Appendix to

“How much does the treatment of each major disease cost? A decomposition of Swiss National Health Accounts”

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## Further details on data and methods

#### Inpatient care

The ICD-10 main diagnoses in the MS were mapped to the 21 disease categories. Where possible, diagnoses were directly mapped to GBD causes (72.5% of records). Diagnoses that did not directly correspond to a GBD cause, in particular diagnoses that were included in sections V to Z of the ICD-10 manual, were assigned to the relevant GBD causes with the support of a clinical expert. However, a limited number of diagnoses could not be assigned to any GBD cause (3.9% of records). Section 1.2 of this appendix describes the details of the mapping of ICD-10 diagnoses to GBD causes.

Other long-term inpatient care covered institutions for patients with disabilities and drug dependencies. No patient level diagnostic information was available for these institutions. However, the Statistic of Socio-Medical Institutions 2011 (Somed) [1] classifies these institutions by the main type of disability affecting the patients. As these seven disability categories map to four of our disease categories (*congenital birth defects*, *mental and substance use disorders, musculoskeletal disorders, sense organ diseases*), we simply assigned the spending for these institutions to the corresponding diseases.

##### Outpatient services and healthcare products

Table 1 gives an overview of the microdata sources used, how the underlying diseases were identified, and the methods used to assign service-specific spending to these diseases.

###### Attribution based on claims data

Health care claims data from the Helsana Group cover over 1 million Swiss residents with mandatory health insurance. The database includes information on sociodemographics, health care use and healthcare costs. The data are highly reliable as the claims contain almost all health care invoices. The 2011 study sample included 1,109,633 Helsana enrollees in all age groups.

Seven non-communicable diseases were selected: *neoplasms*, *cardiovascular diseases*, *chronic respiratory diseases*, *diabetes*, rheumatologic conditions (part of *musculoskeletal disorders*), *mental and substance use disorders*, *dementia*. The insured persons were identified by using the prescribed drug ingredients ATC code (Anatomical Therapeutic Chemical Classification) [2].

The total outpatient expenditures include outpatient physician visits, outpatient hospital visits, home nursing, other outpatient care services (e.g. physiotherapy). These categories contained expenditures covered by the mandatory health insurance such as treatments, drugs, laboratory analyzes, medical products, other medical devices.

The proportion of expenditures for each disease in the outpatient setting was calculated in three steps: First, we determined the prevalence of each disease. The prevalence was calculated by dividing the number of patients with the given disease by the total number of insured persons. Second, the average costs per disease and patient was determined by performing an additive generalized linear model (GLM) with negative binomial distribution. In the GLM an unspecified (non-parametric) function was calculated for each predictor to obtain the best prediction for the dependent variable values, instead of a single coefficient for each variable. The following equation describes the calculated negative binomial regression model including interaction terms:

$$outpatient costs per disease=f(sex, age, \left(diabetes, neoplasms, cardiovascular, mental, chronic resp, musculo, dementia\right)^{2} )$$

The results for the Helsana population were then extrapolated to the overall Swiss population.

Table 1: Microdata sources for attribution of outpatient services and health products

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of service** | **Microdata source** | **Identification of disease** | **Method for expenditure assignment** |
| outpatient physicians | Helsana (health insurance claims data)  | PCG | negative-binomial regression model |
| NewIndex (physicians’ billing database) | T-codephysicians’ specialization financing regimen | simple attribution |
| outpatient hospital | Helsana (health insurance claims data) | PCG | negative-binomial regression model |
| dental care | NewIndex (physicians’ billing database) | T-code | simple attribution |
| outpatient physiotherapy | SHS 2012 | survey questions | Logit-zero truncated negative binomial two-part count data model |
| outpatient psychotherapy |
| outpatient nursing |
| other paramedic services |
| drugs provided by pharmacies and physicians | IMS Health | ATC-code | simple attribution |
| NewIndex (physicians’ billing database) | T-codephysicians’ specialization financing regimen | simple attribution |
| medical devices | no microdata | none | proportional to outpatient physicians |
| clinical laboratory | NewIndex (physicians’ billing database) | T-Code | simple attribution |
| radiology | no microdata | none | proportional to outpatient physicians |
| ambulance and rescue | Medical Statistic of Hospitals | ICD-10-code | simple attribution |

ATC-Code: Anatomical Therapeutic Chemical / Defined Daily Dose Classification

MS: Medical Statistics of Hospitals (inpatient care registry)

PCG: pharmaceutical cost groups

SHS: Swiss Health Survey 2012

T-Code (Tessiner-Code): simple diagnostic coding on physicians’ bills

All data sources except the SHS refer to the year 2011.

##### Attribution based on the Swiss Health Survey

Consultations with gynecologists and visits for Papanicolaou tests were directly assigned to *maternal and neonatal disorders* as well as *well care*. We then used a three-step procedure to assign part of the remaining consultations to diseases: first, we estimated the *average treatment effect on the treated* of the selected diseases on the number of consultations using an independent regression model for each type of outpatient service. In the second step, we calculated the annual number of outpatient consultations in the overall population due to a disease as the product of the average treatment effect on the treated and the number of residents affected by the disease. In the third step, we calculated the proportion of all consultations due to a disease as the ratio of the annual number of consultations due to a cause and the annual number of outpatient consultations in Switzerland (see appendix for more details).

