Project sprint 1: Use Case-Clinical Concepts- B581

Name of the group: The coder group (Group-3)

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Introduction:

Medical coding is one of the most intricate forms of taking data form the patient. Every element of the patient's visit is codified so that, at the conclusion of the appointment, an insurance claim can be made. Throughout the whole patient visit to the healthcare professional, this paperwork is used. Medical codes are essentially made to collect consistent data so that medical practitioners can be fairly compensated. A professional should have a decent understanding of physiology, anatomy, and financial rules in order to comprehend medical coding. The origin of the medical coding dates to the 17th century England. (Health information association, n.d.)

The codes are subject to the whole patient diagnosis, treatment regimen, including prescription medication, etc. An effective comprehension of the HCPCS Level II, ICD-10-CM, and CPT® categorization systems is required of medical coders. The medical provider's transcript must be reviewed by the coder in order to ensure a seamless billing procedure. The specifics needed for medical coding to function are medical terminology. These medical terms are classified. (Health information association, n.d.)

A few of these are:

SNOMED CT – Systematized Nomenclature of Medicine.

It is distributed and owned by SNOMED international. It makes it possible for clinical content to be represented in electronic health records in a consistent, processable way. (HIMSS, 2019)

LOINC – Logical Observation Identifiers, Names, and Codes.

A set of codes that is universally used to identify health measurements, records and observations, these codes serve as the test or measurement's "question." Laboratory and clinical tests, measurements, and observations can all be classified as LOINC codes. (HIMSS, 2019)

MEDCIN

A medical vocabulary that includes symptoms, physical examination, diagnoses, tests, history, and treatments and is maintained by Medicomp Systems. (HIMSS, 2019)

ICD-10

It is the World Health Organization's (WHO) 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD), a list of medical classifications (WHO). It includes codes for ailments, physical characteristics, unusual observations, disputes, social contexts, and external causes of harm or illness. (HIMSS, 2019)

CPT

The American Medical Association (AMA) maintains the Current Procedural Terminology (CPT®) code system, which is used to invoice for doctor's visits and outpatient treatments. (HIMSS, 2019)

For this group assignment, we have chosen use cade D. The clinical concepts are listed below:

1.Clinical concept: 22-year-old

ICD-10 code Z68.20 (LINK)

This code is given to adults whose age group is above 21 years. These codes are included and expanded as BMI categories based on calculating height and weight. These codes are represented as percentiles based on their growth charts as advised by the Center for disease control.

CPT code: 99385 (LINK)

Cpt code for age is classified based on the preventive physical examination which means performing the overall assessment and identifying the problems. These codes are determined based on the physical review

In my opinion, CPT codes are more precise as we know that they are newly assigned based on the decision tree algorithms and not only consider height and weight but include gender, medical history, and laboratory or diagnostic procedures for categorizing them into different age groups.

2.Clinical concept: Consultation

ICD-10 code: Z00-Z99 (LINK)

The ICD 10 code for consultation: is Z00-Z99, which is given as a consultation code by WHO for contacting the physician for any illness. Consultation codes are classified based on the disease they are encountering. In the use case, the patient consulted the clinician to express his difficulties, and the consultation code according to ICD is represented above

SNOMED-CT code: 11429006 (LINK)

The SNOMED-CT consultation code for a problem is 185347001. In this use case, these codes can provide a better solution to the problem by contacting the physician by addressing the problem correctly.

The code for general respiratory consultations in specific is 267036007. (LINK)

An article published by (Lougheed et al., 2017) stated that SNOMED codes are used for representing different standards in treating asthma and they are proved to be better asthma control parameters for evidence-based practice.

3.Clinical concept: Cough

ICD-10 code: R05 (LINK)

Cough can either be acute or chronic, different codes are assigned to them. R05.1 is the code that is used to represent the acute cough. R05.3 is used to represent chronic cough.

SNOMED-CT code: 49727002 (LINK)

The center for disease control and prevention has categorized these codes. The SNOMED-CT for respiratory finding is represented as 36585200. In this use case, the smokers' cough can be given code- 46802002.

I believe that SNOMED-CT codes emphasize more about the problem or disease than ICD as I believe ICD 10 is only pertinent to a specific disease

4.Clinical concept: Clinician

The concept of clinician in SNOMED-CT is 309343006.

LOINC code: 22028-5 (LINK)

SNOMED-CT code: 3093343006 (LINK)

5.Clinical concept: Shortness of Breath - Dyspnea

ICD-10 code R06.02 for Shortness of breath is a medical classification as listed by WHO under the range - Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified.(LINK)

SNOMED-CT also gave codes for various types of breathlessness based on their causes and severity. (LINK)

Ex:

Dyspnea associated with acquired immunodeficiency syndrome (disorder) - 422177004

Expiratory dyspnea (finding) – 34560001

There are also sub-division of dyspnea into 4 classes and codes are assigned accordingly

Dyspnea, class I - 17216000

Dyspnea, class II - 72365000

Dyspnea, class III - 39950000

Dyspnea, class IV – 73322006

LOINC Code- 64168-**8** (LINK)

SNOMED-CT is best designed when compared to ICD-10 and LOINC to specify dyspnea based on the classification ability and also distinguishing the type and severity and assigning codes accordingly.

6.Clinical Concept: No Medical history

SNOMED-CT Code- 435871000124102 (LINK)

It also has various codes to mention the type of past medical history that the patient underwent which makes it easier to know and differentiate one from another.

Example:

Documentation of adverse drug event history – 451671000124103 (LINK)

Allergic history documentation – 453921000124105 (LINK)

LOINC Code - 72185-2 (LINK)

This is a patient-reported previous history based on specific choices.

