

**Supplementary Table 1. ICD-10: digestive diseases**

| Diseases                                                                        | ICD-10 codes                                   |
|---------------------------------------------------------------------------------|------------------------------------------------|
| Malignant neoplasm                                                              |                                                |
| Malignant neoplasm of the esophagus                                             | C15                                            |
| Malignant neoplasm of the stomach                                               | C16                                            |
| Malignant neoplasm of the small intestine                                       | C17                                            |
| Malignant neoplasm of the colon and rectosigmoid junction                       | C18, C19                                       |
| Malignant neoplasm of the rectum                                                | C20                                            |
| Malignant neoplasm of the anus and anal canal                                   | C21                                            |
| Malignant neoplasm of the liver and intrahepatic bile ducts                     | C22                                            |
| Liver cell carcinoma                                                            | C220                                           |
| Intra-hepatic duct carcinoma                                                    | C221                                           |
| Malignant neoplasm of the gallbladder                                           | C23                                            |
| Malignant neoplasm of other and unspecified parts of the biliary tract          | C24                                            |
| Extra-duct cancer                                                               | C240                                           |
| Malignant neoplasm of the pancreas                                              | C25                                            |
| Malignant neoplasm of other and ill-defined organs of the digestive system      | C26                                            |
| In situ neoplasm of the digestive tract, benign, neoplasm of uncertain behavior |                                                |
| Carcinoma in situ of the esophagus                                              | D001                                           |
| Carcinoma in situ of stomach                                                    | D002                                           |
| Carcinoma in situ of the lower GI                                               | D010, D011, D012, D013                         |
| Colon and rectosigmoid junction                                                 | D010 D011                                      |
| Rectum                                                                          | D012                                           |
| Anus and anal canal                                                             | D013                                           |
| Carcinoma in situ of other parts of the GI                                      | D014, D015, D017, D019                         |
| Liver, GB, bile duct, ampulla of Vater                                          | D015                                           |
| Benign neoplasm of the colon and rectum, anus, and anal canal                   | D12                                            |
| From cecum to recto-sigmoid colon                                               | D120 D121 D122 D123 D124 D125 D126 D127        |
| Rectum                                                                          | D128                                           |
| Anus and anal canal                                                             | D129                                           |
| Benign neoplasm of other and ill-defined parts of the digestive system          | D13                                            |
| Esophagus                                                                       | D130                                           |
| Stomach, including adenomatous polyp of the stomach                             | D131                                           |
| Duodenum, small intestine                                                       | D132 D133                                      |
| Liver (intrahepatic)                                                            | D134                                           |
| Extra-hepatic bile ducts                                                        | D135                                           |
| Pancreas                                                                        | D136 D137                                      |
| Benign neoplasm, IPNM, MCN, SCA                                                 | D136                                           |
| Endocrine, islet cell                                                           | D137                                           |
| Ill-defined sites in the digestive system                                       | D139                                           |
| Neoplasm of uncertain or unknown behavior of digestive organs                   | D371, D372, D373, D374, D375, D376, D377, D379 |
| Stomach                                                                         | D371                                           |
| Small intestine                                                                 | D372                                           |

**Supplementary Table 1. Continued**

| Diseases                                                  | ICD-10 codes                                     |
|-----------------------------------------------------------|--------------------------------------------------|
| From appendix to colon                                    | D373 D374                                        |
| Rectum                                                    | D375                                             |
| Liver, GB, bile duct                                      | D376                                             |
| Upper GI tract                                            |                                                  |
| Esophagitis                                               | K20                                              |
| Gastroesophageal reflux disease and reflux esophagitis    | K21                                              |
| Other esophageal disease                                  | K22, K23                                         |
| Achalasia                                                 | K220                                             |
| Diffuse esophageal spasm                                  | K224                                             |
| Peptic ulcer disease                                      | K25, K26, K27, K28                               |
| Gastric ulcer                                             | K25                                              |
| Duodenal ulcer                                            | K26                                              |
| Peptic ulcer                                              | K27                                              |
| Gastrojejunal ulcer (marginal ulcer)                      | K28                                              |
| Gastritis, duodenitis, and dyspepsia                      | K29, K30                                         |
| Gastritis, duodenitis                                     | K29                                              |
| Functional dyspepsia                                      | K30                                              |
| Other diseases of the stomach and duodenum                | K31                                              |
| Polyp of the stomach and duodenum                         | K317                                             |
| Helicobacter infection                                    | A048, A498, B980, K295                           |
| Lower GI tract                                            |                                                  |
| Appendicitis                                              | K35, K36, K37                                    |
| Other diseases of the appendix                            | K38                                              |
| Abdominal wall and inguinal hernia                        | K40, K41, K42, K43, K44, K45, K46                |
| Crohn's disease                                           | K50                                              |
| Ulcerative colitis                                        | K51                                              |
| Other noninfective enteritis and colitis                  | K52                                              |
| Intestinal infectious disease                             | A00, A01, A02, A03, A04, A05, A06, A07, A08, A09 |
| Clostridium difficile colitis                             | A047, A480, A414, B968                           |
| Vascular disorders of the intestine                       | K55                                              |
| Paralytic ileus and intestinal obstruction without hernia | K56                                              |
| Diverticular disease of the intestine                     | K57                                              |
| Irritable bowel syndrome                                  | K58                                              |
| IBS-diarrhea predominant                                  | K581                                             |
| IBS-constipation predominant                              | K582                                             |
| IBS-mixed                                                 | K583                                             |
| IBS-other                                                 | K588                                             |
| Other functional intestinal disorders                     | K59                                              |
| Constipation                                              | K590                                             |
| Functional diarrhea                                       | K591                                             |
| Neurogenic bowel                                          | K592                                             |