The expenditures assignment for outpatient physician visits, physiotherapy consultations, alternative medicine consultations, and outpatient nursing to different diseases was done using data from the Swiss Health Survey 2012 [3]. The Swiss health survey is a representative survey of the Swiss population aged 15 years and older living in private households. The service utilization of respondents was measured using questions about the number of outpatient physician visits, home visits by outpatient nurses, physiotherapy sessions and alternative medicine consultations in the previous 12 months. Visits to gynecologists and visits for the purpose of Papanicolaou tests were excluded from the number of outpatient physician visits because these visits were assigned directly to the categories of *maternal and neonatal disorders* and *well care*. The different diseases were identified using questions about the presence of selected diseases and health events that could be classified into the categories *cardiovascular diseases*, *mental and substance use disorders*, *chronic respiratory diseases*, *diabetes*, *musculoskeletal diseases*, *urogenital, blood and endocrine diseases*, *digestive diseases*, *neoplasms*, and *injuries*.

The estimation of the proportion of outpatient consultations that could be assigned to different diseases was done in three steps. In the first step, we estimated the average treatment effect on the treated (ATET) of the considered diseases on the number consultations using an independent regression model for each type of outpatient service use. The average treatment effect on the treated is the incremental effect of the diseases on the number of consultations among the individuals affected by the disease.

The dependent variables of the regression models were 5 variables $y\_{k}$ indicating the annual number of consultations of type $k$. For convenience, we drop the index $k$ in the remainder of this appendix. Independent variables included 9 binary variables $x\_{j}$ indicating the presence of a health event in one of the diseases considered. The sample weights were included in the SHS data were used in all regressions. Because the weighted sample can be considered representative of the Swiss resident population, and the model was used as a descriptive rather than an inferential tool we did not include any covariates or interaction terms.

$$y\_{i}=g\left(\sum\_{j=1}^{J}x\_{ij}β\_{j}+u\_{i}\right)$$

Because the data included a considerable number of respondents, who did not use a certain type of service during the previous 12 months, and the variance of the number of visits was much larger than the mean (over-dispersion) we estimated a logit – zero truncated negative binomial two-part count data model.

*Hurdle part: Logit model*

$$I\_{i}=\left\{\begin{array}{c}1 if y\_{i}>0\\0 if y\_{i}\leq 0\end{array}\right. $$

$$π\_{i}=P\left[I\_{i}=1\right]=\frac{e^{X\_{i}Β}}{1+e^{X\_{i}Β}}$$

$$f\left(π\_{i}\right)=π\_{i}^{I\_{i}}\left(1-π\_{i}\right)^{1-I\_{i}}$$

$$E\left(I\_{i}\right)=π\_{i}$$

*Positive part: Zero-truncated negative binomial model*

$$π\_{i}=E\left[y\_{i}>0\right]=e^{X\_{i}Β}$$

$$f\left(π\_{i}\right)=\frac{\frac{Γ(α^{-1}+π\_{i})}{Γ\left(α^{-1}\right)Γ(π\_{i}+1)}\left(\frac{α^{-1}}{α^{-1}+1}\right)^{α^{-1}}\left(\frac{μ\_{i}}{α^{-1}+μ\_{i}}\right)^{y\_{i}} }{1-\left(1+αμ\_{i}\right)^{-α^{-1}}}$$

$$E\left(y\_{i}|y\_{i}>0\right)=\frac{μ\_{i}}{P[y\_{i}>0]}$$

In a two-part model, the average treatment effect on the treated can be calculated as the predicted number of consultations among those who were affected by a disease ($c\_{ij}=1$) minus the predicted number of consultations of these individuals in a counterfactual situation without the exposure to the disease ($c\_{ij}∶=0$).

$$ATET\_{j}=\hat{P\left[c\_{ij}=1\right]}\hat{E\left[y\_{i}>0, c\_{ij}=1\right]}-\hat{P\left[c\_{ij}∶=0\right]}\hat{E\left[y\_{i}>0, c\_{ij}∶=0\right]}$$

In the second step, we calculated the annual number of outpatient consultations in the Swiss population due to a disease as the product of the average treatment effect on the treated of the included diseases and the number of Swiss residents who were affected by these diseases. The number of Swiss residents who were affected by a disease was estimated using the reported prevalence in the Swiss health survey and the included sample weights.

In the third step, we calculated the proportion of all consultations due to a disease as the ratio of the annual number of consultations due to a disease and the annual number of outpatient consultations in Switzerland. The total number of outpatient consultations for the entire country was estimated using the number of consultations reported by respondents of the Swiss Health Survey and the included sample weights.

The use of the Swiss Health Survey for the assignment of outpatient costs to diseases relies on two rather strong assumptions. First, we assumed that the marginal effects of the health events that were recorded in the Swiss Health Survey were representative of the marginal effects of all health events included in a category that were not recorded. Second, we assumed that the health events recorded in the Swiss Health Survey allowed estimating the prevalence of all diseases in a category. This is unlikely to be the case as some residents might suffer from diseases in a category that were not captured by the survey. The consequence of this lack of comprehensiveness was an underestimation of the proportion of outpatient service use that could be attributed to single diseases and higher uncertainty around the regression parameters.

