|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ITU Logo | INTERNATIONAL TELECOMMUNICATION UNION  **TELECOMMUNICATION STANDARDIZATION SECTOR**  STUDY PERIOD 2017-2020 | | FG-AI4H-B-030 | |
| **ITU-T Focus Group on AI for Health** | |
| **Original: English** | |
| **WG(s):** | | Breakout/Questionnaire | New York City, 15-16 November 2018 | |
| **DOCUMENT** | | | | |
| **Source:** | | Chongqing University | | |
| **Title:** | | List of coding systems for describing the datasets for the FG-AI4H | | |
| **Purpose:** | | Admin | | |
| **Contact:** | | Daidi Zhong Chongqing University P.R.China | | E-mail: [daidi.zhong@hotmail.com](mailto:daidi.zhong@hotmail.com) |

|  |  |
| --- | --- |
| **Abstract:** | This document contains a list of coding systems that could be used to describe the datasets. This may serve the purpose of dataset collection by ITU-T Focus Group on Artificial Intelligence for Health (FG AI4H). |

As the linking bridge between Heath IT suppliers, medical device vendors and service providers, SDO in the domain of Health Informatics have already developed many standards to code frequently used information into computer-friendly data. Typical SDOs include: WHO, ISO TC215, DICOM, HL7, IHTSDO, IHE, PCHA, etc. Typical coding systems includes: ICD10, SNOMED, 11073, etc.

To help describing the input and output of the dataset involved in the AI4H system, below are the suggested coding system which can be leveraged by the dataset contributors.

Note: Since the dataset will be uploaded as files, the data syntax and transport protocols are irrelevant here. The dataset contributor is expected to specify the internal data structure (file format) of submitted files.

