Terminology Development, Updates, and Validation Methods

Terminology Development

Westra, B. L., Johnson, S. J., Brady-Schluttner, K., Ellenbecker, S., Johnson, M., Lassegard, E., Maas, Meridean, Stone, J. L.(1996). Evaluating Physical Functional Outcomes: One Category of the NOC System. Medsurg Nursing, The Journal of Adult Health, 5 (3), 157-162.

The purpose of this study was to develop nurse sensitive outcomes. Dr. Westra was a co-investigator on the NIH funded research to develop the Nursing Outcome Classification. She led a team of investigators to develop the Physical Functional Outcomes. This method of research included review of the literature for outcomes and then a survey to validate the relevance of the outcomes to measure physical function. The nurse experts were asked to rate each indicator as to the importance of the indicator for measuring the outcome (1 =not at all important, 5 =very important) and the contribution of nursing to the achievement of the indicator (i.e., nursing sensitivity) (l =no contribution, 5 =contribution is mainly nursing). The nurses were also asked to suggest any additional indicators and, if they wished, to modify the indicators presented in the survey. The content validity index and sensitivity to nursing were calculated. Weighted ration scores > .8o were considered as critical and > .60 as important. Those items with lower scores than .59 were discussed by the team and consensus used to determine whether to retain items.

Validation of Terminology

Westra, B. L., Bauman, R., Delaney, C. W., Lundberg, C. B., & Petersen, C. (2008). Validation of Concept Mapping Between PNDS and SNOMED CT. AORN Journal, 87(6), 1217-1229.

The purpose of the study was to validate the mapping of the Perioperative Nursing Data Set (PNDS) with SNOMED CT to determine if terms were 1) semantic comparability between the two terminology systems, 2) the PNDS concepts were placed in the appropriate SNOMED CT hierarchy; and 3) if the assignment of the PNDS concepts in SNOMED CT hierarchy is similar for all PNDS concepts. A cross-mapping of terms was provided by SNOMED CT editorial staff. The semantic comparability was determined by examining the PNDS concept display name in the Excel spreadsheet against the SNOMED CT fully specified name. When the PNDS expression was different than the SNOMED CT fully specified name, Webster's dictionary was used to look up definitions for comparison as SNOMED CT does not include concept definitions. When this was insufficient, Stedman's Medical Dictionary (http://www.stedmans.com) was used for further clarification. The SNOMED CT Clinical Information Consultancy LookUp Engine version 5 browser (CLUE5 Browser) was used to look up the hierarchical placement of each PNDS concept in SNOMED CT to validate the placement of the PNDS placement within the SNOMED CT hierarchy. Only one PNDS term was identified as potentially not equivalent, all PNDS diagnoses and outcomes were mapped to SNOMED CT clinical findings and all PNDS diagnoses concepts were mapped at the same level of abstraction in the SNOMED CT hierarchy, except one. Melton, G.B., Westra, B.L., Raman, N., Monsen, K.A., Kerr, PhD, M.J., Hart, C.H., Solomon, D.A., & Timm, J.A. (2010). Informing Standard Development and Understanding User Needs with Omaha System Signs and Symptoms Text Entries in Community-Based Care Settings. American Medical Informatics Association Proceedings (43% acceptance rate).

Monsen, K.A., Melton, B.G., Timm, J.E., Westra, B.L., Kerr, M.J., Raman, N., Farri, L., Hart, M., & Martin, K.S. (2011). An Empiric Analysis of Omaha System Targets, Applied Clinical Informatics, 2: 317–330

The purpose of this study was to evaluate free text associated with Omaha System terms to inform issues with electronic health record system use and future Omaha System standard development. Two years of client records from two diverse sites (a skilled homecare, hospice, and palliative care program and a maternal child health home visiting program) were analyzed using a natural language process to analyze free text when "other" was selected as the care description for interventions. Group consensus by domain experts and informatics researchers was used to review findings and descriptive statistics were used to summarize these. Findings were intervention text entries very commonly contained duplicate "carry forward entries", multiple concepts represented within a text, mismatched problem focus where the text did not relate to the specific problem, or failure to identify an existing appropriate target.

Updating a Terminology

Westra, B.L., Subramanian, A., Hart, C.M., Matney, S.A., Wilson, P.S., Huff, S.M., Huber, D.L., & Delaney, C.W. (2010) Achieving "Meaningful Use" of Electronic Health Records through the Integration of the Nursing Management Minimum Data Set, Journal of Nursing Administration., 40 (7/8), 336-343

Kunkle, D., Westra, B.L., Hart, C.A., Subramanian, A., Kenny, S., & Delaney, C.W. (2012). Updating and Normalization of the Nursing Management Minimum Data Set Element 6: Patient/Client Accessibility. CIN. 30(3), 134–141. DOI: 10.1097/NCN.0b013e31823eb913

The Nursing Management Minimum Data Set (NMMDS) was originally developed in 1997 and over 7 years, the data elements were validated and mapped to LOINC terminology. The purpose of the study was to update the variable names, definitions, and specific measures. The literature and existing standards were reviewed. A recommendation was made by one team member about the name of the data element, a definition, and specific measures. A consensus based approach was used to arrive at the updated variables. The team then met with a representative of the LOINC committee who assisted with mapping the updated variables to LOINC. Subsequently the LOINC committee reviewed the recommendations, revisions were made and final results included in LOINC releases.