



Supporting SNOMED CT implementation with terminology services

We speak the language of healthcare

A close-up photograph of several interlocking metal gears. The gears are made of a dark, possibly steel or brass, material and are arranged in a row, with the focus on the central gear. The background is a soft, out-of-focus white.

Marc Horowitz, Senior Vice President
Paul Frostdick, Medical Terminology and Informatics Expert

HLI: Global Leader in Medical Terminology

Serving over 5000 customer sites in 14 countries

Hospitals and Health Systems



Clinical Applications



Content Publishers



System Integrators/SI Tools



Payers and Governments



HIEs and HIE Vendors



New Mexico Health Information Collaborative



The Value of Terminology Management

- **Single source** for all codes and terms from standards bodies, throughout the enterprise and customer base.



The Value of HLI Terminology Management

Content development tools to:

- extend content sets.
- build custom content sets.
- position for new terminology.



The Health Language Engine®

INPUT

Standards such as ICD-9, ICD-10-CM, LOINC, SNOMED, FDB, RxNorm



Local and proprietary content including synonyms, acronyms, extensions, modifications, provider friendly terms, consumer friendly terms

MANAGE



OUTPUT

Runtime access → **Correct term, code, concept, map, consumer friendly term, indexed document, etc.**

LE Access Portal → **LEAP** for browser-based access to content

Export, distribute → **Flat files** for embedding in applications such as EHRs

Live Demonstration of SNOMED CT Implementation Using Terminology Services

Clinical Scenario

(<http://www.youtube.com/watch?v=qOS5EN7-Rtl>)



Clinical Narrative

97 year old female patient with fracture of femur. Fasted and otherwise well Apart from O/E – temperature low and pH 6.8. Patient in emergency room in asystole. Received cardiopulmonary resuscitation and is apparently now dead and unfit even for care of hair. Anesthetist has head pain and is likely to suffer from a fracture of hand in the next few minutes.

Live Demonstration of SNOMED CT Implementation Using Terminology Services

Microsoft Health
COMMON USER INTERFACE

Patient Journey Demonstrator

Administration Demonstrator
In the waiting room: Manage bookings and find patients. [Launch](#)

Primary Care Demonstrator
With the family doctor: Input and interact with the patient record. [Launch](#)

Secondary Care Demonstrator
At the hospital: Explore and annotate investigation results. [Launch](#)

Watch the Patient Journey Demonstrator video [▶](#)

LATEST RELEASE
Our Patient Journey Demonstrator moves to Windows Azure and now includes a DICOM medical imaging viewer!



Overview
The Microsoft Health Common User Interface Patient Journey Demonstrator is a vehicle for Microsoft thought leadership in state-of-the-art user experience for healthcare applications. It provides exemplar implementations of Microsoft Health CUI guidance on a Microsoft platform.

Clinical scenario
The Patient Journey Demonstrator conceptualizes an end-to-end journey using a specific clinical scenario to illustrate how an integrated, patient-centric care record can transition seamlessly between care settings. It demonstrates how data can be accessed and entered from many of the care sources experienced along the patient journey.

Recommended operating systems and browsers

- Windows 7 with Internet Explorer 9 or Google Chrome
- Windows Vista with Internet Explorer 7 or Mozilla Firefox 3
- Windows XP SP3 with Internet Explorer 7 or Mozilla Firefox 3
- Mac OS X with Safari 4

HL HealthLanguage

- Microsoft Patient Journey Demonstrator (site <http://pjd.mscai.net/>) implements SNOMED CT through a runtime link to the Language Engine (LE)
- Clinical narratives can be written and coded in real time through in the Primary Care Demonstrator:
 - Click the Primary Care Demonstrator  button
 - Hover over the grey bar at the top of the screen
 - Select Option 7 'Add a consultation'
 - Click the  button in the top left hand corner of the consultation record that appears
 - Select 'New Consultation'

Live Demonstration of SNOMED CT Implementation Using Terminology Services

New Consultation for JOHNSON, Brian (Mr) - fracture of femur ✓ Connected to Health Language

COX, Oliver (Dr)
Woodgrove Surgery

Problem For example, type 'Chest Pain'

History **Fracture of femur (disorder)**
is a Fracture of lower limb and a Injury of thigh

Examinations +

Medications

Impression [Click here to add a note to this section...](#)

Plan [Click here to add a note to this section...](#)

Comments [Click here to add a note to this section...](#)

Letter [Click here to add a note to this section...](#)

Additional [Click here to add a note to this section...](#)

New Consultation for JOHNSON, Brian (Mr) - Fracture of femur ✓ Connected to Health Language

COX, Oliver (Dr)
Woodgrove Surgery

Problem For example, type 'Chest Pain'

Additional text

History [Click here to add a note to this section...](#)

Examinations +

Medications

Impression [Click here to add a note to this section...](#)

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Additional [Click here to add a note to this section...](#)

- Typing into the 'Problem' box returns SNOMED CT problems from LE based on text matching algorithms
- In our scenario the 'Problem' was "fracture of femur"
- Hovering over the returned concepts displays the Fully Specified Name and concept parents from LE
- Double clicking on the required concept commits it to the consultation's record
 - Note the color change to grey to denote commitment to the record
- Clicking on the 'History' box will open it to allow free text narrative to be added prior to coding

Live Demonstration of SNOMED CT Implementation Using Terminology Services

- Clicking 'Find Matches' returns potential SNOMED CT concepts from LE based on text matching algorithms
- Clicking on each highlighted concept allows other potential matches to be returned from the server for review and selection if appropriate.

