Bioimpedance and New-Onset Heart Failure: A Longitudinal Study of >500 000 Individuals From the General Population

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Background—Heart failure constitutes a high burden on patients and society, but although lifetime risk is high, it is difficult to predict without costly or invasive testing. We aimed to establish new risk factors of heart failure, which potentially could enable early diagnosis and preemptive treatment.

Methods and Results—We applied machine learning in the UK Biobank in an agnostic search of risk factors for heart failure in 500 451 individuals, excluding individuals with prior heart failure. Novel factors were then subjected to several in-depth analyses, including multivariable Cox models of incident heart failure, and assessment of discrimination and calibration. Machine learning confirmed many known and putative risk factors for heart failure and identified several novel candidates. Mean reticulocyte volume appeared as one novel factor and leg bioimpedance another, the latter appearing as the most important new marker. Leg bioimpedance was lower in those who developed heart failure during an up to 9.8-year follow-up. When adjusting for known heart failure risk factors, leg bioimpedance was inversely related to heart failure (hazard ratio [95% confidence interval], 0.60 [0.48–0.73] and 0.75 [0.59–0.94], in age- and sex-adjusted and fully adjusted models, respectively, comparing the upper versus lower quartile). A model including leg bioimpedance, age, sex, and self-reported history of myocardial infarction showed good discrimination for future heart failure hospitalization (Concordance index [C-index] = 0.82) and good calibration.

Conclusions—Leg bioimpedance is inversely associated with heart failure incidence in the general population. A simple model of exclusively noninvasive measures, combining leg bioimpedance with history of myocardial infarction, age, and sex provides accurate predictive capacity. (J Am Heart Assoc. 2018;7:e008970. DOI: 10.1161/JAHA.118.008970.)

Key Words: heart failure • machine learning • risk factors

Heart failure is a common cause of mortality and is associated with substantial morbidity that greatly impacts quality of life of the affected individuals and their families. The lifetime risk of developing heart failure is high, and it is among the most common discharge diagnoses in the United States, with frequent costly readmissions for decompensation once disease has been established.¹ While invasively measured biomarkers have improved prognostication, prediction of new-onset heart failure remains challenging.² Increased knowledge of risk factors for incident heart failure in the general population could enable earlier diagnosis, preemptive treatment, and risk factor control, to possibly mitigate disease development and improve outcomes. This is in line with recent heart failure guidelines, which outline several evidence-based treatments that may delay or prevent the development of overt heart failure.³

We hypothesized that novel risk factors for incident heart failure in the UK Biobank, a population-based longitudinal cohort study of >500 000 individuals, could be identified in an agnostic search by machine learning techniques, combined with confirmatory in-depth analyses.

Methods

Study Design and Participants

The full UK Biobank data set is available to approved researchers.⁴,⁵ Between 2006 and 2010, 502 639 individuals aged 49 to 69 years were enrolled in the UK Biobank, a
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Clinical Perspective

What Is New?

- By leveraging the power of machine learning, we identified leg bioimpedance as a novel risk factor for incident heart failure in the general population.
- A simple model combining leg bioimpedance, history of myocardial infarction, age, and sex provides accurate prediction of new-onset heart failure.

What Are the Clinical Implications?

- Given the simplicity of measurement, leg bioimpedance could potentially be used as a tool for screening in primary care facilities, providing independent validation of our findings.

Longitudinal, population-based cohort study that recruited volunteers across 21 centers in England, Wales, and Scotland. The study has been described in detail previously and online (www.ukbiobank.ac.uk). Briefly, participants were carefully investigated, using a series of questionnaires, physiological measures, imaging, blood and urine biomarkers, and genotype data. Importantly, the UK Biobank was merged with the national in-hospital diagnosis and procedure registries, providing information about diagnoses before and after baseline of the study.

For the main analyses, we excluded individuals with prevalent heart failure (either primary or secondary in-hospital diagnosis of heart failure, International Classification of Diseases, Tenth Edition [ICD-10], I50; or self-reported history of heart failure, n=2188), leaving 500 451 individuals eligible. In secondary analyses of leg bioimpedance, we instead studied individuals with prevalent heart failure (n=2188). The UK Biobank study was approved by the North West Multi-Centre Research Ethics Committee, and all participants provided written informed consent to participate in the study.

Leg Bioimpedance and Other Risk Factors

In our phenome-wide scan of risk factors for incident heart failure, we considered all 3646 variables reflecting different aspects of lifestyle, health, and disease-related factors in the UK Biobank (except a few administrative variables such as meta-data regarding the genomics part of the UK Biobank, as well as genomics and raw imaging data), and all ICD-10 diagnoses (excluding administrative, temporary, and unspecified codes [Chapters U, V, W, X, Y, and Z]) (Table S1).

Leg bioimpedance was measured using the Tanita BC418MA body composition analyzer. This device is reminiscent of a standard scale but also has handlebars; ie, there are 4 electrodes (1 for each foot, and 1 for each hand) between which small electric signals are passed. The resistance, ie, the impedance, for different parts of the body is calculated. A detailed description of how these measurements were made (including a photo of the device used) is available in the UK Biobank data showcase (http://biobank.ctsu.ox.ac.uk/crystal/). In our confirmatory analyses, we defined leg bioimpedance as the mean of left and right leg bioimpedance.

Blood pressure and body mass index were measured in a standardized fashion; as were medical history, smoking status, and alcohol consumption, through standardized questionnaires (full details available in the UK Biobank data showcase: http://biobank.ctsu.ox.ac.uk/crystal/). High alcohol intake was defined as “daily or almost daily” intake of alcohol. Chronic kidney failure (N18) and coronary heart disease (I20–125), were defined as presence of these (primary or secondary) ICD-10 diagnoses in hospitalizations before inclusion in the UK Biobank.

Outcome and Follow-Up

The primary outcome was hospitalization for heart failure (ICD-10: I50) as the primary cause during follow-up, and for the Cox models, time to hospitalization for heart failure. This was based on the Hospital Episode Statistics register, that includes all hospitalizations in the United Kingdom, by linkage to the UK Biobank data set. Vital status is observed through the mandatory Death register. Thereby, loss-of-follow-up is negligible. There were 1054 incident events of heart failure during follow-up of up to 9.8 years, with a median follow-up of 6.2 years (lower and upper quartile, 5.5 and 6.9).

Statistical Analysis

For discovery of new potential risk factors for heart failure, we used a gradient boosting machine model. This machine learning method allows the computer to learn how to classify individuals as having heart failure or not in an iterative fashion, considering all of the 3646 available variables, improving prediction by each iteration. In addition to providing a model for classification, it provides a measure of how important each variable is in this classification. We used hospitalization for heart failure (ie, our primary outcome) as the response variable. The data set was divided into training (60%), validation (20%), and test (20%) sets. The maximum tree depth was set to 3, the maximum number of trees to 50, and the learning rate to 0.01. Performance was assessed by the receiver operating characteristic area under the curve, and classification error was assessed by logloss. Results are presented as variable importance for the classification. Variable importance can be considered a measure of how important each feature is in improving the classification. An extended description of the gradient boosting machine method is found in Data S1.
Next, we assessed the relationships between the top 15 features associated with heart failure from the gradient boosting machine model and incident heart failure by using Cox proportional hazards regression in 2 sets of models: (1) adjusting for age and sex; and (2) additionally adjusting for body mass index, systolic and diastolic blood pressure, antihypertensive treatment, alcohol consumption, diabetes mellitus, smoking status, prevalent chronic renal failure, and prevalent coronary heart disease, all of which are established risk factors for heart failure.7–11 Continuous variables were entered as restricted cubic splines to account for any nonlinear associations. The association between features and heart failure are reported as hazard ratios and 95% confidence intervals for the upper versus the lower quartile for continuous variables, or for presence or absence for binary variables. The proportional hazards assumption was assessed by visual inspection of the Schoenfeld residuals, without any signs of violation of this assumption.

As leg bioimpedance was deemed of particular importance after our initial analyses, we proceeded with in-depth analyses of this variable. First, we performed a sensitivity analysis, where all individuals with any primary or secondary inpatient diagnosis in Chapter 9 of ICD-10 (“Diseases of the Circulatory System”) were excluded, as well as anyone with any of the following self-reported conditions: hypertension, prior stroke or transient ischemic attack, high cholesterol, diabetes mellitus, angina pectoris, or myocardial infarction (as well as self-reported heart failure) rendering a subsample of 309 079 individuals. This was to exclude any other prevalent cardiometabolic disorders that could influence bioimpedance. Further, we assessed leg bioimpedance in the full population in relation to incident or prevalent heart failure, and to any incident or prevalent cardiovascular disease, to further characterize the associations between leg bioimpedance and cardiovascular disease. Distributions are presented as density plots. The predicted rate of heart failure hospitalization up to 8 years after inclusion in the study was plotted in relation to leg bioimpedance in a spline plot. The x axis was truncated at the 0.1th percentile at the lower end, and the 99.9th percentile in the higher end. Normality was assessed with visual inspection of the distributions, and levels of leg bioimpedance were compared with t tests. Finally, we assessed the addition of leg bioimpedance to age and sex, and in a final model adding leg bioimpedance to age, sex, and self-reported myocardial infarction. There were few missing observations of leg impedance (<2%), so we performed complete case analyses without any attempts of imputation.

The discriminatory ability of the models is presented using c-indices, and model fit was estimated by Akaike information criterion. We assessed calibration by visual inspection of calibration plots, and performed bootstrap validation using 100 bootstrap samples. All analyses were conducted using R versions 3.3.0 and 3.3.3, and the machine learning platform H2O version 3.10.4.1.

Results

Baseline characteristics of the study population are presented in Table 1. The 15 variables with the highest importance in the gradient boosting machine model are shown in Figure 1. Among these are some of the most well-established risk factors for heart failure, such as manifestations of coronary artery disease and type 2 diabetes mellitus, as well as known correlates of heart failure, such as obesity, microalbuminuria,

| Characteristic                              | N      | Without Incident Heart Failure (n=499 394) | With Incident Heart Failure (n=1054) |
|--------------------------------------------|--------|----------------------------------------|--------------------------------------|
| Leg bioimpedance, Ohms                     | 490 660| 246.5 (223.5–270.5)                    | 221.5 (194.5–247.2)                  |
| Age, y                                     | 500 488| 58 (50–63)                             | 64 (60–67)                           |
| Male sex                                   | 500 488| 45% (226 815)                          | 68% (718)                            |
| Body mass index, kg/m²                      | 497 382| 26.7 (24.1–29.9)                       | 29.7 (26.2–34.6)                     |
| Systolic blood pressure, mm Hg             | 499 157| 136.5 (124.5–149.5)                    | 143.2 (130.5–157.0)                  |
| Diastolic blood pressure, mm Hg            | 499 159| 82.0 (75.3–89.0)                       | 82.0 (74.0–89.0)                     |
| Antihypertensive medication                | 492 594| 21% (104 123)                          | 59% (603)                            |
| Alcohol intake daily or almost daily       | 498 969| 21% (102 321)                          | 20% (205)                            |
| Diabetes mellitus                          | 497 858| 5% (25 557)                            | 29% (305)                            |
| Current smoker                             | 497 576| 11% (52 741)                           | 16% (163)                            |
| Prevalent chronic renal failure            | 500 448| 0.1% (619)                             | 2% (16)                              |
| Prevalent coronary heart disease           | 500 448| 4% (17 364)                            | 30% (314)                            |

For continuous variables, medians and interquartile ranges are reported; for categorical variables, percentages and frequencies. N is the number of nonmissing values.
and anemia. There were also several novel variables associated with incident heart failure. Among the most important were left and right leg bioimpedance and mean reticulocyte volume. The receiver operating characteristic areas under the curve were similar in the training, validation, and test sets: 0.79, 0.78, and 0.81 (receiver operating characteristic curves shown in Figure S1); as were the logloss values: 0.0127, 0.0149, 0.0143, ie, acceptable discrimination and low error, which were very similar in the 3 sets, suggesting that the model was not overfitted.

For in-depth analyses of the most important variables, we then performed 2 sets of Cox regression models (age- and sex-adjusted; and adjusting for established heart failure risk factors) relating the top 15 features to incident heart failure during up to 9.8 years of follow-up (Table 2). Among the independently associated variables were well-established risk

Table 2. Cox Models of the Top 15 Associated Variables From the Machine Learning Approach

| Variable                                      | Age- and Sex-Adjusted HR (95% CI) | Fully Adjusted* HR (95% CI) |
|-----------------------------------------------|----------------------------------|-----------------------------|
| Prior myocardial infarction†                  | 7.06 (6.06–8.23)                 | 4.29 (3.62–5.07)            |
| Number of treatments/medications taken        | 3.05 (2.44–3.82)                 | 1.96 (1.52–2.53)            |
| Chronic ischemic heart disease (ICD-10: I25)  | 6.88 (5.95–7.95)                 | 4.04 (3.44–4.75)            |
| History of diabetes mellitus†                 | 5.27 (4.60–6.03)                 | 2.45 (2.10–2.87)            |
| Leg bioimpedance (left) (Ohms)                | 0.59 (0.48–0.72)                 | 0.75 (0.60–0.94)            |
| Trunk fat mass, kg                            | 1.73 (1.43–2.09)                 | 0.86 (0.64–1.17)            |
| Leg bioimpedance (right) (Ohms)               | 0.60 (0.49–0.73)                 | 0.78 (0.62–0.97)            |
| Hematocrit, %                                 | 0.56 (0.47–0.67)                 | 0.73 (0.61–0.87)            |
| Diabetes mellitus–related eye disease†        | 8.57 (6.01–12.21)                | 2.01 (1.37–2.94)            |
| Leg predicted mass (left) (kg)                 | 3.73 (2.74–5.07)                 | 1.45 (0.99–2.12)            |
| Overall health rating                         | 3.14 (2.91–3.38)                 | 2.04 (1.86–2.22)            |
| Cardiomyopathy (ICD-10: I42)                  | 18.73 (11.59–30.27)              | 9.61 (5.70–16.18)           |
| Microalbumin in urine (log) (mg/L)            | 2.12 (1.62–2.77)                 | 1.83 (1.38–2.42)            |
| Mean reticulocyte volume (fL)                 | 1.28 (1.10–1.50)                 | 1.19 (1.01–1.39)            |

CI indicates confidence interval; HR, hazard ratio (for continuous variables, HR represents upper vs lower quartile); ICD-10, International Classification of Diseases, Tenth Edition. *Diabetes diagnosed by doctor” and “Age diabetes diagnosed,” was instead analyzed as history of diabetes mellitus.

*Fully adjusted model includes age, sex, body mass index, systolic blood pressure, diastolic blood pressure, antihypertensive treatment, alcohol consumption, diabetes mellitus, smoking status, prevalent chronic renal failure, prevalent coronary heart disease.

†Age when occurrence of myocardial infarction, diabetes mellitus, and diabetes mellitus–related eye disease were diagnosed were dichotomized to reflect the presence of these conditions or not.
factors, such as ischemic heart disease and diabetes mellitus, but also other, novel markers, such as mean reticulocyte volume and leg bioimpedance.

As left and right leg bioimpedance emerged as novel, independent risk factors (Figure 1 and Table 2) and strong indicators of incident heart failure that can be assessed in a simple and noninvasive manner, we decided to focus the remaining analyses on leg bioimpedance, defined as the mean of left and right leg bioimpedance. The distribution of leg bioimpedance in relation to incident heart failure was investigated, and it showed fairly good separation between those who experienced future outcome compared with those who did not (Figure 2; \( P=1.1 \times 10^{-72} \)). Compared with individuals who were free from heart failure during follow-up, individuals with incident heart failure had significantly lower leg bioimpedance (Figure 3).

In sensitivity analyses, we assessed leg bioimpedance in relation to incident heart failure in a subsample, excluding all individuals who had prior hospitalizations for any cardiovascular disease, as well as those with self-reported presence of cardiovascular disease and/or cardiovascular risk factors (N=309 079 with 212 cases [0.07%] of incident heart failure). In this healthy subsample, associations of leg bioimpedance with heart failure were nonsignificant but displayed similar effect sizes as in the full study sample (hazard ratio, 0.74; 95% confidence interval, 0.47–1.15; comparing upper versus lower quartile in a multivariable-adjusted model; Figure S2).

In additional sensitivity analyses in relation to prevalent cardiovascular disease, leg bioimpedance was consistently lower in those experiencing heart failure hospitalizations during follow-up (Figures S3 and S4); and in those with known prior heart failure, lower leg bioimpedance was associated with having multiple rehospitalizations during follow-up (Figure S5).

When adding leg bioimpedance to a model including only age and sex, the concordance index (C-index) increased from 0.76 to 0.80, which should be compared with an increase from 0.76 to 0.79 when adding self-reported myocardial infarction to the model (Table 3). Combining age, sex, leg bioimpedance, and self-reported myocardial infarction (the variable with highest importance in the gradient boosting machine model; Figure 1) in a model led to a C-index of 0.82. This model was well calibrated (calibration slope, 0.9985; Figure S6), and the optimism-corrected C-index was 0.82 (ie, essentially unchanged, obtained via bootstrap validation), indicating that overfitting was not an issue. When taking all known risk factors for heart failure into account, leg bioimpedance remained significantly inversely associated with incident heart failure, calibration was similar as for the smaller model (Figure S7), and the C-index improved further to 0.85 (Table 3). The Akaike information criterion decreased (indicating better model fit) in a manner consistent with increases in the C-index (Table 3).

**Discussion**

Using a contemporary, prospective cohort study of >500 000 individuals from the general population, we have performed an extensive investigation of factors associated with incident heart failure.
heart failure. Our key findings are several-fold. First, using an agnostic machine learning approach in a phenome-wide manner, we established the strongest features associated with incident heart failure, which included well-established (eg, coronary artery disease, type 2 diabetes mellitus), previously suggested (eg, obesity, microalbuminuria, anemia), and novel (eg, leg bioimpedance, mean reticulocyte volume) potential risk factors of incident heart failure. Second, we report that leg bioimpedance was inversely associated with incident heart failure, even after taking known risk factors into account in multivariable-adjusted Cox regression models. Third, a multivariable model including leg bioimpedance, age, sex, and self-reported prior myocardial infarction provided accurate prediction of heart failure incidence, highlighting the

**Figure 3.** Spline plot of probability for heart failure hospitalization in relation to leg bioimpedance.

| Model                                      | HR (95% CI) Upper vs Lower Quartile of Leg Bioimpedance | C-Index* | AIC* |
|--------------------------------------------|--------------------------------------------------------|----------|------|
| Age+sex                                    | ---                                                    | 0.76     | 26 241|
| Age+sex+leg bioimpedance                  | 0.60 (0.48–0.73)                                       | 0.80     | 23 531|
| Age+sex+self-reported MI                   | ---                                                    | 0.79     | 25 820|
| Age+sex+self-reported MI+leg bioimpedance  | 0.60 (0.49–0.74)                                       | 0.82     | 23 204|
| Fully adjusted†                            | 0.75 (0.59–0.94)                                       | 0.85     | 21 615|

AIC indicates Akaike Information Criterion; CI, confidence interval; HR, hazard ratio; MI, myocardial infarction.

