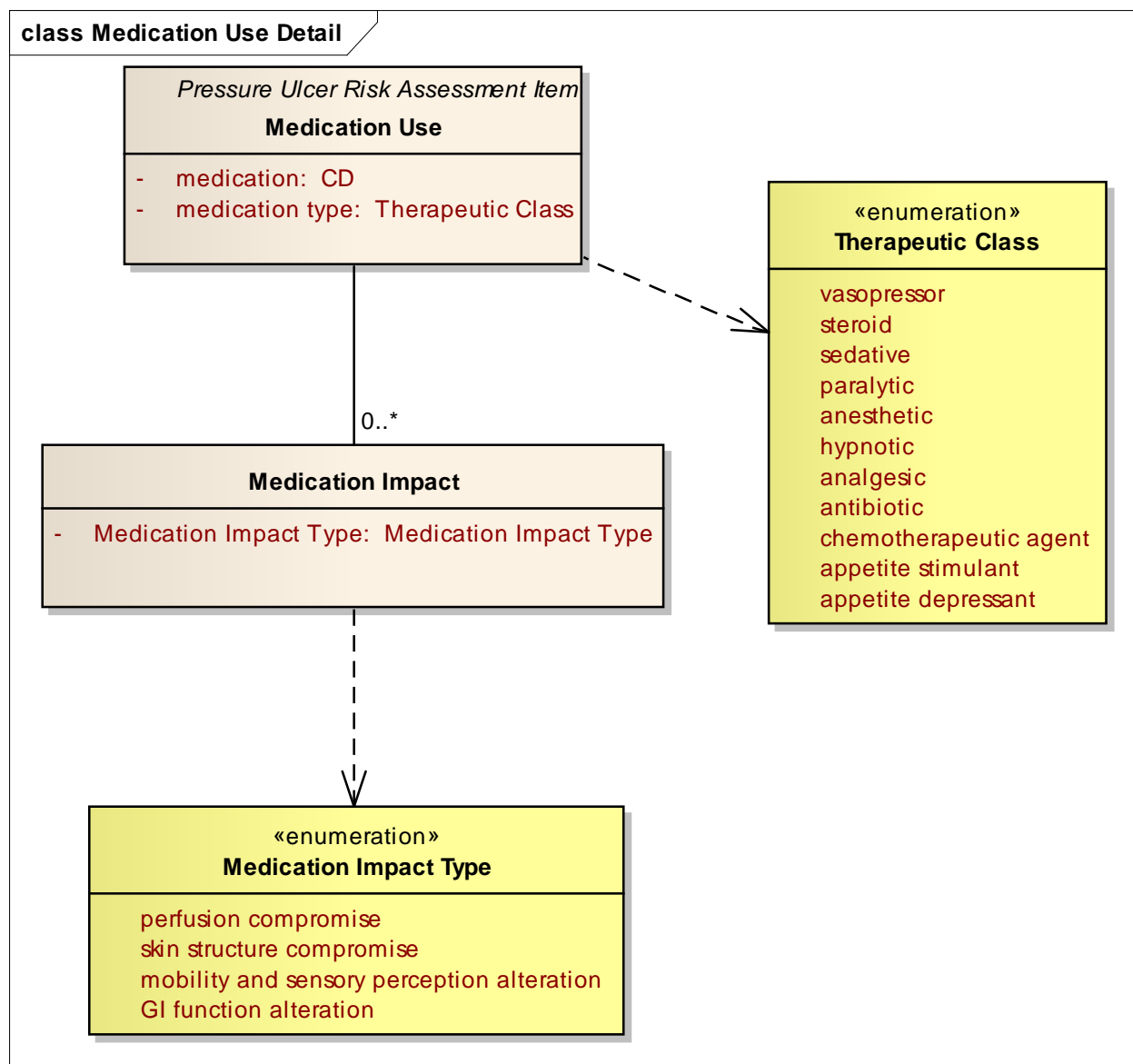


Figure: 21

Medication Impact Type

Type: Enumeration

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
perfusion compromise		Vocabulary: { SNOMED CT: not found }
skin structure compromise		Vocabulary: { SNOMED CT: not found }
mobility and sensory perception alteration		Vocabulary: { SNOMED CT: not found }
GI function alteration		Vocabulary: { SNOMED CT: not found }

Therapeutic Class

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
vasopressor		Vocabulary: { <u>SNOMED CT: 8571001 vasoconstrictor (pharmaceutical / biologic product)</u> }
steroid		Vocabulary: { <u>SNOMED CT: not found</u> }
sedative		Vocabulary: { <u>SNOMED CT: 349859000 sedative (pharmaceutical / biologic product)</u> }
paralytic		Vocabulary: { <u>SNOMED CT: not found</u> }
anesthetic		Vocabulary: { <u>SNOMED CT: 5776009 anesthetic (pharmaceutical / biologic product)</u> }
hypnotic		Vocabulary: { <u>SNOMED CT: 321088006 hypnotics (pharmaceutical / biologic product)</u> }

Attribute	Notes	Constraints and tags
analgesic		Vocabulary: { SNOMED CT: <u>53009005 analgesic (pharmaceutical / biologic product)</u> }
antibiotic		Vocabulary: { SNOMED CT: <u>255631004 antibiotic (pharmaceutical / biologic product)</u> }
chemotherapeutic agent		Vocabulary: { SNOMED CT: <u>312059006 chemotherapeutic agent (pharmaceutical / biologic product)</u> }
appetite stimulant		Vocabulary: { SNOMED CT: <u>not found</u> }
appetite depressant		Vocabulary: { SNOMED CT: <u>not found</u> }

Medication Use

Type: Class Pressure Ulcer Risk Assessment Item

A medication that the patient is taking, with imputed risks based on medication type

Attributes

Attribute	Notes	Constraints and tags
medication CD	The medication that the patient is taking	
medication type Therapeutic Class	The class of medication, assigned in order to assess effects that increase pressure ulcer risk	Vocabulary: { <u>SNOMED CT: 129019007 taking medication (observable entity)</u> }

Medication Impact

Type: Class

An effect that the medication may have on the patient that puts the patient at greater risk for developing a pressure ulcer

Attributes

Attribute	Notes	Constraints and tags
Medication Impact Type Medication Impact Type		Vocabulary: { <u>SNOMED CT: not found</u> }

Nutritional Status

Type: Package

Nutritional Status Detail - (Logical diagram)

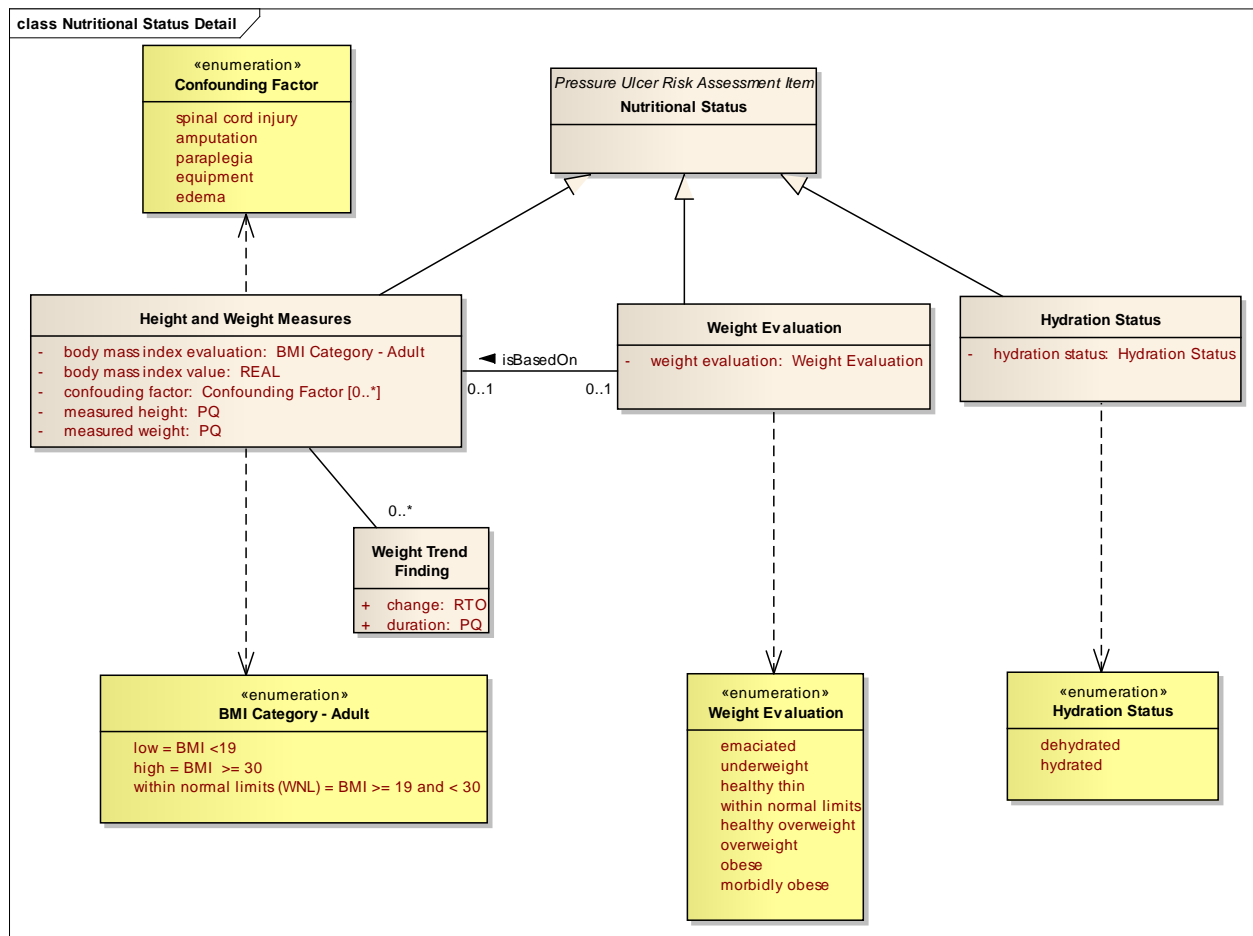


Figure: 22

Confounding Factor

Type: Enumeration

Attributes

Attribute	Notes	Constraints and tags
spinal cord injury		Vocabulary: { SNOMED CT: 90584004 (spinal cord injury: clinical finding) }

Attribute	Notes	Constraints and tags
amputation		Vocabulary: { SNOMED CT: 41944006 amputee (clinical finding) }
paraplegia		Vocabulary: { SNOMED CT: not found }
equipment		Vocabulary: { SNOMED CT: 397917005 (equipment in use: clinical finding) }
edema	An accumulation of an excessive amount of watery fluid in cells, tissues, or serous cavities. Ref: Stedman's Medical Dictionary.	Vocabulary: { SNOMED CT: 267038008 edema (finding) }

Weight Trend Finding

Type: **Class**

Change in patient weight

Notes: A weight loss of 5% within the past month or >10% within the past 6 months is found to be significant in increasing the risk of pressure ulcers. This is also consistent with information captured for the Minimum Data Set (MDS) for Nursing Home patients.

Working note: should be harmonized with Nutrition Management: Weight Trend

Constraints

- SNOMED CT: Weight change (observable entity) (248346009): (Vocabulary)

Tagged Values

- Reference = Shahin ES, Meijers JM, Schols JM, Tannen A, Halfens RJ & Dassen T. (2010). The relationship between malnutrition parameters and pressure ulcers in hospitals and nursing homes. Journal of Nutrition, 26, 886-889. doi:10.1016/j.nut.2010.01.016.

Attributes

Attribute	Notes	Constraints and tags
change RTO	Percentage magnitude of change in time period	Vocabulary: { SNOMED CT: <u>Percentage weight loss (observable entity) (248349002)</u> }
duration PQ	Time span of weight change	

Nutritional Status

Type: Class **Pressure Ulcer Risk Assessment Item**

An evaluation of the patient's metabolic function

Height and Weight Measures

Type: Class **Nutritional Status**

The objective measurements that are used to determine if the patient's weight makes them at risk for pressure ulcers

Constraints

- LOINC: Height and weight:-:Pt:^Patient:-: (54567-3): (Vocabulary)

Constraints

- SNOMED CT: Height and weight (observable entity) (162879003): (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
body mass index evaluation BMI Category - Adult	The BMI range under which the patient's BMI falls	<u>Vocabulary: { LOINC: Body mass index:Prctl:Pt:^Patient:Qn:Per age and gender (59576-9) }</u>
body mass index value REAL	A value calculated from the patient's weight, age, and gender	<u>Vocabulary: { SNOMED CT: 60621009 body mass index (observable entity) }</u> <u>Vocabulary: { LOINC: Body mass index:Ratio:Pt:^Patient:Qn: (39156-5) }</u>
confounding factor Confounding Factor [0..*]		
measured height PQ		<u>Vocabulary: { LOINC: Body height:Len:Pt:^Patient:Qn: (8302-2) }</u> <u>Vocabulary: { SNOMED CT: Standing height (observable entity) (248333004) }</u>

Attribute	Notes	Constraints and tags
measured weight PQ		Vocabulary: { SNOMED CT: Body weight (observable entity) (27113001) } Vocabulary: { LOINC: Body weight:Mass:Pt:Patient:Qn:Measured (3141-9) }

BMI Category - Adult

Type: **Enumeration**

Tagged Values

- Reference = References: Shahin ES, Meijers JM, Schols JM, Tannen A, Halfens RJ & Dassen T. (2010). The relationship between malnutrition parameters and pressure ulcers in hospitals and nursing homes. Journal of Nutrition, 26, 886-889. doi:10.1016/j.nut.2010.01.016.

Attributes

Attribute	Notes	Constraints and tags
low		BMI < 19 Vocabulary: { SNOMED CT: not found }
high		BMI >= 30 Vocabulary: { SNOMED CT: 162864005 body mass index 30+ - obesity (finding) }

Attribute	Notes	Constraints and tags
within normal limits (WNL)		BMI >= 19 and < 30 Vocabulary: { SNOMED CT: normal body mass index (finding) (35425004) }

Weight Evaluation

Type: **Class** **Nutritional Status**

A subjective evaluation of the issues with the patient's nutritional status as evidenced by their weight.

Constraints

- LOINC: not found: (*Vocabulary*)
- SNOMED CT: On examination - weight (finding) (162763007): (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
weight evaluation Weight Evaluation	The evaluation may be an evaluation of a measured weight (e.g., stipulation that a body builder with a high BMI is not overweight), or it may be an evaluation of the patient without an underlying measurement.	

Weight Evaluation

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
emaciated	Abnormal thinness resulting from extreme loss of flesh; wasting. Ref: <i>Stedman's Medical Dictionary</i> .	Vocabulary: { SNOMED CT: <u>371597004 emaciated (finding)</u> }
underweight	A ratio of height-to-weight that is below an acceptable range for healthy people. Ref: <i>Stedman's Medical Dictionary</i> .	Vocabulary: { SNOMED CT: <u>248342006 underweight (finding)</u> }
healthy thin		Vocabulary: { SNOMED CT: <u>not found</u> }
within normal limits		Vocabulary: { SNOMED CT: <u>43664005 normal weight (clinical finding)</u> }
healthy overweight		Vocabulary: { SNOMED CT: <u>not found</u> }
overweight		Vocabulary: { SNOMED CT: <u>275947003 O/E - overweight (clinical finding)</u> }

Attribute	Notes	Constraints and tags
obese	Extremely fat; having a body mass index of 30 or higher; corpulent. <i>Ref: Stedman's Medical Dictionary.</i>	Vocabulary: { SNOMED CT: 414915002 obese (finding) }
morbidly obese		Vocabulary: { SNOMED CT: not found }

Hydration Status

Type: Class Nutritional Status

The relative hydration or dehydration of the patient

Attributes

Attribute	Notes	Constraints and tags
hydration status Hydration Status	The patient's hydration status. This reflects the patient's general hydration status as observed upon examination; it does not articulate individual criteria such as turgor, moistness of mucous membranes, and so forth.	Vocabulary: { SNOMED CT: 405006006 hydration status (observable entity) } Vocabulary: { LOINC: Digestion-hydration.status:Find:Pt:^Patient:Ord:Observed.OMAHA (28271-5) }

Hydration Status

Type: Enumeration

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
dehydrated		Vocabulary: { SNOMED CT: <u>162685008 on examination - dehydrated (disorder) }</u>
hydrated		Vocabulary: { SNOMED CT: <u>312450001 on examination - not dehydrated (finding) }</u>

Observation Process

Type: **Package**

Observation Metadata - (Logical diagram)

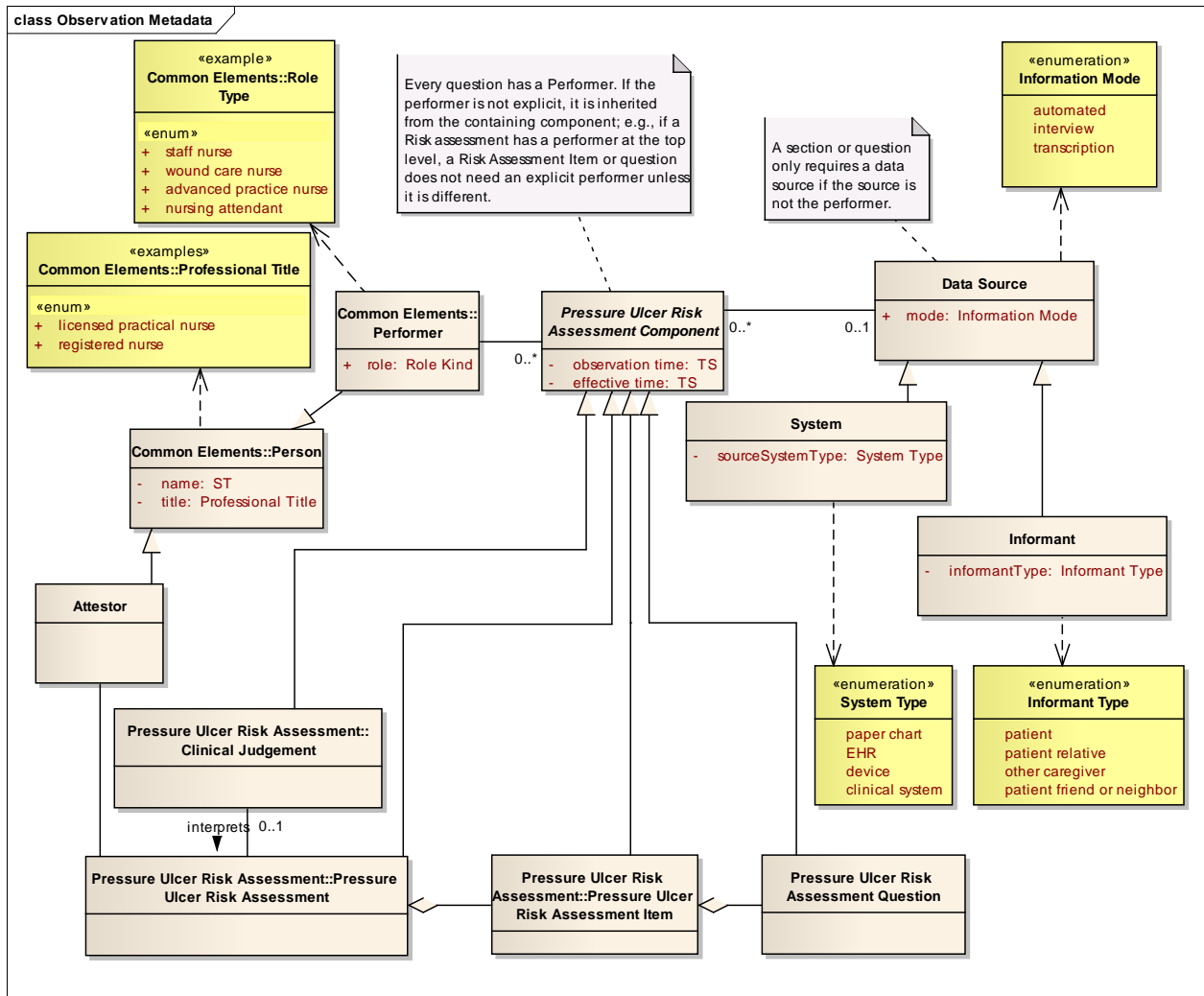


Figure: 23

Attestor

Type: Class Person

A clinician who is qualified to attest that information is recorded correctly

Data Source

Type: Class

The source of information recorded in the assessment, if not the direct observation of the performer

