ICD-9 and ICD-10 Clinical Concept Examples

Version 1.0

**Revision History**

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# Background

ICD-10 offers a significant improvement in the ability to define complexity, risk, severity, co-morbidities, complications and a number of other key factors related to patient health conditions. Leveraging the advantages of ICD-10 requires an understanding of some of these key clinical concepts and how the codes are used in ICD-10 codes in different clinical subject areas. Understanding the difference in how these concepts are handled in ICD-10 vs. ICD-9 is important to understand challenges in the transition process and educate business analysts with best practices around managing information migration.

# Purpose

The purpose of the artifact is to provide examples of concepts of ICD-10 that help to identify risk and severity that are not in ICD-9 today.

# Clinical Concepts

The following examples demonstrate the type of analysis that will be important during this transition period as well as the opportunities to leverage the advantages of ICD-10. These examples demonstrate significant new parameters available in ICD-10 that offer the ability to identify key factors: risk, severity, complications, etc.

## Diabetes Example

The diabetes example contains an analysis of ICD-9 and ICD-10 codes that include the concept of ‘Diabetes’ within the code definitions. The analysis generated the following statistics[[1]](#footnote-1):

* The number of codes that include the concept of ‘Diabetes’ in ICD-10 = 276
* The number of codes that include the concept of ‘Diabetes’ in ICD-9 = 83
* The number of unique concepts in ‘Diabetes’ related ICD-10 codes = 62

Table 1 illustrates the analysis of ICD-10 and ICD-9 including the following:

* Clinical Concepts included only in the ICD-10 codes
* Clinical Concepts which exist in both ICD-9 and ICD-10
* Clinical Concepts which exist only in ICD-9

Table 1: Diabetes Code Clinical Related Concepts

| Diabetes Code Concepts | Only ICD-10 | Both ICD-9 and 10 | Only ICD-9 |
| --- | --- | --- | --- |
| Diabetes Type |  |  |  |
|  | Underlying condition | Type 1 diabetes | Secondary |
|  | Drug or chemical induced | Type 2 diabetes |  |
|  | Pre-existing | Poisoning by insulin and oral hypoglycemic |  |
|  | Gestational |  |  |
|  | Underdosing of insulin and oral hypoglycemic | Adverse effect of insulin and oral hypoglycemic |  |
| Pregnancy |  |  |  |
|  | First trimester |  | Antepartum |
|  | Second trimester |  | Postpartum |
|  | Third trimester |  |  |
|  | Childbirth |  |  |
|  | Puerperium |  |  |
| Neurologic complications |  |  |  |
|  | Neuropathy | Neurological complication |  |
|  | Mononeuropathy | Polyneuropathy |  |
|  | Autonomic (poly)neuropathy | Coma |  |
|  | Amyotrophy |  |  |
| Lab Findings |  |  |  |
|  | Hypoglycemia | Ketoacidosis |  |
|  | Hyperglycemia | Hyperosmolarity |  |
| Renal complications |  |  |  |
|  | Nephropathy | Kidney complication |  |
|  | Chronic kidney disease |  |  |
| Ophthalmologic Complications |  |  |  |
|  |  | Retinopathy | Background retinopathy |
|  |  | Macular edema |  |
|  |  | Cataract |  |
|  |  | Ophthalmic complication |  |
|  |  | Mild nonproliferative retinopathy |  |
|  |  | Severe nonproliferative retinopathy |  |
|  |  | Proliferative retinopathy |  |
| Vascular Complications |  |  |  |
|  | Circulatory complications | Peripheral angiopathy |  |
|  | Gangrene |  |  |
| Skin Complications |  |  |  |
|  | Dermatitis |  |  |
|  | Foot ulcer |  |  |
|  | Skin complications |  |  |
|  | Foot ulcer |  |  |
|  | Skin ulcer |  |  |
| Joint Complications |  |  |  |
|  | Neuropathic arthropathy |  |  |
|  | Arthropathy |  |  |
| Oral Complications |  |  |  |
|  | Oral complications |  |  |
|  | Periodontal disease |  |  |
| Diabetic Control |  |  |  |
|  | Diet-controlled |  | Uncontrolled |
|  | Insulin controlled |  | Controlled |
| Encounter |  |  |  |
|  | Initial encounter |  |  |
|  | Subsequent encounter |  |  |
|  | Sequela |  |  |
| Other Concepts |  |  |  |
|  | Right | Complications |  |
|  | Left | Family history |  |
|  | Accidental | Screening |  |
|  | Intentional self-harm |  |  |
|  | Assault |  |  |
|  | Personal history |  |  |