*Concordance index (C-index) is a measure of discrimination, where higher is better (0.5 is random, 1 indicates perfect discrimination); Akaike Information Criterion (AIC) is a measure of model fit, where lower is better.

†Fully adjusted model includes age, sex, self-reported myocardial infarction, leg bioimpedance, body mass index, systolic blood pressure, diastolic blood pressure, antihypertensive treatment, alcohol consumption, diabetes mellitus, smoking status, prevalent chronic renal failure, and prevalent coronary heart disease.
potential of this simple, noninvasive, and cheap measure for clinical use. Given the simplicity of measurement, leg bioimpedance could potentially be used as a tool for screening in primary care facilities. In addition to independent prospective validation of leg bioimpedance in this setting, its role in established heart failure should be further investigated, especially assessing whether rehospitalizations could be predicted and ultimately prevented by preemptive treatment.

Previous Studies of Bioimpedance and Heart Failure

To our knowledge, this is the largest study of risk factors for heart failure hospitalization, and the only study of bioimpedance in relation to incident heart failure in the general population. There are a few previous studies that have assessed bioimpedance in relation to heart failure decompensation in patients with already established severe heart failure treated with cardiac resynchronization devices or implantable defibrillators, where impedance could be measured using the pacemaker leads. In that setting, decompensation is characterized by a decrease in intrathoracic impedance, indicative of volume overload, well before rehospitalization for congestion.12 There are also a few prior studies of noninvasive impedance measures in patients with established heart failure. In a phase II trial, treatment guided by lung impedance (assessed using external electrodes) reduced heart failure hospitalizations.13 In addition, bioimpedance measures have been suggested as an adjunctive test for patients presenting with dyspnea at the emergency department, to identify heart failure patients when other tests are equivocal.14,15 Whether the information obtained from impedance measures in patients with established heart failure translates into improved outcomes is, however, uncertain.13,16,17

Machine Learning Studies of Heart Failure

In the present study, we employed machine learning techniques to identify novel factors associated with incident heart failure, and then studied these factors (especially the top new marker, leg bioimpedance) in more detail. Machine learning has been employed before in the heart failure setting, but with the primary goal to develop machine learning–based prediction models,18,19 in contrast to the present study, where we proceeded with standard Cox proportional hazards models after the top features had been identified. In a recent study, machine learning algorithms (random forests, gradient boosting machine, and support vector machine) were compared with standard regression models (logistic regression, and Poisson regression) to detect readmission of patients with established heart failure. Although performing better than the standard models, the machine learning models demonstrated only modest discriminatory ability, with a C-index of 0.68 for the best-performing model.18

Another study focused on prediction of new-onset heart failure, as in the present study. Based on electronic health record data in the primary care setting, these models included information on demographics, vital signs, diagnoses, medications, laboratory values, Framingham heart failure signs and symptoms, hospitalizations, and imaging. Although taking a large number of features into account, the best-performing model had a receiver operating characteristic area under the curve of about 0.80.19 In the present study, a simple model including only 4 features (of which leg bioimpedance was one) provided slightly higher discriminatory capacity for incident heart failure, which highlights the strong predictive value of the variables included.

Strengths and Limitations

Strengths of our study include the unprecedented sample size from the general population with consistent assessment of risk factors for heart failure, including leg bioimpedance in >500 000 individuals; the minimal loss-to-follow-up; and our stringent, yet exploratory approach that allowed us to discover leg bioimpedance as a novel risk factor for heart failure in the general population. Our study also has some important limitations. Cardiac-specific biomarkers, especially the natriuretic peptides, which are strongly associated with incident heart failure when screening the general population,20,21 are not available in the UK Biobank. The factors included in our prediction models (Table 3) do not require any blood draw and could be easily assessed and rapidly in a primary care facility using simple and available instruments and self-reported information. However, it would have been interesting both from a mechanistic and predictive standpoint to be able to study leg bioimpedance in relation to, for example, B-type natriuretic peptide. Furthermore, incident heart failure was defined as a diagnosis of heart failure in national registries during follow-up, rather than via review of journal records including echocardiography reports. As a consequence, the etiology of the heart failure, and whether the events represented heart failure with reduced or preserved ejection fraction could not be discerned, and milder heart failure never requiring hospitalization may not have been captured, which, in addition to a possible selection of healthier individuals who chose to participate in the UK Biobank, may explain that the event rate might be slightly lower than expected. Finally, even if the association between leg bioimpedance and incident heart failure was strong also when excluding individuals with any prior cardiovascular diagnoses or self-reported cardiovascular history and risk factors (including self-reported heart failure, which presumably also would capture milder cases of heart failure), reverse
causation is always a possibility in any observational analysis. In this case, we cannot be certain whether the associations are attributable to subclinical heart failure, as impedance changes have been suggested to precede heart failure symptoms, or if this relates to specific biological attributes associated with increased risk of future heart failure. Along the same lines, even if we have adjusted our models for known risk factors for heart failure, there is certainly risk of residual confounding, so any conclusions regarding mechanistic and causal relations between leg bioimpedance and heart failure needs to be studied using other study designs. That said, our finding that leg bioimpedance is strongly associated with incident heart failure with good discrimination and calibration in the general population remains valid regardless of the above limitations.

Conclusions

Leg bioimpedance is inversely associated with incident heart failure in the general population. A model combining leg bioimpedance with self-reported history of myocardial infarction, age, and sex shows high discrimination that may be useful in the clinical setting, provided independent prospective validation.

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SUPPLEMENTAL MATERIAL
Data S1.

Supplemental Methods

Gradient Boosting Machine (GBM)

GBM is a machine learning algorithm that is based on decision trees, to solve a classification or regression problem. In the present case, we aimed to classify individuals as either having heart failure or not. A single decision tree generally does not classify well, but the idea with GBM (and other tree-based methods such as Random Forests) is to combine a large number of different trees. The maximum allowed complexity of a decision tree is often set, i.e. how many splits or how deep a tree is allowed to grow. In the case of GBM, the maximum tree depth is usually low, which provides a so called 'weak learner'. This means that each decision tree provides a small increment in learning. In the present study, we used a maximum tree depth of 3, which is shallow (in practice, a maximum depth is usually set somewhere between 1 and 5 for GBM). If we were to allow for very deep trees, we would get a very good fit to the data at hand, but this would be too good, i.e. the model would be overfitted.

The GBM algorithm was pioneered by Friedman¹, and involves three components:
1. A weak learner (as described above)
2. A loss function, in the case of classification the logarithmic loss (short: logloss) is used.
3. An additive model to add weak learners to minimize the logloss.

A gradient descent procedure is used to minimize the loss function when adding trees. The tree is parameterized, then the parameters of the tree are changed in the direction that reduces the residual loss. The output of each new tree is added to the existing sequence of trees, aiming to improve the final output of the model.

Apart from the maximum tree depth there are other so called tuning parameters. One is the number of trees to fit, in our case 50. Another important parameter is the learning rate. This constant specifies how large impact each tree should have on the final outcome. Lower rates are often associated with robust, generalizable results, whereas high learning rates increase the risk of overfitting.

The model performance in classification is reported as the ROC-AUC, where a value of 0.5 indicates randomness, and 1.0 a perfect discrimination. The classification error, or loss function, is typically logloss. To assure that a model would not overfit, data are often divided into a training set and a validation set. In case there are a large number of observations, an additional validation set is often used. In the present study, we randomly split the data into a training set (60% of the data), a validation set (20%), and a test set (20%).

Typical signs of overfitting would include that discrimination deteriorates substantially and the logloss increases when the model (which was trained in the training set) is applied to the validation set. In our study, the ROC-AUCs were similar in the training, validation, and test sets; 0.79, 0.78, and 0.81; as were the logloss values; 0.0127, 0.0149, 0.0143, i.e. there were reassuringly no signs of overfitting.
Variable importance in each tree is based on how large the reduction in classification error that is achieved through a split based on the variable at hand. This information is then aggregated across all trees to get variable importance in the full GBM model. This measure could be considered a measure of how important each feature is in improving the classification, which then can be ranked as in Figure 1 in the manuscript.

One common problem with some machine learning algorithms is class imbalance, i.e. a substantially lower number of events than non-events. Boosting algorithms, with their iterative change in weighting based on the previously incorrectly classified examples have the potential to handle this imbalance, as rare classes are more error prone, whereby the algorithm will increase the weights of these observations.
Bioimpedance and new onset heart failure: A longitudinal study of ~500,000 individuals from the general population
Daniel Lindholm, MD, PhD; Eri Fukaya, MD, PhD; Nicholas J. Leeper MD; Erik Ingelsson, MD, PhD