Attributes

Attribute	Notes	Constraints and tags
mode Information Mode	The manner in which information was collected	

Informant

Type: Class Data Source

A person who provides information for the assessment

Attributes

Attribute	Notes	Constraints and tags
informantType Informant Type		

Informant Type

Type: Enumeration

Attributes

Attribute	Notes	Constraints and tags
patient	The patient as reporter of patient condition	Vocabulary: { SNOMED CT: <u>116154003 patient (social context)</u> }

Attribute	Notes	Constraints and tags
patient relative	A relative of the patient as reporter of patient condition	Vocabulary: { SNOMED CT: 125677006 relative (social context) }
other caregiver	A caregiver -- provider or other person employed to provide care -- as reporter of patient condition. Note: while the display term is "other" caregiver, implying that the concept excludes other informant types, the SCT concept is, appropriately, 'caregiver,' viz., 'not otherwise specified. Consider changing the label to reflect this concept.	Vocabulary: { SNOMED CT: 133932002 caregiver (social context) }
patient friend or neighbor	An unrelated associate of the patient as reporter of patient condition	Vocabulary: { SNOMED CT: 113163005 friend (social context) }

Information Mode

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
automated	Information is provided via automatic electronic interface	<u>Vocabulary: { SNOMED CT: not found }</u>
interview	Information is provided by a person	<u>Vocabulary: { SNOMED CT: 84100007 history taking (procedure) }</u>
transcription	Information is copied manually from a source system	<u>Vocabulary: { SNOMED CT: not found }</u>

Pressure Ulcer Risk Assessment Component

Type: **Class**

An abstract class that attaches a performer to the assessment, assessment item, or question

Attributes

Attribute	Notes	Constraints and tags
observation time TS	The time the observation was recorded by the assessment performer, for direct observations [for charts, original time or transcription time?]	

Attribute	Notes	Constraints and tags
effective time TS	The time at which the observation was true, which may be different from the time it was reported and recorded	

Pressure Ulcer Risk Assessment Question

Type: **Class** **Pressure Ulcer Risk Assessment Component**

A question intended to help assess a patient's risk of developing a pressure ulcer

System

Type: **Class** **Data Source**

An inanimate scheme for recording and viewing information

Attributes

Attribute	Notes	Constraints and tags
sourceSystemType System Type		

System Type

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
paper chart	A patient record written on paper or other legible physical medium	<u>Vocabulary: { SNOMED CT: not found }</u>
EHR	A software system storing comprehensive clinical information	<u>Vocabulary: { SNOMED CT: not found }</u>
device	An artifact designed to make automatic observations about the patient	<u>Vocabulary: { SNOMED CT: not found }</u>
clinical system	A software system storing clinical information	<u>Vocabulary: { SNOMED CT: not found }</u>

Pressure Ulcer Risk Assessment Instrument

Type: **Package**

Pressure Ulcer Risk Assessment Instrument Detail - (Logical diagram)

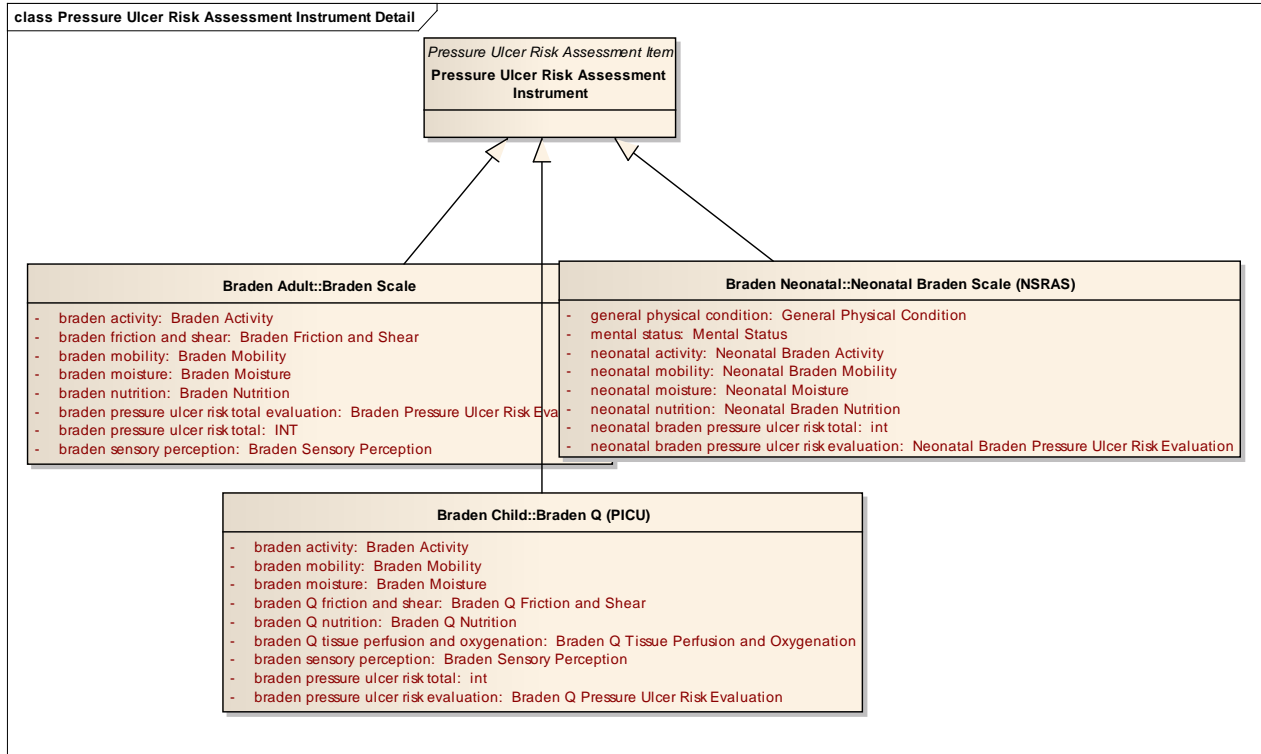


Figure: 24

Pressure Ulcer Risk Assessment Instrument

Type: Class **Pressure Ulcer Risk Assessment Item**

A set of questions used to assess a clinical concept

Braden Scale

Type: Package

The Braden Scale is a standardized instrument to assess the risk of pressure ulcers. Three scales are described in this document.

1. The Braden scale is not explicitly designed for a specific age range, but as more specific scales have been developed for children and neonates, it is used for patients over the age of 8 years.
2. The Braden Q scale is designed for patients between the ages of 21 days and 8 years, though some protocols set the upper limit at 5 years.
3. The Neonatal Skin Risk Assessment Scale (NSRAS) is used for neonatal patients.

References for each instrument are provided in the respective instrument class definitions.

General reference: Bolton, L. (2007). Which Pressure Ulcer Risk Assessment Scales are Valid for Use in the Clinical Setting? *Journal of Wound, Ostomy & Continence Nursing*, 34(4), 368-381. doi: 10.1097/01.WON.0000281653.32955.9b

Braden Sensory Perception

Type: **Enumeration**

Constraints

- LOINC: Sensory perception:Finding:Point in time:Skin:Ordinal:Observed.Braden scale [38222-6]: (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
completely limited	Unresponsive (does not moan, flinch, or grasp) to painful stimuli, due to diminished level of consciousness or sedation. OR limited ability to feel pain over most of body Source: Braden & Berstrom	1 <u>Vocabulary: { LOINC: LA9603-7 completely limited }</u>
very limited	Responds only to painful stimuli. Cannot communicate discomfort except by moaning or restlessness. OR has a sensory impairment which limits the ability to feel pain or discomfort over 1/2 of body. Source: Braden & Bergstrom	2 <u>Vocabulary: { LOINC: LA9604-5 very limited }</u>
slightly limited	Responds to verbal commands, but cannot always communicate discomfort or the need to be turned. OR has some sensory impairment which limits ability to feel pain or discomfort in 1 or 2 extremities. Source: Braden & Bergstrom	3 <u>Vocabulary: { LOINC: LA9605-2 slightly limited }</u>
no impairment	Responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort. Source: Braden & Bergstrom	4 <u>Vocabulary: { LOINC: LA9606-0 no impairment }</u>

Braden Moisture

Type: **Enumeration**

Constraints

- LOINC: Moisture exposure:Finding:Point in time:Skin:Ordinal:Observed.Braden scale [38229-1]: (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
constantly moist	Skin is kept moist almost constantly by perspiration, urine, etc. Dampness is detected every time patient is moved or turned. Source: Braden & Bergstrom	1 <u>Vocabulary: { LOINC: LA9607-8 constantly moist }</u>
very moist	Skin is often, but not always moist. Linen must be changed at least once a shift. Source: Braden & Bergstrom	2 <u>Vocabulary: { LOINC: LA9608-6 very moist }</u>
occasionally moist	Skin is occasionally moist, requiring an extra linen change approximately once a day. Source: Braden & Bergstrom	3 <u>Vocabulary: { LOINC: LA9609-4 occasionally moist }</u>
rarely moist	Skin is usually dry, linen only requires changing at routine intervals. Source: Braden & Bergstrom	4 <u>Vocabulary: { LOINC: LA9610-2 rarely moist }</u>

Braden Activity

Type: **Enumeration**

Constraints

- LOINC: Physical activity:Finding:Point intime:~Patient:Ordinal:Observed.Braden scale [38223-4]: (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
bedfast	Confined to bed. Source: Braden & Bergstrom	1 Vocabulary: { LOINC: LA6742-6 <u>bedfast</u> }
chairfast	Ability to walk severely limited or non-existent. Cannot bear own weight and/or must be assisted into chair or wheelchair. Source: Braden & Bergstrom	2 Vocabulary: { LOINC: LA9611-0 <u>chairfast</u> }
walks occasionally	Walks occasionally during day, but for very short distances, with or without assistance. Spends majority of each shift in bed or chair. Source: Braden & Bergstrom	3 Vocabulary: { LOINC: LA9612-8 <u>walks occasionally</u> }
walks frequently	Walks outside room at least twice a day and inside room at least once every two hours during waking hours. Source: Braden & Bergstrom	4 Vocabulary: { LOINC: LA9613-6 <u>walks frequently</u> }

Braden Mobility

Type: **Enumeration**

Constraints

- LOINC: Physical mobility:Finding:Point intime:~Patient:Ordinal:Observed.Braden scale [38224-2]: (*Vocabulary*)

ConstraintsAttributes

Attribute	Notes	Constraints and tags
completely immobile	Does not make even slight changes in body or extremity position without assistance. Source: Braden & Bergstrom	1 Vocabulary: { LOINC: LA9614-4 <u>completely immobile</u> }
very limited	Makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently. Source: Braden & Bergstrom	2 Vocabulary: { LOINC: LA9604-5 <u>very limited</u> }
slightly limited	Makes frequent though slight changes in body or extremity position independently. Source: Braden & Bergstrom	3 Vocabulary: { LOINC: LA9605-2 <u>slightly limited</u> }
no limitation	Makes major and frequent changes in position without assistance. Source: Braden & Bergstrom	4 Vocabulary: { LOINC: LA120-8 <u>no limitation</u> }

Braden Adult

Type: **Package****Braden Scale** - (Logical diagram)

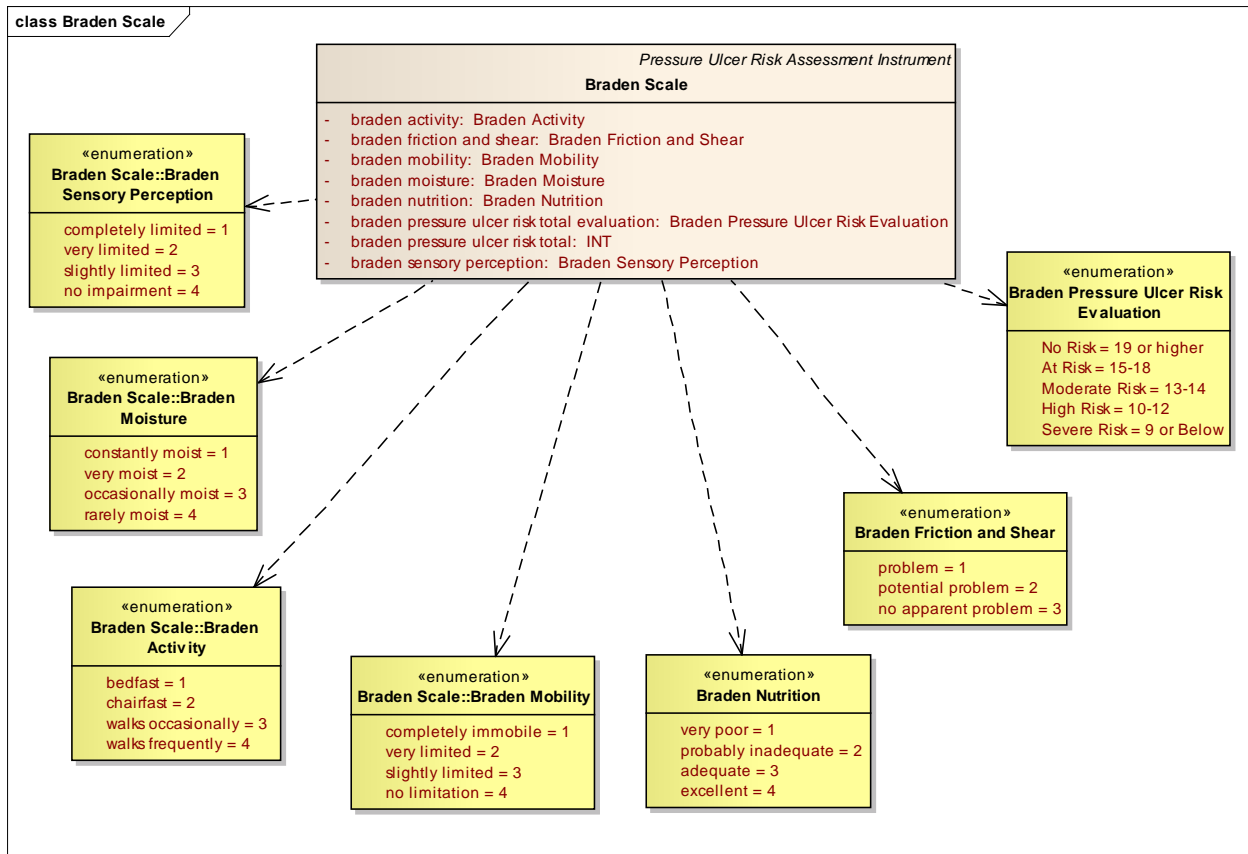


Figure: 25

Braden Scale

Type: Class **Pressure Ulcer Risk Assessment Instrument**

Braden Scale for Predicting Pressure Sore Risk, aka Adult Braden Scale.