## Fracture of the Radius Example

The facture of the radius example analyzes all ICD-9 and ICD-10 codes that include the concept of ‘Fracture’ and ‘Radius’ within the code definitions. The analysis generated the following statistics:

* The number of codes that include the concept of ‘Fracture + Radius’ in ICD-10 = 1734
* The number of codes that include the concept of ‘Fracture + Radius’ in ICD-9 = 27
* The number of unique concepts in ICD-10 codes that include the concepts of ‘Fracture + Radius’ = 52

Table 2 illustrates the analysis of ICD-10 and ICD-9 including the following:

* Clinical Concepts included only in the ICD-10 codes
* Clinical Concepts which exist in both ICD-9 and ICD-10
* Clinical Concepts which exist only in ICD-9

Table 2: ‘Fracture + Radius’ Related Concepts

| Dimension | Only ICD-10 | Both ICD-9 and 10 | Only ICD-9 |
| --- | --- | --- | --- |
| Named Fractures |  |  |  |
|  | Galleazzi’s | Colles’ |  |
|  | Smith’s |  |  |
|  | Barton’s |  |  |
|  | Radial Styloid |  |  |
| Fracture Type |  |  |  |
|  | Physeal fracture | Open |  |
|  | Neoplastic disease | Closed |  |
|  | Greenstick | Pathological |  |
|  | Stress | Torus |  |
|  | Orthopedic implant |  |  |
|  | Bent Bone |  |  |
| Healing |  |  |  |
|  | Normal |  |  |
|  | Delayed |  |  |
|  | Nonunion |  |  |
|  | Malunion |  |  |
| Localization |  |  |  |
|  | Styloid process | Shaft |  |
|  |  | Lower end |  |
|  |  | Upper end |  |
|  |  | Head |  |
|  |  | Neck |  |
| Encounter |  |  |  |
|  | Initial |  |  |
|  | Subsequent |  |  |
|  | Sequelae |  |  |
| Displacement |  |  |  |
|  | Displaced |  |  |
|  | Non-displaced |  |  |
| Classification |  |  |  |
|  | Salter Harris[[2]](#footnote-2) I |  |  |
|  | Salter Harris II |  |  |
|  | Salter Harris III |  |  |
|  | Salter Harris IV |  |  |
|  | Gustillo[[3]](#footnote-3) type I or II |  |  |
|  | Gustillo type IIIA, IIIB, or IIIC |  |  |
| Laterality |  |  |  |
|  | Left |  |  |
|  | Right |  |  |
|  | Bilateral |  |  |
| Joint Involvement |  |  |  |
|  | Intra-articular |  |  |
|  | Extra-articular |  |  |
| Fracture Pattern |  |  |  |
|  | Comminuted |  |  |
|  | Oblique |  |  |
|  | Segmental |  |  |
|  | Spiral |  |  |
|  | Transverse |  |  |
| Other Concepts |  |  |  |
|  |  | Fracture |  |
|  |  | Radius |  |
|  |  | Bone |  |
|  |  | Trauma |  |
|  |  | Musculoskeletal System |  |
|  |  | Upper extremity |  |
|  |  | Forearm |  |
|  |  | Ulna |  |

1. This analysis includes only codes that specifically reference Diabetes. There are additional ICD-9 codes that can be added to supplement missing concepts in some cases, however the rules of use are variable and they are left out for purposes of this analysis. [↑](#footnote-ref-1)
2. The Salter Harris classification identifies different patterns of fractures involving the growth plates in children. A Type I is very low risk and requires minimal treatment; a Type IV has a high risk and requires extensive treatment. [↑](#footnote-ref-2)
3. The Gustillo classification identifies increasing risk for different patterns of fractures that are exposed to the air. [↑](#footnote-ref-3)