##### Attribution-based market research data

Diseases were classified according to Anatomical Therapeutic Chemical Classification (ATC) codes that map drugs to different disease groups (see Table 2).

Table 2: Mapping of ATC-code to diseases

|  |  |
| --- | --- |
| **ATC group** | **disease group in present study** |
| A (without A10 - A16) | digestive diseases |
| A10 | diabetes |
| B | urogenital, blood and endocrine diseases |
| C | cardiovascular diseases |
| J | communicable diseases |
| L01, L02, L03A | neoplasms |
| M | musculoskeletal disorders |
| N | neurological disorders |
| N (without N04A and N07D) | mental and substance use disorders |
| N07D | dementia |
| R | chronic respiratory diseases |

ATC: Anatomical Therapeutic Chemical Classification

##### Attribution based on physicians’ billing data

Expenditures could be mapped to diseases based on three types of information shown on physicians’ invoices: 1) The physicians’ specialization. Expenditures related to a consultation with an oncologist were, for example, assigned to *neoplasms*, those with a cardiologist were assigned to *cardiovascular diseases*, and those with an orthopedist were assigned to *musculoskeletal disorders*. 2) The type of insurance. Expenditures covered by accident insurance related to *injuries* and those covered by disability insurance related to *congenital birth defects*. These expenditures were set aside as they had already been assigned in the top-down approach. 3) The Tessiner-Code. A minimalist disease classification based on relatively broad diagnostic categories (such as diabetes or chronic cough) and localizations of the body parts affected (such as spine or arteries). The NewIndex data also identifies types of healthcare services based on the type of tariff system applied (TARMED for physicians’ services, laboratory tariff for laboratory examinations, and drug specialties list for drugs). We directly assigned expenditures to diseases by following a hierarchical procedure moving from the most clear-cut disease attributions to those less well defined. The analyzed sample of NewIndex data covered 16.2% of overall spending for outpatient physician services and 19.8% of drugs prescribed by outpatient physicians in 2011.