Braden, B. & Bergstrom, N. (1988). Braden Scale for Predicting Pressure Sore Risk. Retrieved from <http://www.bradenscale.com/images/bradenscale.pdf>

Copyright Barbara Braden and Nancy Bergstrom, 1988

Constraints

- 38228-3 Braden scale skin assessment panel : (Vocabulary)

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
<p>braden activity Braden Activity</p>	<p>Degree of physical activity Source: Braden & Bergstrom</p> <p>Notes: The Braden Q Activity subscore is identical to the Adult Braden Score question and responses; therefore the LOINC codes should be valid to use. Source: Braden & Bergstrom; Quigley & Curley</p>	<p>Vocabulary: { <u>LOINC 38223-4 physical activity</u> }</p>
<p>braden friction and shear Braden Friction and Shear</p>	<p>Friction occurs when skin moves against support surfaces. Shear occurs when skin and adjacent bony surface slide across one another. Source: Braden & Bergstrom</p>	<p>Vocabulary: { <u>LOINC 38226-7 friction & shear</u> }</p>
<p>braden mobility Braden Mobility</p>	<p>Ability to change and control body position Source: Braden & Bergstrom</p> <p>Notes: The Braden Q Mobility subscore is identical to the Adult Braden Score question and responses; therefore the LOINC codes should be valid to use. Source: Braden & Bergstrom; Quigley & Curley</p>	<p>Vocabulary: { <u>LOINC 38224-2 physical mobility</u> }</p>
<p>braden moisture Braden Moisture</p>	<p>Degree to which skin is exposed to moisture Source: Braden & Bergstrom</p> <p>Notes: The Braden Q Moisture subscore is identical to the Adult Braden Score question and responses; therefore the LOINC codes should be valid to use. Source: Braden & Bergstrom; Quigley & Curley</p>	<p>Vocabulary: { <u>LOINC 38229-1 moisture exposure</u> }</p>

Attribute	Notes	Constraints and tags
braden nutrition Braden Nutrition	Usual food intake pattern. Source: Braden & Bergstrom	Vocabulary: { LOINC 38225-9 nutrition intake pattern }
braden pressure ulcer risk total evaluation Braden Pressure Ulcer Risk Evaluation	Total score based upon addition of all sub-scores that determines the patient's overall risk for developing a pressure ulcer. Source: Braden & Bergstrom	Vocabulary: { LOINC: not found }
braden pressure ulcer risk total INT	The sum of the values of the six individual assessments, expressed as an integer	Vocabulary: { LOINC: 38227-5 Braden scale score.total }
braden sensory perception Braden Sensory Perception	Ability to respond meaningfully to pressure-related discomfort Source: Braden & Bergstrom Note: [Braden Q] is the same as the Adult Braden Scale sub-scale except for the addition of "in a developmentally appropriate way" to the question. For this reason, the LOINC codes should still be valid to use. Source: Quigley & Curley	Vocabulary: { LOINC: 38222-6 sensory perception }

Braden Nutrition

Type: **Enumeration**

Constraints

- LOINC: Nutrition intake pattern:Finding:Point in time:^Patient:Ordinal:Observed.Braden scale [38225-9]: (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
very poor	Never eats a complete meal. Rarely eats more than a of any food offered. Eats 2 servings or less of protein (meat or dairy products) per day. Takes fluids poorly. Does not take a liquid dietary supplement. OR is NPO and/or maintained on clear liquids or IV's for more than 5 days. Source: Braden & Bergstrom	1 <u>Vocabulary: { LOINC: LA9615-1 very poor }</u>
probably inadequate	Rarely eats a complete meal and generally eats only about 2 of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement. OR receives less than optimum amount of liquid diet or tube feeding. Source: Braden & Bergstrom	2 <u>Vocabulary: { LOINC: LA9616-9 probably inadequate }</u>
adequate	Eats over half of most meals. Eats a total of 4 servings of protein (meat, dairy products per day. Occasionally will refuse a meal, but will usually take a supplement when offered. OR is on a tube feeding or TPN regimen which probably meets most of nutritional needs. Source: Braden & Bergstrom	3 <u>Vocabulary: { LOINC: LA8913-1 adequate }</u>
excellent	Eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat and dairy products. Occasionally eats between meals. Does not require supplementation. Source: Braden & Bergstrom	4 <u>Vocabulary: { LOINC: LA9206-9 excellent }</u>

Braden Friction and Shear

Type: **Enumeration**

Constraints

- LOINC: Friction & sheer:Finding:Point in time:Skin:Ordinal:Observed.Braden scale [38226-7]: (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
problem	Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Spasticity, contractures or agitation leads to almost constant friction. Source: Braden & Bergstrom	1 Vocabulary: { LOINC: LA9617-7 <u>problem</u> }
potential problem	Moves feebly or requires minimum assistance. During a move skin probably slides to some extent against sheets, chair, restraints or other devices. Maintains relatively good position in chair or bed most of the time but occasionally slides down. Source: Braden & Bergstrom	2 Vocabulary: { LOINC: LA9618-5 <u>potential problem</u> }
no apparent problem	Moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair. Source: Braden & Bergstrom	3 Vocabulary: { LOINC: LA9619-3 <u>no apparent problem</u> }

Braden Pressure Ulcer Risk Evaluation

Type: **Enumeration**

Constraints

- 38227-5 Braden scale total score
Finding:Point in time:Patient:Ordinal:Observed.Braden scale : (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
No Risk	No risk for developing a pressure ulcer in an adult patient. Source: Bolton, L.	19 or higher Vocabulary: { LOINC: not found }
At Risk	At risk for developing pressure ulcers and a prevention protocol should be initiated. Source: Ayello & Braden	15-18 Vocabulary: { LOINC: not found }
Moderate Risk	At moderate risk for developing pressure ulcers and a prevention protocol should be initiated. Source: Ayello & Braden	13-14 Vocabulary: { LOINC: not found }
High Risk	At high risk for developing pressure ulcers and an aggressive prevention protocol should be initiated. Source: Ayello & Braden	10-12 Vocabulary: { LOINC: not found }
Severe Risk	At extreme risk for developing pressure ulcers and an aggressive prevention protocol should be initiated. Source: Ayello & Braden	9 or Below Vocabulary: { LOINC: not found }

Braden Child

Type: **Package**

Braden Child - (Logical diagram)

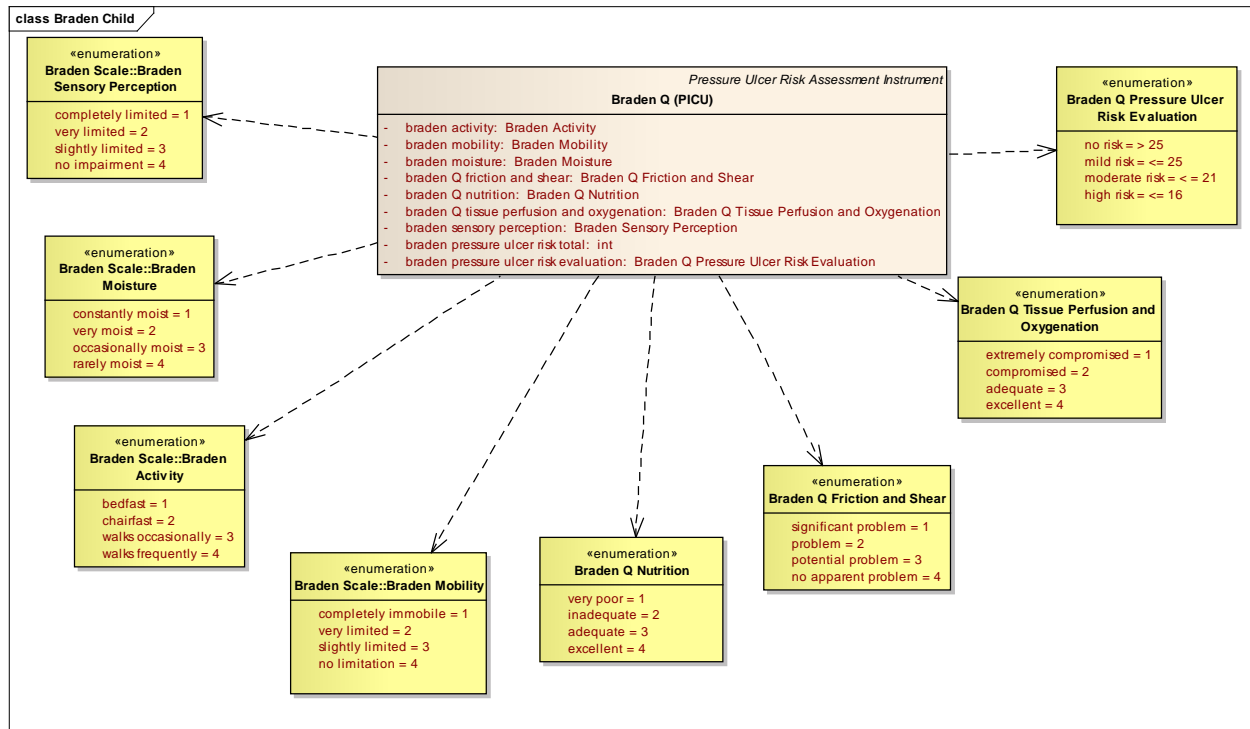


Figure: 26

Braden Q (PICU)

Type: Class **Pressure Ulcer Risk Assessment Instrument**

A.k.a. Braden Q Scale for children

Patient Age: 21 days to 8 years

Quigley, S. M. & Curley, M. A. Q. (1996). Skin Integrity in the Pediatric Population: Preventing and Managing Pressure Ulcers. Journal of JSPN, 1(1), 7-18. Retrieved from

<http://www.aislec.it/download2010/1337.pdf>

Copyright: Nursecom, Inc.

Constraints

- Age range: (Invariant)
The Braden Q Scale was validated in pediatric patients 3 weeks to 8 years of age. The specific age of 21 postnatal days was selected because at 3 weeks of age the skin reaches relative maturity comparable to a full-term infant, regardless of the infant's gestational age at birth (Malloy & PerezWoods, 1991). The selection of 8 years of age reflected conventional norms; specifically, in 1994, the American Heart Association considered patients older than 8 years to be an adult in terms of treatment (Chameides & Hazinski, 1994)

Constraints

- JPN 2011
 Using the Braden Q Scale to Predict Pressure Ulcer Risk in Pediatric Patients, Catherine Noonan RN, MS, CPNP, CWON a., Sandy Quigley RN, CPNP, CWOCN, b, Martha A.Q. Curley RN, PhD, FAAN c,d
 a Department of Nursing, Children's Hospital Boston, MA
 b Department of Patient Services, Children's Hospital Boston, MA
 c Critical Care and Cardiovascular Program, Children's Hospital Boston, MA
 d University of Pennsylvania School of Nursing, Philadelphia, PA
- No codes have been identified in LOINC : (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
<p>braden activity Braden Activity</p>	<p>Degree of physical activity Source: Braden & Bergstrom</p>	
<p>braden mobility Braden Mobility</p>	<p>Ability to change and control body position Source: Braden & Bergstrom</p>	
<p>braden moisture Braden Moisture</p>	<p>Degree to which skin is exposed to moisture Source: Braden & Bergstrom</p>	
<p>braden Q friction and shear Braden Q Friction and Shear</p>	<p>Friction: Occurs when skin moves against support surfaces Shear: Occurs when skin and adjacent bony surface slide across one another Source: Quigley & Curley</p>	

Attribute	Notes	Constraints and tags
braden Q nutrition Braden Q Nutrition	Usual food intake pattern Source: Quigley & Curley	
braden Q tissue perfusion and oxygenation Braden Q Tissue Perfusion and Oxygenation	Identifies any compromise in the cardiovascular (tissue perfusion and oxygenation) status that places the patient at higher risk for a pressure ulcer. Source: Quigley & Curley	
braden sensory perception Braden Sensory Perception	Ability to respond meaningfully to pressure-related discomfort Source: Braden & Bergstrom	
braden pressure ulcer risk total int	The patient's risk score calculated as the sum of individual risk scores	

Attribute	Notes	Constraints and tags
braden pressure ulcer risk evaluation Braden Q Pressure Ulcer Risk Evaluation	Total score based upon addition of all sub-scores that determines the patient's overall risk for developing a pressure ulcer. Source: Braden & Bergstrom	

*Braden Q Friction and Shear*Type: **Enumeration**Attributes

Attribute	Notes	Constraints and tags
significant problem	Spasticity, contracture, itching, or agitation leads to almost constant thrashing and friction. Source: Quigley & Curley	1 Vocabulary: { LOINC: not found }
problem	Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Source: Quigley & Curley	2 Vocabulary: { LOINC: not found }
potential problem	Moves freely or requires minimum assistance. During a move, skin probably slides to some extent against sheets, chair, restraints, or other devices. Maintains relative good position in chair or bed most of the time but occasionally slides down. Source: Quigley & Curley	3 Vocabulary: { LOINC: not found }

Attribute	Notes	Constraints and tags
no apparent problem	Able to completely lift patient during position change, moves in bed and in chair independently and has sufficient muscle strength to life up completely during move. Maintains good position in bed or chair at all times. Source: Quigley & Curley	4 Vocabulary: { LOINC: not found }

Braden Q NutritionType: **Enumeration****Constraints**

- NOT Found in LOINC: (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
very poor	NPO/or maintained on clear liquids, or IVs for more than 5 days OR albumin < 2.5 mg/dl OR never eats a complete meal. Rarely eats more than half of any food offered. Protein intake includes only 2 servings or meat or dairy products per day. Takes fluids poorly. Does not take a liquid dietary supplement. Source: Quigley & Curley	1 Vocabulary: { LOINC: not found }
inadequate	Is on liquid diet or tube feedings/TPN, which provides inadequate calories and minerals for age OR albumin < 3 mg/dl OR rarely eats a complete meal and generally eats only about half of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement. Source: Quigley & Curley	2 Vocabulary: { LOINC: not found }

Attribute	Notes	Constraints and tags
adequate	Is on tube feedings or TPN, which provide adequate calories and minerals for age OR eats over half of most meals. Eats a total of 4 servings of protein (meat, dairy products) each day. Occasionally will refuse a meal, but will usually take a supplement if offered. Source: Quigley & Curley	3 Vocabulary: { LOINC: not found }
excellent	Is on a normal diet providing adequate calories for age. For example, eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of mean and dairy products. Occasionally eats between meals. Does not require supplementation. Source: Quigley & Curley	4 Vocabulary: { LOINC: not found }

Braden Q Pressure Ulcer Risk Evaluation

Type: **Enumeration**

Wound Ostomy and Continence Nurses Society, Guideline for Prevention and Management of Pressure Ulcers, 2003

Constraints

- LOINC: [38227-5]
Braden scale score.total:Finding:Point in time:^Patient:Ordinal:Observed.Braden scale : (Vocabulary)

Attributes

Attribute	Notes	Constraints and tags
no risk		> 25 Vocabulary: { LOINC: not found }

Attribute	Notes	Constraints and tags
mild risk		<= 25 Vocabulary: { LOINC: not found }
moderate risk		< = 21 Vocabulary: { LOINC: not found }
high risk		<= 16 Vocabulary: { LOINC: not found }

Braden Q Tissue Perfusion and Oxygenation

Type: **Enumeration**

Constraints

- NOT Found in LOINC: (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
extremely compromised	Hypotensive (MAP < 50 mm Hg; < 40 in a newborn) or the patient does not physiologically tolerate position changes. Source: Quigley & Curley	1 Vocabulary: { LOINC: not found }

Attribute	Notes	Constraints and tags
compromised	Normotensive oxygen saturation may be < 95%; hemoglobin may be < 10 mg/dl; capillary refill may be > 2 seconds; serum pH is < 7.40. Source: Quigley & Curley	2 Vocabulary: { LOINC: not found }
adequate	Normotensive oxygen saturation may be < 95%; hemoglobin may be < 10 mg/dl; capillary refill may be 2 seconds; serum pH is normal. Source: Quigley & Curley	3 Vocabulary: { LOINC: not found }
excellent	Normotensive, oxygen saturation > 95%; normal hgb; capillary refill < 2 seconds. Source: Quigley & Curley	4 Vocabulary: { LOINC: not found }

Neonatal Skin Risk Assessment Scale

Type: **Package**

Neonatal Skin Risk Assessment Scale - (*Logical diagram*)

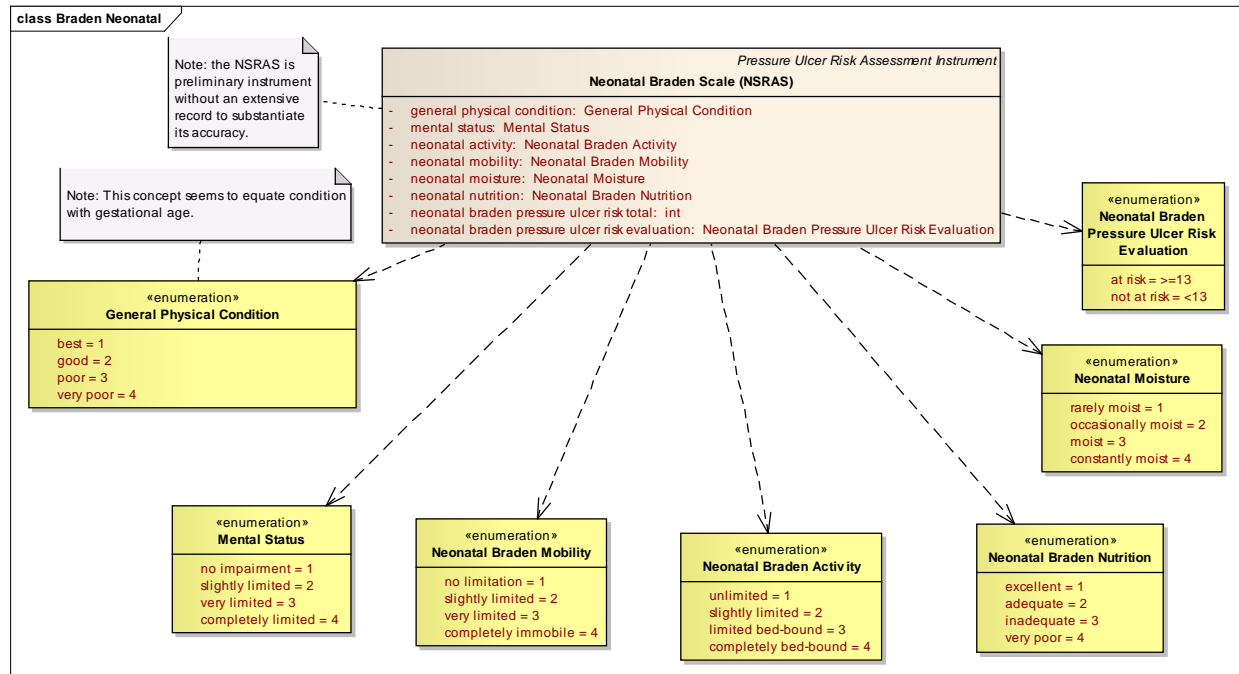


Figure: 27

Neonatal Skin Risk Assessment Scale (NSRAS)

Type: **Class Pressure Ulcer Risk Assessment Instrument**

Neonatal Skin Risk Assessment Scale (NSRAS), an instrument to assess neonates at risk for skin breakdown, based on the Braden Scale for Predicting Pressure Sore Risk in adults. (Sources: Huffines, B. & Logsdon, M. C. (1997). The Neonatal Skin Risk Assessment Scale for predicting skin breakdown in neonates. Issues in Comprehensive Pediatric Nursing, 20(2), 103-114. <http://www.ncbi.nlm.nih.gov/pubmed/9423386>; National Pressure Ulcer Advisory Panel (NPUAP). (2005). White Paper: Pressure Ulcers in Neonates and Children, 2nd Draft. Retrieved from <http://www.npuap.org/documents/WhitePaperPediatricDraft2.pdf>)

Note: the NSRAS has a small sample size (n=32).

Note: the NSRAS scale assigns higher scores to high-risk patients, unlike the Braden and Braden Q, which assign lower scores to high-risk patients.