Table S1: Variable importance in the GBM model

| Variable                                                                 | Importance      |
|--------------------------------------------------------------------------|-----------------|
| Age heart attack diagnosed                                               | 34.81938553     |
| Number of treatments/medications taken                                   | 29.29693222     |
| Chronic ischaemic heart disease (ICD10: I25)                            | 26.8881588      |
| Diabetes diagnosed by doctor                                             | 20.52134895     |
| Impedance of leg (left)                                                 | 13.89874554     |
| Trunk fat mass                                                           | 12.88663197     |
| Impedance of leg (right)                                                | 10.73295403     |
| Haematocrit percentage                                                  | 10.31356716     |
| Age when diabetes-related eye disease diagnosed                         | 9.755029678     |
| Leg predicted mass (left)                                               | 9.645722389     |
| Overall health rating                                                   | 7.433412075     |
| Cardiomyopathy (ICD10: I42)                                             | 6.974932671     |
| Microalbumin in urine                                                   | 6.832242012     |
| Mean reticulocyte volume                                                | 6.187887192     |
| Age diabetes diagnosed                                                  | 5.830031872     |
| Recent medication for emphysema                                         | 5.435075283     |
| Other serious medical condition/disability diagnosed by doctor          | 5.217849255     |
| Atrial fibrillation and flutter (ICD10: I48)                            | 4.683951378     |
| Body mass index (BMI)                                                   | 4.151173115     |
| Procedure: C82 Destruction of lesion of retina                          | 4.058948994     |
| Weight, manual entry                                                    | 3.822955608     |
| Duration of walks                                                       | 3.805681229     |
| Diseases of spleen (ICD10: D73)                                         | 3.678014755     |
| Bread intake                                                            | 3.411819458     |
| Leg fat percentage (left)                                               | 3.347532749     |
| Waist circumference                                                     | 3.204713821     |
| Financial situation satisfaction                                         | 3.10099295      |
| Impedance of whole body                                                 | 2.982378483     |
| Whole body water mass                                                   | 2.948852062     |
| Complications and ill-defined descriptions of heart disease (ICD10: I51)| 2.483741045     |
| Amyloidosis (ICD10: E85)                                                | 2.377692699     |
| Forced expiratory volume in 1-second (FEV1), Best measure              | 2.295759439     |
| Red blood cell (erythrocyte) count                                       | 2.099164009     |
| Shoulder lesions (ICD10: M75)                                           | 2.09590292      |
| Procedure: J01 Transplantation of liver                                 | 2.058511257     |
| White blood cell (leukocyte) count acquisition time                     | 1.764669895     |
| Whole body fat-free mass                                                | 1.12155664      |
| Hair/balding pattern                                                    | 1.055838466     |
| Variable                                           | Value |
|----------------------------------------------------|-------|
| Number of self-reported cancers                    | 0     |
| Number of self-reported non-cancer illnesses       | 0     |
| Townsend deprivation index at recruitment          | 0     |
| Number of times snap-button pressed                | 0     |
| Duration to first press of snap-button in each round| 0     |
| Average total household income before tax          | 0     |
| Age completed full time education                  | 0     |
| Number of days/week walked 10+ minutes             | 0     |
| Number of days/week of moderate physical activity 10+ minutes | 0 |
| Duration of moderate activity                      | 0     |
| Number of days/week of vigorous physical activity 10+ minutes | 0 |
| Duration of vigorous activity                      | 0     |
| Frequency of stair climbing in last 4 weeks        | 0     |
| Frequency of walking for pleasure in last 4 weeks  | 0     |
| Duration walking for pleasure                      | 0     |
| Frequency of strenuous sports in last 4 weeks      | 0     |
| Duration of strenuous sports                       | 0     |
| Frequency of light DIY in last 4 weeks             | 0     |
| Duration of light DIY                              | 0     |
| Frequency of friend/family visits                  | 0     |
| Time spent watching television (TV)                | 0     |
| Time spent using computer                          | 0     |
| Time spent driving                                 | 0     |
| Drive faster than motorway speed limit             | 0     |
| Sleep duration                                     | 0     |
| Getting up in morning                              | 0     |
| Morning/evening person (chronotype)                | 0     |
| Nap during day                                     | 0     |
| Sleeplessness / insomnia                           | 0     |
| Snoring                                            | 0     |
| Daytime dozing / sleeping (narcolepsy)             | 0     |
| Current tobacco smoking                            | 0     |
| Past tobacco smoking                               | 0     |
| Smoking/smokers in household                       | 0     |
| Exposure to tobacco smoke at home                  | 0     |
| Exposure to tobacco smoke outside home             | 0     |
| Cooked vegetable intake                            | 0     |
| Salad / raw vegetable intake                       | 0     |
| Dried fruit intake                                 | 0     |
| Oily fish intake                                   | 0     |
| Non-oily fish intake                               | 0     |
| Processed meat intake                              | 0     |
| Poultry intake                                     | 0     |
| Lamb/mutton intake                                 | 0     |
Tense / 'highly strung'
Worry too long after embarrassment
Suffer from 'nerves'
Loneliness, isolation
Guilty feelings
Risk taking
Frequency of depressed mood in last 2 weeks
Frequency of tenseness / restlessness in last 2 weeks
Frequency of tiredness / lethargy in last 2 weeks
Seen doctor (GP) for nerves, anxiety, tension or depression
Seen a psychiatrist for nerves, anxiety, tension or depression
Able to confide
Long-standing illness, disability or infirmity
Wears glasses or contact lenses
Age started wearing glasses or contact lenses
Other eye problems
Hearing difficulty/problems
Hearing difficulty/problems with background noise
Falls in the last year
Weight change compared with 1 year ago
Wheeze or whistling in the chest in last year
Chest pain or discomfort
Relative age of first facial hair
Relative age voice broke
Number of children fathered
Had major operations
Cancer diagnosed by doctor
Fractured/broken bones in last 5 years
Taking other prescription medications
Frequency of heavy DIY in last 4 weeks
Duration of heavy DIY
Light smokers, at least 100 smokes in lifetime
Non-butter spread type details
Reason for reducing amount of alcohol drunk
Ever had breast cancer screening / mammogram
Years since last breast cancer screening / mammogram
Ever had cervical smear test
Years since last cervical smear test
Age when periods started (menarche)
Had menopause
Number of live births
Birth weight of first child
Age at first live birth
Age at last live birth
Ever had stillbirth, spontaneous miscarriage or termination 0
Ever taken oral contraceptive pill 0
Age started oral contraceptive pill 0
Age when last used oral contraceptive pill 0
Ever used hormone-replacement therapy (HRT) 0
Age at hysterectomy 0
Bilateral oophorectomy (both ovaries removed) 0
Had other major operations 0
Age started smoking in former smokers 0
Type of tobacco previously smoked 0
Number of cigarettes previously smoked daily 0
Age when last used oral contraceptive pill 0
Age stopped smoking 0
Ever stopped smoking for 6+ months 0
Number of unsuccessful stop-smoking attempts 0
Likelihood of resuming smoking 0
Father’s age 0
General pain for 3+ months 0
Age high blood pressure diagnosed 0
Started insulin within one year diagnosis of diabetes 0
Fracture resulting from simple fall 0
Forced vital capacity (FVC) 0
Forced expiratory volume in 1-second (FEV1) 0
Peak expiratory flow (PEF) 0
Ordering of blows 0
Foot measured for bone density 0
Fractured heel 0
Heel quantitative ultrasound index (QUI), manual entry 0
Heel bone mineral density (BMD), manual entry 0
Heel Broadband ultrasound attenuation (BUA), manual entry 0
Contra-indications for spirometry 0
Caffeine drink within last hour 0
Used an inhaler for chest within last hour 0
Number of measurements made 0
Pregnant 0
Ankle spacing width 0
Heel Broadband ultrasound attenuation, direct entry 0
Heel quantitative ultrasound index (QUI), direct entry 0
Heel bone mineral density (BMD) 0
Smoked cigarette or pipe within last hour 0
Hearing aid user 0
Neck/Shoulder pain for 3+ months 0
Hip pain for 3+ months 0
Age started smoking in current smokers 0
Type of tobacco currently smoked 0
| Question                                                                 | Value |
|------------------------------------------------------------------------|-------|
| Number of cigarettes currently smoked daily (current cigarette smokers)| 0     |
| Time from waking to first cigarette                                   | 0     |
| Difficulty not smoking for 1 day                                       | 0     |
| Ever tried to stop smoking                                            | 0     |
| Wants to stop smoking                                                  | 0     |
| Smoking compared to 10 years previous                                  | 0     |
| Mother's age at death                                                  | 0     |
| Age started hormone-replacement therapy (HRT)                         | 0     |
| Age last used hormone-replacement therapy (HRT)                       | 0     |
| Back pain for 3+ months                                               | 0     |
| Age at menopause (last menstrual period)                              | 0     |
| Ever had hysterectomy (womb removed)                                  | 0     |
| Chest pain or discomfort walking normally                             | 0     |
| Chest pain due to walking ceases when standing still                  | 0     |
| Frequency of other exercises in last 4 weeks                          | 0     |
| Duration of other exercises                                           | 0     |
| Year immigrated to UK (United Kingdom)                                | 0     |
| Age when last ate meat                                                | 0     |
| Time since last menstrual period                                       | 0     |
| Length of menstrual cycle                                             | 0     |
| Menstruating today                                                     | 0     |
| Former alcohol drinker                                                 | 0     |
| Stomach/abdominal pain for 3+ months                                  | 0     |
| Chest pain or discomfort when walking uphill or hurrying              | 0     |
| Age hay fever, rhinitis or eczema diagnosed                           | 0     |
| Knee pain for 3+ months                                               | 0     |
| Age asthma diagnosed                                                   | 0     |
| Headaches for 3+ months                                               | 0     |
| Number of stillbirths                                                  | 0     |
| Number of spontaneous miscarriages                                    | 0     |
| Number of pregnancy terminations                                      | 0     |
| Reason former drinker stopped drinking alcohol                        | 0     |
| Age of primiparous women at birth of child                            | 0     |
| Age at bilateral oophorectomy (both ovaries removed)                  | 0     |
| Adopted father still alive                                            | 0     |
| Adopted mother still alive                                            | 0     |
| Number of adopted brothers                                            | 0     |
| Number of adopted sisters                                             | 0     |
| Age emphysema/chronic bronchitis diagnosed                            | 0     |
| Age deep-vein thrombosis (DVT, blood clot in leg) diagnosed           | 0     |
| Age pulmonary embolism (blood clot in lung) diagnosed                 | 0     |
| Gestational diabetes only                                              | 0     |
| Age stroke diagnosed                                                   | 0     |
| Facial pains for 3+ months                                            | 0     |
Diastolic blood pressure, automated reading
0
Systolic blood pressure, automated reading
0
Heel ultrasound method (left)
0
Fractured heel (left)
0
Heel ultrasound method (right)
0
Fractured heel (right)
0
Ankle spacing width (left)
0
Heel broadband ultrasound attenuation (left)
0
Heel quantitative ultrasound index (QUI), direct entry (left)
0
Heel bone mineral density (BMD) (left)
0
Heel bone mineral density (BMD) T-score, automated (left)
0
Ankle spacing width (right)
0
Heel broadband ultrasound attenuation (right)
0
Heel quantitative ultrasound index (QUI), direct entry (right)
0
Heel bone mineral density (BMD) (right)
0
Heel bone mineral density (BMD) T-score, automated (right)
0
Heel bone mineral density (BMD) T-score, manual entry (left)
0
Heel bone mineral density (BMD), manual entry (left)
0
Heel broadband ultrasound attenuation (QUI), manual entry (left)
0
Heel bone mineral density (BMD), manual entry (right)
0
Heel bone mineral density (BMD), T-score, manual entry (left)
0
Heel bone mineral density (BMD), T-score, manual entry (right)
0
Heel broadband ultrasound attenuation (QUI), manual entry (right)
0
Heel bone mineral density (BMD), manual entry (right)
0
Stiffness method
0
Pulse rate
0
Pulse wave reflection index
0
Pulse wave peak to peak time
0
Pulse wave velocity (manual entry)
0
Number entered by participant
0
Digits entered correctly
0
Completion status (left)
0
Number of triplets attempted (left)
0
Volume level set by participant (left)
0
Completion status (right)
0
Number of triplets attempted (right)
0
Volume level set by participant (right)
0
Completion status of numeric memory test
0
Maximum digits remembered correctly
0
Test completion status
0
Time to answer
0
Duration screen displayed
0
Number of attempts
0
PM: initial answer
0
PM: final answer
Final attempt correct
History of attempts
Average monthly red wine intake
Average monthly champagne plus white wine intake
Average monthly beer plus cider intake
Average monthly spirits intake
Average monthly fortified wine intake
Average monthly intake of other alcoholic drinks
Non-accidental death in close genetic family
Happiness
Work/job satisfaction
Health satisfaction
Family relationship satisfaction
Friendships satisfaction
Ever depressed for a whole week
Longest period of depression
Number of depression episodes
Ever unenthusiastic/disinterested for a whole week
Ever manic/hyper for 2 days
Ever highly irritable/argumentative for 2 days
Age glaucoma diagnosed
Age cataract diagnosed
Shortness of breath walking on level ground
Leg pain on walking
Cochlear implant
Tinnitus
Tinnitus severity/nuisance
Noisy workplace
Loud music exposure frequency
Hearing test done
Attempted fluid intelligence (FI) test.
FI1: numeric addition test
FI2: identify largest number
FI3: word interpolation
FI4: positional arithmetic
FI5: family relationship calculation
FI6: conditional arithmetic
FI7: synonym
FI8: chained arithmetic
Number of older siblings
Spherical power (right)
Spherical power (left)
Cylindrical power (left)
| Parameter                                      | Value  |
|-----------------------------------------------|--------|
| Cylindrical power (right)                     | 0      |
| Astigmatism angle (right)                     | 0      |
| Astigmatism angle (left)                      | 0      |
| Refractometry result unreliable (left)        | 0      |
| Refractometry result unreliable (right)       | 0      |
| 3mm weak meridian (left)                      | 0      |
| 6mm weak meridian (left)                      | 0      |
| 6mm weak meridian (right)                     | 0      |
| 3mm weak meridian (right)                     | 0      |
| 3mm weak meridian angle (right)               | 0      |
| 6mm weak meridian angle (right)               | 0      |
| 6mm weak meridian angle (left)                | 0      |
| 3mm weak meridian angle (left)                | 0      |
| 6mm strong meridian angle (left)              | 0      |
| 6mm strong meridian angle (right)             | 0      |
| 3mm strong meridian angle (right)             | 0      |
| 3mm strong meridian angle (left)              | 0      |
| 6mm strong meridian angle (left)              | 0      |
| 3mm strong meridian angle (right)             | 0      |
| 6mm strong meridian angle (right)             | 0      |
| 3mm strong meridian angle (left)              | 0      |
| 6mm strong meridian angle (left)              | 0      |
| 3mm weak meridian (left)                      | 0      |
| 6mm weak meridian (left)                      | 0      |
| 6mm weak meridian (right)                     | 0      |
| 3mm weak meridian (right)                     | 0      |
| 3mm weak meridian angle (right)               | 0      |
| 6mm weak meridian angle (right)               | 0      |
| 6mm weak meridian angle (left)                | 0      |
| 3mm weak meridian angle (left)                | 0      |
| 6mm strong meridian angle (left)              | 0      |
| 6mm strong meridian angle (right)             | 0      |
| 3mm strong meridian angle (right)             | 0      |
| 3mm strong meridian angle (left)              | 0      |
| 6mm strong meridian angle (left)              | 0      |
| 3mm weak meridian angle (right)               | 0      |
| 6mm weak meridian angle (right)               | 0      |
| 6mm weak meridian angle (left)                | 0      |
| 3mm weak meridian angle (left)                | 0      |
| 6mm strong meridian angle (left)              | 0      |
| 6mm strong meridian angle (right)             | 0      |
| 3mm strong meridian angle (right)             | 0      |
| 3mm strong meridian angle (left)              | 0      |
| 6mm strong meridian angle (left)              | 0      |
| 3mm weak meridian angle (left)                | 0      |
| 6mm weak meridian angle (left)                | 0      |
| 6mm weak meridian angle (right)               | 0      |
| 3mm weak meridian angle (right)               | 0      |
| 3mm weak meridian angle (left)                | 0      |
| 6mm weak meridian angle (left)                | 0      |
| 6mm strong meridian angle (left)              | 0      |
| 6mm strong meridian angle (right)             | 0      |
| 3mm strong meridian angle (right)             | 0      |
| 3mm weak meridian angle (left)                | 0      |
| 6mm weak meridian angle (left)                | 0      |
| 6mm weak meridian angle (right)               | 0      |
| 3mm weak meridian angle (right)               | 0      |
| 3mm weak meridian angle (left)                | 0      |
| 6mm weak meridian angle (left)                | 0      |
| 6mm strong meridian angle (left)              | 0      |
| 6mm strong meridian angle (right)             | 0      |
| 3mm strong meridian angle (right)             | 0      |
| 3mm strong meridian angle (left)              | 0      |
| 6mm strong meridian angle (left)              | 0      |
| 3mm weak meridian angle (left)                | 0      |
| 6mm weak meridian angle (left)                | 0      |
| 6mm weak meridian angle (right)               | 0      |
| 3mm weak meridian angle (right)               | 0      |
| 3mm weak meridian angle (left)                | 0      |
| 6mm weak meridian angle (left)                | 0      |
| 6mm strong meridian angle (left)              | 0      |
| 6mm strong meridian angle (right)             | 0      |
| 3mm strong meridian angle (right)             | 0      |
| 3mm weak meridian angle (left)                | 0      |
| 6mm weak meridian angle (left)                | 0      |
| 6mm weak meridian angle (right)               | 0      |
| 3mm weak meridian angle (right)               | 0      |
| 3mm weak meridian angle (left)                | 0      |
| Measure                                                                 | Right          | Left           |
|-----------------------------------------------------------------------|----------------|----------------|
| 3mm regularity index unreliable (left)                                 | 0              | 0              |
| 3mm regularity index for irregular astigmatism level (left)           | 0              | 0              |
| 3mm asymmetry index for irregular astigmatism level (right)           | 0              | 0              |
| 3mm asymmetry index for irregular astigmatism level (left)            | 0              | 0              |
| 3mm asymmetry index (left)                                            | 0              | 0              |
| 6mm asymmetry index (left)                                            | 0              | 0              |
| 3mm asymmetry index (right)                                           | 0              | 0              |
| 3mm regularity index (right)                                          | 0              | 0              |
| 6mm regularity index (right)                                          | 0              | 0              |
| 6mm regularity index (left)                                           | 0              | 0              |
| 3mm regularity index (left)                                           | 0              | 0              |
| 3mm regularity index for irregular astigmatism level (right)          | 0              | 0              |
| Ever had eye surgery                                                  | 0              | 0              |
| Both eyes present                                                     | 0              | 0              |
| Current eye infection                                                 | 0              | 0              |
| Visual acuity measured (right)                                        | 0              | 0              |
| Visual acuity measured (left)                                         | 0              | 0              |
| Auto-refraction method (right)                                        | 0              | 0              |
| Auto-refraction method (left)                                         | 0              | 0              |
| Intra-ocular pressure (IOP) method (right)                            | 0              | 0              |
| Intra-ocular pressure (IOP) method (left)                            | 0              | 0              |
| logMAR, final (right)                                                 | 0              | 0              |
| logMAR, final (left)                                                  | 0              | 0              |
| Index of best refractometry result (right)                            | 0              | 0              |
| 3mm index of best keratometry results (right)                         | 0              | 0              |
| 6mm index of best keratometry results (right)                         | 0              | 0              |
| Intra-ocular pressure, corneal-compensated (right)                   | 0              | 0              |
| Intra-ocular pressure, Goldmann-correlated (right)                   | 0              | 0              |
| Corneal hysteresis (right)                                            | 0              | 0              |
| Corneal resistance factor (right)                                     | 0              | 0              |
| Intra-ocular pressure, corneal-compensated (left)                    | 0              | 0              |
| Intra-ocular pressure, Goldmann-correlated (left)                    | 0              | 0              |
| Corneal hysteresis (left)                                             | 0              | 0              |
| Corneal resistance factor (left)                                      | 0              | 0              |
| Vertex distance (left)                                                | 0              | 0              |
| Index of best refractometry result (left)                            | 0              | 0              |
| 3mm index of best keratometry results (left)                          | 0              | 0              |
| 6mm index of best keratometry results (left)                          | 0              | 0              |
| Ever had cataract surgery                                             | 0              | 0              |
| Ever had refractive laser eye surgery                                 | 0              | 0              |
| Ever had surgery for glaucoma or high eye pressure                    | 0              | 0              |
| Ever had laser treatment for glaucoma or high eye pressure            | 0              | 0              |
| Ever had corneal graft surgery                                        | 0              | 0              |
| Question                                                                 | Value |
|-------------------------------------------------------------------------|-------|
| Average weekly intake of other alcoholic drinks                        | 0     |
| Longest period of unenthusiasm/disinterest                              | 0     |
| Number of unenthusiastic/disinterested episodes                        | 0     |
| Which eye(s) affected by amblyopia (lazy eye)                          | 0     |
| Which eye(s) affected by injury or trauma resulting in loss of vision  | 0     |
| Age when loss of vision due to injury or trauma diagnosed               | 0     |
| Which eye(s) are affected by cataract                                   | 0     |
| Leg pain when standing still or sitting                                | 0     |
| Leg pain in calf/calves                                                 | 0     |
| Leg pain when walking uphill or hurrying                               | 0     |
| Leg pain when walking normally                                         | 0     |
| Leg pain when walking ever disappears while walking                     | 0     |
| Leg pain on walking: action taken                                       | 0     |
| Leg pain on walking: effect of standing still                          | 0     |
| Surgery on leg arteries (other than for varicose veins)                 | 0     |
| Surgery/amputation of toe or leg                                       | 0     |
| FI9: concept interpolation                                             | 0     |
| Which eye(s) affected by presbyopia                                     | 0     |
| Length of longest manic/irritable episode                              | 0     |
| Severity of manic/irritable episodes                                   | 0     |
| FI10: arithmetic sequence recognition                                   | 0     |
| FI11: antonym                                                           | 0     |
| FI12: square sequence recognition                                      | 0     |
| Which eye(s) affected by hypermetropia (long sight)                    | 0     |
| Which eye(s) affected by myopia (short sight)                          | 0     |
| Which eye(s) affected by astigmatism                                   | 0     |
| FI13: subset inclusion logic                                           | 0     |
| Which eye(s) affected by other eye condition                           | 0     |
| Which eye(s) affected by diabetes-related eye disease                  | 0     |
| Which eye(s) affected by macular degeneration                          | 0     |
| Age macular degeneration diagnosed                                     | 0     |
| Which eye(s) affected by other serious eye condition                   | 0     |
| Age other serious eye condition diagnosed                               | 0     |
| Previously smoked cigarettes on most/all days                          | 0     |
| ECG, heart rate                                                         | 0     |
| ECG, phase time                                                         | 0     |
| ECG, trend phase name                                                  | 0     |
| ECG, stage name                                                         | 0     |
| ECG, phase name                                                         | 0     |
| ECG, phase duration                                                     | 0     |
| ECG, number of stages in a phase                                       | 0     |
| Doctor restricts physical activity due to heart condition               | 0     |
| Chest pain felt during physical activity                               | 0     |
| Chest pain felt outside physical activity                              | 0     |
| Question                                                                 | Code |
|-------------------------------------------------------------------------|------|
| Able to walk or cycle unaided for 10 minutes                            | 0    |
| ECG/bike method for fitness test                                        | 0    |
| Completion status of test                                               | 0    |
| Program category                                                        | 0    |
| Maximum workload during fitness test                                    | 0    |
| Maximum heart rate during fitness test                                  | 0    |
| Target heart rate achieved                                              | 0    |
| Number of trend entries                                                 | 0    |
| Duration of fitness test                                                | 0    |
| OCT measured (right)                                                    | 0    |
| OCT measured (left)                                                     | 0    |
| Glasses worn/required (right)                                            | 0    |
| Glasses worn/required (left)                                             | 0    |
| Which eye(s) affected by glaucoma                                        | 0    |
| Qualifications                                                          | 0    |
| Never eat eggs, dairy, wheat, sugar                                     | 0    |
| Illness, injury, bereavement, stress in last 2 years                    | 0    |
| Reason for glasses/contact lenses                                       | 0    |
| Eye problems/disorders                                                  | 0    |
| Mouth/teeth dental problems                                             | 0    |
| Vascular/heart problems diagnosed by doctor                             | 0    |
| Fractured bone site(s)                                                  | 0    |
| Blood clot, DVT, bronchitis, emphysema, asthma, rhinitis, eczema, allergy diagnosed by doctor | 0 |
| Medication for cholesterol, blood pressure, diabetes, or take exogenous hormones | 0 |
| Medication for pain relief, constipation, heartburn                      | 0    |
| Vitamin and mineral supplements                                          | 0    |
| Manic/hyper symptoms                                                    | 0    |
| Why stopped smoking                                                     | 0    |
| Why reduced smoking                                                     | 0    |
| Pain type(s) experienced in last month                                  | 0    |
| Leisure/social activities                                               | 0    |
| Types of transport used (excluding work)                                | 0    |
| Types of physical activity in last 4 weeks                              | 0    |
| Medication for cholesterol, blood pressure or diabetes                  | 0    |
| Mineral and other dietary supplements                                   | 0    |
| Number of cigarettes previously smoked daily (current cigar/pipe smokers)| 0    |
| Age stopped smoking cigarettes (current cigar/pipe or previous cigarette smoker) | 0 |
| Which eye(s) affected by strabismus (squint)                            | 0    |
| Medication for pain relief, constipation, heartburn (pilot)             | 0    |
| Medication for smoking cessation, constipation, heartburn, allergies (pilot) | 0 |
| Mouth/teeth dental problems (pilot)                                     | 0    |
| Vitamin and mineral supplements (pilot)                                 | 0    |
| Why stopped smoking (pilot)                                             | 0    |
| Type of progestan-only oral contraceptive used (pilot)                  | 0    |
Number of times snap-button pressed (pilot) 0
Duration to first press of snap-button in each round (pilot) 0
Words answer array (pilot) 0
Word count (pilot) 0
Number of words beginning with 'S' (pilot) 0
Spirometry method (pilot) 0
Illness, injury, bereavement, stress in last 2 years (pilot) 0
Qualifications (pilot) 0
Vitamin supplements (pilot) 0
Frequency of friend/family visits (pilot) 0
Spread type (pilot) 0
Bread type/intake (pilot) 0
Hearing difficulty/problems (pilot) 0
Reason for reducing amount of alcohol drunk (pilot) 0
Ever stopped smoking for 6+ months (pilot) 0
Gestational diabetes only (pilot) 0
Reason former drinker stopped drinking alcohol (pilot) 0
Other dietary supplements (pilot) 0
Never eat eggs, dairy, wheat, sugar (pilot) 0
Average total household income before tax (pilot) 0
Light smokers, at least 100 smokes in lifetime (pilot) 0
Variation in diet (pilot) 0
Duration of walks (pilot) 0
Duration of moderate physical activity (pilot) 0
Duration of vigorous physical activity (pilot) 0
Cancer code, self-reported 0
Non-cancer illness code, self-reported 0
Treatment/medication code 0
Interpolated Year when cancer first diagnosed 0
Interpolated Age of participant when cancer first diagnosed 0
Interpolated Year when non-cancer illness first diagnosed 0
Interpolated Age of participant when non-cancer illness first diagnosed 0
Method of recording time when cancer first diagnosed 0
Method of recording time when non-cancer illness first diagnosed 0
Sitting height 0
Fluid intelligence score 0
Prospective memory result 0
Speech-reception-threshold (SRT) estimate (left) 0
Speech-reception-threshold (SRT) estimate (right) 0
Birth weight 0
Mean time to correctly identify matches 0
Job code - deduced 0
Reason for skipping spirometry 0
Reason for skipping grip strength (right) 0
Reason for skipping grip strength (left)
Reason for skipping waist
Reason for skipping hip measurement
Reason for skipping standing height
Reason for skipping sitting height
Reason for skipping arterial stiffness
Reason for skipping refractometry (left)
Reason for skipping IOP (right)
Reason for skipping IOP (left)
Reason for skipping refractometry (right)
Reason for skipping visual acuity (right)
Reason for skipping visual acuity (left)
Reason for skipping ECG
Reason ECG not completed
Reason at-rest ECG performed without bicycle
Reason for skipping OCT (right)
Reason for skipping OCT (left)
Illnesses of father
Illnesses of mother
Illnesses of siblings
Illnesses of adopted father
Illnesses of adopted mother
Illnesses of adopted siblings
Country of Birth (non-UK origin)
Smoking status
Alcohol drinker status
Cascot confidence score
Bipolar disorder status
Bipolar and major depression status
Neuroticism score
Number of fluid intelligence questions attempted within time limit
Number of correct matches in round
Number of incorrect matches in round
Time to complete round
Reproducibility of spirometry measurement using ERS/ATS criteria
Forced expiratory volume in 1-second (FEV1), predicted
Forced expiratory volume in 1-second (FEV1), predicted percentage
Duration to complete numeric path (trail #1)
Duration to complete alphanumeric path (trail #2)
Number of symbol digit matches made correctly
Ever smoked
FI1 : numeric addition test
FI2 : identify largest number
FI3 : word interpolation
Fluid intelligence score
Number of symbol digit matches attempted
Code array presented
Value entered
Duration to entering value
Maximum digits remembered correctly
Fluid intelligence completion status
Pairs matching completion status
Symbol digit completion status
Trail making completion status
Total errors traversing numeric path (trail #1)
Total errors traversing alphanumeric path (trail #2)
Ethnic background
Weight
Age when attended assessment centre
Pulse wave Arterial Stiffness index
Age at recruitment
Doctor diagnosed hayfever or allergic rhinitis
Doctor diagnosed asthma
Doctor diagnosed emphysema
Doctor diagnosed chronic bronchitis
Doctor diagnosed COPD (chronic obstructive pulmonary disease)
Doctor diagnosed cystic fibrosis
Doctor diagnosed alpha-1 antitrypsin deficiency
Doctor diagnosed sarcoidosis
Doctor diagnosed bronchiectasis
Doctor diagnosed idiopathic pulmonary fibrosis
Doctor diagnosed fibrosing alveolitis/ unspecified alveolitis
Doctor diagnosed tuberculosis
Doctor diagnosed silicosis
Doctor diagnosed asbestosis
Doctor diagnosed lung cancer (not mesothelioma)
Doctor diagnosed mesothelioma of the lung
| Category                                                                 | Value |
|------------------------------------------------------------------------|-------|
| Age hayfever or allergic rhinitis diagnosed by doctor                  | 0     |
| Age asthma diagnosed by doctor                                         | 0     |
| Age emphysema diagnosed by doctor                                      | 0     |
| Age chronic bronchitis diagnosed by doctor                             | 0     |
| Age COPD (Chronic Obstructive Pulmonary Disease) diagnosed by doctor   | 0     |
| Age cystic fibrosis diagnosed by doctor                                | 0     |
| Age alpha-1 antitrypsin deficiency diagnosed by doctor                 | 0     |
| Age sarcoidosis diagnosed by doctor                                    | 0     |
| Age bronchiectasis diagnosed by doctor                                 | 0     |
| Age idiopathic pulmonary fibrosis diagnosed by doctor                  | 0     |
| Age fibrosing alveolitis/unspecified alveolitis diagnosed by doctor     | 0     |
| Age tuberculosis diagnosed by doctor                                   | 0     |
| Age silicosis diagnosed by doctor                                      | 0     |
| Age asbestosis diagnosed by doctor                                     | 0     |
| Age lung cancer (not mesothelioma) diagnosed by doctor                 | 0     |
| Age mesothelioma of the lung diagnosed by doctor                       | 0     |
| Recent medication for hayfever or allergic rhinitis                    | 0     |
| Recent medication for asthma                                           | 0     |
| Recent medication for chronic bronchitis                               | 0     |
| Recent medication for COPD (Chronic Obstructive Pulmonary Disease)     | 0     |
| Recent medication for cystic fibrosis                                  | 0     |
| Recent medication for alpha-1 antitrypsin deficiency                   | 0     |
| Recent medication for sarcoidosis                                      | 0     |
| Recent medication for bronchiectasis                                   | 0     |
| Recent medication for idiopathic pulmonary fibrosis                    | 0     |
| Recent medication for fibrosing alveolitis/unspecified alveolitis      | 0     |
| Recent medication for tuberculosis                                     | 0     |
| Recent medication for asbestosis                                       | 0     |
| Recent medication for lung cancer (not mesothelioma)                   | 0     |
| Recent medication for mesothelioma of the lung                         | 0     |
| Cough on most days                                                     | 0     |
| Years of cough on most days                                            | 0     |
| Bring up phlegm/sputum/mucus on most days                              | 0     |
| Years of bringing up phlegm/sputum/mucus on most days                  | 0     |
| Tobacco smoking                                                        | 0     |
| Age of stopping smoking                                                | 0     |
| Amount of tobacco currently smoked                                      | 0     |
| Minimum carotid IMT (intima-medial thickness) at 120 degrees           | 0     |
| Mean carotid IMT (intima-medial thickness) at 120 degrees              | 0     |
| Maximum carotid IMT (intima-medial thickness) at 120 degrees           | 0     |
| Minimum carotid IMT (intima-medial thickness) at 150 degrees           | 0     |
| Mean carotid IMT (intima-medial thickness) at 150 degrees              | 0     |
| Maximum carotid IMT (intima-medial thickness) at 150 degrees           | 0     |
| Minimum carotid IMT (intima-medial thickness) at 210 degrees           | 0     |
| Measurement                                             | Value |
|---------------------------------------------------------|-------|
| Mean carotid IMT (intima-medial thickness) at 210 degrees | 0     |
| Maximum carotid IMT (intima-medial thickness) at 210 degrees | 0     |
| Minimum carotid IMT (intima-medial thickness) at 240 degrees | 0     |
| Mean carotid IMT (intima-medial thickness) at 240 degrees | 0     |
| Maximum carotid IMT (intima-medial thickness) at 240 degrees | 0     |
| Quality control indicator for IMT at 120 degrees        | 0     |
| Quality control indicator for IMT at 150 degrees         | 0     |
| Quality control indicator for IMT at 210 degrees         | 0     |
| Quality control indicator for IMT at 240 degrees         | 0     |
| Weight                                                  | 0     |
| Body fat percentage                                     | 0     |
| Whole body fat mass                                      | 0     |
| Body mass index (BMI)                                    | 0     |
| Basal metabolic rate                                     | 0     |
| Impedance of arm (right)                                | 0     |
| Impedance of arm (left)                                 | 0     |
| Leg fat percentage (right)                              | 0     |
| Leg fat mass (right)                                     | 0     |
| Leg fat-free mass (right)                               | 0     |
| Leg predicted mass (right)                              | 0     |
| Leg fat mass (left)                                      | 0     |
| Leg fat-free mass (left)                                | 0     |
| Arm fat percentage (right)                              | 0     |
| Arm fat mass (right)                                     | 0     |
| Arm fat-free mass (right)                               | 0     |
| Arm predicted mass (right)                              | 0     |
| Arm fat percentage (left)                               | 0     |
| Arm fat mass (left)                                      | 0     |
| Arm fat-free mass (left)                                | 0     |
| Arm predicted mass (left)                               | 0     |
| Trunk fat percentage                                     | 0     |
| Trunk fat-free mass                                      | 0     |
| Trunk predicted mass                                     | 0     |
| White blood cell (leukocyte) count                      | 0     |
| White blood cell (leukocyte) count device ID            | 0     |
| White blood cell (leukocyte) count acquisition route    | 0     |
| Red blood cell (erythrocyte) count device ID            | 0     |
| Red blood cell (erythrocyte) count acquisition route    | 0     |
| Haemoglobin concentration                               | 0     |
| Haemoglobin concentration device ID                     | 0     |
| Haemoglobin concentration acquisition route             | 0     |
| Haematocrit percentage device ID                        | 0     |
| Haematocrit percentage device ID                        | 0     |
| Haematocrit percentage acquisition route                | 0     |
| Mean corpuscular volume                                 | 0     |
| Parameter                                      | Device ID | Acquisition Route |
|-----------------------------------------------|-----------|-------------------|
| Mean corpuscular volume device ID             | 0         | 0                 |
| Mean corpuscular volume acquisition route     | 0         | 0                 |
| Mean corpuscular haemoglobin                  | 0         | 0                 |
| Mean corpuscular haemoglobin device ID        | 0         | 0                 |
| Mean corpuscular haemoglobin acquisition route| 0         | 0                 |
| Mean corpuscular haemoglobin concentration    | 0         | 0                 |
| Mean corpuscular haemoglobin concentration device ID | 0   | 0                 |
| Mean corpuscular haemoglobin concentration acquisition route | 0   | 0                 |
| Red blood cell (erythrocyte) distribution width device ID | 0   | 0                 |
| Red blood cell (erythrocyte) distribution width acquisition route | 0   | 0                 |
| Platelet count                                | 0         | 0                 |
| Platelet count device ID                      | 0         | 0                 |
| Platelet count acquisition route              | 0         | 0                 |
| Platelet crit                                 | 0         | 0                 |
| Platelet crit device ID                       | 0         | 0                 |
| Platelet crit acquisition route               | 0         | 0                 |
| Mean platelet (thrombocyte) volume            | 0         | 0                 |
| Mean platelet (thrombocyte) volume device ID  | 0         | 0                 |
| Mean platelet (thrombocyte) volume acquisition route | 0   | 0                 |
| Platelet distribution width                   | 0         | 0                 |
| Platelet distribution width device ID         | 0         | 0                 |
| Platelet distribution width acquisition route | 0         | 0                 |
| Lymphocyte count                              | 0         | 0                 |
| Lymphocyte count device ID                    | 0         | 0                 |
| Lymphocyte count acquisition route            | 0         | 0                 |
| Monocyte count                                | 0         | 0                 |
| Monocyte count device ID                      | 0         | 0                 |
| Monocyte count acquisition route              | 0         | 0                 |
| Neutrophil count                              | 0         | 0                 |
| Neutrophil count device ID                    | 0         | 0                 |
| Neutrophil count acquisition route            | 0         | 0                 |
| Eosinophil count                              | 0         | 0                 |
| Eosinophil count device ID                    | 0         | 0                 |
| Eosinophil count acquisition route            | 0         | 0                 |
| Basophil count                                | 0         | 0                 |
| Basophil count device ID                      | 0         | 0                 |
| Basophil count acquisition route              | 0         | 0                 |
| Nucleated red blood cell count                | 0         | 0                 |
| Nucleated red blood cell count device ID      | 0         | 0                 |
| Nucleated red blood cell count acquisition route | 0   | 0                 |
| Lymphocyte percentage                         | 0         | 0                 |
| Lymphocyte percentage device ID               | 0         | 0                 |
| Lymphocyte percentage acquisition route       | 0         | 0                 |
| Parameter                                      | Value |
|-----------------------------------------------|-------|
| Monocyte percentage                           | 0     |
| Monocyte percentage device ID                 | 0     |
| Monocyte percentage acquisition route         | 0     |
| Neutrophil percentage                         | 0     |
| Neutrophil percentage device ID               | 0     |
| Neutrophil percentage acquisition route       | 0     |
| Eosinophil percentage                         | 0     |
| Eosinophil percentage device ID               | 0     |
| Eosinophil percentage acquisition route       | 0     |
| Basophil percentage                           | 0     |
| Basophil percentage device ID                 | 0     |
| Basophil percentage acquisition route         | 0     |
| Nucleated red blood cell percentage           | 0     |
| Nucleated red blood cell percentage device ID | 0     |
| Nucleated red blood cell percentage acquisition route | 0 |
| Reticulocyte percentage                       | 0     |
| Reticulocyte percentage device ID             | 0     |
| Reticulocyte percentage acquisition route     | 0     |
| Reticulocyte count                            | 0     |
| Reticulocyte count device ID                  | 0     |
| Reticulocyte count acquisition route          | 0     |
| Mean reticulocyte volume device ID            | 0     |
| Mean reticulocyte volume acquisition route    | 0     |
| Mean spherated cell volume                    | 0     |
| Mean spherated cell volume device ID          | 0     |
| Mean spherated cell volume acquisition route  | 0     |
| Immature reticulocyte fraction                | 0     |
| Immature reticulocyte fraction device ID      | 0     |
| Immature reticulocyte fraction acquisition route | 0 |
| High light scatter reticulocyte percentage    | 0     |
| High light scatter reticulocyte percentage device ID | 0 |
| High light scatter reticulocyte percentage acquisition route | 0 |
| High light scatter reticulocyte count         | 0     |
| High light scatter reticulocyte count device ID | 0 |
| High light scatter reticulocyte count acquisition route | 0 |
| Acceleration data - cwa format                | 0     |
| Data problem indicator                        | 0     |
| Overall acceleration average                  | 0     |
| Standard deviation of acceleration            | 0     |
| Data quality, good wear time                  | 0     |
| Data quality, good calibration                | 0     |
| Data quality, calibrated on own data          | 0     |
| Daylight savings crossover                    | 0     |
| Monday average acceleration                   | 0     |
| Day                  | Average Acceleration |
|---------------------|----------------------|
| Tuesday             | 0                    |
| Wednesday           | 0                    |
| Thursday            | 0                    |
| Friday              | 0                    |
| Saturday            | 0                    |
| Sunday              | 0                    |
| First weekday of wear | 0                |