## Mapping of ICD-10 diagnoses to diseases

|  |  |
| --- | --- |
| **Communicable, maternal, neonatal and nutritional disorders** | **ICD-10 codes** |
|  | HIV/AIDS and tuberculosis |   |
|  |  | Tuberculosis | A15-A19, B90, P37.0, Z03.0, U82 |
|  |  | HIV/AIDS |   |
|  |  |  | HIV disease resulting in mycobacterial infection | B20.0 |
|  |  |  | HIV disease resulting in other specified or unspecified diseases | B20-B24(except B20.0), D84.9, U60 |
|  | Diarrhea, lower respiratory infections, meningitis, and other common infectious diseases |
|  |  | Diarrheal diseases |   |
|  |  |  | Cholera | A00 |
|  |  |  | Other salmonella infections | A02 |
|  |  |  | Shigellosis | A03 |
|  |  |  | Enteropathogenic E coli infection | A04.0 |
|  |  |  | Enterotoxigenic E coli infection | A04.1 |
|  |  |  | Campylobacter enteritis | A04.5 |
|  |  |  | Amoebiasis | A06 |
|  |  |  | Cryptosporidiosis | A07.2 |
|  |  |  | Rotaviral enteritis | A08.0 |
|  |  |  | Other diarrheal diseases | A04 (except A04.0, A04.1, A04.5), A07-A09 (except A07.2, A08.0), A05, A08, B95 |
|  |  | Typhoid and paratyphoid fevers | A01 |
|  |  | Lower respiratory infections |   |
|  |  |  | Influenza | J09-J11 |
|  |  |  | Pneumococcal pneumonia | J13 |
|  |  |  | H influenza type B pneumonia | J14 |
|  |  |  | Respiratory syncytial virus pneumonia | J12.1 |
|  |  |  | Other lower respiratory infections | J12 (except J12.1), J15-J22, J85, P23 |
|  |  | Upper respiratory infections Otitis media | J00-J06 H65-H68, H70 |
|  |  | Meningitis |   |
|  |  |  | Pneumococcal meningitis | G00.1 |
|  |  |  | H influenza type B meningitis | G00.0 |
|  |  |  | Meningococcal infection | A39 |
|  |  |  | Other meningitis | A87, G00.2-G03.9, G00, G02 |
|  |  | Encephalitis | A83-A86, B94.1, G04-5 |
|  |  | Diphtheria | A36 |
|  |  | Whooping cough | A37 |
|  |  | Tetanus | A33-A35 |
|  |  | Measles | B05 |
|  |  | Varicella | B01-B02, P35.8 |
|  | Neglected tropical diseases and malaria |   |
|  |  | Malaria |   | B50-B54, P37.3, P37.4 |
|  |  | Chagas disease | B57 |
|  |  | Leishmaniasis | B55 |
|  |  | African trypanosomiasis | B56 |
|  |  | Schistosomiasis | B65 |
|  |  | Cysticercosis | B69 |
|  |  | Echinococcosis | B67 |
|  |  | Lymphatic filariasis | B74 (except B74.3, B74.4, B74.8, B74.9) |
|  |  | Onchocerciasis |   |
|  |  | Trachoma | A71\*\*, A74.0\*\*, B94.0\*\* |
|  |  | Dengue |   | A90-A91 |
|  |  | Yellow fever | A95 |
|  |  | Rabies |   | A82 |
|  |  | Intestinal nematode infections | B68, B70-B71, B78, B80-B81 |
|  |  | Ascariasis | B77 |
|  |  | Trichuriasis | B79 |
|  |  | Hookworm disease | B76 |
|  |  | Food-borne trematodiases | B66 |
|  | Other neglected tropical diseases | A68, A69.2, A75-A79, A92-A94, A96, A98, B72, B74.3-B74.9, B83, P37.1 |
|  | Nutritional deficiencies |   |
|  |  | Protein-energy malnutrition | E40-E46, E64.0 |
|  |  | Iodine deficiency | E00-E02 |
|  |  | Vitamin A deficiency | E50, E64.1 |
|  |  | Iron-deficiency anemia | D50, D64.9 |
|  |  | Other nutritional deficiencies | D51-D53, E51-E63.9, E64, E68 |
|  | Maternal disorders |   |
|  |  | Maternal hemorrhage | O20, O44.1, O45-O46, O67, O72 |
|  |  | Maternal sepsis | O85 |
|  |  | Hypertensive disorders of pregnancy | O10-O16 |
|  |  | Obstructed labor | O64-O66 |
|  |  | Abortion | O00-O08, N96, P95 |
|  |  | Other maternal disorders | O21-O26, O28-O29, O33-O35; O40, O43, O44.0, O71, O74, O75.6-O75.7, O86-O92, O94- O99, Z87.4 |
|  |  | Neonatal disorders |   |
|  |  |  | Preterm birth complications | P01.0, P01.1, P07, P22, P25-P28 (except P27.1 and P27.8), P61.2, P77 |
|  |  |  | Neonatal encephalopathy (birth asphyxia and birth trauma) | P01.7-P01.9, P02-P03 , P10-P15 (except P13.2, P13.3, P13.8), P20-P21, P24, P51-P52, P54, P70, P90-P91 |
|  |  |  | Sepsis and other infectious disorders of the newborn baby | P36, P38-P39 |
|  |  |  | Other neonatal disorders | P00, P01.2-P01.6, P04, P05, P08, P13, P27, P29, P50, P53, P60-P61 (except P61.2), P71-P72, P74, P76, P78, P80-P81, P83, P92-P94, P96(except P96.9) |
|  |  |  | Neonatal hemolytic | P55-P59 |
