Leveraging standardized nutrition terminology through SNOMED CT

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Disclosures

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- Member of the Executive Committee of European Federation of Associations of Dietitians (EFAD)

- Chair, Professional Practice Committee of EFAD
Meet the NCP Terminology Leads

Lee Unangst, MS, RD

Donna G. Pertel, MEd, RD
Objectives

- Describe the development of a nutrition terminology used in countries around the world
- Discuss the challenges and wins of international collaboration
- Present the opportunities already envisioned using SNOMED CT as the resource that promotes data sharing across borders
Nutrition Care Process Path to Success

- **2002**
  - NCP and Model Task Force Appointed
  - Draft NCP and Model sent to MOD for dialogue

- **2003**
  - NCP and Model Finalized
  - NCP and Model approved by MOD

- **2004**
  - NCP-SC Task Force requested applications for PNND

- **2005**
  - NCP Task Force becomes official Academy Committee
  - PNND members selected and training initiated
  - 28% of Academy members polled knew meaning of PES

- **2006**
  - NCP Dialogue on NCP

- **2007**
  - MOD Dialogue on NCP

- **2008**
  - The Academy authors first licensing of SL for use in EHR

- **2009**
  - PNND changed name to PNPCP to reflect all NCP steps
  - Work began on the ENCPRS Functional Profile for inclusion of the Dietetics and Nutrition components in the EHR
  - 67% of members polled knew meaning of PES

- **2010**
  - The ENCPRS Functional Profile published and accepted as a DSTU at HL7 International

- **2011**
  - ENCPRS Functional Profile drafted
  - IDNT model change to NCP
  - Publication of eNCPT, 2014 edition on new and improved website

- **2012**
  - NCP Committee changed name to NCPT
  - NCPCT to reflect focus on research outcomes

- **2013**
  - ENCPRS Functional Profile provided to 5 International EHR Implementers for testing

- **2014**
  - Revision of the DSTU ENCPRS Functional Profile
  - Release 2
  - IDNT 6th Ed. Edition includes term revisions due to SNOMED-CT and public health practice

- **2015**
  - IDNT 5th Ed. Edition includes term revisions based on member input and new “predicitive nutrition diagnosis” terms
  - Completion of draft DOT for inclusion in international messaging standards for the EHR

- **2016**
  - DOT International Dietetic and Nutrition Terminology
  - DOT Long term Care
  - DOT Electronic Health Record
  - DOT Nutrition Assessment
  - DOT Nutrition Diagnosis
  - DOT Nutrition Care Process
  - DOT Nutrition Care Process Outcomes
  - DOT Nutrition Care Process Terminology

- **2017**
  - DOT Standardized Language
  - DOT Nutrition Intervention
  - DOT Nutrition Monitoring and Evaluation
  - DOT Problems, Signs/Symptoms
  - DOT Peer Network for Nutrition Care Process
  - DOT Peer Network for Nutrition Diagnosis
  - DOT Modality
  - DOT Systematic Nomenclature of Medicine Clinical Terms

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Real-Time eNCPT (electronic NCP Terminology)

Use Worldwide

Online Translations of terms Now Available in 7 Languages

**Current Translations**
- Danish (Denmark)
- French (Canada)
- German (Switzerland)
- Norwegian (Norway)
- Swedish (Sweden)
- Simplified Chinese (China)
- Traditional Chinese (Taiwan)

**Coming Soon**
- Portuguese (Brazil)
- Spanish (Mexico)


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Nutrition Care Process (NCP)

- Problem solving framework
- Practice documentation and research

NCP Terminology (NCPT)

- Nutrition Care Process and Research Outcomes Committee
- Diagnosis and intervention


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Move to SNOMED and creation of NCPT CPG

Welcome to the Nutrition Care Process Terminology Clinical Project Group space

This project group has been established to undertake the following:

▪ Quality assurance of promoted NCPT related terms from US extension (685 concepts)
▪ Review and confirm remaining NCPT content for addition to the SNOMED CT International release (approx. 1000 concepts)
▪ Prepare and model 100 concepts for initial pilot for addition to the SNOMED CT International Release
▪ Review the outcomes of the initial pilot to inform next steps
▪ Prepare and model the remaining content for addition to the SNOMED CT International Release
▪ Agree on updating process and maintenance plans, in line with NCPT developments
▪ Project timescales:
▪ To be confirmed based on a detailed project plan agreed with SNOMED international
NCPT CPG activities

Pilot Test

SNOMED Submissions
Pilot Test Process

- Use cases
- NCPT concepts (with and without SNOMED CT mappings)
- Observables
- CPG role
- Progress
- Queries for submissions
Pilot Test Process

- Four typical nutrition use cases
  - Gestational diabetes mellitus
  - Overweight/obesity
  - Gastrointestinal cancer
  - Heart failure

- Nutrition Care Process Terminology
  Clinical Project Group (CPG) Approval
Pilot Test Process

103 NCPT Concepts

Examples:

• Ankle edema SCT ID 26237000
• Excessive mineral intake (sodium) SCT ID 440921000124100
• Temporal wasting SCT-ID 719185000
• Inadequate energy intake SCT ID 430176006
• Inadequate protein intake SCT ID 430183004
Pilot Test Process