| Time Period          | Average Acceleration |
|----------------------|----------------------|
| 00:00 - 00:59        | 0                    |
| 01:00 - 01:59        | 0                    |
| 02:00 - 02:59        | 0                    |
| 03:00 - 03:59        | 0                    |
| 04:00 - 04:59        | 0                    |
| 05:00 - 05:59        | 0                    |
| 06:00 - 06:59        | 0                    |
| 07:00 - 07:59        | 0                    |
| 08:00 - 08:59        | 0                    |
| 09:00 - 09:59        | 0                    |
| 10:00 - 10:59        | 0                    |
| 11:00 - 11:59        | 0                    |
| 12:00 - 12:59        | 0                    |
| 13:00 - 13:59        | 0                    |
| 14:00 - 14:59        | 0                    |
| 15:00 - 15:59        | 0                    |
| 16:00 - 16:59        | 0                    |
| 17:00 - 17:59        | 0                    |
| 18:00 - 18:59        | 0                    |
| 19:00 - 19:59        | 0                    |
| 20:00 - 20:59        | 0                    |
| 21:00 - 21:59        | 0                    |
| 22:00 - 22:59        | 0                    |
| 23:00 - 23:59        | 0                    |

| Wear Duration Overall | 0 |
| Non Wear Duration Overall | 0 |
| Wear duration during Monday | 0 |
| Wear duration during Tuesday | 0 |
| Wear duration during Wednesday | 0 |
| Wear duration during Thursday | 0 |
| Wear duration during Friday | 0 |
| Wear duration during Saturday | 0 |
| Wear duration during Sunday | 0 |
| Wear duration during 00:00 - 00:59 | 0 |
| Wear duration during 01:00 - 01:59 | 0 |
| Wear duration during 02:00 - 02:59 | 0 |
| Wear duration during 03:00 - 03:59 | 0 |
| Wear duration during     | 0 |
|-------------------------|---|
| 04:00 - 04:59           | 0 |
| 05:00 - 05:59           | 0 |
| 06:00 - 06:59           | 0 |
| 07:00 - 07:59           | 0 |
| 08:00 - 08:59           | 0 |
| 09:00 - 09:59           | 0 |
| 10:00 - 10:59           | 0 |
| 11:00 - 11:59           | 0 |
| 12:00 - 12:59           | 0 |
| 13:00 - 13:59           | 0 |
| 14:00 - 14:59           | 0 |
| 15:00 - 15:59           | 0 |
| 16:00 - 16:59           | 0 |
| 17:00 - 17:59           | 0 |
| 18:00 - 18:59           | 0 |
| 19:00 - 19:59           | 0 |
| 20:00 - 20:59           | 0 |
| 21:00 - 21:59           | 0 |
| 22:00 - 22:59           | 0 |
| 23:00 - 23:59           | 0 |