|  | Other communicable, maternal, neonatal and nutritional disorders |
|  |  | Sexually transmitted diseases excluding HIV | N70-N73 |
|  |  |  | Syphilis | A50-A53 |
|  |  |  | Sexually transmitted chlamydial diseases | A55-A56 |
|  |  |  | Gonococcal infection | A54 |
|  |  |  | Trichomoniasis | A59\*\* |
|  |  | Other sexually transmitted diseases | A57-A58, A60\*\*, A63\*\* |
|  |  | Hepatitis |   |
|  |  |  | Acute hepatitis A | B15 |
|  |  |  | Acute hepatitis B | B16, B17.0, P35.3 |
|  |  |  | Acute hepatitis C | B17.1 |
|  |  |  | Acute hepatitis E | B17.2 |
|  |  |  | Sonstige akute Virushepatitis | B17 |
|  |  |  | Nicht näher bezeichnete Virushepatitis | B19 |
|  |  | Leprosy |   | A30, B92 |
|  |  | Other infectious diseases | A20-A28, A31-A32, A38, A40-A49,A65-A70(except A68), A74 (except A74.0), A81, A88-A89, A99, B04, B25, B27-B49(except B35-B36), B58- B60, B64, B82, B86, B89, B94, B96-7, B99, P35.1, P35.2, P35.9, P37.2, P37.5-P37.9, B03, B26, B06, P35.0, A80, B91, G14, J69, J86,K65, K5,M49, M86,U80 |
| **Non-communicable diseases** |   |
|  | Neoplasms |   |   |
|  |  | Esophageal cancer | C15, D00.1\* |
|  |  | Stomach cancer | C16, D00.2\*, D37.1\* |
|  |  | Liver cancer | C22, D01.5\*, D37.6\* |
|  |  | Larynx cancer | C32, D02.0\*, D38.0\* |
|  |  | Trachea, bronchus and lung cancers | C33-C34 , D02.1-D02.2\*, D38.1\* |
|  |  | Breast cancer | C50, D0.5-D05.9\*, D48.6\* |
|  |  | Cervical cancer | C53, D06\* |
|  |  | Uterine cancer | C54, D07.0, D39.0\* |
|  |  | Prostate cancer | C61, D07.5\*, D40.0\* |
|  |  | Colon and rectum cancers | C18-C21, D01.0-D01.3\*, D37.3-D37.5\* |
|  |  | Mouth cancer | C00-C08 |
|  |  | Nasopharynx cancer | C11 |
|  |  | Cancer of other part of pharynx and oropharynx | C09-C10, C12-C13 |
|  |  | Gallbladder and biliary tract cancer | C23, C24 |
|  |  | Pancreatic cancer | C25 |
|  |  | Malignant melanoma of skin | C43, D03\*, D48.5\* |
|  |  | Non-melanoma skin cancer | C44, D04\* |
|  |  | Ovarian cancer | C56, D39.1\* |
|  |  | Testicular cancer | C62, D40.1\* |
|  |  | Kidney and other urinary organ cancers | C64-C66, D41.0-D41.2\* |
|  |  | Bladder cancer | C67, D09.0\*, D41.4\* |
|  |  | Brain and nervous system cancers | C70-C72, D42-D43, D44.3-D44.5\* |
|  |  | Thyroid cancer | C73, D44.0\* |
|  |  | Hodgkin's disease | C81 |
|  |  | Non-Hodgkin's lymphoma | C82-C85, C96 |
|  |  | Multiple myeloma | C88-C90 |
|  |  | Leukemia | C91-C95 |
|  |  | Other neoplasms | C14, C17, C26, C30-C31, C37-C41, C45, C46-C49, C51-C52, C55, C57- C60, C63, C68-C69, C74-C76, C77-C80, C97, D01.4\*, D07.1-D07.4\*, D09.1-D09.3\*, D37.2\*, D37.7\*, D38.2-D38.5\*, D39.2- D39.7\*, D40.7\*, D41.7\*, D48.0-D48.4\*, D48.7\*, D00-D24, D26-D41, D44 (except D44.0, D44.3-D44.5), D45-D48, D90, Z03.1, Z08 |
|  | Cardiovascular and circulatory diseases |   |
|  |  | Rheumatic heart disease | I01, I02.0, I05-I09 |
|  |  | Ischemic heart disease | I20-I25 |
|  |  | Cerebrovascular disease |   |
|  |  |  | Ischemic stroke | I63, I65-I67(except I67.4), I69.3 |
|  |  |  | Hemorrhagic and other non- ischemic stroke | I60-I62, I69.0-I69.2, I67.4 |
|  |  |  | Heart failure | I50 |
|  |  | Hypertensive heart disease | I11 |
|  |  | Cardiomyopathy and myocarditis | I42, I40 |
|  |  | Atrial fibrillation and flutter | I48 |
|  |  | Aortic aneurysm | I71 |
|  |  | Peripheral vascular disease | I73, I70.2, I74 |
|  |  | Endocarditis | I33 |
|  |  | Other cardiovascular and circulatory diseases | I00,I02.9, I10, I15, I26-I28,I30-I32, I34-I39, I44-7, I49, I51, I64, I67, I69,I70, I72, I77-I80, I81-I84, I86-I99, G45. J90-1, J94, Z03.4, Z03.5 |
|  | Chronic respiratory diseases |   |
|  |  | Chronic obstructive pulmonary disease | J40-J44, J47 |
|  |  | Pneumoconiosis | J60-J65 |
|  |  | Asthma |   | J45-J46 |
|  |  | Interstitial lung disease and pulmonary sarcoidosis | D86.0, D86.2, D86.9, J84 |
|  |  | Other chronic respiratory diseases | J30-J39, J66-J70(except J69), J80, J82, J92, J93.0, J93.1, J95, J96.1, J98 |
|  | Cirrhosis of the liver |   |