|  |  |  |  |
| --- | --- | --- | --- |
| **RI** | **Source** | **Comment** | **OID** |
| **Published code systems** | | | |
|  | UDI | Country-specific |  |
| https://tools.ietf.org/html/rfc5646 | Request for Comment (RFC) 5646 |  |  |
| http://www.hl7.org  https://www.hl7.org/fhir/ | HL7  HL7 Fast Healthcare Interoperability Resources (FHIR) |  |  |
| https://www.hl7.org/fhir/terminologies-valuesets.html | HL7/FHIR value set |  |  |
| https://www.hl7.org/fhir/terminologies-systems.html | HL7/FHIR code systems |  |  |
| http://www.ihe.net | IHE |  |  |
| http://snomed.info/sct | SNOMED CT ([IHTSDO [https://www.hl7.org/fhir/external.png](http://ihtsdo.org/)](http://ihtsdo.org/)) |  | 2.16.840.1.113883.6.96 |
| http://www.nlm.nih.gov/research/umls/rxnorm | RxNorm ([US NLM [https://www.hl7.org/fhir/external.png](http://www.nlm.nih.gov/)](http://www.nlm.nih.gov/)) |  | 2.16.840.1.113883.6.88 |
| http://loinc.org | LOINC ([LOINC.org [https://www.hl7.org/fhir/external.png](http://loinc.org/)](http://loinc.org/)) |  | 2.16.840.1.113883.6.1 |
| http://unitsofmeasure.org | UCUM: ([UnitsOfMeasure.org [https://www.hl7.org/fhir/external.png](http://unitsofmeasure.org/)](http://unitsofmeasure.org/)) Case Sensitive Codes |  | 2.16.840.1.113883.6.8 |
| http://ncimeta.nci.nih.gov | [NCI Metathesaurus [https://www.hl7.org/fhir/external.png](http://ncimeta.nci.nih.gov/)](http://ncimeta.nci.nih.gov/) |  | 2.16.840.1.113883.3.26.1.2 |
| http://www.ama-assn.org/go/cpt | [AMA CPT codes [https://www.hl7.org/fhir/external.png](http://www.ama-assn.org/go/cpt)](http://www.ama-assn.org/go/cpt) | Current Procedural Terminology (CPT) | 2.16.840.1.113883.6.12 |
| http://hl7.org/fhir/ndfrt | [NDF-RT (National Drug File – Reference Terminology) [https://www.hl7.org/fhir/external.png](http://www.nlm.nih.gov/research/umls/sourcereleasedocs/current/NDFRT/)](http://www.nlm.nih.gov/research/umls/sourcereleasedocs/current/NDFRT/) |  | 2.16.840.1.113883.6.209 |
| http://fdasis.nlm.nih.gov | [Unique Ingredient Identifier (UNII) [https://www.hl7.org/fhir/external.png](http://www.fda.gov/Drugs/InformationOnDrugs/ucm142438.htm)](http://www.fda.gov/Drugs/InformationOnDrugs/ucm142438.htm) |  | 2.16.840.1.113883.4.9 |
| http://hl7.org/fhir/sid/ndc | [NDC/NHRIC Codes [https://www.hl7.org/fhir/external.png](http://www.fda.gov/Drugs/InformationOnDrugs/ucm142438.htm)](http://www.fda.gov/Drugs/InformationOnDrugs/ucm142438.htm) | National Drug Code | 2.16.840.1.113883.6.69 |
| http://hl7.org/fhir/sid/cvx | [CVX (Vaccine Administered) [https://www.hl7.org/fhir/external.png](http://www2a.cdc.gov/vaccines/iis/iisstandards/vaccines.asp?rpt=cvx)](http://www2a.cdc.gov/vaccines/iis/iisstandards/vaccines.asp?rpt=cvx) |  | 2.16.840.1.113883.12.292 |
| urn:iso:std:iso:3166 | [ISO 2 letter Country Codes [https://www.hl7.org/fhir/external.png](http://www.iso.org/iso/country_codes.htm)](http://www.iso.org/iso/country_codes.htm) | A few country codes have been reused (e.g. CS). If a version is needed, simply use the year of publication e.g. 1998 | 1.0.3166.1.2.2 |
| http://www.nubc.org/patient-discharge | [NUBC [https://www.hl7.org/fhir/external.png](http://www.nubc.org/)](http://www.nubc.org/) code system for Patient Discharge Status | National Uniform Billing Committee, manual UB-04, UB form locator 17 | 2.16.840.1.113883.6.301.5 |
| http://www.radlex.org | [RadLex [https://www.hl7.org/fhir/external.png](http://www.radlex.org/)](http://www.radlex.org/) |  | 2.16.840.1.113883.6.256 |
| ICD-9, ICD-10 | [WHO [https://www.hl7.org/fhir/external.png](http://www.who.int/classifications/icd/en/)](http://www.who.int/classifications/icd/en/)) & National Variants |  | See ICD page for details |
| https://www.cms.gov/Medicare/Coding/ICD10/index.html | ICD-10-CM |  |  |
| https://www.cdc.gov/nchs/icd/icd10cm.htm | ICD-10 Dental Diagnosis Codes |  |  |
| http://hl7.org/fhir/sid/icpc-1  http://hl7.org/fhir/sid/icpc-1-nl  http://hl7.org/fhir/sid/icpc-2 | ICPC (International Classification of Primary Care) ([PH3C [https://www.hl7.org/fhir/external.png](http://www.ph3c.org/)](http://www.ph3c.org/)) |  | 2.16.840.1.113883.2.4.4.31.1  2.16.840.1.113883.6.139 |
| http://hl7.org/fhir/sid/icf-nl | ICF (International Classification of Functioning, Disability and Health) ([WHO [https://www.hl7.org/fhir/external.png](http://www.who.int/classifications/icf/en/)](http://www.who.int/classifications/icf/en/)) |  | 2.16.840.1.113883.6.254 |
| http://hl7.org/fhir/v2/[X](/v) | [Version 2 tables](https://www.hl7.org/fhir/terminologies-v2.html) |  | 2.16.840.1.113883.12.[X] |
| http://hl7.org/fhir/v3/[X] | [A](https://www.hl7.org/fhir/terminologies-v3.html)[HL7 v3 [https://www.hl7.org/fhir/external.png](https://www.hl7.org/implement/standards/product_brief.cfm?product_id=186)](https://www.hl7.org/implement/standards/product_brief.cfm?product_id=186) code system |  | see [v3 list](https://www.hl7.org/fhir/terminologies-v3.html) |
| http://www.whocc.no/atc | Anatomical Therapeutic Chemical Classification System ([WHO [https://www.hl7.org/fhir/external.png](http://www.whocc.no/atc/structure_and_principles/)](http://www.whocc.no/atc/structure_and_principles/)) |  | 2.16.840.1.113883.6.73 |