When compared to LOINC, SNOMED-CT is more elaborate and detailed regarding the patient's medical history.

7.Clinical Concept: No Medication History

In the clinical case chosen, the patient doesn't have any medication history. If the patient has positive medication history, the following codes are indicated.

LOINC Code- 10160-0 (LINK)

History of medication use defines a patient's current medications and history of pertinent medications. This term may also include a patient's prescription and dispense history.

ICD-10 Code- Z92.89(LINK)

For medication history, ICD-10 is quite more elaborate than LOINC.

8.Clinical Concept: Chronic smoker

ICD-10: Z72.0 (LINK)

This code is described for tobacco use and classified by WHO under range- factors influencing health. As the use case did not specify if the patient has the habit of smoking currently, ICD-10 code for personal history of nicotine dependence is Z87.891 (LINK)

SNOMED Code: 77176002 (LINK)

This is the code to describe an active smoker but as the status is not specified, code: 250171008 describes the clinical history and observation finding of smoking.

I believe SNOMED codes are more precise to describe this case as they have different codes to specifically address the habit of smoking.

A paper also indicates that ICD-10 codes are not effective to describe the problems that have greater depths as more clinical information is required for this standard (Steindel, 2012).

9. Clinical Concept: Alcoholic

ICD-10 code: F10.2 (LINK)

This code is given by WHO under the classification of mental, behavioral, and neurodevelopmental disorder. F10.21 code explains alcohol dependence with remission

SNOMED code: 66590003 (LINK)

It has specific codes to describe the nature of alcohol dependance as well. For example, 10755041000119100 code indicated alcohol dependance in childbirth and 10741871000119101 is the code given for alcoholism in pregnancy

In LOINC, the code to indicate the history of alcohol abuse is 11331-6 (LINK)

Out of all the terminologies describing alcohol abuse, I see that LOINC code suits this case as it has various attributes to see a detailed description.

10. Clinical Concept: Family History

LOINC: 10157-6 (LINK)

This code describes the history of family diseases including medical, genetic and lifestyle factors of the patient or his ancestors. This health information is used to determine the possible risks that may impact patient's health

ICD-10: Z84.89 (LINK)

This code is given to family history of other specified conditions. Usually the codes from Z77-Z99 are pertinent to patients diagnosed with potential hazards related to family and personal history.

SNOMED-CT: 416471007 is the code the reports familial history of clinical finding (LINK)

There are attempts made to detect the risk of diseases among the patient with positive family history findings from HL7 standardized models (Melton et al., 2010). It was suggested that adding more restrictions to terminologies like SNOMED CT would add value to deal with the issues.(Melton et al., 2010). So LOINC codes best describe the family history concept as they contain various codes to comprehend multiple scenarios and play a key role in detecting risk factors.

11. Clinical Concept: Well-developed and well-nourished

ICD-10 code: Z00.00 (LINK)

SNOMED code: 102513008 (LINK)

ICD-10 codes are more appropriate to describe adult medical examination without abnormal findings.

12.Clinical Concept: Moderately Dyspneic

ICD-10-CM Diagnosis Code: R06.00 (LINK)

This code is for unspecified dyspnea, which has been used since the change in 2016. The clinical information for this code is difficulty in breathing associated with various disorders, indicating inadequate ventilation or low blood oxygen, or a subjective experience of breathing discomfort. The code for abnormalities in breathing is R06 (LINK)

SNOMED code: 267036007 (LINK)

I believe SNOMED is the perfect code for the given case because this is the given code for Dyspnea, but the synonyms of this term include SOB (Shortness of Breath).

LOINC code is 64113-4**.** This is for Dyspnea Respiratory system-Trail resting. (LINK)

From all the codes, ICD- 10 code is more suitable for this diagnosis (O'Malley et al., 2005).

13. Clinical Concept: Asthma

SNOMED code for Asthma is 195967001(LINK) but the code for substance-induced Asthma is 424199006 (LINK)

The LOINC code for Asthma is 45669-9 **(LINK)**

The LOINC code for asthma, chronic obstructive pulmonary disease, or chronic lung disease in the last seven days is 54822-2. I believe that among the two LOINC codes, 45669-9 is more suitable for the case. (LINK)

From all the codes, ICD- 10 code is more suitable for this diagnosis (O'Malley et al., 2005).

14. Clinical Concept: Chest X- Ray:

ICD-10 code for plain chest X ray is BW03ZZZ (LINK)

It is a procedural code and denoted as ICD-10 PCS. Here B represents Imaging, W for Anatomical region, 0 for Plain radiography and 3 for Chest

CPT code for chest X rays: (LINK)

71045- Chest X ray 1 view (LINK)

71046- Chest X ray with 2 views (LINK)

71047 Chest X ray with APICAL LORDO (LINK)

71048- Chest X ray with OBLIQUE PROJEC (LINK)

SNOMED-CT: 399208008 is the code given for plain chest X ray procedure (LINK)

LOINC: 36554-4 code describes X ray chest single view (LINK)

PA and lateral views are described with code: 42272-5 (LINK)

Out of all the codes, CPT codes are believed to best to best describe the clinical concept of chest X ray as they are the de facto code for diagnosing and billing.

15. Clinical Concept: Provisional diagnosis:

The LOINC code: 44833-2 (LINK)

This is used to code for preliminary diagnosis.

Conclusion:

The use case's clinical concepts were all explored in depth, taking into account numerous terminologies and ontologies. One of the chosen terminologies, which complies with HL7 requirements, has been chosen as the de facto standard. For diagnostic concepts, ICD-10 is regarded as the most appropriate de facto standard, and SNOMED-CT for some procedural concepts.

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