Constraints

- Age Range: (Invariant)
This scale is appropriate for neonatal patients, i.e., patient age is less than 21 days (confirm number)

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
general physical condition General Physical Condition	Code for gestational age The barrier properties of the skin are dependent upon both gestational and chronological ages; therefore the infant's age is taken into consideration in calculation the overall risk for breakdown. Source: Huffines & Logsdon	
mental status Neonatal Mental Status	Code for responsiveness An evaluation of the mental status or sensory perception of the infant. Source: Huffines & Logsdon	
neonatal activity Neonatal Activity	The amount of physical activity of the infant. Source: Huffines & Logsdon	
neonatal mobility Neonatal Mobility	The infant's ability to change and control body position. Source: Huffines & Logsdon	
neonatal moisture Neonatal Moisture	Code for skin moisture Source: Huffines & Logsdon	

Attribute	Notes	Constraints and tags
neonatal nutrition Neonatal Nutrition	The usual food intake of the infant. Source: Huffines & Logsdon	
neonatal pressure ulcer risk total int	The total score for identifying if a patient is at risk for pressure ulcers. Source: Huffines & Logsdon	
neonatal pressure ulcer risk evaluation Neonatal Skin Risk Evaluation	An evaluation of the patient's for skin breakdown risk based on the total score	

General Physical Condition

Type: **Enumeration**

Constraints

- Not found in LOINC: (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
best	Gestational Age > 38 Weeks To Postterm	1 Vocabulary: { LOINC: not found }
good	Gestational Age > 33 Weeks But < 38 weeks	2 Vocabulary: { LOINC: not found }
poor	Gestational Age > 28 Weeks But < 33 weeks	3 Vocabulary: { LOINC: not found }
very poor	Gestational Age < 28 Weeks	4 Vocabulary: { LOINC: not found }

Mental Status

Type: **Enumeration**

Constraints

- Not found in LOINC: (Vocabulary)

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
no impairment	Alert and active. Source: Huffines & Logsdon	1 Vocabulary: { LOINC: not found }
slightly limited	Lethargic. Source: Huffines & Logsdon	2 Vocabulary: { LOINC: not found }
very limited	Responds only to painful stimuli (flinches, grasps, moans, increased blood pressure or heart rate). Source: Huffines & Logsdon	3 Vocabulary: { LOINC: not found }
completely limited	Unresponsive (does not flinch, grasp, moan, increase blood pressure, or heart rate) to painful stimuli due to diminished level of consciousness or sedation. Source: Huffines & Logsdon	4 Vocabulary: { LOINC: not found }

Neonatal Mobility

Type: **Enumeration**

Constraints

- Not found in LOINC: (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
no limitation	Makes frequent though slight changes in body or extremity position independently (e.g., turn head). Source: Huffines & Logsdon	1 <u>Vocabulary: { LOINC: not found }</u>
slightly limited	Makes frequent though slight changes in body or extremity position independently. Source: Huffines & Logsdon	2 <u>Vocabulary: { LOINC: not found }</u>
very limited	Makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently. Source: Huffines & Logsdon	3 <u>Vocabulary: { LOINC: not found }</u>
completely immobile	Does not make even slight changes in body or extremity position without assistance (e.g., Pavulon). Source: Huffines & Logsdon	4 <u>Vocabulary: { LOINC: not found }</u>

Neonatal Activity

Type: **Enumeration**

Constraints

- Not found in LOINC: (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
unlimited	In an open crib. Source: Huffines & Logsdon	1 Vocabulary: { LOINC: not found }
slightly limited	In a double walled isolette. Source: Huffines & Logsdon	2 Vocabulary: { LOINC: not found }
limited bed-bound	In a radiant warmer without a clear plastic “saran” tent. Source: Huffines & Logsdon	3 Vocabulary: { LOINC: not found }
completely bed-bound	In a radiant warmer with a clear plastic “saran” tent. Source: Huffines & Logsdon	4 Vocabulary: { LOINC: not found }

Neonatal Nutrition

Type: **Enumeration**

Constraints

- Not found in LOINC: (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
excellent	Bottle/breastfeeds every meal which meets nutritional needs for growth. Source: Huffines & Logsdon	1 Vocabulary: { LOINC: not found }
adequate	Is on tube feedings which meet nutritional needs for growth. Source: Huffines & Logsdon	2 Vocabulary: { LOINC: not found }
inadequate	Receives less than optimum amount of liquid diet for growth (formula/ breast milk) and supplemented with intravenous fluids. Source: Huffines & Logsdon	3 Vocabulary: { LOINC: not found }
very poor	NPO on intravenous fluids. Source: Huffines & Logsdon	4 Vocabulary: { LOINC: not found }

Neonatal Moisture

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
rarely moist	Skin is usually dry, linen requires changing only every 24 hours. Source: Huffines & Logsdon	1 Vocabulary: { LOINC: not found }

Attribute	Notes	Constraints and tags
occasionally moist	Skin is occasionally moist/damp. Requiring an extra linen change approximately once a day. Source: Huffines & Logsdon	2 Vocabulary: { LOINC: not found }
moist	Skin is often but not always moist/damp; linen must be changed at least once a shift. Source: Huffines & Logsdon	3 Vocabulary: { LOINC: not found }
constantly moist	Skin is moist/damp every time infant is moved or turned. Source: Huffines & Logsdon	4 Vocabulary: { LOINC: not found }

Neonatal Skin Risk Evaluation

Type: **Enumeration**

Constraints

- Not found in LOINC: (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
at risk	Infants that are at risk of developing a pressure ulcer. Source: Huffines & Logsdon	>=13 Vocabulary: { LOINC: not found }

Attribute	Notes	Constraints and tags
not at risk	Infants that are not at risk of developing a pressure ulcer. Source: Huffines & Logsdon	<13 Vocabulary: { LOINC: not found }

Skin Inspection

Type: **Package**

Skin Inspection Detail - (Logical diagram)

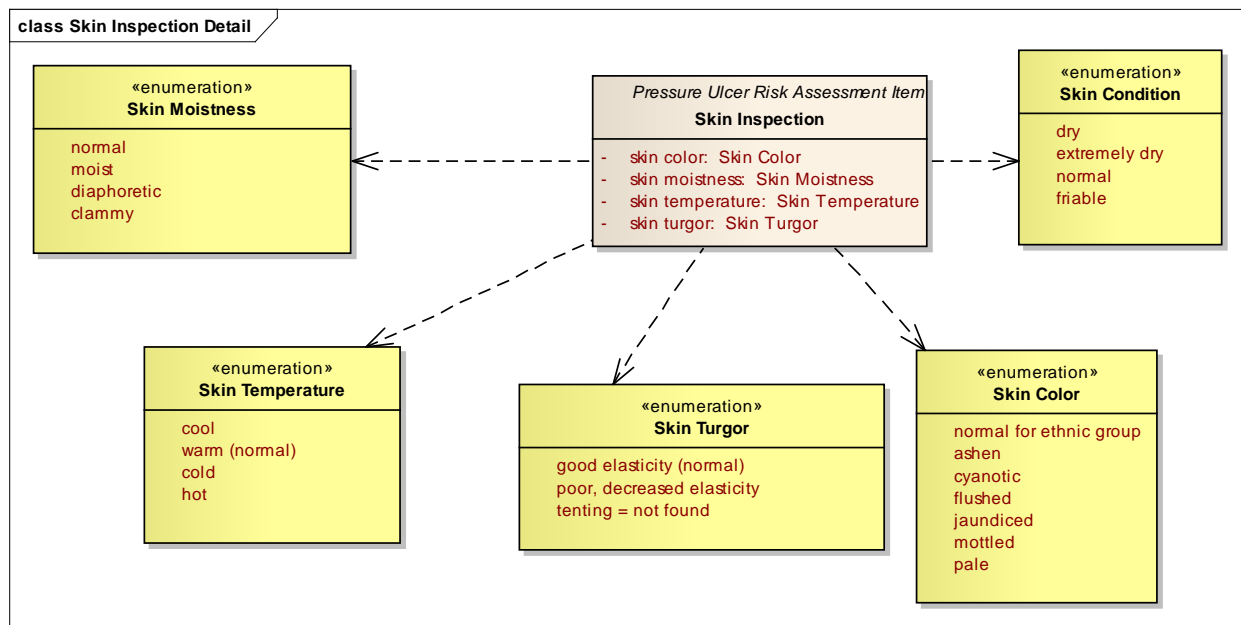


Figure: 28

Skin Condition

Type: **Enumeration**

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
dry		Vocabulary: { SNOMED CT: 16386004 dry skin (clinical finding) }
extremely dry	Excessive dryness of the skin, xerosis, as evidenced by flaking of the stratum corneum and associated pruritis. This is an abnormal finding. Hypothyroidism and exposure to extreme cold and dry climates can lead to xerosis. (Ref: Zator Estes)	Vocabulary: { SNOMED CT: not found }
normal		Vocabulary: { SNOMED CT: not found }
friable		Vocabulary: { SNOMED CT: 247427007 fragile skin (clinical finding) }

Skin Inspection

Type: **Class Pressure Ulcer Risk Assessment Item**

A holistic evaluation of the patient's systemic skin condition

Attributes

Attribute	Notes	Constraints and tags
-----------	-------	----------------------

Attribute	Notes	Constraints and tags
skin color Skin Color	A holistic evaluation of the color of the patient's skin adjusted for ethnicity, used as an indicator of systemic problems	<u>Vocabulary: { LOINC: Color (39107-8) }</u> <u>Vocabulary: { SNOMED CT: color of skin (observable entity) (364533002) }</u>
skin moistness Skin Moistness	A holistic evaluation of the moisture level of the patient's skin, used as an indicator of systemic problems	<u>Vocabulary: { LOINC: Moisture Status (39129-2) }</u> <u>Vocabulary: { SNOMED CT: moistness of skin (observable entity) (364532007) }</u>
skin temperature Skin Temperature	A holistic evaluation of the surface temperature of the patient's skin	<u>Vocabulary: { LOINC: Temperature (44968-6) }</u> <u>Vocabulary: { SNOMED CT: temperature of skin (observable entity) (364537001) }</u>
skin turgor Skin Turgor	The skin's ability to change shape and return to normal (elasticity). (Source: MedlinePlus)	<u>Vocabulary: { LOINC: Turgor (39109-4) }</u> <u>Vocabulary: { SNOMED CT: skin turgor (observable entity) (26669000) }</u>

Skin Color

Type: **Enumeration**

Constraints

- LOINC: Color (39107-8): (*Vocabulary*)
- SNOMED CT: color of skin (observable entity) (364533002): (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
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Attribute	Notes	Constraints and tags
normal for ethnic group	Normally, the skin is a uniform whitish-pink or brown color, depending upon the patient's race. This normal finding indicates that the color of the patient's skin is normal or natural for ethnic group. (Ref: Zator Estes) or This normal finding indicates that the color of the patient's skin is normal or natural for ethnic group. (Ref: Zator Estes)	<u>Vocabulary: { SNOMED CT: skin normal color (finding) (297952003) }</u> [Comment = If charting by exception, this selection means normal for baseline; variation in ethnic groups; pigmentation (color and pigmentation = appropriate for race).]
ashen	A grayish cast to the skin is abnormal. A grayish cast may be associated with chronic anemia. (Ref: Zator Estes)	<u>Vocabulary: { SNOMED CT: not found }</u> [Comment = Note: Dusky may be a synonym for ashen.]
cyanotic	Cyanosis is a dusky blue appearance of the fingers, lips or mucous membranes, and is abnormal in both light-and dark-skinned individuals. Cyanosis occurs when there is greater than 5 g/dL of deoxygenated hemoglobin in the blood. The earlobes, lower eyelids, lips, oral mucosa, nail beds, and palmar and plantar surfaces may be especially cyanotic. Dark-skinned individuals have an ashen-gray to pale tint, and the lips and tongue are good indicators of cyanosis. (Ref: Zator Estes)	<u>Vocabulary: { SNOMED CT: cyanosis of skin (finding) (119419001) }</u> [Comment = This term often describes an underlying cardiovascular or perfusion problem vs. an integumentary system problem, however, it does also describe a skin color.]
flushed	Sustained bright red or pink coloration in light-skinned individuals is abnormal. Dark-skinned individuals may have no underlying change in coloration. This may occur because of dilated superficial blood vessels, increased blood flow, febrile states, local inflammatory conditions, or excessive alcohol intake. (Ref: Zator Estes)	<u>Vocabulary: { SNOMED CT: flushed complexion (finding) (248213001) }</u>

Attribute	Notes	Constraints and tags
jaundiced	Jaundice is a yellow-green to orange cast or coloration of the skin, sclera, mucous membranes, fingernails, and palmar or plantar surfaces in the light-skinned and may appear as yellow staining in the sclera, hard palate, and palmar or plantar surfaces in dark-skinned individuals. Jaundice is caused by an increased serum bilirubin level of greater than 2 mg/dL associated with liver disease or hemolytic disease. This is an abnormal finding. (Ref: Zator Estes)	Vocabulary: { SNOMED CT: jaundice (finding) (18165001) }
mottled	Patchy areas of white and darker pigmentation on the skin is abnormal. (Ref: Zator Estes)	Vocabulary: { SNOMED CT: mottling of skin (finding) (406128001) } [Comment = This term often describes an underlying cardiovascular or perfusion problem vs. an integumentary system problem, however, it does describe a skin color.]
pale	A pale cast to the skin that may be most evident in the face, mucous membranes, lips and nail beds is abnormal in light-skinned individuals. A yellowish-brown to ashen-gray cast to the skin along with pale or gray lips, mucous membranes, and nail beds is abnormal in dark-skinned individuals. Pallor is due to decreased visibility of the normal oxyhemoglobin. This can occur when the patient has decreased blood flow in the superficial vessels, as in shock or syncope, or when there is a decreased amount of serum oxyhemoglobin, as in anemia. (Ref: Zator Estes)	Vocabulary: { SNOMED CT: pale - symptom (finding) (267029006) }

Skin Moistness

Type: **Enumeration**

Constraints

- LOINC: Moisture Status (39129-2): (*Vocabulary*)
- SNOMED CT: moistness of skin (observable entity) (364532007): (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
normal	Normally the skin is dry with a minimum of perspiration. Normal perspiration is most likely to occur on the hands, axilla, face, and in between the skin folds. (<i>Ref: Zator Estes</i>)	<u>Vocabulary: { SNOMED CT: not found }</u> [<u>Comment</u> = If charting by exception, this is the normal finding.]
moist	Presence of water in trace amounts. (<i>Ref: Zator Estes</i>)	<u>Vocabulary: { SNOMED CT: moist skin (finding) (16514006) }</u>
diaphoretic	Diaphoresis is the profuse production of perspiration. This is an abnormal finding. Causes may include hyperthyroidism, increased metabolic rate, sepsis, anxiety or pain. (<i>Ref: Zator Estes</i>)	<u>Vocabulary: { SNOMED CT: excessive sweating (finding) (52613005) }</u>
clammy	Clammy is defined as moist, cool and pale skin. This is an abnormal finding. Causes may include shock, stress, anxiety, sepsis, hypoglycemia and heat exhaustion, among others. "moist, cool, and sticky to the touch". (<i>Ref: Zator Estes</i>)	<u>Vocabulary: { SNOMED CT: not found }</u>

Skin Temperature

Type: **Enumeration**

Constraints

Constraints

- LOINC: Temperature (44968-6): (*Vocabulary*)
- SNOMED CT: temperature of skin (observable entity) (364537001): (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
cool	Skin that is cool to the touch is abnormal and may be generalized or localized. It can be indicative an early sign of shock or some other circulatory dysfunction. Localized hypothermia is indicative of arterial insufficiency in the affected area. (<i>Ref: Zator Estes</i>)	Vocabulary: { SNOMED CT: cool skin (finding) (427733005) }
warm (normal)	It is a normal finding for skin surfaces to be warm and equal bilaterally. Hands and feet may be slightly cooler than the rest of the body. (<i>Ref: Zator Estes</i>)	Vocabulary: { SNOMED CT: warm skin (finding) (102599008) } [Comment = This is the normal finding for charting by exception.]
cold	Hypothermia, or cold skin, is indicative of shock or some other circulatory dysfunction. (<i>Ref: Zator Estes</i>)	Vocabulary: { SNOMED CT: Feels cold (finding) (64713002) }
hot	Hyperthermia, or hot skin, is the excessive warming of the skin and may be generalized or localized. If generalized, it may be indicative of a febrile state, hyperthyroidism, or increased metabolic state. Localized hyperthermia may be caused by infection, trauma, sunburn or windburn. (<i>Ref: Zator Estes</i>)	Vocabulary: { SNOMED CT: feels hot (finding) (373932008) }

Skin Turgor

Type: **Enumeration**

Constraints

Constraints

- LOINC: Turgor (39109-4): (*Vocabulary*)
- SNOMED CT: skin turgor (observable entity) (26669000): (*Vocabulary*)

Attributes

Attribute	Notes	Constraints and tags
good elasticity (normal)	Normal skin turgor is present when the skin returns to its original contour rapidly after being pinched. (<i>Ref: Zator Estes</i>)	<u>Vocabulary: { SNOMED CT: skin turgor normal (finding) (297956000) }</u> [<u>Comment</u> = This is the normal finding for charting by exception.]
poor, decreased elasticity	Decreased skin turgor is present when the skin is released and it remains pinched, and slowly returns to its original contour. This is an abnormal finding and is mainly caused by dehydration. (<i>Ref: Zator Estes</i>)	<u>Vocabulary: { SNOMED CT: decreased skin turgor (finding) (425244000) }</u>
tenting	Tenting is evidenced by a slow return of the skin to its normal position after being pinched, a sign of either dehydration or aging, or both. (<i>Ref: Zator Estes</i>)	not found <u>Vocabulary: { SNOMED CT: not found }</u>