|  |  | Cirrhosis of the liver | B18, I85, K70, K71.7, K72.1-K72.9, K73-K74, K75.2-K75.9, K76.6-K76.7, K76.9 |
|  | Digestive diseases (except cirrhosis) |   |
|  |  | Peptic ulcer disease | K25-K27 |
|  |  | Gastritis and duodenitis | K29 |
|  |  | Appendicitis | K35-K37 |
|  |  | Paralytic ileus and intestinal obstruction without hernia | K56 |
|  |  | Inguinal or femoral hernia | K40-K41 |
|  |  | Noninfective inflammatory bowel disease | K50-K52 |
|  |  | Vascular disorders of intestine | K55 |
|  |  | Gall bladder and bile duct disease | K80-K83 |
|  |  | Pancreatitis | K85-K86 |
|  |  | Other digestive diseases | K00-K01\*\*, K03-K04\*\*, K06-K11\*\*, K12-K13, K14\*\*, K20-K22, K28, K30-K31, K38, K42-6, K57-K63, K66, K76.0- K76.5, K76.8, K77, K90-K92 |
|  | Dementia |   |   |
|  |  | Alzheimer's disease and other dementias | F00-F09, G30-G31 |
|  | Neurological disorders (without dementia) |   |
|  |  | Parkinson's disease | G20-G21 |
|  |  | Epilepsy | G40-G41 |
|  |  | Multiple sclerosis | G35 |
|  |  | Migraine | G43\*\* |
|  |  | Tension-type headache | G44\*\* |
|  |  | Other neurological disorders | G06-G09, G10-G12, G23-G25, G32, G36-G37, G46-G58\*\*, G60- G72,G80-4, G90, G93-G98 (except G93.1, G93.2, G93.3, G93.4, G93.5, G93.6), G99, U51, Z03.3 |
|  | Mental and behavioral disorders |   |
|  |  | Schizophrenia | F20-F29 |
|  |  | Alcohol use disorders | F10, X45, Q86.0 |
|  |  | Drug use disorders | X41, X42, X49 |
|  |  |  | Opioid use disorders | F11 |
|  |  |  | Cocaine use disorders | F14 |
|  |  |  | Amphetamine use disorders | F15 |
|  |  |  | Cannabis use disorders | F12 |
|  |  |  | Other drug use disorders | F13, F16, F18-F19 |
|  |  | Unipolar depressive disorders |   |
|  |  |  | Major depressive disorder | F32\*\*-F33\*\* |
|  |  |  | Dysthymia | F34.1\*\* |
|  |  | Bipolar affective disorder | F30\*\*-F31\*\* |
|  |  | Anxiety disorders | F40\*\*-F42\*\*, F43\*\*-F44\*\* |
|  |  | Eating disorders | F50 |
|  |  | Pervasive development disorders | F84.0\*\*, F84.5\*\* |
|  |  |  | Autism | F84.0\*\* |
|  |  |  | Asperger's syndrome | F84.5\*\* |
|  |  |  | Tief greifende Entwicklungsstörungen | F84 |
|  |  | Childhood behavioral disorders |   |
|  |  |  | Attention-deficit hyperactivity disorder | F90\*\* |
|  |  |  | Conduct disorder | F91\*\*-F92\*\* |
|  |  |  | Idiopathic intellectual disability | F70\*\*-F79\*\* |
|  |  | Other mental and behavioral disorders | F17, F34-F39 (except F34.1), F45-F48\*\*, F51- F53\*\*, F54-F59, F60-F69\*\*, F80-F84\*\* (except F84.0, F84.5, F84.9), F93-F98\*\*, F88-F89\*\*; F9 |
|  | Diabetes |   |   |
|  |  | Diabetes mellitus | E10-E14 (except E10.2, E12.2, E13.2) |
|  | Urogenital, blood, and endocrine diseases (without diabetes) |   |
|  |  | Acute glomerulonephritis | N00-N01 |
|  |  | Chronic kidney diseases |   |
|  |  |  | Chronic kidney disease due to diabetes mellitus | E10.2, E11.2, E12.2, E13.2, E14.2 |
|  |  |  | Chronic kidney disease due to hypertension | I12.0, I12.9, I13.0, I13.1, I13.2, I13.9 |
|  |  |  | Chronic kidney disease unspecified | N02-N07, N15.0 |
|  |  |  | Chronic kidney disease | N18 |
|  |  | Urinary diseases and male infertility |   |
|  |  |  | Tubulointerstitial nephritis, pyelonephritis, and urinary tract infections | N10-N12, N15.1-N15.9, N30, N34, N39.0 |
|  |  |  | Urolithiasis | N20-N23 |
|  |  |  | Benign prostatic hyperplasia | N40\*\* |
|  |  |  | Male infertility | N46\*\* |
|  |  |  | Other urinary diseases | N13, N24-N28, N31-N32, N35-N36, N39 (except N39.0), N41- N45, N47-N50 |
|  |  | Gynecological diseases |   |
|  |  |  | Uterine fibroids | D25 |
|  |  |  | Polycystic ovarian syndrome | E28.2 |
|  |  |  | Female infertility | N97\*\* |
|  |  |  | Endometriosis | N80 |
|  |  |  | Genital prolapse | N81 |
|  |  |  | Premenstrual syndrome | N94.3 |
|  |  | Other gynecological diseases | N60\*\*, N61-N64, N75-N76, N82-N83, N84\*\*-N92 , N93- N94(Except N94.3), N98 |
|  |  | Hemoglobinopathies and hemolytic anemias |   |
|  |  |  | Thalassemias | D56 |
|  |  |  | Sickle cell disorders | D57 |