Unique hours of wear in a 24 hour cycle (scattered over multiple days) 0
Unique minutes of wear in a 24 hour cycle (scattered over multiple days) 0
Non wear episodes over 1 hour duration 0
No-wear time bias adjusted average acceleration 0
No-wear time bias adjusted acceleration standard deviation 0
No-wear time bias adjusted acceleration median 0
No-wear time bias adjusted acceleration minimum 0
No-wear time bias adjusted acceleration maximum 0
Fraction acceleration <= 1 milli-gravities 0
Fraction acceleration <= 2 milli-gravities 0
Fraction acceleration <= 3 milli-gravities 0
Fraction acceleration <= 4 milli-gravities 0
Fraction acceleration <= 5 milli-gravities 0
Fraction acceleration <= 6 milli-gravities 0
Fraction acceleration <= 7 milli-gravities 0
Fraction acceleration <= 8 milli-gravities 0
Fraction acceleration <= 9 milli-gravities 0
Fraction acceleration <= 10 milli-gravities 0
Fraction acceleration <= 11 milli-gravities 0
Fraction acceleration <= 12 milli-gravities 0
Fraction acceleration <= 13 milli-gravities 0
Fraction acceleration <= 14 milli-gravities 0
Fraction acceleration <= 15 milli-gravities 0
Fraction acceleration <= 16 milli-gravities 0
| Acceleration (milli-gravities) | Count |
|-------------------------------|-------|
| <= 17                         | 0     |
| <= 18                         | 0     |
| <= 19                         | 0     |
| <= 20                         | 0     |
| <= 25                         | 0     |
| <= 30                         | 0     |
| <= 35                         | 0     |
| <= 40                         | 0     |
| <= 45                         | 0     |
| <= 50                         | 0     |
| <= 55                         | 0     |
| <= 60                         | 0     |
| <= 65                         | 0     |
| <= 70                         | 0     |
| <= 75                         | 0     |
| <= 80                         | 0     |
| <= 85                         | 0     |
| <= 90                         | 0     |
| <= 95                         | 0     |
| <= 100                        | 0     |
| <= 125                        | 0     |
| <= 150                        | 0     |
| <= 175                        | 0     |
| <= 200                        | 0     |
| <= 225                        | 0     |
| <= 250                        | 0     |
| <= 275                        | 0     |
| <= 300                        | 0     |
| <= 325                        | 0     |
| <= 350                        | 0     |
| <= 375                        | 0     |
| <= 400                        | 0     |
| <= 425                        | 0     |
| <= 450                        | 0     |
| <= 475                        | 0     |
| <= 500                        | 0     |
| <= 600                        | 0     |
| <= 700                        | 0     |
| <= 800                        | 0     |
| <= 900                        | 0     |
| <= 1000                       | 0     |
| <= 1100                       | 0     |
| <= 1200                       | 0     |
| <= 1300                       | 0     |
| Fraction acceleration <= 1400 milli-gravities | 0 |
|-----------------------------------------------|---|
| Fraction acceleration <= 1500 milli-gravities | 0 |
| Fraction acceleration <= 1600 milli-gravities | 0 |
| Fraction acceleration <= 1700 milli-gravities | 0 |
| Fraction acceleration <= 1800 milli-gravities | 0 |
| Fraction acceleration <= 1900 milli-gravities | 0 |
| Fraction acceleration <= 2000 milli-gravities | 0 |
| Error tolerance before calibration | 0 |
| Error tolerance after calibration | 0 |
| Calibration coefficients - x offset | 0 |
| Calibration coefficients - y offset | 0 |
| Calibration coefficients - z offset | 0 |
| Calibration coefficients - x slope | 0 |
| Calibration coefficients - y slope | 0 |
| Calibration coefficients - z slope | 0 |
| Calibration coefficients - x temp | 0 |
| Calibration coefficients - y temp | 0 |
| Calibration coefficients - z temp | 0 |
| Calibration coefficients - mean temperature | 0 |
| Calibration - number of static points | 0 |
| Calibration - minimum x stationary value | 0 |
| Calibration - maximum x stationary value | 0 |
| Calibration - minimum y stationary value | 0 |
| Calibration - maximum y stationary value | 0 |
| Calibration - minimum z stationary value | 0 |
| Calibration - maximum z stationary value | 0 |
| Device ID | 0 |
| Interrupted recording periods | 0 |
| Duration of interrupted recording periods | 0 |
| Data recording errors | 0 |
| Readings exceeding +/-8 gravities before calibration | 0 |
| Maximum readings exceeding +/-8 gravities before calibration in a 5 second epoch | 0 |
| Readings exceeding +/-8 gravities after calibration | 0 |
| Maximum readings exceeding +/-8 gravities after calibration in a 5 second epoch | 0 |
| Total data readings | 0 |
| Sample rate average | 0 |
| Sample rate standard deviation | 0 |
| Sample rate minimum | 0 |
| Sample rate maximum | 0 |
| Temperature average | 0 |
| Temperature standard deviation | 0 |
| Temperature minimum | 0 |
| Temperature maximum | 0 |
| Invitation to physical activity study, acceptance | 0 |
Date of attending assessment centre
Time when initial screen shown
Time screen exited
When pairs test completed
When fluid intelligence test completed
When trail making test completed
When symbol digit substitution test completed
When numeric memory test completed
Red blood cell (erythrocyte) count acquisition time
Haemoglobin concentration acquisition time
Haematocrit acquisition time
Mean corpuscular volume acquisition time
Mean corpuscular haemoglobin acquisition time
Mean corpuscular haemoglobin concentration acquisition time
Red blood cell (erythrocyte) distribution width acquisition time
Platelet count acquisition time
Platelet crit acquisition time
Mean platelet (thrombocyte) volume acquisition time
Platelet distribution width acquisition time
Lymphocyte count acquisition time
Monocyte count acquisition time
Neutrophill count acquisition time
Eosinophil count acquisition time
Basophil count acquisition time
Nucleated red blood cell count acquisition time
Lymphocyte percentage acquisition time
Monocyte percentage acquisition time
Neutrophill percentage acquisition time
Eosinophil percentage acquisition time
Basophil percentage acquisition time
Nucleated red blood cell percentage acquisition time
Reticulocyte count acquisition time
Mean reticulocyte volume acquisition time
Mean spherated cell volume acquisition time
Immature reticulocyte fraction acquisition time
High light scatter reticulocyte percentage acquisition time
High light scatter reticulocyte count acquisition time
Start of requested wear period
Start time of wear
End time of wear
Invitation to physical activity study, date sent
Cholera (ICD10: A00)
Typhoid and paratyphoid fevers (ICD10: A01)
Other salmonella infections (ICD10: A02)
Shigellosis (ICD10: A03) 0
Other bacterial intestinal infections (ICD10: A04) 0
Other bacterial foodborne intoxications, not elsewhere classified (ICD10: A05) 0
Amoebiasis (ICD10: A06) 0
Other protozoal intestinal diseases (ICD10: A07) 0
Viral and other specified intestinal infections (ICD10: A08) 0
Other gastroenteritis and colitis of infectious and unspecified origin (ICD10: A09) 0
Respiratory tuberculosis, bacteriologically and histologically confirmed (ICD10: A15) 0
Respiratory tuberculosis, not confirmed bacteriologically or histologically (ICD10: A16) 0
Tuberculosis of nervous system (ICD10: A17) 0
Tuberculosis of other organs (ICD10: A18) 0
Miliary tuberculosis (ICD10: A19) 0
Plague (ICD10: A20) 0
Erysipeloid (ICD10: A26) 0
Leptospirosis (ICD10: A27) 0
Other zoonotic bacterial diseases, not elsewhere classified (ICD10: A28) 0
Infection due to other mycobacteria (ICD10: A31) 0
Diphtheria (ICD10: A36) 0
Scarlet fever (ICD10: A38) 0
Meningococcal infection (ICD10: A39) 0
Streptococcal sepsis (ICD10: A40) 0
Other sepsis (ICD10: A41) 0
Acute meningococcal meningitis (ICD10: A42) 0
Bartonellosis (ICD10: A44) 0
Erysipelas (ICD10: A46) 0
Other bacterial diseases, not elsewhere classified (ICD10: A48) 0
Bacterial infection of unspecified site (ICD10: A49) 0
Early syphilis (ICD10: A51) 0
Late syphilis (ICD10: A52) 0
Other and unspecified syphilis (ICD10: A53) 0
Gonococcal infection (ICD10: A54) 0
Other sexually transmitted chlamydial diseases (ICD10: A56) 0
Anogenital herpesviral [herpes simplex] infection (ICD10: A60) 0
Other predominantly sexually transmitted diseases, not elsewhere classified (ICD10: A63) 0
Unspecified sexually transmitted disease (ICD10: A64) 0
Yaws (ICD10: A66) 0
Other spirochaetal infections (ICD10: A69) 0
Other diseases caused by chlamydiae (ICD10: A74) 0
Spotted fever [tick-borne rickettsioses] (ICD10: A77) 0
Other rickettsioses (ICD10: A79) 0
Acute poliomyelitis (ICD10: A80) 0
Atypical virus infections of central nervous system (ICD10: A81) 0
Mosquito-borne viral encephalitis (ICD10: A83) 0
Other viral encephalitis, not elsewhere classified (ICD10: A85) 0
Unspecified viral encephalitis (ICD10: A86)
Viral meningitis (ICD10: A87)
Other viral infections of central nervous system, not elsewhere classified (ICD10: A88)
Unspecified viral infection of central nervous system (ICD10: A89)
Dengue haemorrhagic fever (ICD10: A91)
Herpesviral [herpes simplex] infections (ICD10: B00)
Varicella [chickenpox] (ICD10: B01)
Zoster [herpes zoster] (ICD10: B02)
Measles (ICD10: B05)
Viral warts (ICD10: B07)
Other viral infections characterized by skin and mucous membrane lesions, not elsewhere classified (ICD10: B08)
Unspecified viral infection characterized by skin and mucous membrane lesions (ICD10: B09)
Acute hepatitis A (ICD10: B15)
Acute hepatitis B (ICD10: B16)
Other acute viral hepatitis (ICD10: B17)
Chronic viral hepatitis (ICD10: B18)
Unspecified viral hepatitis (ICD10: B19)
Human immunodeficiency virus [HIV] disease resulting in infectious and parasitic diseases (ICD10: B20)
Human immunodeficiency virus [HIV] disease resulting in malignant neoplasms (ICD10: B21)
Human immunodeficiency virus [HIV] disease resulting in other specified diseases (ICD10: B22)
Human immunodeficiency virus [HIV] disease resulting in other conditions (ICD10: B23)
Unspecified human immunodeficiency virus [HIV] disease (ICD10: B24)
Cytomegaloviral disease (ICD10: B25)
Mumps (ICD10: B26)
Infectious mononucleosis (ICD10: B27)
Viral conjunctivitis (ICD10: B30)
Other viral diseases, not elsewhere classified (ICD10: B33)
Viral infection of unspecified site (ICD10: B34)
Dermatophytosis (ICD10: B35)
Other superficial mycoses (ICD10: B36)
Candidiasis (ICD10: B37)
Aspergillosis (ICD10: B44)
Cryptococcosis (ICD10: B45)
Unspecified mycosis (ICD10: B49)
Plasmodium falciparum malaria (ICD10: B50)
Plasmodium vivax malaria (ICD10: B51)
Plasmodium malariae malaria (ICD10: B52)
Other parasitologically confirmed malaria (ICD10: B53)
Unspecified malaria (ICD10: B54)
Leishmaniasis (ICD10: B55)
Toxoplasmosis (ICD10: B58)
Pneumocystosis (ICD10: B59)
Other protozoal diseases, not elsewhere classified (ICD10: B60)
Schistosomiasis [bilharziasis] (ICD10: B65)
Echinococcosis (ICD10: B67) 0
Taeniasis (ICD10: B68) 0
Hookworm diseases (ICD10: B76) 0
Strongyloidiasis (ICD10: B78) 0
Enterobiasis (ICD10: B80) 0
Other intestinal helminthiases, not elsewhere classified (ICD10: B81) 0
Unspecified intestinal parasitism (ICD10: B82) 0
Other helminthiases (ICD10: B83) 0
Pediculosis and phthiriasis (ICD10: B85) 0
Scabies (ICD10: B86) 0
Other infestations (ICD10: B88) 0
Sequelea of tuberculosis (ICD10: B90) 0
Sequelea of poliomyelitis (ICD10: B91) 0
Sequelea of other and unspecified infectious and parasitic diseases (ICD10: B94) 0
Streptococcus and staphylococcus as the cause of diseases classified to other chapters (ICD10: B95) 0
Other specified bacterial agents as the cause of diseases classified to other chapters (ICD10: B96) 0
Viral agents as the cause of diseases classified to other chapters (ICD10: B97) 0
Other and unspecified infectious diseases (ICD10: B99) 0
Malignant neoplasm of lip (ICD10: C00) 0
Malignant neoplasm of base of tongue (ICD10: C01) 0
Malignant neoplasm of other and unspecified parts of tongue (ICD10: C02) 0
Malignant neoplasm of gum (ICD10: C03) 0
Malignant neoplasm of floor of mouth (ICD10: C04) 0
Malignant neoplasm of palate (ICD10: C05) 0
Malignant neoplasm of other and unspecified parts of mouth (ICD10: C06) 0
Malignant neoplasm of parotid gland (ICD10: C07) 0
Malignant neoplasm of other and unspecified major salivary glands (ICD10: C08) 0
Malignant neoplasm of tonsil (ICD10: C09) 0
Malignant neoplasm of oropharynx (ICD10: C10) 0
Malignant neoplasm of nasopharynx (ICD10: C11) 0
Malignant neoplasm of piniform sinus (ICD10: C12) 0
Malignant neoplasm of hypopharynx (ICD10: C13) 0
Malignant neoplasm of other and ill-defined sites in the lip, oral cavity and pharynx (ICD10: C14) 0
Malignant neoplasm of oesophagus (ICD10: C15) 0
Malignant neoplasm of stomach (ICD10: C16) 0
Malignant neoplasm of small intestine (ICD10: C17) 0
Malignant neoplasm of colon (ICD10: C18) 0
Malignant neoplasm of rectosigmoid junction (ICD10: C19) 0
Malignant neoplasm of rectum (ICD10: C20) 0
Malignant neoplasm of anus and anal canal (ICD10: C21) 0
Malignant neoplasm of liver and intrahepatic bile ducts (ICD10: C22) 0
Malignant neoplasm of gallbladder (ICD10: C23) 0
Malignant neoplasm of other and unspecified parts of biliary tract (ICD10: C24) 0
Malignant neoplasm of pancreas (ICD10: C25) 0
Malignant neoplasm of other and ill-defined digestive organs (ICD10: C26) 0
Malignant neoplasm of nasal cavity and middle ear (ICD10: C30) 0
Malignant neoplasm of accessory sinuses (ICD10: C31) 0
Malignant neoplasm of larynx (ICD10: C32) 0
Malignant neoplasm of trachea (ICD10: C33) 0
Malignant neoplasm of bronchus and lung (ICD10: C34) 0
Malignant neoplasm of thymus (ICD10: C37) 0
Malignant neoplasm of heart, mediastinum and pleura (ICD10: C40) 0
Malignant neoplasm of bone and articular cartilage of limbs (ICD10: C41) 0
Malignant neoplasm of bone and articular cartilage of other and unspecified sites (ICD10: C41) 0
Malignant melanoma of skin (ICD10: C43) 0
Other malignant neoplasms of skin (ICD10: C44) 0
Mesothelioma (ICD10: C45) 0
Kaposi sarcoma (ICD10: C46) 0
Malignant neoplasm of peripheral nerves and autonomic nervous system (ICD10: C47) 0
Malignant neoplasm of retroperitoneum and peritoneum (ICD10: C48) 0
Malignant neoplasm of other connective and soft tissue (ICD10: C49) 0
Malignant neoplasm of breast (ICD10: C50) 0
Malignant neoplasm of vulva (ICD10: C51) 0
Malignant neoplasm of vagina (ICD10: C52) 0
Malignant neoplasm of cervix uteri (ICD10: C53) 0
Malignant neoplasm of corpus uteri (ICD10: C54) 0
Malignant neoplasm of uterus, part unspecified (ICD10: C55) 0
Malignant neoplasm of ovary (ICD10: C56) 0
Malignant neoplasm of other and unspecified female genital organs (ICD10: C57) 0
Malignant neoplasm of placenta (ICD10: C58) 0
Malignant neoplasm of penis (ICD10: C60) 0
Malignant neoplasm of prostate (ICD10: C61) 0
Malignant neoplasm of testis (ICD10: C62) 0
Malignant neoplasm of other and unspecified male genital organs (ICD10: C63) 0
Malignant neoplasm of kidney, except renal pelvis (ICD10: C64) 0
Malignant neoplasm of renal pelvis (ICD10: C65) 0
Malignant neoplasm of ureter (ICD10: C66) 0
Malignant neoplasm of bladder (ICD10: C67) 0
Malignant neoplasm of other and unspecified urinary organs (ICD10: C68) 0
Malignant neoplasm of eye and adnexa (ICD10: C69) 0
Malignant neoplasm of meninges (ICD10: C70) 0
Malignant neoplasm of brain (ICD10: C71) 0
Malignant neoplasm of spinal cord, cranial nerves and other parts of central nervous system (ICD10: C72) 0
Malignant neoplasm of thyroid gland (ICD10: C73) 0
Malignant neoplasm of adrenal gland (ICD10: C74) 0
Malignant neoplasm of other endocrine glands and related structures (ICD10: C75) 0
Malignant neoplasm of other and ill-defined sites (ICD10: C76) 0
Secondary and unspecified malignant neoplasm of lymph nodes (ICD10: C77) 0
| Diagnosis                                                                 | Count |
|--------------------------------------------------------------------------|-------|
| Secondary malignant neoplasm of respiratory and digestive organs (ICD10: C78) | 0     |
| Secondary malignant neoplasm of other and unspecified sites (ICD10: C79)  | 0     |
| Malignant neoplasm, without specification of site (ICD10: C80)           | 0     |
| Hodgkin lymphoma (ICD10: C81)                                            | 0     |
| Follicular lymphoma (ICD10: C82)                                         | 0     |
| Mature T/NK-cell lymphomas (ICD10: C84)                                   | 0     |
| Other and unspecified types of non-Hodgkin lymphoma (ICD10: C85)         | 0     |
| Malignant immunoproliferative diseases (ICD10: C88)                      | 0     |
| Multiple myeloma and malignant plasma cell neoplasms (ICD10: C90)        | 0     |
| Lymphoid leukaemia (ICD10: C91)                                          | 0     |
| Myeloid leukaemia (ICD10: C92)                                           | 0     |
| Monocytic leukaemia (ICD10: C93)                                         | 0     |
| Other leukaemias of specified cell type (ICD10: C94)                     | 0     |
| Leukaemia of unspecified cell type (ICD10: C95)                          | 0     |
| Other and unspecified malignant neoplasms of lymphoid, haematopoietic and related tissue (ICD10: C96) | 0     |
| Carcinoma in situ of oral cavity, oesophagus and stomach (ICD10: D00)   | 0     |
| Carcinoma in situ of other and unspecified digestive organs (ICD10: D01) | 0     |
| Carcinoma in situ of middle ear and respiratory system (ICD10: D02)     | 0     |
| Melanoma in situ (ICD10: D03)                                            | 0     |
| Carcinoma in situ of skin (ICD10: D04)                                   | 0     |
| Carcinoma in situ of breast (ICD10: D05)                                 | 0     |
| Carcinoma in situ of cervix uteri (ICD10: D06)                           | 0     |
| Carcinoma in situ of other and unspecified genital organs (ICD10: D07)   | 0     |
| Carcinoma in situ of other and unspecified sites (ICD10: D09)            | 0     |
| Benign neoplasm of mouth and pharynx (ICD10: D10)                        | 0     |
| Benign neoplasm of major salivary glands (ICD10: D11)                    | 0     |
| Benign neoplasm of colon, rectum, anus and anal canal (ICD10: D12)       | 0     |
| Benign neoplasm of other and ill-defined parts of digestive system (ICD10: D13) | 0     |
| Benign neoplasm of middle ear and respiratory system (ICD10: D14)        | 0     |
| Benign neoplasm of other and unspecified intrathoracic organs (ICD10: D15) | 0     |
| Benign neoplasm of bone and articular cartilage (ICD10: D16)            | 0     |
| Benign lipomatous neoplasm (ICD10: D17)                                  | 0     |
| Haemangioma and lymphangioma, any site (ICD10: D18)                      | 0     |
| Benign neoplasm of mesothelial tissue (ICD10: D19)                       | 0     |
| Benign neoplasm of soft tissue of retroperitoneum and peritoneum (ICD10: D20) | 0     |
| Other benign neoplasms of connective and other soft tissue (ICD10: D21)  | 0     |
| Melanocytic naevi (ICD10: D22)                                           | 0     |
| Other benign neoplasms of skin (ICD10: D23)                              | 0     |
| Benign neoplasm of breast (ICD10: D24)                                   | 0     |
| Leiomyoma of uterus (ICD10: D25)                                         | 0     |
| Other benign neoplasms of uterus (ICD10: D26)                            | 0     |
| Benign neoplasm of ovary (ICD10: D27)                                    | 0     |
| Benign neoplasm of other and unspecified female genital organs (ICD10: D28) | 0     |
| Benign neoplasm of male genital organs (ICD10: D29)                      | 0     |
Benign neoplasm of urinary organs (ICD10: D30)
Benign neoplasm of eye and adnexa (ICD10: D31)
Benign neoplasm of meninges (ICD10: D32)
Benign neoplasm of brain and other parts of central nervous system (ICD10: D33)
Benign neoplasm of thyroid gland (ICD10: D34)
Benign neoplasm of other and unspecified endocrine glands (ICD10: D35)
Benign neoplasm of other and unspecified sites (ICD10: D36)
Neoplasm of uncertain or unknown behaviour of oral cavity and digestive organs (ICD10: D37)
Neoplasm of uncertain or unknown behaviour of middle ear and respiratory and intrathoracic organs (ICD10: D38)
Neoplasm of uncertain or unknown behaviour of female genital organs (ICD10: D39)
Neoplasm of uncertain or unknown behaviour of male genital organs (ICD10: D40)
Neoplasm of uncertain or unknown behaviour of urinary organs (ICD10: D41)
Neoplasm of uncertain or unknown behaviour of meninges (ICD10: D42)
Neoplasm of uncertain or unknown behaviour of brain and central nervous system (ICD10: D43)
Neoplasm of uncertain or unknown behaviour of endocrine glands (ICD10: D44)
Polycythaemia vera (ICD10: D45)
Myelodysplastic syndromes (ICD10: D46)
Other neoplasms of uncertain or unknown behaviour of lymphoid, haematopoietic and related tissue (ICD10: D47)
Neoplasm of uncertain or unknown behaviour of other and unspecified sites (ICD10: D48)
Iron deficiency anaemia (ICD10: D50)
Vitamin B12 deficiency anaemia (ICD10: D51)
Folate deficiency anaemia (ICD10: D52)
Other nutritional anaemias (ICD10: D53)
Anaemia due to enzyme disorders (ICD10: D55)
Thalassaemia (ICD10: D56)
Sickle-cell disorders (ICD10: D57)
Other hereditary haemolytic anaemias (ICD10: D58)
Acquired haemolytic anaemia (ICD10: D59)
Other aplastic anaemias (ICD10: D61)
Acute posthaemorrhagic anaemia (ICD10: D62)
Anaemia in chronic diseases classified elsewhere (ICD10: D63)
Other anaemias (ICD10: D64)
Disseminated intravascular coagulation [defibrination syndrome] (ICD10: D65)
Hereditary factor VIII deficiency (ICD10: D66)
Hereditary factor IX deficiency (ICD10: D67)
Other coagulation defects (ICD10: D68)
Purpura and other haemorrhagic conditions (ICD10: D69)
Agranulocytosis (ICD10: D70)
Other disorders of white blood cells (ICD10: D72)
Other diseases of blood and blood-forming organs (ICD10: D75)
Other specified diseases with participation of lymphoreticular and reticulohistiocytic tissue (ICD10: D76)
Other disorders of blood and blood-forming organs in diseases classified elsewhere (ICD10: D77)
Immunodeficiency with predominantly antibody defects (ICD10: D80)
Combined immunodeficiencies (ICD10: D81)
| Condition                                                                 | Code   | Count |
|---------------------------------------------------------------------------|--------|-------|
| Immunodeficiency associated with other major defects (ICD10: D82)         |        | 0     |
| Common variable immunodeficiency (ICD10: D83)                             |        | 0     |
| Other immunodeficiencies (ICD10: D84)                                     |        | 0     |
| Sarcoidosis (ICD10: D86)                                                  |        | 0     |
| Other disorders involving the immune mechanism, not elsewhere classified (ICD10: D89) |        | 0     |
| Iodine-deficiency-related thyroid disorders and allied conditions (ICD10: E01) |        | 0     |
| Subclinical iodine-deficiency hypothyroidism (ICD10: E02)                |        | 0     |
| Other hypothyroidism (ICD10: E03)                                         |        | 0     |