Appendix: Vocabulary Table

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Braden Adult	Braden Friction and Shear	no apparent problem	Moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair. Source: Braden & Bergstrom	LOINC: LA9619-3 no apparent problem	
Braden Adult	Braden Friction and Shear	potential problem	Moves feebly or requires minimum assistance. During a move skin probably slides to some extent against sheets, chair, restraints or other devices. Maintains relatively good position in chair or bed most of the time but occasionally slides down. Source: Braden & Bergstrom	LOINC: LA9618-5 potential problem	
Braden Adult	Braden Friction and Shear	problem	Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Spasticity, contractures or agitation leads to almost constant friction. Source: Braden & Bergstrom	LOINC: LA9617-7 problem	
Braden Adult	Braden Nutrition	adequate	Eats over half of most meals. Eats a total of 4 servings of protein (meat, dairy products per day. Occasionally will refuse a meal, but will usually take a supplement when offered. OR is on a tube feeding or TPN regimen which probably meets most of nutritional needs. Source: Braden & Bergstrom	LOINC: LA8913-1 adequate	
Braden Adult	Braden Nutrition	excellent	Eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat and dairy products. Occasionally eats between meals. Does not require supplementation. Source: Braden & Bergstrom	LOINC: LA9206-9 excellent	
Braden Adult	Braden Nutrition	probably inadequate	Rarely eats a complete meal and generally eats	LOINC: LA9616-9	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
			only about 2 of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement. OR receives less than optimum amount of liquid diet or tube feeding. Source: Braden & Bergstrom	probably inadequate	
Braden Adult	Braden Nutrition	very poor	Never eats a complete meal. Rarely eats more than a of any food offered. Eats 2 servings or less of protein (meat or dairy products) per day. Takes fluids poorly. Does not take a liquid dietary supplement. OR is NPO and/or maintained on clear liquids or IV's for more than 5 days. Source: Braden & Bergstrom	LOINC: LA9615-1 very poor	
Braden Adult	Braden Pressure Ulcer Risk Evaluation	At Risk	At risk for developing pressure ulcers and a prevention protocol should be initiated. Source: Ayello & Braden	LOINC: not found	
Braden Adult	Braden Pressure Ulcer Risk Evaluation	High Risk	At high risk for developing pressure ulcers and an aggressive prevention protocol should be initiated. Source: Ayello & Braden	LOINC: not found	
Braden Adult	Braden Pressure Ulcer Risk Evaluation	Moderate Risk	At moderate risk for developing pressure ulcers and a prevention protocol should be initiated. Source: Ayello & Braden	LOINC: not found	
Braden Adult	Braden Pressure Ulcer Risk Evaluation	No Risk	No risk for developing a pressure ulcer in an adult patient. Source: Bolton, L.	LOINC: not found	
Braden Adult	Braden Pressure Ulcer Risk Evaluation	Severe Risk	At extreme risk for developing pressure ulcers and an aggressive prevention protocol should be initiated. Source: Ayello & Braden	LOINC: not found	
Braden Child	Braden Q Friction and Shear	no apparent problem	Able to completely lift patient during position change, moves in bed and in chair independently and has sufficient muscle strength to life up completely during move. Maintains good position in bed or chair at all times. Source: Quigley & Curley	LOINC: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Braden Child	Braden Q Friction and Shear	potential problem	Moves freely or requires minimum assistance. During a move, skin probably slides to some extent against sheets, chair, restraints, or other devices. Maintains relative good position in chair or bed most of the time but occasionally slides down. Source: Quigley & Curley	LOINC: not found	
Braden Child	Braden Q Friction and Shear	problem	Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Source: Quigley & Curley	LOINC: not found	
Braden Child	Braden Q Friction and Shear	significant problem	Spasticity, contracture, itching, or agitation leads to almost constant thrashing and friction. Source: Quigley & Curley	LOINC: not found	
Braden Child	Braden Q Nutrition	adequate	Is on tube feedings or TPN, which provide adequate calories and minerals for age OR eats over half of most meals. Eats a total of 4 servings of protein (meat, dairy products) each day. Occasionally will refuse a meal, but will usually take a supplement if offered. Source: Quigley & Curley	LOINC: not found	
Braden Child	Braden Q Nutrition	excellent	Is on a normal diet providing adequate calories for age. For example, eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat and dairy products. Occasionally eats between meals. Does not require supplementation. Source: Quigley & Curley	LOINC: not found	
Braden Child	Braden Q Nutrition	inadequate	Is on liquid diet or tube feedings/TPN, which provides inadequate calories and minerals for age OR albumin < 3 mg/dl OR rarely eats a complete meal and generally eats only about half of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will	LOINC: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
			take a dietary supplement. Source: Quigley & Curley		
Braden Child	Braden Q Nutrition	very poor	NPO/or maintained on clear liquids, or IVs for more than 5 days OR albumin < 2.5 mg/dl OR never eats a complete meal. Rarely eats more than half of any food offered. Protein intake includes only 2 servings or meat or dairy products per day. Takes fluids poorly. Does not take a liquid dietary supplement. Source: Quigley & Curley	LOINC: not found	
Braden Child	Braden Q Pressure Ulcer Risk Evaluation	high risk		LOINC: not found	
Braden Child	Braden Q Pressure Ulcer Risk Evaluation	mild risk		LOINC: not found	
Braden Child	Braden Q Pressure Ulcer Risk Evaluation	moderate risk		LOINC: not found	
Braden Child	Braden Q Pressure Ulcer Risk Evaluation	no risk		LOINC: not found	
Braden Child	Braden Q Tissue Perfusion and Oxygenation	adequate	Normotensive oxygen saturation may be < 95%; hemoglobin may be < 10 mg/dl; capillary refill may be 2 seconds; serum pH is normal. Source: Quigley & Curley	LOINC: not found	
Braden Child	Braden Q Tissue Perfusion and Oxygenation	compromised	Normotensive oxygen saturation may be < 95%; hemoglobin may be < 10 mg/dl; capillary refill may be > 2 seconds; serum pH is < 7.40. Source: Quigley & Curley	LOINC: not found	
Braden Child	Braden Q Tissue Perfusion and Oxygenation	excellent	Normotensive, oxygen saturation > 95%; normal hgb; capillary refill < 2 seconds. Source: Quigley & Curley	LOINC: not found	
Braden Child	Braden Q Tissue Perfusion and Oxygenation	extremely compromised	Hypotensive (MAP < 50 mm Hg; < 40 in a newborn) or the patient does not physiologically tolerate position changes. Source: Quigley & Curley	LOINC: not found	
Neonatal Skin	General Physical	best	Gestational Age > 38 Weeks To Postterm	LOINC: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Risk Assessment Scale	Condition				
Neonatal Skin Risk Assessment Scale	General Physical Condition	good	Gestational Age > 33 Weeks But < 38 weeks	LOINC: not found	
Neonatal Skin Risk Assessment Scale	General Physical Condition	poor	Gestational Age > 28 Weeks But < 33 weeks	LOINC: not found	
Neonatal Skin Risk Assessment Scale	General Physical Condition	very poor	Gestational Age < 28 Weeks	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Mental Status	completely limited	Unresponsive (does not flinch, grasp, moan, increase blood pressure, or heart rate) to painful stimuli due to diminished level of consciousness or sedation. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Mental Status	no impairment	Alert and active. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Mental Status	slightly limited	Lethargic. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Mental Status	very limited	Responds only to painful stimuli (flinches, grasps, moans, increased blood pressure or heart rate). Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Activity	completely bed-bound	In a radiant warmer with a clear plastic "saran" tent. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Activity	limited bed-bound	In a radiant warmer without a clear plastic "saran" tent. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Activity	slightly limited	In a double walled isolette. Source: Huffines & Logsdon	LOINC: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Neonatal Skin Risk Assessment Scale	Neonatal Activity	unlimited	In an open crib. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Mobility	completely immobile	Does not make even slight changes in body or extremity position without assistance (e.g., Pavulon). Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Mobility	no limitation	Makes frequent though slight changes in body or extremity position independently (e.g., turn head). Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Mobility	slightly limited	Makes frequent though slight changes in body or extremity position independently. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Mobility	very limited	Makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Nutrition	adequate	Is on tube feedings which meet nutritional needs for growth. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Nutrition	excellent	Bottle/breastfeeds every meal which meets nutritional needs for growth. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Nutrition	inadequate	Receives less than optimum amount of liquid diet for growth (formula/ breast milk) and supplemented with intravenous fluids. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Nutrition	very poor	NPO on intravenous fluids. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Skin Risk Evaluation	at risk	Infants that are at risk of developing a pressure ulcer. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin	Neonatal Skin Risk	not at risk	Infants that are not at risk of developing a pressure	LOINC: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Risk Assessment Scale	Evaluation		ulcer. Source: Huffines & Logsdon		
Neonatal Skin Risk Assessment Scale	Neonatal Moisture	constantly moist	Skin is moist/damp every time infant is moved or turned. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Moisture	moist	Skin is often but not always moist/damp; linen must be changed at least once a shift. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Moisture	occasionally moist	Skin is occasionally moist/damp. Requiring an extra linen change approximately once a day. Source: Huffines & Logsdon	LOINC: not found	
Neonatal Skin Risk Assessment Scale	Neonatal Moisture	rarely moist	Skin is usually dry, linen requires changing only every 24 hours. Source: Huffines & Logsdon	LOINC: not found	
Braden Scale	Braden Activity	bedfast	Confined to bed. Source: Braden & Bergstrom	LOINC: LA6742-6 bedfast	
Braden Scale	Braden Activity	chairfast	Ability to walk severely limited or non-existent. Cannot bear own weight and/or must be assisted into chair or wheelchair. Source: Braden & Bergstrom	LOINC: LA9611-0 chairfast	
Braden Scale	Braden Activity	walks frequently	Walks outside room at least twice a day and inside room at least once every two hours during waking hours. Source: Braden & Bergstrom	LOINC: LA9613-6 walks frequently	
Braden Scale	Braden Activity	walks occasionally	Walks occasionally during day, but for very short distances, with or without assistance. Spends majority of each shift in bed or chair. Source: Braden & Bergstrom	LOINC: LA9612-8 walks occasionally	
Braden Scale	Braden Mobility	completely immobile	Does not make even slight changes in body or extremity position without assistance. Source: Braden & Bergstrom	LOINC: LA9614-4 completely immobile	
Braden Scale	Braden Mobility	no limitation	Makes major and frequent changes in position without assistance. Source: Braden & Bergstrom	LOINC: LA120-8 no limitation	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Braden Scale	Braden Mobility	slightly limited	Makes frequent though slight changes in body or extremity position independently. Source: Braden & Bergstrom	LOINC: LA9605-2 slightly limited	
Braden Scale	Braden Mobility	very limited	Makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently. Source: Braden & Bergstrom	LOINC: LA9604-5 very limited	
Braden Scale	Braden Moisture	constantly moist	Skin is kept moist almost constantly by perspiration, urine, etc. Dampness is detected every time patient is moved or turned. Source: Braden & Bergstrom	LOINC: LA9607-8 constantly moist	
Braden Scale	Braden Moisture	occasionally moist	Skin is occasionally moist, requiring an extra linen change approximately once a day. Source: Braden & Bergstrom	LOINC: LA9609-4 occasionally moist	
Braden Scale	Braden Moisture	rarely moist	Skin is usually dry, linen only requires changing at routine intervals. Source: Braden & Bergstrom	LOINC: LA9610-2 rarely moist	
Braden Scale	Braden Moisture	very moist	Skin is often, but not always moist. Linen must be changed at least once a shift. Source: Braden & Bergstrom	LOINC: LA9608-6 very moist	
Braden Scale	Braden Sensory Perception	completely limited	Unresponsive (does not moan, flinch, or grasp) to painful stimuli, due to diminished level of consciousness or sedation. OR limited ability to feel pain over most of body Source: Braden & Berstrom	LOINC: LA9603-7 completely limited	
Braden Scale	Braden Sensory Perception	no impairment	Responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort. Source: Braden & Bergstrom	LOINC: LA9606-0 no impairment	
Braden Scale	Braden Sensory Perception	slightly limited	Responds to verbal commands, but cannot always communicate discomfort or the need to be turned. OR has some sensory impairment which limits ability to feel pain or discomfort in 1 or 2 extremities.	LOINC: LA9605-2 slightly limited	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
			Source: Braden & Bergstrom		
Braden Scale	Braden Sensory Perception	very limited	Responds only to painful stimuli. Cannot communicate discomfort except by moaning or restlessness. OR has a sensory impairment which limits the ability to feel pain or discomfort over 1/2 of body. Source: Braden & Bergstrom	LOINC: LA9604-5 very limited	
Common Elements	Professional Title	licensed practical nurse		SNOMED CT: not found	
Common Elements	Professional Title	registered nurse		SNOMED CT: 224535009 registered nurse (social context)	
Common Elements	Role Type	advanced practice nurse		SNOMED CT: not found	
Common Elements	Role Type	nursing attendant	A nursing attendant is not qualified to conduct an assessment, but may make observations that trigger an assessment.	SNOMED CT: not found	
Common Elements	Role Type	staff nurse		SNOMED CT: not found	158994007 Staff Nurse is a nurse grade, not an operational role
Common Elements	Role Type	wound care nurse		SNOMED CT: not found	224567007 tissue viability nurse is a specialty, not a role
Education	Education Method	class		SNOMED CT: not found	
Education	Education Method	demonstration		SNOMED CT: not found	
Education	Education Method	discussion		SNOMED CT: not found	
Education	Education Method	handout		SNOMED CT: not found	
Education	Education Method	online		SNOMED CT: not found	
Education	Education Method	social networking		SNOMED CT: not found	
Education	Education Method	video		SNOMED CT: not found	
Education	Education Topic	follow-up		SNOMED CT: not found	
Education	Education Topic	pressure ulcer prevention		SNOMED CT: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
		strategies			
Education	Education Topic	resources		SNOMED CT: not found	
Education	Education Topic	risk factors		SNOMED CT: not found	
Education	Education Topic	when to seek advice		SNOMED CT: not found	
Medical / Psychiatric Condition	Condition Type	musculoskeletal risk factor	A condition affecting the musculoskeletal systems and thereby impairing the patient's mobility	SNOMED CT: 928000 disorder of musculoskeletal system (disorder)	
Medical / Psychiatric Condition	Condition Type	predisposing mental/neurological condition	A neurological condition that increases pressure ulcer risk	SNOMED CT: not found	
Medical / Psychiatric Condition	Condition Type	tissue perfusion impediment	A condition that impairs perfusion in body tissue	SNOMED CT: not found	
Medical / Psychiatric Condition	Condition Type	uncontrolled pain	Pain that cannot be or is not effectively controlled with medication or other interventions	SNOMED CT: 274665008 chronic intractable pain (finding)	
Medical / Psychiatric Condition	Musculoskeletal Risk Factor Type	amputation		SNOMED CT: 41944006 amputee (clinical finding)	or, 275530009 amputee - limb (clinical finding)
Medical / Psychiatric Condition	Musculoskeletal Risk Factor Type	contracture		SNOMED CT 7890003 contracture of joint (disorder)	
Medical / Psychiatric Condition	Musculoskeletal Risk Factor Type	fracture		SNOMED CT 125605004 fracture of bone (disorder)	
Medical / Psychiatric Condition	Musculoskeletal Risk Factor Type	lordosis		SNOMED CT 281377003 lordosis finding (finding)	
Medical / Psychiatric Condition	Musculoskeletal Risk Factor Type	scoliosis		SNOMED CT 298382003 scoliosis deformity of spine (disorder)	
Medical /	Perfusion	cardio-vascular disease		SNOMED CT: 49601007	this term is a parent, not a