| urn:ietf:bcp:47 | IETF language (see [Tags for Identifying Languages - BCP 47 [https://www.hl7.org/fhir/external.png](http://tools.ietf.org/html/bcp47)](http://tools.ietf.org/html/bcp47)) |  |  |
| urn:ietf:bcp:13 | Mime Types (see [Multipurpose Internet Mail Extensions (MIME) Part Four - BCP 13 [https://www.hl7.org/fhir/external.png](http://tools.ietf.org/html/bcp13)](http://tools.ietf.org/html/bcp13)) |  |  |
| urn:iso:std:iso:11073:10101 | Medical Device Codes defined in ISO 11073-10101 (see [RTM Management service [https://www.hl7.org/fhir/external.png](http://hit-testing.nist.gov:13110/rtmms/index.html#rosetta)](http://hit-testing.nist.gov:13110/rtmms/index.html#rosetta)) | The ISO/IEEE 11073-10201 Terminology Code is used in the *code* element, and the Terminology Reference ID is used in the *display*element (CODE10 and REFID in the reference) | 2.16.840.1.113883.6.24 |
| [http://dicom.nema.org/resources/ontology/DCM](https://www.hl7.org/fhir/codesystem-dicom-dcim.html) | DICOM Code Definitions | The meanings of codes defined in DICOM, either explicitly or by reference to another part of DICOM or an external reference document or standard | 1.2.840.10008.2.16.4 |
| http://hl7.org/fhir/sid/ca-hc-din | [Health Canada Drug Identification Number [https://www.hl7.org/fhir/external.png](http://www.hc-sc.gc.ca/dhp-mps/prodpharma/activit/fs-fi/dinfs_fd-eng.php)](http://www.hc-sc.gc.ca/dhp-mps/prodpharma/activit/fs-fi/dinfs_fd-eng.php) | A computer-generated eight digit number assigned by Health Canada to a drug product prior to being marketed in Canada. [Canada Health Drug Product Database [https://www.hl7.org/fhir/external.png](http://www.hc-sc.gc.ca/dhp-mps/prodpharma/databasdon/index-eng.php)](http://www.hc-sc.gc.ca/dhp-mps/prodpharma/databasdon/index-eng.php) contains product specific information on drugs approved for use in Canada. | 2.16.840.1.113883.5.1105 |
| http://nucc.org/provider-taxonomy | [NUCC Provider Taxonomy [https://www.hl7.org/fhir/external.png](http://www.nucc.org/index.php/code-sets-mainmenu-41/provider-taxonomy-mainmenu-40/csv-mainmenu-57)](http://www.nucc.org/index.php/code-sets-mainmenu-41/provider-taxonomy-mainmenu-40/csv-mainmenu-57) | The Health Care Provider Taxonomy code is a unique alphanumeric code, ten characters in length. The code set is structured into three distinct "Levels" including Provider Type, Classification, and Area of Specialization. | 2.16.840.1.113883.6.101 |
| https://nppes.cms.hhs.gov/#/ | National Plan and Provider Enumeration System National Provider Identifier (NPI) |  |  |
| **Code Systems for Genetics** | | | |
| http://www.genenames.org | HGNC: Human Gene Nomenclature Committee |  | 2.16.840.1.113883.6.281 |
| http://www.ensembl.org | ENSEMBL reference sequence identifiers | Maintained jointly by the European Bioinformatics Institute and Welcome Trust Sanger Institute | *not assigned yet* |
| http://www.ncbi.nlm.nih.gov/nuccore | REFSEQ : National Center for Biotechnology Information (NCBI) Reference Sequences |  | 2.16.840.1.113883.6.280 |
| http://www.ncbi.nlm.nih.gov/clinvar | ClinVar | NCBI central repository for curating pathogenicity of potentially clinically relevant variants | *not assigned yet* |
| http://sequenceontology.org | Sequence Ontology |  | *not assigned yet* |
| http://www.hgvs.org/mutnomen | HGVS : Human Genome Variation Society |  | 2.16.840.1.113883.6.282 |
| http://www.ncbi.nlm.nih.gov/projects/SNP | DBSNP : Single Nucleotide Polymorphism database |  | 2.16.840.1.113883.6.284 |
| http://cancer.sanger.ac.uk/ cancergenome/projects/cosmic | COSMIC : Catalogue Of Somatic Mutations In Cancer |  | 2.16.840.1.113883.3.912 |
| http://www.lrg-sequence.org | LRG : Locus Reference Genomic Sequences |  | 2.16.840.1.113883.6.283 |
| http://www.omim.org | OMIM : Online Mendelian Inheritance in Man |  | 2.16.840.1.113883.6.174 |
| http://www.ncbi.nlm.nih.gov/pubmed | PubMed |  | 2.16.840.1.113883.13.191 |
| http://www.pharmgkb.org | PHARMGKB : Pharmacogenomic Knowledge Base |  | 2.16.840.1.113883.3.913 |
| http://clinicaltrials.gov | ClinicalTrials.gov |  | 2.16.840.1.113883.3.1077 |
| http://www.ebi.ac.uk/ipd/imgt/hla/ | European Bioinformatics Institute |  | 2.16.840.1.113883.13.252 |
|  |  |  |  |
|  |  |  |  |
| https://www.ada.org/en/publications/cdt | Code on Dental Procedures and Nomenclature (CDT Code) |  |  |
| https://www.cms.gov/Medicare/Coding/HCPCSReleaseCodeSets/index.html | HCPCS |  |  |
| https://www.cancer.gov/research/resources/terminology/cdisc | Clinical Data Interchange Standards Consortium (CDISC)Exit Disclaimer |  |  |
|  | National Council for Prescription Drug Programs(NCPDP) SCRIPT Standard |  |  |
| https://www.cdc.gov/phin/tools/phinms/index.html | PHIN Messaging System (PHIN MS |  |  |
| http://www.x12.org/x12-work-products/x12-transaction-sets.cfm | ASC X12 |  |  |
|  |  |  |  |

References:

[1] HL7 FHIR Code System, HL7: <https://www.hl7.org/fhir/terminologies-systems.html>

[2] 2018 Interoperability Standards Advisory, Office of the National Coordinator for Health IT: <https://www.healthit.gov/isa/sites/isa/files/2018%20ISA%20Reference%20Edition.pdf>

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_