|  |  |  | G6PD deficiency | D55 |
|  |  |  | Other hemoglobinopathies and hemolytic anemias | D58-D64.8 |
|  |  | Other endocrine, nutritional, blood, and immune disorders | D66-D89 (except D84.9, D86.0, D86.2, D86.9), E03-E07, E15-E34, E65-E67, E70-E84 E86-8 (except E88.9), E89-E96, M07 |
|  | Musculoskeletal disorders |   |
|  |  | Rheumatoid arthritis | M05-M06 |
|  |  | Osteoarthritis | M15-M19\*\* |
|  |  | Low back and neck pain | Low back and neck pain |   |
|  |  |  |  | M48.0-M48.2, M53 |
|  |  |  | Low back pain | M46.9, M47\*\*, M48.8\*\*-M48.9\*\*, M51- M54\*\*(except M53.1\*\*,M53.2\*\*) |
|  |  |  | Neck pain | M50\*\*, M53.1\*\* ,M53.2\*\* |
|  |  | Gout |   | M10\*\* |
|  |  | Other musculoskeletal disorders | M00-M02, M08, M11\*\* ,M12-M13, M20-M25\*\*,M30- M35,M40\*\*, M41-M46 (except M46.9), M48\*\* (except M48.0, M48.1, M48.2, M48.8, M48.9), M60\*\*, M61-M62, M65-M71\*\*, M72, M75-M79\*\*, M80-M85, M87-M94, M95- M99\*\* |
|  | Congenital anomalies |   |
|  |  |  | Neural tube defects | Q00, Q05 |
|  |  |  | Congenital heart anomalies | Q20-Q28 |
|  |  |  | Cleft lip and cleft palate | Q35-Q37 |
|  |  |  | Down's syndrome | Q90 |
|  |  |  | Other chromosomal abnormalities | Q91-Q99 (except Q99.9) |
|  |  |  | Other congenital anomalies | D65, J65.0, J96.9, Q01-Q04, Q06-Q18, Q30-Q34, Q38-Q45, Q50-Q89 |
|  | Skin and subcutaneous diseases |   |
|  |  |  | Eczema | L20\*\*-L28\*\* |
|  |  |  | Psoriasis | L40\*\*-L41\*\* |
|  |  |  | Cellulitis | L03.0, L03.1\*\*, L03.2-L03.9 |
|  |  |  | Abscess, impetigo, and other bacterial skin diseases | L00, L01, L02, L04\*\*, L08, L88, L97, L98.0-L98.4\*\* |
|  |  |  | Fungal skin diseases | B35\*\*, B36.0\*\*, B36.1\*\*, B36.2\*\*, B36.3\*\*, B36.8\*\*, B36.9\*\* |
|  |  |  | Viral skin diseases | B00, B07\*\*-B09\*\* |
|  |  |  | Acne vulgaris | L70\*\* |
|  |  |  | Alopecia areata | L63.0\*\*, L63.1\*\*, L63.8\*\*, L63.9\*\*, |
|  |  |  | Pruritus | L29\*\* |
|  |  |  | Urticaria | L50\*\* |
|  |  |  | Decubitus ulcer | L89 |
|  |  |  | Other skin and subcutaneous diseases | B85\*\*, B87\*\*,B88\*\*, L05.0, L05.9, L10-L13, L30\*\*, L42\*\*-L44\*\*, L51, L52\*\*-L53\*\*, L55\*\*-L60\*\*, L64\*\*-L68\*\*, L71\*\*-L75\*\*, L80\*\*-L85\*\*, L87, L90\*\*- L92\*\*, L93, L94-L95, L98 |
|  | Sense organ diseases |   |
|  |  |  | Glaucoma | H40\*\* |
|  |  |  | Cataracts | H25-H26\*\* |
|  |  |  | Macular degeneration | H35.3\*\* |
|  |  |  | Refraction and accommodation disorders | H49-H52\*\* |
|  |  |  | Other hearing loss | H90-H91\*\* |
|  |  |  | Other vision loss | H30-H35\*\* (except H35.3), H53-H54\*\* |
|  |  |  | Other sense organ diseases | H00-H21\*\*, H27\*, H43-H47\*\*, H55-H61\*\*, H69\*\* , H71-H83\*\*, H92-H93\*\* |
|  | Oral disorders |   |   |
|  |  |  | Dental caries | K02\*\* |
|  |  |  | Periodontal disease | K05\*\* |
|  |  | Edentulism | No ICD code\*\* |
|  |  | Sudden infant death syndrome | R95 |
|  |  | Andere nicht-übertragbare Krankheiten |   |
|  |  |  | Dialysebehandlung | Z49 |
|  |  |  | Alopecia areata | L63 |
|  |  |  | Klimakterische Störungen | N95 |
| **Injuries** |   |   |   |
|  | Transport injuries |   |
|  |  | Road injury |   |
|  |  |  | Pedestrian injury by road vehicle | V01-V04, V06,V09 |
|  |  |  | Pedal cycle vehicle | V10-V19 |
|  |  |  | Motorized vehicle with two wheels | V20-V29 |
|  |  |  | Motorized vehicle with three or more wheels | V30-V79, V87.2-V87.3 |
|  |  |  | Road injury other | V80, V82 |
|  |  | Other transport injury | V05,V81, V83-V86, V88.2, V88.3 , V91, V93-V98 |
|  | Unintentional injuries other than transport injuries |   |
|  |  | Falls |   | W00-W19 |
|  |  | Drowning | V90, V92, W65-W74 |
|  |  | Fire, heat and hot substances | X00-X19 |
|  |  | Poisonings | X46-X48, X40, X43-X44 |
|  |  | Exposure to mechanical forces |   |
|  |  |  | Mechanical forces (firearm) | W32-W34 |
|  |  |  | Mechanical forces (other) | W24-W31, W45-W46 |
|  |  | Adverse effects of medical treatment | Y40-Y84, Y88 |
|  |  | Animal contact |   |