| Other nontoxic goitre (ICD10: E04)                                        |        | 0     |
| Thyrotoxicosis [hyperthyroidism] (ICD10: E05)                             |        | 0     |
| Thyroiditis (ICD10: E06)                                                  |        | 0     |
| Other disorders of thyroid (ICD10: E07)                                   |        | 0     |
| Insulin-dependent diabetes mellitus (ICD10: E10)                         |        | 0     |
| Non-insulin-dependent diabetes mellitus (ICD10: E11)                     |        | 0     |
| Malnutrition-related diabetes mellitus (ICD10: E12)                      |        | 0     |
| Other specified diabetes mellitus (ICD10: E13)                           |        | 0     |
| Unspecified diabetes mellitus (ICD10: E14)                               |        | 0     |
| Hypoparathyroidism (ICD10: E20)                                           |        | 0     |
| Hyperparathyroidism and other disorders of parathyroid gland (ICD10: E21) |        | 0     |
| Hyperfunction of pituitary gland (ICD10: E22)                            |        | 0     |
| Hypofunction and other disorders of pituitary gland (ICD10: E23)         |        | 0     |
| Cushing syndrome (ICD10: E24)                                             |        | 0     |
| Adrenogenital disorders (ICD10: E25)                                      |        | 0     |
| Hyperaldosteronism (ICD10: E26)                                           |        | 0     |
| Other disorders of adrenal gland (ICD10: E27)                            |        | 0     |
| Ovarian dysfunction (ICD10: E28)                                          |        | 0     |
| Testicular dysfunction (ICD10: E29)                                       |        | 0     |
| Polyglandular dysfunction (ICD10: E31)                                    |        | 0     |
| Diseases of thymus (ICD10: E32)                                           |        | 0     |
| Other endocrine disorders (ICD10: E34)                                    |        | 0     |
| Disorders of endocrine glands in diseases classified elsewhere (ICD10: E35) |        | 0     |
| Nutritional marasmus (ICD10: E41)                                         |        | 0     |
| Unspecified severe protein-energy malnutrition (ICD10: E43)              |        | 0     |
| Protein-energy malnutrition of moderate and mild degree (ICD10: E44)     |        | 0     |
| Retarded development following protein-energy malnutrition (ICD10: E45)   |        | 0     |
| Unspecified protein-energy malnutrition (ICD10: E46)                     |        | 0     |
| Thiamine deficiency (ICD10: E51)                                          |        | 0     |
| Niacin deficiency [pellagra] (ICD10: E52)                                 |        | 0     |
| Deficiency of other B group vitamins (ICD10: E53)                         |        | 0     |
| Ascorbic acid deficiency (ICD10: E54)                                     |        | 0     |
| Vitamin D deficiency (ICD10: E55)                                         |        | 0     |
| Other vitamin deficiencies (ICD10: E56)                                   |        | 0     |
| Dietary calcium deficiency (ICD10: E58)                                   |        | 0     |
| Dietary selenium deficiency (ICD10: E59)                                  |        | 0     |
| Condition                                                                 | Code   | Count |
|---------------------------------------------------------------------------|--------|-------|
| Deficiency of other nutrient elements (ICD10: E61)                       |        | 0     |
| Sequelae of malnutrition and other nutritional deficiencies (ICD10: E64) |        | 0     |
| Localized adiposity (ICD10: E65)                                         |        | 0     |
| Obesity (ICD10: E66)                                                     |        | 0     |
| Other hyperalimentation (ICD10: E67)                                      |        | 0     |
| Disorders of aromatic amino-acid metabolism (ICD10: E70)                 |        | 0     |
| Disorders of branched-chain amino-acid metabolism and fatty-acid metabolism (ICD10: E71) |        | 0     |
| Other disorders of amino-acid metabolism (ICD10: E72)                    |        | 0     |
| Lactose intolerance (ICD10: E73)                                         |        | 0     |
| Other disorders of carbohydrate metabolism (ICD10: E74)                  |        | 0     |
| Disorders of sphingolipid metabolism and other lipid storage disorders (ICD10: E75) |        | 0     |
| Disorders of glycosaminoglycan metabolism (ICD10: E76)                   |        | 0     |
| Disorders of glycoprotein metabolism (ICD10: E77)                        |        | 0     |
| Disorders of lipoprotein metabolism and other lipidaemias (ICD10: E78)   |        | 0     |
| Disorders of purine and pyrimidine metabolism (ICD10: E79)               |        | 0     |
| Disorders of porphyrin and bilirubin metabolism (ICD10: E80)             |        | 0     |
| Disorders of mineral metabolism (ICD10: E83)                             |        | 0     |
| Cystic fibrosis (ICD10: E84)                                             |        | 0     |
| Volume depletion (ICD10: E86)                                            |        | 0     |
| Other disorders of fluid, electrolyte and acid-base balance (ICD10: E87) |        | 0     |
| Other metabolic disorders (ICD10: E88)                                   |        | 0     |
| Postprocedural endocrine and metabolic disorders, not elsewhere classified (ICD10: E89) |        | 0     |
| Dementia in Alzheimer disease (ICD10: F00)                               |        | 0     |
| Vascular dementia (ICD10: F01)                                           |        | 0     |
| Dementia in other diseases classified elsewhere (ICD10: F02)             |        | 0     |
| Unspecified dementia (ICD10: F03)                                        |        | 0     |
| Organic amnesic syndrome, not induced by alcohol and other psychoactive substances (ICD10: F04) |        | 0     |
| Delirium, not induced by alcohol and other psychoactive substances (ICD10: F05) |        | 0     |
| Other mental disorders due to brain damage and dysfunction and to physical disease (ICD10: F06) |        | 0     |
| Personality and behavioural disorders due to brain disease, damage and dysfunction (ICD10: F07) |        | 0     |
| Unspecified organic or symptomatic mental disorder (ICD10: F09)          |        | 0     |
| Mental and behavioural disorders due to use of alcohol (ICD10: F10)      |        | 0     |
| Mental and behavioural disorders due to use of opioids (ICD10: F11)      |        | 0     |
| Mental and behavioural disorders due to use of cannabinoids (ICD10: F12) |        | 0     |
| Mental and behavioural disorders due to use of sedatives or hypnotics (ICD10: F13) |        | 0     |
| Mental and behavioural disorders due to use of cocaine (ICD10: F14)      |        | 0     |
| Mental and behavioural disorders due to use of other stimulants, including caffeine (ICD10: F15) |        | 0     |
| Mental and behavioural disorders due to use of hallucinogens (ICD10: F16) |        | 0     |
| Mental and behavioural disorders due to use of tobacco (ICD10: F17)      |        | 0     |
| Mental and behavioural disorders due to use of volatile solvents (ICD10: F18) |        | 0     |
| Mental and behavioural disorders due to multiple drug use and use of other psychoactive substances (ICD10: F19) |        | 0     |
| Schizophrenia (ICD10: F20)                                               |        | 0     |
| Schizotypal disorder (ICD10: F21)                                        |        | 0     |
| Persistent delusional disorders (ICD10: F22)                             |        | 0     |
Acute and transient psychotic disorders (ICD10: F23) 0
Induced delusional disorder (ICD10: F24) 0
Schizoaffective disorders (ICD10: F25) 0
Unspecified nonorganic psychosis (ICD10: F29) 0
Manic episode (ICD10: F30) 0
Bipolar affective disorder (ICD10: F31) 0
Depressive episode (ICD10: F32) 0
Recurrent depressive disorder (ICD10: F33) 0
Persistent mood (affective) disorders (ICD10: F34) 0
Other mood (affective) disorders (ICD10: F38) 0
Unspecified mood (affective) disorder (ICD10: F39) 0
Phobic anxiety disorders (ICD10: F40) 0
Other anxiety disorders (ICD10: F41) 0
Obsessive-compulsive disorder (ICD10: F42) 0
Reaction to severe stress, and adjustment disorders (ICD10: F43) 0
Dissociative [conversion] disorders (ICD10: F44) 0
Somatoform disorders (ICD10: F45) 0
Other neurotic disorders (ICD10: F48) 0
Eating disorders (ICD10: F50) 0
Nonorganic sleep disorders (ICD10: F51) 0
Sexual dysfunction, not caused by organic disorder or disease (ICD10: F52) 0
Mental and behavioural disorders associated with the puerperium, not elsewhere classified (ICD10: F53) 0
Psychological and behavioural factors associated with disorders or diseases classified elsewhere (ICD10: F54) 0
Abuse of non-dependence-producing substances (ICD10: F55) 0
Unspecified behavioural syndromes associated with physiological disturbances and physical factors (ICD10: F59) 0
Specific personality disorders (ICD10: F60) 0
Mixed and other personality disorders (ICD10: F61) 0
Enduring personality changes, not attributable to brain damage and disease (ICD10: F62) 0
Habit and impulse disorders (ICD10: F63) 0
Gender identity disorders (ICD10: F64) 0
Disorders of sexual preference (ICD10: F65) 0
Psychological and behavioural disorders associated with sexual development and orientation (ICD10: F66) 0
Other disorders of adult personality and behaviour (ICD10: F68) 0
Unspecified disorder of adult personality and behaviour (ICD10: F69) 0
Mild mental retardation (ICD10: F70) 0
Severe mental retardation (ICD10: F72) 0
Unspecified mental retardation (ICD10: F79) 0
Specific developmental disorders of speech and language (ICD10: F80) 0
Specific developmental disorders of scholastic skills (ICD10: F81) 0
Specific developmental disorder of motor function (ICD10: F82) 0
Pervasive developmental disorders (ICD10: F84) 0
Conduct disorders (ICD10: F91) 0
Tic disorders (ICD10: F95) 0
Other behavioural and emotional disorders with onset usually occurring in childhood and adolescence (ICD10: F98) 0
| Condition                                                                 | Code     | Count |
|---------------------------------------------------------------------------|----------|-------|
| Mental disorder, not otherwise specified (ICD10: F99)                     |          | 0     |
| Bacterial meningitis, not elsewhere classified (ICD10: G00)               |          | 0     |
| Meningitis in bacterial diseases classified elsewhere (ICD10: G01)        |          | 0     |
| Meningitis in other infectious and parasitic diseases classified elsewhere (ICD10: G02) |          | 0     |
| Meningitis due to other and unspecified causes (ICD10: G03)               |          | 0     |
| Encephalitis, myelitis and encephalomyelitis (ICD10: G04)                 |          | 0     |
| Encephalitis, myelitis and encephalomyelitis in diseases classified elsewhere (ICD10: G05) |          | 0     |
| Intracranial and intraspinal abscess and granuloma (ICD10: G06)          |          | 0     |
| Intracranial and intraspinal abscess and granuloma in diseases classified elsewhere (ICD10: G07) |          | 0     |
| Intracranial and intraspinal phlebitis and thrombophlebitis (ICD10: G08) |          | 0     |
| Sequelae of inflammatory diseases of central nervous system (ICD10: G09)  |          | 0     |
| Huntington disease (ICD10: G10)                                           |          | 0     |
| Hereditary ataxia (ICD10: G11)                                            |          | 0     |
| Spinal muscular atrophy and related syndromes (ICD10: G12)               |          | 0     |
| Systemic atrophies primarily affecting central nervous system in diseases classified elsewhere (ICD10: G13) |          | 0     |
| Parkinson disease (ICD10: G20)                                            |          | 0     |
| Secondary parkinsonism (ICD10: G21)                                       |          | 0     |
| Other degenerative diseases of basal ganglia (ICD10: G23)                 |          | 0     |
| Dystonia (ICD10: G24)                                                     |          | 0     |
| Other extrapyramidal and movement disorders (ICD10: G25)                  |          | 0     |
| Alzheimer disease (ICD10: G30)                                            |          | 0     |
| Other degenerative diseases of nervous system, not elsewhere classified (ICD10: G31) |          | 0     |
| Other degenerative disorders of nervous system in diseases classified elsewhere (ICD10: G32) |          | 0     |
| Multiple sclerosis (ICD10: G35)                                           |          | 0     |
| Other acute disseminated demyelination (ICD10: G36)                       |          | 0     |
| Other demyelinating diseases of central nervous system (ICD10: G37)      |          | 0     |
| Epilepsy (ICD10: G40)                                                     |          | 0     |
| Status epilepticus (ICD10: G41)                                          |          | 0     |
| Migraine (ICD10: G43)                                                     |          | 0     |
| Other headache syndromes (ICD10: G44)                                     |          | 0     |
| Transient cerebral ischaemic attacks and related syndromes (ICD10: G45)   |          | 0     |
| Vascular syndromes of brain in cerebrovascular diseases (ICD10: G46)      |          | 0     |
| Sleep disorders (ICD10: G47)                                              |          | 0     |
| Disorders of trigeminal nerve (ICD10: G50)                                |          | 0     |
| Facial nerve disorders (ICD10: G51)                                       |          | 0     |
| Disorders of other cranial nerves (ICD10: G52)                            |          | 0     |
| Cranial nerve disorders in diseases classified elsewhere (ICD10: G53)     |          | 0     |
| Nerve root and plexus disorders (ICD10: G54)                              |          | 0     |
| Nerve root and plexus compressions in diseases classified elsewhere (ICD10: G55) |          | 0     |
| Mononeuropathies of upper limb (ICD10: G56)                               |          | 0     |
| Mononeuropathies of lower limb (ICD10: G57)                               |          | 0     |
| Other mononeuropathies (ICD10: G58)                                       |          | 0     |
| Mononeuropathy in diseases classified elsewhere (ICD10: G59)              |          | 0     |
| Hereditary and idiopathic neuropathy (ICD10: G60)                         |          | 0     |
| ICD10 Code | Description |
|-----------|-------------|
| G61       | Inflammatory polyneuropathy |
| G62       | Other polyneuropathies |
| G63       | Polyneuropathy in diseases classified elsewhere |
| G64       | Other disorders of peripheral nervous system |
| G70       | Myasthenia gravis and other myoneural disorders |
| G71       | Primary disorders of muscles |
| G72       | Other myopathies |
| G73       | Disorders of myoneural junction and muscle in diseases classified elsewhere |
| G80       | Cerebral palsy |
| G81       | Hemiplegia |
| G82       | Paraplegia and tetraplegia |
| G83       | Other paralytic syndromes |
| G90       | Disorders of autonomic nervous system |
| G91       | Hydrocephalus |
| G92       | Toxic encephalopathy |
| G93       | Other disorders of brain |
| G94       | Other disorders of brain in diseases classified elsewhere |
| G95       | Other diseases of spinal cord |
| G96       | Other disorders of central nervous system |
| G97       | Postprocedural disorders of nervous system, not elsewhere classified |
| G98       | Other disorders of nervous system, not elsewhere classified |
| G99       | Other disorders of nervous system in diseases classified elsewhere |
| H00       | Hordeolum and chalazion |
| H01       | Other inflammation of eyelid |
| H02       | Other disorders of eyelid |
| H03       | Disorders of eyelid in diseases classified elsewhere |
| H04       | Disorders of lacrimal system |
| H05       | Disorders of orbit |
| H06       | Disorders of lacrimal system and orbit in diseases classified elsewhere |
| H10       | Conjunctivitis |
| H11       | Other disorders of conjunctiva |
| H13       | Disorders of conjunctiva in diseases classified elsewhere |
| H15       | Disorders of sclera |
| H16       | Keratitis |
| H17       | Corneal scars and opacities |
| H18       | Other disorders of cornea |
| H19       | Disorders of sclera and cornea in diseases classified elsewhere |
| H20       | Iridocyclitis |
| H21       | Other disorders of iris and ciliary body |
| H22       | Disorders of iris and ciliary body in diseases classified elsewhere |
| H25       | Senile cataract |
| H26       | Other cataract |
| H27       | Other disorders of lens |
| H28       | Cataract and other disorders of lens in diseases classified elsewhere |
Chorioretinal inflammation (ICD10: H30) 0
Other disorders of choroid (ICD10: H31) 0
Chorioretinal disorders in diseases classified elsewhere (ICD10: H32) 0
Retinal detachments and breaks (ICD10: H33) 0
Retinal vascular occlusions (ICD10: H34) 0
Other retinal disorders (ICD10: H35) 0
Retinal disorders in diseases classified elsewhere (ICD10: H36) 0
Glaucoma (ICD10: H40) 0
Glaucoma in diseases classified elsewhere (ICD10: H42) 0
Disorders of vitreous body (ICD10: H43) 0
Disorders of globe (ICD10: H44) 0
Disorders of vitreous body and globe in diseases classified elsewhere (ICD10: H45) 0
Optic neuritis (ICD10: H46) 0
Other disorders of optic [2nd] nerve and visual pathways (ICD10: H47) 0
Paralytic strabismus (ICD10: H49) 0
Other strabismus (ICD10: H50) 0
Other disorders of binocular movement (ICD10: H51) 0
Disorders of refraction and accommodation (ICD10: H52) 0
Visual disturbances (ICD10: H53) 0
Visual impairment including blindness (binocular or monocular) (ICD10: H54) 0
Nystagmus and other irregular eye movements (ICD10: H55) 0
Other disorders of eye and adnexa (ICD10: H57) 0
Other disorders of eye and adnexa in diseases classified elsewhere (ICD10: H58) 0
Postprocedural disorders of eye and adnexa, not elsewhere classified (ICD10: H59) 0
Otitis externa (ICD10: H60) 0
Other disorders of external ear (ICD10: H61) 0
Disorders of external ear in diseases classified elsewhere (ICD10: H62) 0
Nonsuppurative otitis media (ICD10: H65) 0
Suppurative and unspecified otitis media (ICD10: H66) 0
Eustachian salpingitis and obstruction (ICD10: H68) 0
Other disorders of Eustachian tube (ICD10: H69) 0
Mastoiditis and related conditions (ICD10: H70) 0
Cholesteatoma of middle ear (ICD10: H71) 0
Perforation of tympanic membrane (ICD10: H72) 0
Other disorders of tympanic membrane (ICD10: H73) 0
Other disorders of middle ear and mastoid (ICD10: H74) 0
Other disorders of middle ear and mastoid in diseases classified elsewhere (ICD10: H75) 0
Otosclerosis (ICD10: H80) 0
Disorders of vestibular function (ICD10: H81) 0
Other diseases of inner ear (ICD10: H83) 0
Conductive and sensorineural hearing loss (ICD10: H90) 0
Other hearing loss (ICD10: H91) 0
Otalgia and effusion of ear (ICD10: H92) 0
Other disorders of ear, not elsewhere classified (ICD10: H93) 0
| Disease Description                                                      | Count |
|------------------------------------------------------------------------|-------|
| Other disorders of ear in diseases classified elsewhere (ICD10: H94)    | 0     |
| Postprocedural disorders of ear and mastoid process, not elsewhere classified (ICD10: H95) | 0     |
| Rheumatic fever without mention of heart involvement (ICD10: I00)       | 0     |
| Rheumatic fever with heart involvement (ICD10: I01)                     | 0     |
| Rheumatic chorea (ICD10: I02)                                           | 0     |
| Rheumatic mitral valve diseases (ICD10: I05)                           | 0     |
| Rheumatic aortic valve diseases (ICD10: I06)                           | 0     |
| Rheumatic tricuspid valve diseases (ICD10: I07)                        | 0     |
| Multiple valve diseases (ICD10: I08)                                   | 0     |
| Other rheumatic heart diseases (ICD10: I09)                             | 0     |
| Essential (primary) hypertension (ICD10: I10)                          | 0     |
| Hypertensive heart disease (ICD10: I11)                                | 0     |
| Hypertensive renal disease (ICD10: I12)                                | 0     |
| Hypertensive heart and renal disease (ICD10: I13)                      | 0     |
| Secondary hypertension (ICD10: I15)                                    | 0     |
| Angina pectoris (ICD10: I20)                                           | 0     |
| Acute myocardial infarction (ICD10: I21)                               | 0     |
| Subsequent myocardial infarction (ICD10: I22)                          | 0     |
| Certain current complications following acute myocardial infarction (ICD10: I23) | 0     |
| Other acute ischaemic heart diseases (ICD10: I24)                      | 0     |
| Pulmonary embolism (ICD10: I26)                                        | 0     |
| Other pulmonary heart diseases (ICD10: I27)                            | 0     |
| Other diseases of pulmonary vessels (ICD10: I28)                       | 0     |
| Acute pericarditis (ICD10: I30)                                        | 0     |
| Other diseases of pericardium (ICD10: I31)                             | 0     |
| Pericarditis in diseases classified elsewhere (ICD10: I32)             | 0     |
| Acute and subacute endocarditis (ICD10: I33)                           | 0     |
| Nonrheumatic mitral valve disorders (ICD10: I34)                       | 0     |
| Nonrheumatic aortic valve disorders (ICD10: I35)                       | 0     |
| Nonrheumatic tricuspid valve disorders (ICD10: I36)                    | 0     |
| Pulmonary valve disorders (ICD10: I37)                                 | 0     |
| Endocarditis, valve unspecified (ICD10: I38)                          | 0     |
| Endocarditis and heart valve disorders in diseases classified elsewhere (ICD10: I39) | 0     |
| Acute myocarditis (ICD10: I40)                                        | 0     |
| Cardiomyopathy in diseases classified elsewhere (ICD10: I43)           | 0     |
| Atrioventricular and left bundle-branch block (ICD10: I44)             | 0     |
| Other conduction disorders (ICD10: I45)                                | 0     |
| Cardiac arrest (ICD10: I46)                                            | 0     |
| Paroxysmal tachycardia (ICD10: I47)                                    | 0     |
| Other cardiac arrhythmias (ICD10: I49)                                 | 0     |
| Subarachnoid haemorrhage (ICD10: I60)                                  | 0     |
| Intracerebral haemorrhage (ICD10: I61)                                 | 0     |
| Other nontraumatic intracranial haemorrhage (ICD10: I62)               | 0     |
| Cerebral infarction (ICD10: I63)                                       | 0     |
Stroke, not specified as haemorrhage or infarction (ICD10: I64)