**Supplementary Table 1. Continued**

| Diseases                                         | ICD-10 codes    |
|--------------------------------------------------|-----------------|
| Megacolon                                        | K593            |
| Anal spasm                                       | K594            |
| Anorectal disorder                               | K60, K61, K62   |
| Rectal bleeding                                  | K625            |
| Other diseases of the intestine                  | K63             |
| Colon polyp                                      | K635            |
| Hemorrhoids                                      | K64             |
| Disease of peritoneum                            | K65, K66, K67   |
| Liver disease                                    |                 |
| Alcoholic liver disease                          | K70             |
| Alcoholic fibrosis and sclerosis and cirrhosis   | K702, K703      |
| Alcoholic hepatic failure                        | K704            |
| Toxic liver disease                              | K71             |
| Hepatic failure, not elsewhere classified        | K72             |
| Chronic hepatitis                                | K73             |
| Fibrosis and cirrhosis of liver                  | K74             |
| Other inflammatory liver diseases                | K75             |
| Non-alcoholic steatohepatitis                    | K758            |
| Other diseases of the liver                      | K76             |
| Fatty liver, non-alcoholic liver disease         | K760            |
| Hepatovenooclusive disease                       | K765            |
| Portal hypertension                              | K766, K767      |
| Liver cysts                                      | K768            |
| Liver disorders in diseases classified elsewhere | K77             |
| Esophageal varix                                 | I85, I982, I983 |
| Gastric varix                                    | I864            |
| Viral hepatitis                                  | B15-B19         |
| Acute hepatitis A                                | B15             |
| Acute hepatitis B                                | B16             |
| Other acute viral hepatitis                      | B17             |
| Acute hepatitis C                                | B171            |
| Chronic viral hepatitis                          | B18             |
| Chronic viral hepatitis B                        | B180, B181      |
| Chronic viral hepatitis C                        | B182            |
| Unspecified viral hepatitis                      | B19             |
| Pancreaticobiliary disease                       |                 |
| Cholelithiasis                                   | K80             |
| Cholecystitis                                    | K81             |
| Other diseases of the GB                         | K82             |
| GB polyp                                         | K8280           |
| Adenomyomatosis of the GB                        | K8288           |

**Supplementary Table 1. Continued**

| Diseases                                                                                   | ICD-10 codes                                                       |
|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Other disease of biliary tract                                                             | K83                                                                |
| Acute cholangitis, autoimmune cholangitis, primary sclerosing cholangitis                  | K830                                                               |
| Biliary stricture                                                                          | K831                                                               |
| Acute pancreatitis                                                                         | K85                                                                |
| Idiopathic                                                                                 | K850                                                               |
| Biliary, gallstone                                                                         | K851                                                               |
| Alcohol                                                                                    | K852                                                               |
| Drug                                                                                       | K853                                                               |
| Acute interstitial pancreatitis, autoimmune, hereditary, necrotizing                       | K858                                                               |
| Other diseases of the pancreas                                                             | K86                                                                |
| Alcoholic pancreatitis, acute or chronic                                                   | K860                                                               |
| Chronic pancreatitis                                                                       | K861                                                               |
| Pancreatic cyst                                                                            | K862                                                               |
| Pseudocyst                                                                                 | K863                                                               |
| Disorders of the pancreas, gallbladder, and biliary tract in diseases classified elsewhere | K87                                                                |
| GI symptoms                                                                                |                                                                    |
| Intestinal malabsorption                                                                   | K90                                                                |
| Other diseases of the digestive system                                                     | K91, K92, K93                                                      |
| Hematemesis                                                                                | K920                                                               |
| Melena, hematochezia                                                                       | K921                                                               |
| Gastrointestinal hemorrhage                                                                | K922                                                               |
| Symptoms and signs involving the digestive system and abdomen                              | R10', 'R11', 'R12', 'R13', 'R14', 'R15', 'R16', 'R17', 'R18', 'R19 |
| Abdominal/pelvic pain                                                                      | R10                                                                |
| Nausea and vomiting                                                                        | R11                                                                |
| Heartburn                                                                                  | R12                                                                |
| Dysphagia                                                                                  | R13                                                                |
| Flatulence and related conditions, bloating                                                | R14                                                                |
| Fecal incontinence                                                                         | R15                                                                |
| Ascites                                                                                    | R18                                                                |
| Foreign body in the GI tract                                                               | T172, T173, T181, T182, T183, T184, T185, T188, T189               |
| Specific codes for pediatric patients                                                      |                                                                    |
| Congenital malformations of esophagus                                                      | Q39                                                                |
| Other congenital malformations of the upper alimentary tract                               | Q40                                                                |
| Congenital absence, atresia, and stenosis of the small intestine                           | Q41                                                                |
| Congenital absence, atresia, and stenosis of the large intestine                           | Q42                                                                |
| Other congenital malformations of the intestine                                            | Q43                                                                |
| Congenital malformations of the gallbladder, bile ducts, and liver                         | Q44                                                                |
| Other congenital malformations of the digestive system                                     | Q45                                                                |

ICD-10, International Classification of Diseases 10th Revision; GI, gastrointestinal; GB, gallbladder; IPNM, intraductal papillary mucinous neoplasm; MCN, mucinous cystic neoplasm; SCA, serous cystadenoma; IBS, irritable bowel syndrome.