|  |  | Animal contact (venomous) | Animal contact (venomous) | X20-X29 |
|  |  | Animal contact (non-venomous) | Animal contact (non-venomous) | W53-W64 |
|  |  | Unintentional injuries not classified elsewhere | W21, W39, W44, W49-W52, W75-W99, X50-X58 |
|  | Self-harm and interpersonal violence |   |
|  |  | Self-harm | X70, X76-X77, X72-X74, X68, X71, X75, X78-X83, X60- X67, X69 |
|  |  | Interpersonal violence |   |
|  |  |  | Assault by firearm | X93-X95 |
|  |  |  | Assault by sharp object | X99 |
|  |  |  | Assault by other means | X85-X92, X96-X98, Y00-Y08 |
|  | Forces of nature, war, and legal intervention |   |
|  |  |   |   |   |
|  |  |  | Exposure to forces of nature | X30-X39 |
|  |  |  | Collective violence and legal intervention | Y36, Y89.1,Y35, Y89.0 |
|  | Verletzungen einer bestimmten Körperregion als Folge äusserer Ursachen |
|  |  | Verletzungen des Kopfes | S00-S09 |
|  |  | Verletzungen des Halses | S10-S19 |
|  |  | Verletzungen des Thorax | S20-S29 |
|  |  |  | Sonstiger Pneumothorax | J93.8 |
|  |  |  | Pneumothorax, nicht näher bezeichnet | J93.9 |
|  |  | Verletzungen des Abdomens, der Lumbosakralgegend, der Lendenwirbelsäule und des Beckens | S30-S39 |
|  |  | Verletzungen der Schulter und des Oberarmes | S40-S49 |
|  |  | Verletzungen des Ellenbogens und des Unterarmes | S50-S59 |
|  |  | Verletzungen des Handgelenks und der Hand | S60-S69 |
|  |  | Verletzungen der Hüfte und des Oberschenkels | S70-S79 |
|  |  | Verletzungen des Knies und des Unterschenkels | S80-S89 |
|  |  | Verletzungen der Knöchelregion und des Fusses | S90-S99 |
|  | Verletzungen mehrerer Körperregionen, Vergiftungen und bestimmte andere Folgen äusserer Ursachen |
|  |  | Verletzungen mit Beteiligung mehrerer Körperregionen | T00-T07 |
|  |  | Verletzungen nicht näher bezeichneter Teile des Rumpfes, der Extremitäten oder anderer Körperregionen | T08-T14, Z09.4 |
|  |  | Folgen des Eindringens eines Fremdkörpers durch eine natürliche Körperöffnung | T15-T19 |
|  |  | Verbrennungen oder Verätzungen | T20-T32 |
|  |  | Erfrierungen | T33-T35 |
|  |  | Vergiftungen durch Arzneimittel, Drogen und biologisch aktive Substanzen | T36-T50 |
|  |  |  | Toxische Leberkrankheit | K71 |
|  |  |  | Arzneimittel- und schwermetallinduzierte tubulointerstitielle und tubuläre Krankheitszustände | N14 |
|  |  | Toxische Wirkungen von vorwiegend nicht medizinisch verwendeten Substanzen | G92, T51-T65, ZO3.6 |
|  |  | Sonstige und nicht näher bezeichnete Schäden durch äussere Ursachen | T66-T78 |
|  |  |  | Hydrozephalus (erworben) | G91 |
|  |  | Bestimmte Frühkomplikationen eines Traumas | T79 |
|  |  | Komplikationen bei chirurgischen Eingriffen und medizinischer Behandlung, anderenorts nicht klassifiziert | T80-T88 |
|  |  |  | Krankheiten des Urogenitalsystems nach medizinischen Maßnahmen, anderenorts nicht klassifiziert | N99 |
|  |  | Sonstige Komplikationen eines Traumas, anderenorts nicht klassifiziert | T89 |
|  |  | Folgen von Verletzungen, Vergiftungen und sonstigen Auswirkungen äusserer Ursachen | T90-T98, Z47 |
|  |  |  | Nachbehandlung unter Anwendung plastischer Chirurgie: Inkl.: Narbengewebeplastik Exkl.: Kosmetische Chirurgie | Z42 |
| **Well care** |
|  |  | Well pregnancy | Z34-Z41, Z87.5, O09, O31-O32, O35.0-O35.2, O36, O41-O42, O47-O48, O60-O63, O68-O70, O71.0-O71.3, O73, O75, O80-O82 |
|  |  | Well person |   |
|  |  |  | well newborn | Z76.1-Z76.2 |
|  |  |  | well person | Z00-Z02 |
|  |  |  | well dental | Z01.2 |
|  |  | Family planning | Z30-Z31 |
|  |  | Counselling services | Z76.3-Z76.4, Z57-Z59, Z61, Z64, Z70, Z72 |
|  |  | Donor services | Z52 |
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\* Codes used exclusively for Global Burden of Disease Study mortality (YLL)

\*\* Codes used exclusively for Global Burden of Disease Study morbidity (YLD)

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3. Swiss Federal Office of Statistics, *Swiss Health Survey*. 2012, Swiss Federal Office of Statistics: Neuchâtel.<https://www.bfs.admin.ch/bfs/de/home/statistiken/gesundheit/erhebungen/sgb.html>.