Occlusion and stenosis of precerebral arteries, not resulting in cerebral infarction (ICD10: I65)

Occlusion and stenosis of cerebral arteries, not resulting in cerebral infarction (ICD10: I66)

Other cerebrovascular diseases (ICD10: I67)

Sequelae of cerebrovascular disease (ICD10: I69)

Atherosclerosis (ICD10: I70)

Aortic aneurysm and dissection (ICD10: I71)

Other aneurysm and dissection (ICD10: I72)

Other peripheral vascular diseases (ICD10: I73)

Arterial embolism and thrombosis (ICD10: I74)

Other disorders of arteries and arterioles (ICD10: I77)

Diseases of capillaries (ICD10: I79)

Other disorders of arteries, arterioles and capillaries in diseases classified elsewhere (ICD10: I79)

Phlebitis and thrombophlebitis (ICD10: I80)

Portal vein thrombosis (ICD10: I81)

Other venous embolism and thrombosis (ICD10: I82)

Varicose veins of lower extremities (ICD10: I83)

Haemorrhoids (ICD10: I84)

Oesophageal varices (ICD10: I85)

Varicose veins of other sites (ICD10: I86)

Other disorders of veins (ICD10: I87)

Nonspecific lymphadenitis (ICD10: I88)

Other noninfective disorders of lymphatic vessels and lymph nodes (ICD10: I89)

Hypotension (ICD10: I95)

Postprocedural disorders of circulatory system, not elsewhere classified (ICD10: I97)

Other disorders of circulatory system in diseases classified elsewhere (ICD10: I98)

Other and unspecified disorders of circulatory system (ICD10: I99)

Acute nasopharyngitis [common cold] (ICD10: J00)

Acute sinusitis (ICD10: J01)

Acute pharyngitis (ICD10: J02)

Acute tonsillitis (ICD10: J03)

Acute laryngitis and tracheitis (ICD10: J04)

Acute obstructive laryngitis [croup] and epiglottitis (ICD10: J05)

Acute upper respiratory infections of multiple and unspecified sites (ICD10: J06)

Influenza due to other identified influenza virus (ICD10: J10)

Influenza, virus not identified (ICD10: J11)

Viral pneumonia, not elsewhere classified (ICD10: J12)

Pneumonia due to Streptococcus pneumoniae (ICD10: J13)

Pneumonia due to Haemophilus influenzae (ICD10: J14)

Bacterial pneumonia, not elsewhere classified (ICD10: J15)

Pneumonia due to other infectious organisms, not elsewhere classified (ICD10: J16)

Pneumonia in diseases classified elsewhere (ICD10: J17)

Pneumonia, organism unspecified (ICD10: J18)