- Clicking on each highlighted concept displays the Fully Specified Name and concept parents from LE
- Clicking on the 'OK' button commits the selected concept to the record
- Clicking on the 'Add Details' button of the highlighted concept allows it to be refined according to the SNOMED CT concept model

New Consultation for JOHNSON, Brian (Mr) - Fracture of femur ✓ Connected to Health Language

COX, Oliver (Dr)
Woodgrove Surgery

Problem: Fracture of femur *For example, type 'Chest Pain'*

Additional text

History: 97 year old female patient with fracture of femur. Fasted and otherwise well Apart from O/E - temperature low and pH 6.8. Patient in emergency room in asystole. Received cardiopulmonary resuscitation and is apparently now dead and unfit for care of hair. Anesthetist has head pain and is likely to suffer from a fracture of hand in the next few minutes.

Find matches in the text by pressing 'Enter' or click 'Find Matches' **Find Matches**

Examinations: Examination name Result +

Medications: Search for a medication...

New Consultation for JOHNSON, Brian (Mr) - Fracture of femur ✓ Connected to Health Language

History: 97 year old female patient with fracture of femur. Fasted and otherwise well Apart from O/E - temperature low and pH 6.8. Patient in emergency room in asystole. Received cardiopulmonary resuscitation and is apparently now dead and unfit for care of hair. Anesthetist has head pain and is likely to suffer from a fracture of hand in the next few minutes.

Find matches in the text by pressing 'Enter' or click 'Find Matches'

Examinations: Examination name Result +

Medications: Search for a medication...

Impression: Click here to add a note to this section

Plan: Click here to add a note to this section

Comments: Click here to add a note to this section

NEAREST MATCHES

- Fracture of femur
- Fracture of femur due to birth trauma

ALL MATCHES

Fracture of femur (disorder)
is a Fracture of lower limb and a Injury of thigh

Add Details

OK **Cancel**

Live Demonstration of SNOMED CT Implementation Using Terminology Services

The screenshot shows a medical record interface for a patient named JOHNSON, Brian (Mr) with a diagnosis of 'Fracture of femur'. A search for 'Fracture of femur' is shown, with 'NEAREST MATCHES' and 'ALL MATCHES' sections. A dialog box titled 'Fracture of femur (disorder)' is open, showing 'Associated morphology' with 'Fracture alignments' selected. Under 'Fracture alignments', 'Fracture with displacement' is selected. A callout box points to this selection with the text 'Fracture with displacement (morphologic abnormality)'. The 'OK' button in the dialog box is circled in red.

- The 'Add Details' button returns all SNOMED CT refining attributes associated with the chosen concept from LE
- Clicking the attribute required to be refined – in our scenario the fracture was displaced requiring the 'Associated morphology' to be refined – returns the allowable values for that attribute
- Selecting the desired refining value and clicking the 'OK' button commits the refined concept to the record

Live Demonstration of SNOMED CT Implementation Using Terminology Services

New Consultation for JOHNSON, Brian (Mr) - Fracture of femur ✓ Connected to Health Language

History
97 year old female patient with Fracture of femur [Associated morphology:Fracture with displacement], Fasted and otherwise well Apart from O/E - temperature low and pH 6.8. Patient in emergency room in asystole. Received cardiopulmonary resuscitation and is apparently now dead and unfit for care of hair. Anesthetist has head pain and is likely to suffer from a fracture of hand in the next few minutes.

Find matches in the text by pressing 'Enter' or click 'Find Matches' Find Matches

Examinations Examination name Result +

Medications Search for a medication...

Impression Click here to add a note to this section...

Plan Click here to add a note to this section...

Comments Click here to add a note to this section...

Letter Click here to add a note to this section...

Additional Click here to add a note to this section...

New Consultation for JOHNSON, Brian (Mr) - Fracture of femur ✓ Connected to Health Language

History
97 year old female patient with Fracture of femur [Associated morphology:Fracture with displacement], Fasted and otherwise well Apart from O/E - temperature low and pH 6.8. Patient in emergency room in Asystole. Received Cardiopulmonary resuscitation and is apparently now dead and unfit for care of hair. Anesthetist has head pain and is likely to suffer from a Fracture of hand [Episodicity:First episode] in the next few minutes.

Find matches in the text by pressing 'Enter' or click 'Find Matches' Find Matches

Examinations Examination name Result +

Medications Search for a medication...

Impression Click here to add a note to this section...

Plan Click here to add a note to this section...

- The committed record reflects the post coordinated refinement that has been modeled using the terminology service
- The initial free text entry has been edited to reflect the post coordinated refinement performed and approved
- Further refinement (fracture of hand) and selection of concepts to code can occur until the clinician has committed all that is required to the record
 - Note the color change to grey to denote commitment to the record

Health Language, Inc.

A privately held company, Health Language, Inc. (HLI) was founded in 2000 and has offices in the United States, the United Kingdom, and Spain. HLI is headquartered in Denver, CO.



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