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Psychiatric Condition	Impediment Type			disorder of cardiovascular system (clinical finding)	sibling of PVD
Medical / Psychiatric Condition	Perfusion Impediment Type	chronic obstructive lung disease		SNOMED CT 13645005 chronic obstructive lung disease (disorder)	
Medical / Psychiatric Condition	Perfusion Impediment Type	congestive heart failure		SNOMED CT 42343007 congestive heart failure (disorder)	
Medical / Psychiatric Condition	Perfusion Impediment Type	diabetes		SNOMED CT: 73211009 diabetes mellitus (clinical finding)	
Medical / Psychiatric Condition	Perfusion Impediment Type	edema		SNOMED CT 57609005 edema disease (disorder)	
Medical / Psychiatric Condition	Perfusion Impediment Type	hypotension		SNOMED CT 45007003 low blood pressure (disorder)	
Medical / Psychiatric Condition	Perfusion Impediment Type	peripheral vascular disease		SNOMED CT: 400047006 peripheral vascular disease (clinical finding)	
Medical / Psychiatric Condition	Perfusion Impediment Type	renal disease		SNOMED CT: 90708001 renal disease (clinical finding)	
Medical / Psychiatric Condition	Predisposing Mental/Neurological Condition Type	agitation leading to constant friction		SNOMED CT: not found	
Medical / Psychiatric Condition	Predisposing Mental/Neurological Condition Type	amyotrophic lateral sclerosis		SNOMED CT 86044005 smyotrophic lateral sclerosis (disorder)	
Medical / Psychiatric Condition	Predisposing Mental/Neurological Condition Type	catatonia		SNOMED CT: not found	
Medical /	Predisposing	cerebrovascular accident		SNOMED CT 230690007	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Psychiatric Condition	Mental/Neurological Condition Type			cerebrovascular accident (disorder)	
Medical / Psychiatric Condition	Predisposing Mental/Neurological Condition Type	dementia		SNOMED CT: 52448006 dementia (clinical finding)	
Medical / Psychiatric Condition	Predisposing Mental/Neurological Condition Type	depression		SNOMED CT: 35489007 depressive disorder (clinical finding)	
Medical / Psychiatric Condition	Predisposing Mental/Neurological Condition Type	multiple sclerosis		SNOMED CT 24700007 multiple sclerosis (disorder)	
Medical / Psychiatric Condition	Predisposing Mental/Neurological Condition Type	parkinson's		SNOMED CT 49049000 parkinson's disease (disorder)	
Medical / Psychiatric Condition	Predisposing Mental/Neurological Condition Type	spinal cord disorder		SNOMED CT: 48522003 (spinal cord disorder (clinical finding))	
Medical / Psychiatric Condition	Risk Type	friction exacerbation		SNOMED CT: not found	
Medical / Psychiatric Condition	Risk Type	mobility impairment		SNOMED CT: 82971005 impaired mobility (clinical finding)	
Medical / Psychiatric Condition	Risk Type	perfusion impediment		SNOMED CT: 409055009 ineffective tissue perfusion (clinical finding)	
Medical / Psychiatric Condition	Risk Type	sensory impairment		SNOMED CT: not found	
Medical Device	Anatomical Location	abdomen		SNOMED CT: 75093004 skin structure of abdomen (body structure)	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Medical Device	Anatomical Location	achilles		SNOMED CT: not found	SNOMED CT: 61352006 structure of achilles tendon (body structure) is not skin
Medical Device	Anatomical Location	ankle		SNOMED CT: 67269001 skin structure of ankle (body structure)	
Medical Device	Anatomical Location	arm		SNOMED CT: 371309009 skin structure of upper arm (body structure)	
Medical Device	Anatomical Location	axilla		SNOMED CT: 76261009 skin structure of axilla (body structure)	
Medical Device	Anatomical Location	back		SNOMED CT: 66643007 skin structure of back (body structure)	
Medical Device	Anatomical Location	breast		SNOMED CT: 82038008 skin structure of breast (body structure)	
Medical Device	Anatomical Location	buttocks		SNOMED CT: 22180002 skin structure of buttock (body structure)	
Medical Device	Anatomical Location	calf		SNOMED CT: 51059006 skin structure of calf of leg (body structure)	
Medical Device	Anatomical Location	chest		SNOMED CT: not found	SNOMED CT: 51185008 thoracic structure (body structure) not restricted to skin SNOMED CT: 86381001 skin structure of trunk (body structure) not restricted to thorax
Medical Device	Anatomical Location	chin		SNOMED CT: 23747009 skin structure of chin	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
				(body structure)	
Medical Device	Anatomical Location	coccyx		SNOMED CT: not found	SNOMED CT: 64688005 bone structure of coccyx (body structure) is not skin
Medical Device	Anatomical Location	ear		SNOMED CT: 1902009 skin structure of ear (body structure)	
Medical Device	Anatomical Location	elbow		SNOMED CT: 74757004 skin structure of elbow (body structure)	
Medical Device	Anatomical Location	eye		SNOMED CT: 362916000 skin of eye region (body structure)	
Medical Device	Anatomical Location	face		SNOMED CT: 73897004 skin structure of face (body structure)	
Medical Device	Anatomical Location	finger		SNOMED CT: 56213003 skin of finger (body structure)	
Medical Device	Anatomical Location	flank		SNOMED CT: 34284005 skin structure of flank (body structure)	
Medical Device	Anatomical Location	foot		SNOMED CT: 60496002 skin structure of foot (body structure)	
Medical Device	Anatomical Location	forehead		SNOMED CT: 68698007 skin structure of forehead (body structure)	
Medical Device	Anatomical Location	groin		SNOMED CT: 39687006 skin structure of inguinal region (body structure)	
Medical Device	Anatomical Location	gum		SNOMED CT: 113279002	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
				gingival structure (body structure)	
Medical Device	Anatomical Location	hand		SNOMED CT: 33712006 skin structure of hand (body structure)	
Medical Device	Anatomical Location	head		SNOMED CT: 117551010 skin structure of head (body structure)	
Medical Device	Anatomical Location	heel		SNOMED CT: 84607009 skin structure of heel (body structure)	
Medical Device	Anatomical Location	hip		SNOMED CT: 49812005 skin structure of hip (body structure)	
Medical Device	Anatomical Location	iliac crest		SNOMED CT: not found	SNOMED CT: 29850006 iliac crest structure (body structure) is not skin
Medical Device	Anatomical Location	ischial tuberosity		SNOMED CT: not found	SNOMED CT: 69030007 ischial tuberosity structure (body structure) is not skin
Medical Device	Anatomical Location	jaw		SNOMED CT: 41935005 skin structure of jaw (body structure)	
Medical Device	Anatomical Location	knee		SNOMED CT: 63464009 skin structure of knee (body structure)	
Medical Device	Anatomical Location	labia		SNOMED CT: 73058008 skin of structure of labium pudendum (body structure)	
Medical Device	Anatomical Location	leg		SNOMED CT: not found	Skin term is provided for lower leg or thigh, but not entire leg
Medical Device	Anatomical Location	lip		SNOMED CT: 88089004	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
				skin structure of lip (body structure)	
Medical Device	Anatomical Location	lumbar		SNOMED CT: 286591006 skin of lumbar region (body structure)	
Medical Device	Anatomical Location	malleolus		SNOMED CT: 419975006 skin structure of malleolus (body structure)	
Medical Device	Anatomical Location	mouth		SNOMED CT: 284539009 skin of part of mouth region (body structure)	
Medical Device	Anatomical Location	mucous membrane		SNOMED CT: 414781009 mucous membrane structure (body structure)	
Medical Device	Anatomical Location	nail		SNOMED CT: 72651009 nail structure (body structure)	
Medical Device	Anatomical Location	nares		SNOMED CT: not found	SNOMED CT: 1797002 structure of anterior naris (body structure) is not skin
Medical Device	Anatomical Location	neck		SNOMED CT: 43081002 skin structure of neck (body structure)	
Medical Device	Anatomical Location	nose		SNOMED CT: 113179006 skin structure of nose (body structure)	
Medical Device	Anatomical Location	occipital region		SNOMED CT: 79951008 skin of occipital region (body structure)	
Medical Device	Anatomical Location	parietal		SNOMED CT: 21672008 skin of parietal region (body structure)	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Medical Device	Anatomical Location	pelvic region		SNOMED CT: 82654007 skin structure of pelvis (body structure)	
Medical Device	Anatomical Location	penis		SNOMED CT: 35900000 skin of penis (body structure)	
Medical Device	Anatomical Location	perineum		SNOMED CT: 48014002 skin structure of perineum (body structure)	
Medical Device	Anatomical Location	peri-rectum		SNOMED CT: not found	
Medical Device	Anatomical Location	rectum		SNOMED CT: not found	Requires analysis to determine whether "SNOMED CT: 34402009 rectum structure (body structure)" is appropriate, or whether some term denoting, e.g., rectum membrane would be more appropriate, in keeping with the "skin of" pattern used for this model.
Medical Device	Anatomical Location	sacrum		SNOMED CT: not found	SNOMED CT: 87141009 sacral vertebra structure (body structure) is not skin
Medical Device	Anatomical Location	scalp		SNOMED CT: 43067004 skin structure of scalp (body structure)	
Medical Device	Anatomical Location	scapula		SNOMED CT: 45980000 skin structure of scapular region of back (body structure)	
Medical Device	Anatomical Location	scrotum		SNOMED CT: 81992007 skin structure of	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
				scrotum (body structure)	
Medical Device	Anatomical Location	shoulder		SNOMED CT: 76552005 skin structure of shoulder (body structure)	
Medical Device	Anatomical Location	sternum		SNOMED CT: not found	
Medical Device	Anatomical Location	suprapubic region		SNOMED CT: 367578008 skin structure of hypogastric region (body structure)	
Medical Device	Anatomical Location	temporal region		SNOMED CT: 244081009 skin of temple (body structure)	
Medical Device	Anatomical Location	thigh		SNOMED CT: 371305003 skin structure of thigh (body structure)	
Medical Device	Anatomical Location	toes		SNOMED CT: 52034004 skin structure of toe (body structure)	
Medical Device	Anatomical Location	tongue		SNOMED CT: 314870004 tongue surface region (body structure)	
Medical Device	Anatomical Location	trochanter		SNOMED CT: not found	SNOMED CT: 182047004 trochanter of femur (body structure) is not skin
Medical Device	Anatomical Location	umbilicus		SNOMED CT: 315003 skin structure of umbilicus (body structure)	
Medical Device	Anatomical Location	vagina		SNOMED CT: 76784001 vaginal structure (body structure)	Confirm relevance, points of contact for devices
Medical Device	Anatomical Location	wrist		SNOMED CT: 24785000	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
				skin structure of wrist (body structure)	
Medical Device	Anatomical Location Qualifier	anterior		SNOMED CT: 255549009 anterior (qualifier value)	
Medical Device	Anatomical Location Qualifier	distal		SNOMED CT: 46053002 distal (qualifier value)	
Medical Device	Anatomical Location Qualifier	inferior		SNOMED CT: 261089000 inferior (qualifier value)	
Medical Device	Anatomical Location Qualifier	lateral		SNOMED CT: 49370004 lateral (qualifier value)	
Medical Device	Anatomical Location Qualifier	left		SNOMED CT: 7771000 left (qualifier value)	
Medical Device	Anatomical Location Qualifier	lower		SNOMED CT: 261122009 lower (qualifier value)	
Medical Device	Anatomical Location Qualifier	medial		SNOMED CT: 255561001 medial (qualifier value)	
Medical Device	Anatomical Location Qualifier	mid		SNOMED CT: 255562008 mid (qualifier value)	
Medical Device	Anatomical Location Qualifier	posterior		SNOMED CT: 255551008 posterior (qualifier value)	
Medical Device	Anatomical Location Qualifier	proximal		SNOMED CT: 40415009 proximal (qualifier value)	
Medical Device	Anatomical Location Qualifier	right		SNOMED CT: 24028007 right (qualifier value)	
Medical Device	Anatomical Location Qualifier	superior		SNOMED CT: 264217000 superior (qualifier value)	
Medical Device	Anatomical Location Qualifier	upper		SNOMED CT: 261183002 upper (qualifier value)	
Medical Device	GI / GU Device Type	fecal tube/pouch		SNOMED CT: not found	
Medical Device	GI / GU Device Type	G tube		SNOMED CT: not found	No concept found at level of PEG; only as parent