Observables Gap

Nutrition diagnosis (findings)

Nutrition intervention (procedures, regime/therapies)

Permission received to add (nutrition assessment observables)
SNOMED Hierarchy

CPG Role

• Decisions for placement of nutrition observable concepts

• Nutrient
• Energy
• Food
• Fluid
• Water
• Breastmilk
Pilot Test Process

SNOMED Hierarchy

Result

- Requested deprecation of 364386000 | Endocrine, nutritional and metabolic observable (observable entity)
Pilot Project Process

Outcomes

- July 2019 release 31 concepts
- Draft observables template
FROM: Estimated carbohydrate intake in 24 hours (observable)

TO: Estimated intake of carbohydrate in 24 hours (observable)
Pilot Project Progress

Queries

- Excessive fat intake (NCPT concept)
- Parentage included body component the ‘fat substance’ was actually a body fat concept
- Fat and oils created in the substance hierarchy
- New step: Involvement in the Observables group meetings
<table>
<thead>
<tr>
<th>Concept</th>
<th>Details</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>CPG → not a nutrient</td>
<td>SNOMED observable group and Academy consultants now attending meetings.</td>
</tr>
<tr>
<td></td>
<td>SNOMED CT → not a substance</td>
<td></td>
</tr>
<tr>
<td>Vitamin K</td>
<td>NCPT → Vitamin K</td>
<td>Vitamin K and Vitamin K1 not the same substance → <strong>Vitamin K and Vitamin K derivatives (new)</strong></td>
</tr>
<tr>
<td></td>
<td>SNOMED CT → Vitamin K1</td>
<td></td>
</tr>
<tr>
<td>Breastmilk and soy milk</td>
<td>CPG → food</td>
<td>In process</td>
</tr>
<tr>
<td></td>
<td>SNOMED CT → food, but under dairy</td>
<td></td>
</tr>
</tbody>
</table>
## Queries

<table>
<thead>
<tr>
<th>Concept</th>
<th>Details</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Concept 33463005</td>
<td>Liquid substance (substance)</td>
</tr>
<tr>
<td>Total</td>
<td>SNOMED CT → Prefers to omit ‘total’</td>
<td>In process</td>
</tr>
<tr>
<td></td>
<td>NCPT → Some inconsistent editing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• 2020 Edition edit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Total concept as synonym for Estimated intake of protein in 24 hours (all routes)</td>
<td></td>
</tr>
</tbody>
</table>
Modeling Critical Thinking Elements

- Current concept mapping
- Relationships
- Substance
- Description
- Modeling review
- Unresolved issues

Look for opportunities for SNOMED template
Modeling Critical Thinking Elements

• **Current concept mapping**
  - Includes review of all parentage
  - NCPT: Inadequate iron intake
  - SNOMED CT: 430299002 |Inadequate dietary intake of iron (finding)|

• **Relationships**
  - Has interpretation → Inadequate
  - Interprets → Iron intake

• **Substance**
  - 3829006 |Iron (substance)|
Modeling Critical Thinking Example

Parents
- Finding of nutrient intake (finding)
- Dietary intake finding (finding)
  - Endocrine, nutritional and metabolic finding (finding)
  - Nutritional finding (finding)
- Finding of nutrient intake (finding)
- Inadequate mineral intake (finding)
- Inadequate dietary mineral intake (finding)

Inadequate dietary intake of iron (finding)
SCTID: 430299002
430299002 | Inadequate dietary intake of iron (finding) |
  en Inadequate dietary intake of iron (finding)
  en Inadequate dietary intake of iron

Has interpretation → Inadequate
Interprets → Iron intake

Children (0)
No children
Modeling Critical Thinking Elements

▪ Description
  ▪ Fully specified name, preferred term, synonyms
  ▪ NCPT term included—not presently in example

▪ Modeling review
  ▪ Incorrect concept
  ▪ NCPT is all routes → Recommend creating concept (Inadequate iron intake) with proposed parent: |441921000124106 Inadequate mineral intake (finding) |
  ▪ Iron substance → discuss with SNOMED CT editor
  ▪ Also, recommended deprecation of Endocrine, nutritional and metabolic finding (finding)
Modeling Critical Thinking Elements

- Progression of any issues
  - CPG decisions regarding Observables hierarchy logic
  - Authoritative sources, for example, evidence guidelines or government resources (eg., Vitamin K)
  - Staff
  - Expert input
  - Items still unresolved, will be brought to CPG for input
Challenges

▪ How can we continue to facilitate quality and consistency of work?

▪ How can resources continue to be secured to progress with updating the NCPT work and access? (Goes beyond the NCPT CPG, cannot/should not work)

▪ How can we contribute to make the NCPT more international?
Future directions

- Complete NCPT CPG objectives, progress to broad Nutrition SNOMED group
- Advance research and informatics initiatives
- Collaborate and support colleagues in implementation
- Maintain NCPT long-term
EHR Global Adoption

Thank You! Terima Kasih

Dialogue
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ncp@eatright.org