Package	Class	Attribute	Notes	Constraint	Constraint Notes
					(303699009 gastrointestinal tube (physical object))
Medical Device	GI / GU Device Type	J tube		SNOMED CT: 126065006 jejunostomy tube, device (physical object)	
Medical Device	GI / GU Device Type	NG tube		SNOMED CT: 17102003 nasogastric tube, device (physical object)	
Medical Device	GI / GU Device Type	ostomy equipment		SNOMED CT: 35398009 ostomy appliance, device (physical object) or 24697008 ostomy belt, device (physical object) or 32711007 ostomy collection bag, device (physical object)	
Medical Device	GI / GU Device Type	PEG tube		SNOMED CT: not found	There is a gastrostomy tube 303699009; broader
Medical Device	GI / GU Device Type	urinary catheter		SNOMED CT: 20568009 urinary catheter, device (physical object)	
Medical Device	Line Device Type	central intravenous		SNOMED CT: 52124006 central venous catheter, device (physical object)	
Medical Device	Line Device Type	epidural		SNOMED CT: 30610008 epidural catheter (physical object)	
Medical Device	Line Device Type	intraosseous		SNOMED CT: not found	
Medical Device	Line Device Type	intrathecal		SNOMED CT: 439069008 intrathecal catheter (physical object)	
Medical Device	Line Device Type	peripheral intravenous		SNOMED CT: 82449006 peripheral intravenous	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
				catheter, device (physical object)	
Medical Device	Monitoring Equipment Type	BP cuff		SNOMED CT: 70665002 blood pressure cuff	
Medical Device	Monitoring Equipment Type	electrode		SNOMED CT: 16470007 electrode (physical object)	
Medical Device	Monitoring Equipment Type	pulse oximeter		SNOMED CT: not found	59181002 oximeter is broader
Medical Device	Orthopedic / Neuro Device Type	arm board		SNOMED CT: not found	
Medical Device	Orthopedic / Neuro Device Type	brace		SNOMED CT: 360316004 brace (physical object)	
Medical Device	Orthopedic / Neuro Device Type	cast		SNOMED CT: 118643004 cast (physical object)	
Medical Device	Orthopedic / Neuro Device Type	cervical collar		SNOMED CT: 407741000 cervical collar (physical object)	
Medical Device	Orthopedic / Neuro Device Type	external fix		SNOMED CT: 118383002 external fixation device (physical object)	
Medical Device	Orthopedic / Neuro Device Type	halo		SNOMED CT: 183187001 halo brace (physical object)	
Medical Device	Orthopedic / Neuro Device Type	splint		SNOMED CT: 16650009 splint (physical object)	
Medical Device	Orthopedic / Neuro Device Type	traction		SNOMED CT: 63797009 traction unit	
Medical Device	Oxygen Delivery Device Type	BIPAP		SNOMED CT: 425826004 biPAP oxygen nasal cannula	
Medical Device	Oxygen Delivery Device Type	CPAP		SNOMED CT: 426806007 CPAP oxygen nasal	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
				cannula	
Medical Device	Oxygen Delivery Device Type	endotracheal tube		SNOMED CT: 26412008 endotracheal tube	
Medical Device	Oxygen Delivery Device Type	face mask		SNOMED CT: not found	
Medical Device	Oxygen Delivery Device Type	nasal cannula		SNOMED CT: 336623009 oxygen nasal cannula	
Medical Device	Oxygen Delivery Device Type	trach plate		SNOMED CT: not found	
Medical Device	Restraint Device Type	ankle		SNOMED CT: not found	
Medical Device	Restraint Device Type	wrist		SNOMED CT: not found	
Medication Use	Medication Impact Type	GI function alteration		SNOMED CT: not found	
Medication Use	Medication Impact Type	mobility and sensory perception alteration		SNOMED CT: not found	
Medication Use	Medication Impact Type	perfusion compromise		SNOMED CT: not found	4249000 poor peripheral circulation (disorder) seems too broad, without medical causation
Medication Use	Medication Impact Type	skin structure compromise		SNOMED CT: not found	
Medication Use	Therapeutic Class	analgesic		SNOMED CT: 53009005 analgesic (pharmaceutical / biologic product)	
Medication Use	Therapeutic Class	anesthetic		SNOMED CT: 5776009 anesthetic (pharmaceutical / biologic product)	
Medication Use	Therapeutic Class	antibiotic		SNOMED CT: 255631004 antibiotic	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
				(pharmaceutical / biologic product)	
Medication Use	Therapeutic Class	appetite depressant		SNOMED CT: not found	but see 322028005 centrally acting appetite suppressant (Type:= pharmaceutical / biologic product)
Medication Use	Therapeutic Class	appetite stimulant		SNOMED CT: not found	
Medication Use	Therapeutic Class	chemotherapeutic agent		SNOMED CT: 312059006 chemotherapeutic agent (pharmaceutical / biologic product)	
Medication Use	Therapeutic Class	hypnotic		SNOMED CT: 321088006 hypnotics (pharmaceutical / biologic product)	
Medication Use	Therapeutic Class	paralytic		SNOMED CT: not found	
Medication Use	Therapeutic Class	sedative		SNOMED CT: 349859000 sedative (pharmaceutical / biologic product)	
Medication Use	Therapeutic Class	steroid		SNOMED CT: not found	SNOMED CT: 116566001 steroid (substance)
Medication Use	Therapeutic Class	vasopressor		SNOMED CT: 8571001 vasoconstrictor (pharmaceutical / biologic product)	
Moisture Management	Bowel Management Type	dietary regimen		SNOMED CT: 410175003 dietary regime management	
Moisture Management	Bowel Management Type	diversion	e.g., colostomy, ileostomy	SNOMED CT: not found	
Moisture Management	Bowel Management Type	medication		SNOMED CT: 18629005 administration of	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
				medication	
Moisture Management	Bowel Management Type	scheduled evacuation		SNOMED CT: not found	
Moisture Management	Fecal Management Device Type	fecal incontinence pouch		SNOMED CT: not found	
Moisture Management	Fecal Management Device Type	fecal management system		SNOMED CT: not found	
Moisture Management	Local Moisture Management Type	absorbent dressing		SNOMED CT: not found	134823007 sterile absorbent dressing pad is an object, not a procedure
Moisture Management	Local Moisture Management Type	absorbent under-pad		SNOMED CT: not found	
Moisture Management	Local Moisture Management Type	containment devices		SNOMED CT: not found	
Moisture Management	Local Moisture Management Type	elevation		SNOMED CT: 103720008 elevation (procedure)	
Moisture Management	Local Moisture Management Type	frequent dressing changes		SNOMED CT: not found	
Moisture Management	Local Moisture Management Type	frequent linen changes		SNOMED CT: not found	
Moisture Management	Moisture Protective Barrier Type	cream/ointment/spray/gel		SNOMED CT: not found	420275007 is a qualifier for drug dosage, not for physical barrier
Moisture Management	Moisture Protective Barrier Type	skin sealant		SNOMED CT: not found	
Moisture Management	Non-Local Moisture Management Type	absorbent under-pad		SNOMED CT: not found	
Moisture Management	Non-Local Moisture Management Type	air-fluidized sleep surface		SNOMED CT: not found	
Moisture Management	Non-Local Moisture Management Type	frequent linen changes		SNOMED CT: not found	
Moisture Management	Non-Local Moisture Management Type	low air loss sleep surface		SNOMED CT: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Moisture Management	Non-Local Moisture Management Type	minimize layers under patient		SNOMED CT: not found	
Moisture Management	Urine Management Device Type	catheter, not otherwise specified		SNOMED CT: 20568009 urinary catheter, device (physical object)	
Moisture Management	Urine Management Device Type	collection device		SNOMED CT: not found	would be between 303620002 urogenital device and 41323003 urinary collection bag, device
Moisture Management	Urine Management Device Type	diaper		SNOMED CT: 52065008 diaper, device (physical object)	
Moisture Management	Urine Management Device Type	external adhesive catheter	A non-intrusive urine collection device that maintains its position with the aid of an adhesive substance.	SNOMED CT: not found	
Moisture Management	Urine Management Device Type	external nonadhesive catheter	A non-intrusive urine collection device that maintains its position without the aid of an adhesive substance, e.g., a condom catheter.	SNOMED CT: not found	
Moisture Management	Urine Management Device Type	indwelling catheter	A catheter designed to drain urine over an extended period, without attendance, maintaining its position by use of a balloon or other placement device. Also called a Foley catheter.	SNOMED CT: 23973005 indwelling urinary catheter (physical object)	
Moisture Management	Urine Management Device Type	intermittent catheter	A catheter designed for short-term drainage, without a balloon or other device to keep it in place when not attended. Also called a Robinson catheter.	SNOMED CT: not found	
Nutrition Management	Nutritional Component Type	amino acids		SNOMED CT: 226321006 amino acid intake (observable entity)	
Nutrition Management	Nutritional Component Type	caloric supplement		SNOMED CT: 226280007 energy supplementation (pharmaceutical / biologic product)	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Nutrition Management	Nutrional Component Type	carbohydrate		SNOMED CT: 162535007 dietary carbohydrate intake (observable entity)	
Nutrition Management	Nutrional Component Type	copper		SNOMED CT: 286615007 copper intake (observable entity)	
Nutrition Management	Nutrional Component Type	iron		SNOMED CT: 286614006 iron intake (observable entity)	
Nutrition Management	Nutrional Component Type	lipids		SNOMED CT: not found	162513004 dietary fat intake is narrower
Nutrition Management	Nutrional Component Type	multivitamin with minerals		SNOMED CT: 329453001 multivitamin+mineral preparations (pharmaceutical / biologic product)	
Nutrition Management	Nutrional Component Type	protein		SNOMED CT: 162534006 dietary protein intake (observable entity)	
Nutrition Management	Nutrional Component Type	vitamin A		SNOMED CT: 286604002 vitamin A intake (observable entity)	
Nutrition Management	Nutrional Component Type	vitamin C		SNOMED CT: 286586005 vitamin C intake (observable entity)	
Nutrition Management	Nutrional Component Type	water		SNOMED CT: 226354008 water intake (observable entity)	
Nutrition Management	Nutrional Component Type	zinc		SNOMED CT: 286617004 zinc intake (observable entity)	
Nutrition Management	Nutrition Adequacy Indicator	adequate to meet estimated needs		SNOMED CT: 248324001 well nourished (finding)	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
				(clinical finding)	
Nutrition Management	Nutrition Adequacy Indicator	adequate to meet estimated needs		SNOMED CT: 88323005 adequate (qualifier value)	
Nutrition Management	Nutrition Adequacy Indicator	inadequate to meet estimated needs		SNOMED CT: 248325000 undernourished (finding) (clinical finding)	
Nutrition Management	Nutrition Adequacy Indicator	inadequate to meet estimated needs		SNOMED CT: 71978007 inadequate (Type:= qualifier value)	
Nutrition Management	Nutrition Intake Route	IV	The nourishment of the patient via intravenous line	SNOMED CT: 25156005 intravenous feeding of patient (regime/therapy) (procedure)	
Nutrition Management	Nutrition Intake Route	oral	Nourishment of a patient who chews and swallows	SNOMED CT: not found	
Nutrition Management	Nutrition Intake Route	tube feeding	The feeding of the patient with a tube, whether naso-gastrically or gastrically	SNOMED CT: 61420007 tube feeding of patient (regime/therapy) (procedure)	
Nutrition Management	Nutrition Management Lab Test Type	glucose status markers		SNOMED CT: 36048009 glucose measurement (procedure)	
Nutrition Management	Nutrition Management Lab Test Type	hepatic markers		SNOMED CT: not found	
Nutrition Management	Nutrition Management Lab Test Type	hydration markers		SNOMED CT: not found	
Nutrition Management	Nutrition Management Lab Test Type	inflammatory markers		SNOMED CT: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Nutrition Management	Nutrition Management Lab Test Type	micronutrient deficiency markers		SNOMED CT: not found	
Nutrition Management	Nutrition Management Lab Test Type	nutritional anemia markers		SNOMED CT: not found	
Nutrition Management	Nutrition Management Lab Test Type	renal markers		SNOMED CT: 269858003 biochemical evaluation of blood urea/renal function (procedure)	
Nutrition Management	Weight Trend	decreasing		SNOMED CT: 89362005 weight loss finding (clinical finding)	
Nutrition Management	Weight Trend	increasing		SNOMED CT: 8943002 weight gain finding (clinical finding)	
Nutrition Management	Weight Trend	stable		SNOMED CT: 271398006 weight steady (clinical finding)	
Nutritional Status	BMI Category - Adult	high		SNOMED CT: 162864005 body mass index 30+ - obesity (finding)	
Nutritional Status	BMI Category - Adult	low		SNOMED CT: not found	310252000 range in SCT is "less than 20"
Nutritional Status	BMI Category - Adult	within normal limits (WNL)		SNOMED CT: normal body mass index (finding) (35425004)	
Nutritional Status	Confounding Factor	amputation		SNOMED CT: 41944006 amputee (clinical finding)	Harmonize with Musculoskeletal risk factor
Nutritional Status	Confounding Factor	edema	An accumulation of an excessive amount of watery fluid in cells, tissues, or serous cavities. Ref: Stedman's Medical Dictionary.	SNOMED CT: 267038008 edema (finding)	
Nutritional	Confounding Factor	equipment		SNOMED CT: 397917005	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Status				(equipment in use: clinical finding)	
Nutritional Status	Confounding Factor	paraplegia		SNOMED CT: not found	two concepts - one spinal, one cerebral; parent is paralysis. should we use paralysis?
Nutritional Status	Confounding Factor	spinal cord injury		SNOMED CT: 90584004 (spinal cord injury: clinical finding)	
Nutritional Status	Hydration Status	dehydrated		SNOMED CT: 162685008 on examination - dehydrated (disorder)	
Nutritional Status	Hydration Status	hydrated		SNOMED CT: 312450001 on examination - not dehydrated (finding)	
Nutritional Status	Weight Evaluation	emaciated	Abnormal thinness resulting from extreme loss of flesh; wasting. Ref: <i>Stedman's Medical Dictionary</i> .	SNOMED CT: 371597004 emaciated (finding)	This is a nutrition finding; most other values in this enumeration are under weight finding
Nutritional Status	Weight Evaluation	healthy overweight		SNOMED CT: not found	
Nutritional Status	Weight Evaluation	healthy thin		SNOMED CT: not found	
Nutritional Status	Weight Evaluation	morbidly obese		SNOMED CT: not found	
Nutritional Status	Weight Evaluation	obese	Extremely fat; having a body mass index of 30 or higher; corpulent. Ref: <i>Stedman's Medical Dictionary</i> .	SNOMED CT: 414915002 obese (finding)	
Nutritional Status	Weight Evaluation	overweight		SNOMED CT: 275947003 O/E - overweight (clinical finding)	
Nutritional Status	Weight Evaluation	underweight	A ratio of height-to-weight that is below an acceptable range for healthy people. Ref: <i>Stedman's Medical Dictionary</i> .	SNOMED CT: 248342006 underweight (finding)	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Nutritional Status	Weight Evaluation	within normal limits		SNOMED CT: 43664005 normal weight (clinical finding)	this may be incorrect, as it is a 'finding of measures of body weight,' whereas this enumeration is for evaluation, not measurement
Observation Process	Informant Type	other caregiver	A caregiver -- provider or other person employed to provide care -- as reporter of patient condition. Note: while the display term is "other" caregiver, implying that the concept excludes other informant types, the SCT concept is, appropriately, 'caregiver,' viz., 'not otherwise specified. Consider changing the label to reflect this concept.	SNOMED CT: 133932002 caregiver (social context)	
Observation Process	Informant Type	patient	The patient as reporter of patient condition	SNOMED CT: 116154003 patient (social context)	
Observation Process	Informant Type	patient friend or neighbor	An unrelated associate of the patient as reporter of patient condition	SNOMED CT: 113163005 friend (social context)	
Observation Process	Informant Type	patient relative	A relative of the patient as reporter of patient condition	SNOMED CT: 125677006 relative (social context)	
Observation Process	Information Mode	automated	Information is provided via automatic electronic interface	SNOMED CT: not found	
Observation Process	Information Mode	interview	Information is provided by a person	SNOMED CT: 84100007 history taking (procedure)	
Observation Process	Information Mode	transcription	Information is copied manually from a source system	SNOMED CT: not found	
Observation Process	System Type	clinical system	A software system storing clinical information	SNOMED CT: not found	
Observation Process	System Type	device	An artifact designed to make automatic observations about the patient	SNOMED CT: not found	SCT 49062001 is far too broad
Observation Process	System Type	EHR	A software system storing comprehensive clinical information	SNOMED CT: not found	129465004 medical record does not specify electronic
Observation Process	System Type	paper chart	A patient record written on paper or other legible physical medium	SNOMED CT: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Pressure Redistribution	Bed Elevation	elevated <= 30 degrees		SNOMED CT: not found	
Pressure Redistribution	Bed Elevation	elevated > 30 degrees		SNOMED CT: not found	
Pressure Redistribution	Bed Elevation	not elevated		SNOMED CT: not found	
Pressure Redistribution	Body Position	on left side		SNOMED CT: 102536004 left lateral decubitus position (finding)	
Pressure Redistribution	Body Position	on right side		SNOMED CT: 102535000 right lateral decubitus position (finding)	
Pressure Redistribution	Body Position	prone		SNOMED CT: 1240000 prone body position (finding)	
Pressure Redistribution	Body Position	reverse trendelenburg		SNOMED CT: 26527006 (reverse Trendelenburg position: clinical finding)	
Pressure Redistribution	Body Position	supine		SNOMED CT: 40199007 supine body position (finding)	
Pressure Redistribution	Body Position	trendelenburg		SNOMED CT: 34106002 Trendelenburg position (finding)	
Pressure Redistribution	Positioning Technique	bridge bony prominences		SNOMED CT: not found	
Pressure Redistribution	Positioning Technique	small shifts in weight		SNOMED CT: not found	
Pressure Redistribution	Progressive Mobilization Type	active range of motion		SNOMED CT: not found	
Pressure Redistribution	Progressive Mobilization Type	bed in chair position		SNOMED CT: not found	
Pressure	Progressive	dangle		SNOMED CT: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Redistribution	Mobilization Type				
Pressure Redistribution	Progressive Mobilization Type	out of bed in chair		SNOMED CT: not found	
Pressure Redistribution	Progressive Mobilization Type	passive range of motion		SNOMED CT: not found	
Pressure Redistribution	Progressive Mobilization Type	walking		SNOMED CT: not found	
Pressure Redistribution	Suspended Part	elbow		SNOMED CT: 76248009 entire elbow region (body structure)	
Pressure Redistribution	Suspended Part	heel		SNOMED CT: 362804005 entire heel (body structure)	
Pressure Redistribution	Suspended Part	scrotum		SNOMED CT: 265794003 entire scrotum (body structure)	
Pressure Redistribution	Suspension Device	heel protection device		SNOMED CT: not found	
Pressure Redistribution	Suspension Device	pillow/bedding		SNOMED CT: not found	
Pressure Redistribution	Suspension Device	wedge		SNOMED CT: 255296002 wedge (physical object)	
Pressure Ulcer	Healing Status	healed		SNOMED CT: 298006005 wound healed (clinical finding)	
Pressure Ulcer	Healing Status	healing		SNOMED CT: 298005009 finding of wound healing (clinical finding)	also compare 162866007 "O/E - would healing"
Pressure Ulcer	Healing Status	not healing		SNOMED CT: 271618001 impaired wound healing (clinical finding)	
Pressure Ulcer	Pressure Point	ankle		SNOMED CT: 67269001 skin of ankle (Type:=	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
				body structure)	
Pressure Ulcer	Pressure Point	back of head		SNOMED CT: 181486008 occipital region of scalp (Type:= body structure)	
Pressure Ulcer	Pressure Point	buttock		SNOMED CT: 22180002 skin of buttock (Type:= body structure)	
Pressure Ulcer	Pressure Point	cheek		SNOMED CT: 36141000 skin of cheek (Type:= body structure)	
Pressure Ulcer	Pressure Point	chin		SNOMED CT: 23747009 skin structure of chin (Type:= body structure)	
Pressure Ulcer	Pressure Point	ear		SNOMED CT: 1902009 skin of ear (Type:= body structure)	
Pressure Ulcer	Pressure Point	elbow		SNOMED CT: 74757004 skin of elbow (Type:= body structure)	
Pressure Ulcer	Pressure Point	heel		SNOMED CT: 84607009 skin of heel (Type:= body structure)	
Pressure Ulcer	Pressure Point	iliac crest		SNOMED CT: 39937001 skin (Type:= body structure) + [region? Location refinement?] + 29850006 iliac crest (Type:= body structure)	
Pressure Ulcer	Pressure Point	knee		SNOMED CT: 63464009 skin of knee (Type:= body structure)	
Pressure Ulcer	Pressure Point	lumbar spine		SNOMED CT: 286591006 skin of lumbar region (Type:= body structure)	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Pressure Ulcer	Pressure Point	nose		SNOMED CT: 113179006 skin of nose (Type:= body structure)	
Pressure Ulcer	Pressure Point	nostril		SNOMED CT: 244091003 skin of external naris (Type:= body structure)	
Pressure Ulcer	Pressure Point	sacrum/coccyx		SNOMED CT: 50938007 skin structure of sacrococcygeal region (Type:= body structure)	
Pressure Ulcer	Pressure Point	scapula		SNOMED CT: 181516000 skin over scapula (Type:= body structure)	
Pressure Ulcer	Pressure Point	shoulder		SNOMED CT: 76552005 skin of shoulder (Type:= body structure)	
Pressure Ulcer	Pressure Point	thoracic spine		SNOMED CT: 181512003 skin of dorsal region (Type:= body structure)	
Pressure Ulcer	Pressure Point	trochanter	Specifically, the skin over the greater trochanter	SNOMED CT: 49812005 skin structure of hip (Type:= body structure)	Note: SCT concept may be broader than the term displayed
Pressure Ulcer	Pressure Ulcer Association	device-related		SNOMED CT: not found	
Pressure Ulcer	Pressure Ulcer Association	pressure point-related		SNOMED CT: not found	
Pressure Ulcer	Pressure Ulcer Stage	stage I	Intact skin with nonblanchable redness of a localized area, usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its color may differ from the surrounding area. Reference: www.npuap.org	SNOMED CT: 421076008 Pressure ulcer stage 1 (disorder)	
Pressure Ulcer	Pressure Ulcer Stage	stage II	Partial thickness loss of dermis presenting as a shallow open ulcer with a red-pink wound bed, without slough. It may also present as an intact or	SNOMED CT: 420324007 Pressure ulcer stage 2 (disorder)	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
			open/ruptured serum-filled blister. Reference: www.npuap.org		
Pressure Ulcer	Pressure Ulcer Stage	stage III	Full thickness tissue loss. Subcutaneous fat may be visible, but bone, tendon, or muscle is not exposed. Slough may be present but does not obscure the depth of tissue loss. It may include undermining and tunneling. Reference: www.npuap.org	SNOMED CT: 421927004 Pressure ulcer stage 3 (disorder)	
Pressure Ulcer	Pressure Ulcer Stage	stage IV	Full thickness tissue loss with exposed bone, tendon, or muscle. Slough or exchar may be present on some parts of the wound bed. It often includes undermining and tunneling. Reference: www.npuap.org	SNOMED CT: 420597008 Pressure ulcer stage 4 (disorder)	
Pressure Ulcer	Pressure Ulcer Stage	suspected deep tissue injury	Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue. Reference: www.npuap.org	SNOMED CT: not found	
Pressure Ulcer	Pressure Ulcer Stage	unstageable	Full thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown, or black) in the wound base. Reference: www.npuap.org	SNOMED CT: 421594008 Nonstageable pressure ulcer (disorder)	
Pressure Ulcer	Visible Internal Structure	bone	A hard connective tissue consisting of cells embedded in a matrix of mineralized ground substance and collagen fibers. A portion of osseous tissue of definite shape and size, forming a part of the skeleton. Ref: Stedman's Medical Dictionary	SNOMED CT: 3138006 bone (tissue) structure (body structure)	
Pressure Ulcer	Visible Internal Structure	fascia	A sheet of fibrous tissue that envelops the body beneath the skin; it also encloses muscles and groups of muscles, and separates their several layers or groups. Ref: Stedman's Medical Dictionary	SNOMED CT: 84820005 structure of fascia (body structure)	
Pressure Ulcer	Visible Internal Structure	joint capsule	A sac enclosing a joint, formed by an outer fibrous articular capsule and an inner synovial	SNOMED CT: 32551008 structure of articular	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
			membrane. Syn: Articular capsule. Ref: Stedman's medical dictionary	capsule (body structure)	
Pressure Ulcer	Visible Internal Structure	muscle	A primary tissue, consisting predominantly of highly specialized contractile cells. <i>Stedman's Medical Dictionary</i>	SNOMED CT: 71616004 muscle (body structure)	
Pressure Ulcer	Visible Internal Structure	pin	Rod used in surgical treatment of bone fractures. Syn: pin. Ref: Stedman's Medical Dictionary	SNOMED CT: 77444004 bone pin, device (physical object)	
Pressure Ulcer	Visible Internal Structure	prosthesis	Fabricated substitute for a diseased or missing part of the body. Ref: Stedman's Medical Dictionary	SNOMED CT: 53350007 prosthesis, device (physical object)	
Pressure Ulcer	Visible Internal Structure	subcutaneous tissue	A layer of loose, irregular connective tissue immediately beneath the skin and closely attached to the corium by coarse fibrous bands. Ref: Stedman's Medical Dictionary	SNOMED CT: 71966008 subcutaneous tissue structure (body structure)	
Pressure Ulcer	Visible Internal Structure	tendon	A nondistensible fibrous cord or band of variable length that is part of the muscle that connects the fleshy (contractile) part of muscle with its bony attachment or other structure. Ref: Stedman's Medical Dictionary	SNOMED CT: 13024002 tendon structure (body structure)	
Skin Inspection	Skin Color	ashen	A grayish cast to the skin is abnormal. A grayish cast may be associated with chronic anemia. (Ref: <i>Zator Estes</i>)	SNOMED CT: not found	
Skin Inspection	Skin Color	cyanotic	Cyanosis is a dusky blue appearance of the fingers, lips or mucous membranes, and is abnormal in both light-and dark-skinned individuals. Cyanosis occurs when there is greater than 5 g/dL of deoxygenated hemoglobin in the blood. The earlobes, lower eyelids, lips, oral mucosa, nail beds, and palmar and plantar surfaces may be especially cyanotic. Dark-skinned individuals have an ashen-gray to pale tint, and the lips and tongue are good indicators of cyanosis. (Ref: <i>Zator Estes</i>)	SNOMED CT: cyanosis of skin (finding) (119419001)	
Skin Inspection	Skin Color	flushed	Sustained bright red or pink coloration in light-	SNOMED CT: flushed	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
			skinned individuals is abnormal. Dark-skinned individuals may have no underlying change in coloration. This may occur because of dilated superficial blood vessels, increased blood flow, febrile states, local inflammatory conditions, or excessive alcohol intake. (Ref: Zator Estes)	complexion (finding) (248213001)	
Skin Inspection	Skin Color	jaundiced	Jaundice is a yellow-green to orange cast or coloration of the skin, sclera, mucous membranes, fingernails, and palmar or plantar surfaces in the light-skinned and may appear as yellow staining in the sclera, hard palate, and palmar or plantar surfaces in dark-skinned individuals. Jaundice is caused by an increased serum bilirubin level of greater than 2 mg/dL associated with liver disease or hemolytic disease. This is an abnormal finding. (Ref: Zator Estes)	SNOMED CT: jaundice (finding) (18165001)	
Skin Inspection	Skin Color	mottled	Patchy areas of white and darker pigmentation on the skin is abnormal. (Ref: Zator Estes)	SNOMED CT: mottling of skin (finding) (406128001)	
Skin Inspection	Skin Color	normal for ethnic group	Normally, the skin is a uniform whitish-pink or brown color, depending upon the patient's race. This normal finding indicates that the color of the patient's skin is normal or natural for ethnic group. (Ref: Zator Estes) or This normal finding indicates that the color of the patient's skin is normal or natural for ethnic group. (Ref: Zator Estes)	SNOMED CT: skin normal color (finding) (297952003)	
Skin Inspection	Skin Color	pale	A pale cast to the skin that may be most evident in the face, mucous membranes, lips and nail beds is abnormal in light-skinned individuals. A yellowish-brown to ashen-gray cast to the skin along with pale or gray lips, mucous membranes, and nail beds is abnormal in dark-skinned individuals. Pallor	SNOMED CT: pale - symptom (finding) (267029006)	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
			is due to decreased visibility of the normal oxyhemoglobin. This can occur when the patient has decreased blood flow in the superficial vessels, as in shock or syncope, or when there is a decreased amount of serum oxyhemoglobin, as in anemia. (Ref: Zator Estes)		
Skin Inspection	Skin Condition	dry		SNOMED CT: 16386004 dry skin (clinical finding)	
Skin Inspection	Skin Condition	extremely dry	Excessive dryness of the skin, xerosis, as evidenced by flaking of the stratum corneum and associated pruritis. This is an abnormal finding. Hypothyroidism and exposure to extreme cold and dry climates can lead to xerosis. (Ref: Zator Estes)	SNOMED CT: not found	
Skin Inspection	Skin Condition	friable		SNOMED CT: 247427007 fragile skin (clinical finding)	
Skin Inspection	Skin Condition	normal		SNOMED CT: not found	
Skin Inspection	Skin Moistness	clammy	Clammy is defined as moist, cool and pale skin. This is an abnormal finding. Causes may include shock, stress, anxiety, sepsis, hypoglycemia and heat exhaustion, among others. "moist, cool, and sticky to the touch". (Ref: Zator Estes)	SNOMED CT: not found	
Skin Inspection	Skin Moistness	diaphoretic	Diaphoresis is the profuse production of perspiration. This is an abnormal finding. Causes may include hyperthyroidism, increased metabolic rate, sepsis, anxiety or pain. (Ref: Zator Estes)	SNOMED CT: excessive sweating (finding) (52613005)	
Skin Inspection	Skin Moistness	moist	Presence of water in trace amounts. (Ref: Zator Estes)	SNOMED CT: moist skin (finding) (16514006)	
Skin Inspection	Skin Moistness	normal	Normally the skin is dry with a minimum of perspiration. Normal perspiration is most likely to occur on the hands, axilla, face, and in between the skin folds. (Ref: Zator Estes)	SNOMED CT: not found	
Skin Inspection	Skin Temperature	cold	Hypothermia, or cold skin, is indicative of shock or	SNOMED CT: Feels cold	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
			some other circulatory dysfunction. (Ref: Zator Estes)	(finding) (64713002)	
Skin Inspection	Skin Temperature	cool	Skin that is cool to the touch is abnormal and may be generalized or localized. It can be indicative an early sign of shock or some other circulatory dysfunction. Localized hypothermia is indicative of arterial insufficiency in the affected area. (Ref: Zator Estes)	SNOMED CT: cool skin (finding) (427733005)	
Skin Inspection	Skin Temperature	hot	Hyperthermia, or hot skin, is the excessive warming of the skin and may be generalized or localized. If generalized, it may be indicative of a febrile state, hyperthyroidism, or increased metabolic state. Localized hyperthermia may be caused by infection, trauma, sunburn or windburn. (Ref: Zator Estes)	SNOMED CT: feels hot (finding) (373932008)	
Skin Inspection	Skin Temperature	warm (normal)	It is a normal finding for skin surfaces to be warm and equal bilaterally. Hands and feet may be slightly cooler than the rest of the body. (Ref: Zator Estes)	SNOMED CT: warm skin (finding) (102599008)	
Skin Inspection	Skin Turgor	good elasticity (normal)	Normal skin turgor is present when the skin returns to its original contour rapidly after being pinched. (Ref: Zator Estes)	SNOMED CT: skin turgor normal (finding) (297956000)	
Skin Inspection	Skin Turgor	poor, decreased elasticity	Decreased skin turgor is present when the skin is released and it remains pinched, and slowly returns to its original contour. This is an abnormal finding and is mainly caused by dehydration. (Ref: Zator Estes)	SNOMED CT: decreased skin turgor (finding) (425244000)	
Skin Inspection	Skin Turgor	tenting	Tenting is evidenced by a slow return of the skin to its normal position after being pinched, a sign of either dehydration or aging, or both. (Ref: Zator Estes)	SNOMED CT: not found	offered 'stretched skin' (297957009) -- poor match
Skin Intervention Event	Adherence to Prevention Plan Type	adheres to plan		SNOMED CT 386673006 does comply with treatment (finding)	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Skin Intervention Event	Adherence to Prevention Plan Type	unable to adhere - environmental	Inability to adhere caused by physical environment, e.g., residence too small for recommended support system	SNOMED CT: 182891003 Patient misunderstood treatment instructions (finding)	
Skin Intervention Event	Adherence to Prevention Plan Type	unable to adhere - funding	inability to adhere caused by lack of funds, whether by property, coverage, administrative problem, or other issue	SNOMED CT: not found	
Skin Intervention Event	Adherence to Prevention Plan Type	unable to adhere - lack of comprehension	inability to adhere caused by inability to understand direction	SNOMED CT: not found	
Skin Intervention Event	Adherence to Prevention Plan Type	unable to adhere - medical	inability to adhere caused by medical problem or lack of strength	SNOMED CT: 397745006 Medical contraindication (finding)	
Skin Intervention Event	Adherence to Prevention Plan Type	unable to adhere - psychological	inability to adhere caused by psychological issues	SNOMED CT: not found	
Skin Intervention Event	Adherence to Prevention Plan Type	unable to adhere - situational	Inability to adhere caused by patient's situation, e.g., lack of social support	SNOMED CT: 225465005 Unwilling (finding)	
Skin Intervention Event	Adherence to Prevention Plan Type	unwilling to adhere	patient or caregiver unwilling to perform expected action	SNOMED CT: not found	
Skin Intervention Event	Consult Type	dental		SNOMED CT: 34043003 dental consultation and report (procedure)	
Skin Intervention Event	Consult Type	dietary		SNOMED CT: not found	
Skin Intervention Event	Consult Type	discharge		SNOMED CT: not found	
Skin Intervention	Consult Type	gastroenterology		SNOMED CT: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Event					
Skin Intervention Event	Consult Type	occupational therapy		SNOMED CT: not found	
Skin Intervention Event	Consult Type	orthopedics		SNOMED CT: not found	
Skin Intervention Event	Consult Type	orthotics		SNOMED CT: not found	
Skin Intervention Event	Consult Type	palliative care		SNOMED CT: not found	
Skin Intervention Event	Consult Type	pharmacy		SNOMED CT: not found	
Skin Intervention Event	Consult Type	physiatry		SNOMED CT: 71318009 physical medicine consultation and report (procedure)	
Skin Intervention Event	Consult Type	physical therapy		SNOMED CT: not found	
Skin Intervention Event	Consult Type	plastic surgery		SNOMED CT: not found	
Skin Intervention Event	Consult Type	podiatry		SNOMED CT: not found	
Skin Intervention Event	Consult Type	prosthetics		SNOMED CT: not found	
Skin Intervention	Consult Type	psychiatric		SNOMED CT: not found	consider 108311000 psychiatric procedure,

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Event					interview AND/OR consultation (Type:= procedure)
Skin Intervention Event	Consult Type	seating		SNOMED CT: not found	
Skin Intervention Event	Consult Type	social		SNOMED CT: not found	
Skin Intervention Event	Consult Type	speech and swallowing		SNOMED CT: not found	5947002 consultation for hearing and/or speech problem (Type:= procedure) is too narrow
Skin Intervention Event	Consult Type	urology		SNOMED CT: not found	
Skin Intervention Event	Consult Type	vascular surgery		SNOMED CT: not found	
Skin Intervention Event	Consult Type	wound care		SNOMED CT: not found	
Skin Intervention Event	Consultant Type	advanced practice nurse		SNOMED CT: not found	
Skin Intervention Event	Consultant Type	dentist		SNOMED CT: 106289002 dentist (social context)	
Skin Intervention Event	Consultant Type	occupational therapist		SNOMED CT: 80546007 occupational therapist (social context)	
Skin Intervention Event	Consultant Type	pharmacist		SNOMED CT: 46255001 pharmacist (social context)	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Skin Intervention Event	Consultant Type	physical therapist		SNOMED CT: 36682004 physiotherapist (social context)	
Skin Intervention Event	Consultant Type	physician		SNOMED CT: 309343006 physician (social context)	
Skin Intervention Event	Consultant Type	social worker		SNOMED CT: 106328005 social worker (social context)	
Skin Intervention Event	Consultant Type	speech therapist		SNOMED CT: 159026005 speech/language therapist (social context)	
Skin Intervention Event	Consultant Type	technician		SNOMED CT: 224606009 Or 307988006 medical technical healthcare occupation (social context)	
Skin Intervention Event	Intervention Activity Type	apply		SNOMED CT: not found	
Skin Intervention Event	Intervention Activity Type	assess		SNOMED CT: not found	
Skin Intervention Event	Intervention Activity Type	assist		SNOMED CT: not found	
Skin Intervention Event	Intervention Activity Type	encourage		SNOMED CT: 225222007 giving encouragement (procedure)	
Skin Intervention Event	Intervention Activity Type	inspect		SNOMED CT: 225222007 inspection (procedure)	
Skin Intervention	Intervention Activity Type	instruct		SNOMED CT: 409073007 instruction (procedure)	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Event					
Skin Intervention Event	Intervention Activity Type	monitor		SNOMED CT: 182777000 monitoring of patient	Confirm patient is appropriate predicate
Skin Intervention Event	Intervention Activity Type	observe		SNOMED CT: not found	
Skin Intervention Event	Intervention Activity Type	provide		SNOMED CT: 225351009 provision of care (procedure)	
Skin Intervention Event	Intervention Activity Type	remind		SNOMED CT: 223452003 reminding (procedure)	
Skin Intervention Event	Intervention Activity Type	remove		SNOMED CT: 118292001 removal (procedure)	
Skin Intervention Event	Intervention Event Type	begin	Begin provision of planned care	SNOMED CT: not found	
Skin Intervention Event	Intervention Event Type	cancel	Nullify intent to provide existing planned intervention	SNOMED CT: not found	
Skin Intervention Event	Intervention Event Type	complete	Provide fulfillment of care already begun	SNOMED CT: not found	
Skin Intervention Event	Intervention Event Type	continue	Provide care in an ongoing intervention	SNOMED CT: not found	266714009 (previous treatment continue (situation)) is close but not on the same axis as other values identified
Skin Intervention Event	Intervention Event Type	discontinue	Cease providing and nullify intent to continue providing an intervention that has been started	SNOMED CT: not found	
Skin	Intervention Event	plan	Document intent to provide care	SNOMED CT: 399684003	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Intervention Event	Type			development of care plan (procedure)	
Skin Intervention Event	Intervention Event Type	provide	Deliver complete intervention whether planned or not	SNOMED CT: 225304007 implementation of planned interventions (procedure)	
Skin Intervention Event	Intervention Event Type	revise	Modify the planned intervention	SNOMED CT: not found	
Skin Intervention Event	Intervention Status	cancelled	Cancelled before implementation begun	HL7 actStatus: cancelled	
Skin Intervention Event	Intervention Status	cancelled	Cancelled before implementation begun	SNOMED CT: 89925002 cancelled (qualifier value)	
Skin Intervention Event	Intervention Status	completed	Fully implemented. For education, an intervention is not complete until the patient or caregiver has demonstrated comprehension.	HL7 actStatus: completed	
Skin Intervention Event	Intervention Status	completed	Fully implemented. For education, an intervention is not complete until the patient or caregiver has demonstrated comprehension.	SNOMED CT: 398166005 performed (qualifier value)	
Skin Intervention Event	Intervention Status	discontinued	Cancelled after implementation begun	HL7 actStatus: aborted	
Skin Intervention Event	Intervention Status	discontinued	Cancelled after implementation begun	SNOMED CT: 410546004 discontinued (qualifier value)	
Skin Intervention Event	Intervention Status	in process	Begun but not completed	HL7 actStatus: active	
Skin Intervention Event	Intervention Status	in process	Begun but not completed	SNOMED CT: 385651009 in progress (qualifier value)	
Skin	Intervention Status	not adopted		SNOMED CT: 410521004	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Intervention Event				not to be done (qualifier value)	
Skin Intervention Event	Intervention Status	not adopted		HL7 actStatus: specialization of 'cancelled'	
Skin Intervention Event	Intervention Status	planned	Intended and documented	SNOMED CT: 397943006 planned (qualifier value)	
Skin Intervention Event	Intervention Status	planned	Intended and documented	HL7 actStatus: new	
Skin Intervention Event	Skin Intervention Type	education		SNOMED CT: 372919008 patient education based on identified need (procedure)	
Skin Intervention Event	Skin Intervention Type	moisture management		SNOMED CT: not found	
Skin Intervention Event	Skin Intervention Type	nutritional management		SNOMED CT: 386372009 nutrition management (regime/therapy) (procedure)	
Skin Intervention Event	Skin Intervention Type	pressure redistribution		SNOMED CT: 225359006 pressure area care (regime/therapy)	
Skin Intervention Event	Skin Intervention Type	skin protection		SNOMED CT: not found	
Skin Intervention Event	Stakeholder Role	caregiver		SNOMED CT: 133932002 caregiver (social context)	
Skin Intervention Event	Stakeholder Role	family member / significant other		SNOMED CT: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Skin Intervention Event	Stakeholder Role	patient		SNOMED CT: 116154003 patient (social context)	
Skin Protection	Dressing Type	film		SNOMED CT: not found	assuming 350769003 semi-permeable film dressing is too narrow
Skin Protection	Dressing Type	foam		SNOMED CT: not found	assuming 334648005 polyurethane foam is too narrow
Skin Protection	Dressing Type	hydrocolloid		SNOMED CT: 334582005 hydrocolloid dressing (physical object)	
Skin Protection	Dressing Type	silicone		SNOMED CT: 391865002 silicone dressing (physical object)	
Skin Protection	Dryness Prevention Type	Skin Moisturizer		SNOMED CT: not found	unless this should be the procedure 225130001 applicaiton of moisturizer to skin
Skin Protection	Lift Equipment Type	air		SNOMED CT: not found	
Skin Protection	Lift Equipment Type	ceiling		SNOMED CT: not found	
Skin Protection	Lift Equipment Type	lift chair		SNOMED CT: not found	
Skin Protection	Lift Equipment Type	mobile		SNOMED CT: not found	
Skin Protection	Lift Equipment Type	slick sheet		SNOMED CT: not found	
Skin Protection	Lift Equipment Type	sliding board		SNOMED CT: not found	
Skin Protection	Lift Equipment Type	trapeze		SNOMED CT: 422915004 overbed trapeze device (physical object)	unless this should be 425249005 provision of overbed trapeze
Skin Protection	Lift Equipment Type	turn sheet		SNOMED CT: not found	
Skin Protection	Protective Device Type	elbow pads		SNOMED CT: not found	
Skin Protection	Protective Device Type	heel pads/boots		SNOMED CT: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
Skin Protection	Seating Alignment Type	Feet on floor, otherwise use a footstool or foot rest		SNOMED CT: not found	
Skin Protection	Seating Alignment Type	Limited time in chair without pressure relief		SNOMED CT: not found	
Skin Protection	Seating Alignment Type	Non-skid mat		SNOMED CT: not found	
Skin Protection	Seating Alignment Type	Stretchable, body-comfortable cushion cover		SNOMED CT: not found	
Support Surface	Support Surface Component	air	A low density fluid with minimal resistance to flow. <i>Ref: NPUAP</i> Note: the NPUAP definition seems to allow for liquid state fluids, but the SNOMED CT concept identifier clearly refers to gases. Clarify.	SNOMED CT: Air (substance) (15158005)	
Support Surface	Support Surface Component	foam		SNOMED CT: not found	421166008 is a qualifier, not a substance
Support Surface	Support Surface Component	gel	A semisolid system consisting of a network of solid aggregates, colloidal dispersions or polymers, which may exhibit elastic properties. (Can range from a hard gel to a soft gel). <i>Ref: NPUAP</i> Note on vocabulary constraint: Expression found is qualifier, not substance: SNOMED CT: Gel (qualifier value) (385100002)	SNOMED CT: not found	
Support Surface	Support Surface Component	water	A moderate density fluid with moderate resistance to flow. <i>Ref: NPUAP</i> Note: NPUAP definition allows for mixtures, suspensions, and substitutes, but the SNOMED CT concept identifier clearly refers to H2O. Clarify.	SNOMED CT: water (substance) (11713004)	
Support Surface	Support Surface Pressure Redistribution Mechanism	air fluidized	A feature of a support surface that provides pressure redistribution via a fluid-like medium created by forcing air through beads as characterized by immersion and envelopment. <i>Ref: NPUAP</i>	SNOMED CT: not found	
Support Surface	Support Surface Pressure	alternating pressure	A feature of a support surface that provides pressure redistribution via cyclic changes in loading	SNOMED CT: not found	Proposed expression is qualifier only (SNOMED CT:

Package	Class	Attribute	Notes	Constraint	Constraint Notes
	Redistribution Mechanism		<i>and unloading</i> as characterized by frequency, duration, amplitude, and rate of change parameters. <i>Ref: NPUAP</i> Note on vocabulary constraint: Proposed expression is qualifier only (SNOMED CT: Pressure - action (qualifier value) (257893003) + Alternating (qualifier value) (49572008))		Pressure - action (qualifier value) (257893003) + Alternating (qualifier value) (49572008))
Support Surface	Support Surface Pressure Redistribution Mechanism	lateral rotation	A feature of a support surface that provides rotation about a longitudinal axis as characterized by degree of patient turn, duration, and frequency. <i>Ref: NPUAP</i> Note on vocabulary constraint: Proposed expression is qualifier only: SNOMED CT: Lateral rotation - action (qualifier value) (264730003)	SNOMED CT: not found	
Support Surface	Support Surface Pressure Redistribution Mechanism	low air loss	A feature of a support surface that provides a flow of air to assist in managing the heat and humidity (microclimate) of the skin. <i>Ref: NPUAP</i> Note on vocabulary constraint: Proposed expression does not capture the air flow: SNOMED CT: Low air pressure (physical force) (285405000)	SNOMED CT: not found	
Support Surface	Support Surface Type	chair		SNOMED CT: not found	
Support Surface	Support Surface Type	mattress	A support surface designed to be placed directly on the existing bed frame. <i>Ref: NPUAP</i>	SNOMED CT: Mattress, device (physical object) (17207004)	
Support Surface	Support Surface Type	overlay	An additional support surface designed to be placed directly on top of an existing surface. <i>Ref: NPUAP</i> Note on vocabulary constraint: proposed value is qualifier only (SNOMED CT: Overlay (qualifier value) (255547006))	SNOMED CT: not found	
Support Surface	Support Surface Type	specialty bed (integrated)	A bed frame and support surface that are combined into a single unit whereby the surface is unable to function separately. <i>Ref: NPUAP</i> Note on vocabulary constraint: Parent concept found (SNOMED CT: Bed (physical object)	SNOMED CT: not found	

Package	Class	Attribute	Notes	Constraint	Constraint Notes
			(229772003)). Term differs from NPUAP term ("integrated bed system")		
Support Surface	Support Surface Use Type	lying	Intended to support a patient lying down	SNOMED CT: not found	
Support Surface	Support Surface Use Type	sitting	Intended to support a sitting patient	SNOMED CT: not found	note: this is not a finding