Acute bronchitis (ICD10: J20)
Acute bronchiolitis (ICD10: J21) 0
Unspecified acute lower respiratory infection (ICD10: J22) 0
Vasomotor and allergic rhinitis (ICD10: J30) 0
Chronic rhinitis, nasopharyngitis and pharyngitis (ICD10: J31) 0
Chronic sinusitis (ICD10: J32) 0
Nasal polyp (ICD10: J33) 0
Other disorders of nose and nasal sinuses (ICD10: J34) 0
Chronic diseases of tonsils and adenoids (ICD10: J35) 0
Peritonsillar abscess (ICD10: J36) 0
Chronic laryngitis and laryngotraechitis (ICD10: J37) 0
Diseases of vocal cords and larynx, not elsewhere classified (ICD10: J38) 0
Other diseases of upper respiratory tract (ICD10: J39) 0
Bronchitis, not specified as acute or chronic (ICD10: J40) 0
Simple and mucopurulent chronic bronchitis (ICD10: J41) 0
Unspecified chronic bronchitis (ICD10: J42) 0
Emphysema (ICD10: J43) 0
Other chronic obstructive pulmonary disease (ICD10: J44) 0
Asthma (ICD10: J45) 0
Status asthmaticus (ICD10: J46) 0
Bronchiectasis (ICD10: J47) 0
Coalworker pneumoconiosis (ICD10: J60) 0
Pneumoconiosis due to asbestos and other mineral fibres (ICD10: J61) 0
Pneumoconiosis due to other inorganic dusts (ICD10: J63) 0
Unspecified pneumoconiosis (ICD10: J64) 0
Hypersensitivity pneumonitis due to organic dust (ICD10: J67) 0
Respiratory conditions due to inhalation of chemicals, gases, fumes and vapours (ICD10: J68) 0
Pneumonitis due to solids and liquids (ICD10: J69) 0
Respiratory conditions due to other external agents (ICD10: J70) 0
Adult respiratory distress syndrome (ICD10: J80) 0
Pulmonary oedema (ICD10: J81) 0
Pulmonary eosinophilia, not elsewhere classified (ICD10: J82) 0
Other interstitial pulmonary diseases (ICD10: J84) 0
Abscess of lung and mediastinum (ICD10: J85) 0
Pyothorax (ICD10: J86) 0
Pleural effusion, not elsewhere classified (ICD10: J90) 0
Pleural effusion in conditions classified elsewhere (ICD10: J91) 0
Pleural plaque (ICD10: J92) 0
Pneumothorax (ICD10: J93) 0
Other pleural conditions (ICD10: J94) 0
Postprocedural respiratory disorders, not elsewhere classified (ICD10: J95) 0
Respiratory failure, not elsewhere classified (ICD10: J96) 0
Other respiratory disorders (ICD10: J98) 0
Respiratory disorders in diseases classified elsewhere (ICD10: J99) 0
Disorders of tooth development and eruption (ICD10: K00) 0
Embedded and impacted teeth (ICD10: K01) 0
Dental caries (ICD10: K02) 0
Other diseases of hard tissues of teeth (ICD10: K03) 0
Diseases of pulp and periapical tissues (ICD10: K04) 0
Gingivitis and periodontal diseases (ICD10: K05) 0
Other disorders of gingiva and edentulous alveolar ridge (ICD10: K06) 0
Dentofacial anomalies [including malocclusion] (ICD10: K07) 0
Other disorders of teeth and supporting structures (ICD10: K08) 0
Cysts of oral region, not elsewhere classified (ICD10: K09) 0
Other diseases of jaws (ICD10: K10) 0
Diseases of salivary glands (ICD10: K11) 0
Stomatitis and related lesions (ICD10: K12) 0
Other diseases of lip and oral mucosa (ICD10: K13) 0
Diseases of tongue (ICD10: K14) 0
Oesophagitis (ICD10: K20) 0
Gastro-oesophageal reflux disease (ICD10: K21) 0
Other diseases of oesophagus (ICD10: K22) 0
Disorders of oesophagus in diseases classified elsewhere (ICD10: K23) 0
Gastric ulcer (ICD10: K25) 0
Duodenal ulcer (ICD10: K26) 0
Peptic ulcer, site unspecified (ICD10: K27) 0
Gastrojejunal ulcer (ICD10: K28) 0
Gastritis and duodenitis (ICD10: K29) 0
Dyspepsia (ICD10: K30) 0
Other diseases of stomach and duodenum (ICD10: K31) 0
Acute appendicitis (ICD10: K35) 0
Other appendicitis (ICD10: K36) 0
Unspecified appendicitis (ICD10: K37) 0
Other diseases of appendix (ICD10: K38) 0
Inguinal hernia (ICD10: K40) 0
Femoral hernia (ICD10: K41) 0
Umbilical hernia (ICD10: K42) 0
Ventral hernia (ICD10: K43) 0
Diaphragmatic hernia (ICD10: K44) 0
Other abdominal hernia (ICD10: K45) 0
Unspecified abdominal hernia (ICD10: K46) 0
Crohn disease [regional enteritis] (ICD10: K50) 0
Ulcerative colitis (ICD10: K51) 0
Other noninfective gastroenteritis and colitis (ICD10: K52) 0
Vascular disorders of intestine (ICD10: K55) 0
Paralytic ileus and intestinal obstruction without hernia (ICD10: K56) 0
Diverticular disease of intestine (ICD10: K57) 0
Irritable bowel syndrome (ICD10: K58) 0
Other functional intestinal disorders (ICD10: K59) 0
Fissure and fistula of anal and rectal regions (ICD10: K60) 0
Abscess of anal and rectal regions (ICD10: K61) 0
Other diseases of anus and rectum (ICD10: K62) 0
Other diseases of intestine (ICD10: K63) 0
Peritonitis (ICD10: K65) 0
Other disorders of peritoneum (ICD10: K66) 0
Disorders of peritoneum in infectious diseases classified elsewhere (ICD10: K67) 0
Alcoholic liver disease (ICD10: K70) 0
Toxic liver disease (ICD10: K71) 0
Hepatic failure, not elsewhere classified (ICD10: K72) 0
Chronic hepatitis, not elsewhere classified (ICD10: K73) 0
Fibrosis and cirrhosis of liver (ICD10: K74) 0
Other inflammatory liver diseases (ICD10: K75) 0
Other diseases of liver (ICD10: K76) 0
Liver disorders in diseases classified elsewhere (ICD10: K77) 0
Cholelithiasis (ICD10: K80) 0
Cholecystitis (ICD10: K81) 0
Other diseases of gallbladder (ICD10: K82) 0
Other diseases of biliary tract (ICD10: K83) 0
Acute pancreatitis (ICD10: K85) 0
Other diseases of pancreas (ICD10: K86) 0
Disorders of gallbladder, biliary tract and pancreas in diseases classified elsewhere (ICD10: K87) 0
Intestinal malabsorption (ICD10: K90) 0
Postprocedural disorders of digestive system, not elsewhere classified (ICD10: K91) 0
Other diseases of digestive system (ICD10: K92) 0
Disorders of other digestive organs in diseases classified elsewhere (ICD10: K93) 0
Staphylococcal scalded skin syndrome (ICD10: L00) 0
Impetigo (ICD10: L01) 0
Cutaneous abscess, furuncle and carbuncle (ICD10: L02) 0
Cellulitis (ICD10: L03) 0
Acute lymphadenitis (ICD10: L04) 0
Pilonidal cyst (ICD10: L05) 0
Other local infections of skin and subcutaneous tissue (ICD10: L08) 0
Pemphigus (ICD10: L10) 0
Other acantholytic disorders (ICD10: L11) 0
Pemphigoid (ICD10: L12) 0
Other bullous disorders (ICD10: L13) 0
Bullous disorders in diseases classified elsewhere (ICD10: L14) 0
Atopic dermatitis (ICD10: L20) 0
Seborrhoeic dermatitis (ICD10: L21) 0
Diaper [napkin] dermatitis (ICD10: L22) 0
Allergic contact dermatitis (ICD10: L23) 0
Irritant contact dermatitis (ICD10: L24) 0
Unspecified contact dermatitis (ICD10: L25) 0
Exfoliative dermatitis (ICD10: L26)
Dermatitis due to substances taken internally (ICD10: L27)
Lichen simplex chronicus and prurigo (ICD10: L28)
Pruritus (ICD10: L29)
Other dermatitis (ICD10: L30)
Psoriasis (ICD10: L40)
Parapsoriasis (ICD10: L41)
Pityriasis rosea (ICD10: L42)
Lichen planus (ICD10: L43)
Other papulosquamous disorders (ICD10: L44)
Urticaria (ICD10: L50)
Erythema multiforme (ICD10: L51)
Erythema nodosum (ICD10: L52)
Other erythematous conditions (ICD10: L53)
Erythema in diseases classified elsewhere (ICD10: L54)
Sunburn (ICD10: L55)
Other acute skin changes due to ultraviolet radiation (ICD10: L56)
Skin changes due to chronic exposure to nonionizing radiation (ICD10: L57)
Radiodermatitis (ICD10: L58)
Other disorders of skin and subcutaneous tissue related to radiation (ICD10: L59)
Nail disorders (ICD10: L60)
Alopecia areata (ICD10: L63)
Androgenic alopecia (ICD10: L64)
Other nonscarring hair loss (ICD10: L65)
Cicatricial alopecia [scarring hair loss] (ICD10: L66)
Hypertrichosis (ICD10: L68)
Acne (ICD10: L70)
Rosacea (ICD10: L71)
Follicular cysts of skin and subcutaneous tissue (ICD10: L72)
Other follicular disorders (ICD10: L73)
Eccrine sweat disorders (ICD10: L74)
Apocrine sweat disorders (ICD10: L75)
Vitiligo (ICD10: L80)
Other disorders of pigmentation (ICD10: L81)
Seborrhoic keratosis (ICD10: L82)
Acanthosis nigricans (ICD10: L83)
Corns and calli (ICD10: L84)
Other epidermal thickening (ICD10: L85)
Transdermal elimination disorders (ICD10: L87)
Pyoderma gangrenosum (ICD10: L88)
Decubitus ulcer and pressure area (ICD10: L89)
Atrophic disorders of skin (ICD10: L90)
Hypertrophic disorders of skin (ICD10: L91)
Granulomatous disorders of skin and subcutaneous tissue (ICD10: L92)
| Condition                                                                 | Code  |
|--------------------------------------------------------------------------|-------|
| Lupus erythematosus (ICD10: L93)                                        | 0     |
| Other localized connective tissue disorders (ICD10: L94)                 | 0     |
| Vasculitis limited to skin, not elsewhere classified (ICD10: L95)       | 0     |
| Ulcer of lower limb, not elsewhere classified (ICD10: L97)              | 0     |
| Other disorders of skin and subcutaneous tissue, not elsewhere classified (ICD10: L98) | 0     |
| Other disorders of skin and subcutaneous tissue in diseases classified elsewhere (ICD10: L99) | 0     |
| Pyogenic arthritis (ICD10: M00)                                         | 0     |
| Direct infections of joint in infectious and parasitic diseases classified elsewhere (ICD10: M01) | 0     |
| Reactive arthropathies (ICD10: M02)                                     | 0     |
| Postinfective and reactive arthropathies in diseases classified elsewhere (ICD10: M03) | 0     |
| Other rheumatoid arthritis (ICD10: M06)                                 | 0     |
| Psoriatic and enteropathic arthropathies (ICD10: M07)                   | 0     |
| Juvenile arthritis (ICD10: M08)                                         | 0     |
| Gout (ICD10: M10)                                                       | 0     |
| Other crystal arthropathies (ICD10: M11)                                | 0     |
| Other specific arthropathies (ICD10: M12)                               | 0     |
| Other arthropathy (ICD10: M13)                                          | 0     |
| Arthropathies in other diseases classified elsewhere (ICD10: M14)       | 0     |
| Polyarthritis (ICD10: M15)                                              | 0     |
| Coxarthrosis [arthrosis of hip] (ICD10: M16)                            | 0     |
| Gonarthrosis [arthrosis of knee] (ICD10: M17)                           | 0     |
| Arthritis of first carpometacarpal joint (ICD10: M18)                   | 0     |
| Other arthritis (ICD10: M19)                                            | 0     |
| Acquired deformities of fingers and toes (ICD10: M20)                   | 0     |
| Other acquired deformities of limbs (ICD10: M21)                        | 0     |
| Disorders of patella (ICD10: M22)                                       | 0     |
| Internal derangement of knee (ICD10: M23)                               | 0     |
| Other specific joint derangements (ICD10: M24)                          | 0     |
| Other joint disorders, not elsewhere classified (ICD10: M25)            | 0     |
| Polyaartritis nodosa and related conditions (ICD10: M30)                | 0     |
| Other necrotizing vasculopathies (ICD10: M31)                           | 0     |
| Systemic lupus erythematosus (ICD10: M32)                               | 0     |
| Dermatopolymyositis (ICD10: M33)                                        | 0     |
| Systemic sclerosis (ICD10: M34)                                         | 0     |
| Other systemic involvement of connective tissue (ICD10: M35)            | 0     |
| Systemic disorders of connective tissue in diseases classified elsewhere (ICD10: M36) | 0     |
| Kyphosis and lordosis (ICD10: M40)                                      | 0     |
| Scoliosis (ICD10: M41)                                                  | 0     |
| Spinal osteochondrosis (ICD10: M42)                                     | 0     |
| Other deforming spondylopathies (ICD10: M43)                            | 0     |
| Ankylosing spondylitis (ICD10: M45)                                     | 0     |
| Other inflammatory spondylopathies (ICD10: M46)                         | 0     |
| Spondylosis (ICD10: M47)                                                | 0     |
| Other spondylopathies (ICD10: M48)                                      | 0     |
| Condition                                                                 | Count |
|---------------------------------------------------------------------------|-------|
| Spondylopathies in diseases classified elsewhere (ICD10: M49)             | 0     |
| Cervical disc disorders (ICD10: M50)                                      | 0     |
| Other intervertebral disc disorders (ICD10: M51)                          | 0     |
| Other dorsopathies, not elsewhere classified (ICD10: M53)                 | 0     |
| Dorsalgia (ICD10: M54)                                                    | 0     |
| Myositis (ICD10: M60)                                                     | 0     |
| Calcification and ossification of muscle (ICD10: M61)                     | 0     |
| Other disorders of muscle (ICD10: M62)                                   | 0     |
| Disorders of muscle in diseases classified elsewhere (ICD10: M63)         | 0     |
| Synovitis and tenosynovitis (ICD10: M65)                                  | 0     |
| Spontaneous rupture of synovium and tendon (ICD10: M66)                   | 0     |
| Other disorders of synovium and tendon (ICD10: M67)                      | 0     |
| Disorders of synovium and tendon in diseases classified elsewhere (ICD10: | 0     |
|                          | M68)                                         |
| Soft tissue disorders related to use, overuse and pressure (ICD10: M70)  | 0     |
| Other bursopathies (ICD10: M71)                                           | 0     |
| Fibroblastic disorders (ICD10: M72)                                       | 0     |
| Enthesopathies of lower limb, excluding foot (ICD10: M76)                | 0     |
| Other enthesopathies (ICD10: M77)                                         | 0     |
| Other soft tissue disorders, not elsewhere classified (ICD10: M79)       | 0     |
| Osteoporosis with pathological fracture (ICD10: M80)                      | 0     |
| Osteoporosis without pathological fracture (ICD10: M81)                   | 0     |
| Osteoporosis in diseases classified elsewhere (ICD10: M82)               | 0     |
| Adult osteomalacia (ICD10: M83)                                          | 0     |
| Disorders of continuity of bone (ICD10: M84)                              | 0     |
| Other disorders of bone density and structure (ICD10: M85)               | 0     |
| Osteomyelitis (ICD10: M86)                                                | 0     |
| Osteonecrosis (ICD10: M87)                                               | 0     |
| Paget disease of bone (osteitis deformans) (ICD10: M88)                  | 0     |
| Other disorders of bone (ICD10: M89)                                     | 0     |
| Osteopathies in diseases classified elsewhere (ICD10: M90)                | 0     |
| Juvenile osteochondrosis of hip and pelvis (ICD10: M91)                   | 0     |
| Other juvenile osteochondrosis (ICD10: M92)                               | 0     |
| Other osteochondropathies (ICD10: M93)                                    | 0     |
| Other disorders of cartilage (ICD10: M94)                                 | 0     |
| Other acquired deformities of musculoskeletal system and connective tissue (ICD10: M95) | 0     |
| Postprocedural musculoskeletal disorders, not elsewhere classified (ICD10: M96) | 0     |
| Biomechanical lesions, not elsewhere classified (ICD10: M99)             | 0     |
| Acute nephritic syndrome (ICD10: N00)                                    | 0     |
| Rapidly progressive nephritic syndrome (ICD10: N01)                       | 0     |
| Recurrent and persistent haematuria (ICD10: N02)                         | 0     |
| Chronic nephritic syndrome (ICD10: N03)                                   | 0     |
| Nephrotic syndrome (ICD10: N04)                                          | 0     |
| Unspecified nephritic syndrome (ICD10: N05)                              | 0     |
| Isolated proteinuria with specified morphological lesion (ICD10: N06)    | 0     |
| Diagnosis                                                                 | Count |
|--------------------------------------------------------------------------|-------|
| Glomerular disorders in diseases classified elsewhere (ICD10: N08)       | 0     |
| Acute tubulo-interstitial nephritis (ICD10: N10)                        | 0     |
| Chronic tubulo-interstitial nephritis (ICD10: N11)                      | 0     |
| Tubulo-interstitial nephritis, not specified as acute or chronic (ICD10: N12) | 0     |
| Obstructive and reflux uropathy (ICD10: N13)                            | 0     |
| Drug- and heavy-metal-induced tubulo-interstitial and tubular conditions (ICD10: N14) | 0     |
| Other renal tubulo-interstitial diseases (ICD10: N15)                   | 0     |
| Renal tubulo-interstitial disorders in diseases classified elsewhere (ICD10: N16) | 0     |
| Acute renal failure (ICD10: N17)                                        | 0     |
| Chronic kidney disease (ICD10: N18)                                     | 0     |
| Calculus of kidney and ureter (ICD10: N20)                              | 0     |
| Calculus of lower urinary tract (ICD10: N21)                            | 0     |
| Unspecified renal colic (ICD10: N23)                                    | 0     |
| Disorders resulting from impaired renal tubular function (ICD10: N25)   | 0     |
| Unspecified contracted kidney (ICD10: N26)                              | 0     |
| Small kidney of unknown cause (ICD10: N27)                              | 0     |
| Other disorders of kidney and ureter, not elsewhere classified (ICD10: N28) | 0     |
| Other disorders of kidney and ureter in diseases classified elsewhere (ICD10: N29) | 0     |
| Cystitis (ICD10: N30)                                                    | 0     |
| Neuromuscular dysfunction of bladder, not elsewhere classified (ICD10: N31) | 0     |
| Other disorders of bladder (ICD10: N32)                                 | 0     |
| Bladder disorders in diseases classified elsewhere (ICD10: N33)         | 0     |
| Urethritis and urethral syndrome (ICD10: N34)                           | 0     |
| Urethral stricture (ICD10: N35)                                         | 0     |
| Other disorders of urethra (ICD10: N36)                                 | 0     |
| Urethral disorders in diseases classified elsewhere (ICD10: N37)        | 0     |
| Other disorders of urinary system (ICD10: N39)                          | 0     |
| Hyperplasia of prostate (ICD10: N40)                                    | 0     |
| Inflammatory diseases of prostate (ICD10: N41)                          | 0     |
| Other disorders of prostate (ICD10: N42)                                | 0     |
| Hydrocele and spermatocele (ICD10: N43)                                 | 0     |
| Torsion of testis (ICD10: N44)                                          | 0     |
| Orchitis and epididymitis (ICD10: N45)                                  | 0     |
| Male infertility (ICD10: N46)                                           | 0     |
| Redundant prepuce, phimosis and paraphimosis (ICD10: N47)               | 0     |
| Other disorders of penis (ICD10: N48)                                   | 0     |
| Inflammatory disorders of male genital organs, not elsewhere classified (ICD10: N49) | 0     |
| Other disorders of male genital organs (ICD10: N50)                     | 0     |
| Disorders of male genital organs in diseases classified elsewhere (ICD10: N51) | 0     |
| Benign mammary dysplasia (ICD10: N60)                                   | 0     |
| Inflammatory disorders of breast (ICD10: N61)                          | 0     |
| Hypertrophy of breast (ICD10: N62)                                      | 0     |
| Unspecified lump in breast (ICD10: N63)                                 | 0     |
| Other disorders of breast (ICD10: N64)                                  | 0     |
| Diagnosis                                                                 | Count |
|--------------------------------------------------------------------------|-------|
| Salpingitis (ICD10: N70)                                                 | 0     |
| Inflammatory disease of uterus, except cervix (ICD10: N71)               | 0     |
| Inflammatory disease of cervix uteri (ICD10: N72)                       | 0     |
| Other female pelvic inflammatory diseases (ICD10: N73)                   | 0     |
| Diseases of Bartholin gland (ICD10: N75)                                 | 0     |
| Other inflammation of vagina and vulva (ICD10: N76)                     | 0     |
| Vulvovaginal ulceration and inflammation in diseases classified elsewhere (ICD10: N77) | 0     |
| Endometriosis (ICD10: N80)                                              | 0     |
| Female genital prolapse (ICD10: N81)                                     | 0     |
| Fistulae involving female genital tract (ICD10: N82)                    | 0     |
| Noninflammatory disorders of ovary, fallopian tube and broad ligament (ICD10: N83) | 0     |
| Polyp of female genital tract (ICD10: N84)                              | 0     |
| Other noninflammatory disorders of uterus, except cervix (ICD10: N85)   | 0     |
| Erosion and ectropion of cervix uteri (ICD10: N86)                      | 0     |
| Dysplasia of cervix uteri (ICD10: N87)                                  | 0     |
| Other noninflammatory disorders of cervix uteri (ICD10: N88)           | 0     |
| Other noninflammatory disorders of vagina (ICD10: N89)                  | 0     |
| Absent, scanty and rare menstruation (ICD10: N91)                      | 0     |
| Excessive, frequent and irregular menstruation (ICD10: N92)             | 0     |
| Other abnormal uterine and vaginal bleeding (ICD10: N93)                | 0     |
| Pain and other conditions associated with female genital organs and menstrual cycle (ICD10: N94) | 0     |
| Menopausal and other perimenopausal disorders (ICD10: N95)              | 0     |
| Habitual aborter (ICD10: N96)                                           | 0     |
| Female infertility (ICD10: N97)                                         | 0     |
| Complications associated with artificial fertilization (ICD10: N98)      | 0     |
| Postprocedural disorders of genitourinary system, not elsewhere classified (ICD10: N99) | 0     |
| Ectopic pregnancy (ICD10: O00)                                          | 0     |
| Hydatidiform mole (ICD10: O01)                                          | 0     |
| Other abnormal products of conception (ICD10: O02)                      | 0     |
| Spontaneous abortion (ICD10: O03)                                       | 0     |
| Medical abortion (ICD10: O04)                                           | 0     |
| Unspecified abortion (ICD10: O06)                                       | 0     |
| Failed attempted abortion (ICD10: O07)                                  | 0     |
| Complications following abortion and ectopic and molar pregnancy (ICD10: O08) | 0     |
| Pre-existing hypertension complicating pregnancy, childbirth and the puerperium (ICD10: O10) | 0     |
| Pre-existing hypertensive disorder with superimposed proteinuria (ICD10: O11) | 0     |
| Gestational [pregnancy-induced] oedema and proteinuria without hypertension (ICD10: O12) | 0     |
| Gestational [pregnancy-induced] hypertension without significant proteinuria (ICD10: O13) | 0     |
| Gestational [pregnancy-induced] hypertension with significant proteinuria (ICD10: O14) | 0     |
| Eclampsia (ICD10: O15)                                                  | 0     |
| Unspecified maternal hypertension (ICD10: O16)                          | 0     |
| Haemorrhage in early pregnancy (ICD10: O20)                             | 0     |
| Excessive vomiting in pregnancy (ICD10: O21)                            | 0     |
Venous complications in pregnancy (ICD10: O22)
Infections of genitourinary tract in pregnancy (ICD10: O23)
Diabetes mellitus in pregnancy (ICD10: O24)
Maternal care for other conditions predominantly related to pregnancy (ICD10: O26)
Abnormal findings on antenatal screening of mother (ICD10: O28)
Complications of anaesthesia during pregnancy (ICD10: O29)
Multiple gestation (ICD10: O30)
Complications specific to multiple gestation (ICD10: O31)
Maternal care for known or suspected malpresentation of fetus (ICD10: O32)
Maternal care for known or suspected disproportion (ICD10: O33)
Maternal care for known or suspected abnormality of pelvic organs (ICD10: O34)
Maternal care for known or suspected fetal abnormality and damage (ICD10: O35)
Maternal care for other known or suspected fetal problems (ICD10: O36)
Polyhydramnios (ICD10: O40)
Other disorders of amniotic fluid and membranes (ICD10: O41)
Premature rupture of membranes (ICD10: O42)
Placental disorders (ICD10: O43)
Placenta praevia (ICD10: O44)
Premature separation of placenta [abruptio placentae] (ICD10: O45)
Antepartum haemorrhage, not elsewhere classified (ICD10: O46)
False labour (ICD10: O47)
Prolonged pregnancy (ICD10: O48)
Preterm labour and delivery (ICD10: O60)
Failed induction of labour (ICD10: O61)
Abnormalities of forces of labour (ICD10: O62)
Long labour (ICD10: O63)
Obstructed labour due to malposition and malpresentation of fetus (ICD10: O64)
Obstructed labour due to maternal pelvic abnormality (ICD10: O65)
Other obstructed labour (ICD10: O66)
Labour and delivery complicated by intrapartum haemorrhage, not elsewhere classified (ICD10: O67)
Labour and delivery complicated by fetal stress [distress] (ICD10: O68)
Labour and delivery complicated by umbilical cord complications (ICD10: O69)
Perineal laceration during delivery (ICD10: O70)
Other obstetric trauma (ICD10: O71)
Postpartum haemorrhage (ICD10: O72)
Retained placenta and membranes, without haemorrhage (ICD10: O73)
Complications of anaesthesia during labour and delivery (ICD10: O74)
Other complications of labour and delivery, not elsewhere classified (ICD10: O75)
Single spontaneous delivery (ICD10: O80)
Single delivery by forceps and vacuum extractor (ICD10: O81)
Single delivery by caesarean section (ICD10: O82)
Other assisted single delivery (ICD10: O83)
Multiple delivery (ICD10: O84)
Puerperal sepsis (ICD10: O85)
Cleft lip (ICD10: Q36) 0
Cleft palate with cleft lip (ICD10: Q37) 0
Other congenital malformations of tongue, mouth and pharynx (ICD10: Q38) 0
Congenital malformations of oesophagus (ICD10: Q39) 0
Other congenital malformations of upper alimentary tract (ICD10: Q40) 0
Congenital absence, atresia and stenosis of large intestine (ICD10: Q42) 0
Other congenital malformations of intestine (ICD10: Q43) 0
Congenital malformations of gallbladder, bile ducts and liver (ICD10: Q44) 0
Other congenital malformations of digestive system (ICD10: Q45) 0
Congenital malformations of ovaries, fallopian tubes and broad ligaments (ICD10: Q50) 0
Congenital malformations of uterus and cervix (ICD10: Q51) 0
Other congenital malformations of female genitalia (ICD10: Q52) 0
Undescended testicle (ICD10: Q53) 0
Hypospadias (ICD10: Q54) 0
Other congenital malformations of male genital organs (ICD10: Q55) 0
Renal agenesis and other reduction defects of kidney (ICD10: Q60) 0
Cystic kidney disease (ICD10: Q61) 0
Congenital obstructive defects of renal pelvis and congenital malformations of ureter (ICD10: Q62) 0
Other congenital malformations of kidney (ICD10: Q63) 0
Other congenital malformations of urinary system (ICD10: Q64) 0
Congenital deformities of hip (ICD10: Q65) 0
Congenital deformities of feet (ICD10: Q66) 0
Congenital musculoskeletal deformities of head, face, spine and chest (ICD10: Q67) 0
Other congenital musculoskeletal deformities (ICD10: Q68) 0
Syndactyly (ICD10: Q70) 0
Reduction defects of upper limb (ICD10: Q71) 0
Reduction defects of lower limb (ICD10: Q72) 0
Other congenital malformations of limb(s) (ICD10: Q74) 0
Other congenital malformations of skull and face bones (ICD10: Q75) 0
Congenital malformations of spine and bony thorax (ICD10: Q76) 0
Osteochondrodysplasia with defects of growth of tubular bones and spine (ICD10: Q77) 0
Other osteochondrodysplasias (ICD10: Q78) 0
Congenital malformations of the musculoskeletal system, not elsewhere classified (ICD10: Q79) 0
Congenital ichthyosis (ICD10: Q80) 0
Epidermolysis bullosa (ICD10: Q81) 0
Other congenital malformations of skin (ICD10: Q82) 0
Congenital malformations of breast (ICD10: Q83) 0
Other congenital malformations of integument (ICD10: Q84) 0
Phakomatoses, not elsewhere classified (ICD10: Q85) 0
Other specified congenital malformation syndromes affecting multiple systems (ICD10: Q87) 0
Other congenital malformations, not elsewhere classified (ICD10: Q89) 0
Down syndrome (ICD10: Q90) 0
Edwards syndrome and Patau syndrome (ICD10: Q91) 0
Turner syndrome (ICD10: Q96) 0
| Condition                                                                 | Code     | Count |
|---------------------------------------------------------------------------|----------|-------|
| Other sex chromosome abnormalities, female phenotype, not elsewhere classified | Q97      | 0     |
| Other sex chromosome abnormalities, male phenotype, not elsewhere classified  | Q98      | 0     |
| Other chromosome abnormalities, not elsewhere classified                   | Q99      | 0     |
| Abnormalities of heart beat                                                | R00      | 0     |
| Cardiac murmurs and other cardiac sounds                                   | R01      | 0     |
| Gangrene, not elsewhere classified                                         | R02      | 0     |
| Abnormal blood-pressure reading, without diagnosis                          | R03      | 0     |
| Haemorrhage from respiratory passages                                       | R04      | 0     |
| Cough                                                                      | R05      | 0     |
| Abnormalities of breathing                                                 | R06      | 0     |
| Pain in throat and chest                                                   | R07      | 0     |
| Other symptoms and signs involving the circulatory and respiratory systems | R09      | 0     |
| Abdominal and pelvic pain                                                  | R10      | 0     |
| Nausea and vomiting                                                        | R11      | 0     |
| Heartburn                                                                  | R12      | 0     |
| Dysphagia                                                                  | R13      | 0     |
| Flatulence and related conditions                                          | R14      | 0     |
| Faecal incontinence                                                        | R15      | 0     |
| Hepatomegaly and splenomegaly, not elsewhere classified                    | R16      | 0     |
| Unspecified jaundice                                                       | R17      | 0     |
| Ascites                                                                    | R18      | 0     |
| Other symptoms and signs involving the digestive system and abdomen        | R19      | 0     |
| Disturbances of skin sensation                                             | R20      | 0     |
| Rash and other nonspecific skin eruption                                   | R21      | 0     |
| Localized swelling, mass and lump of skin and subcutaneous tissue          | R22      | 0     |
| Other skin changes                                                         | R23      | 0     |
| Abnormal involuntary movements                                             | R25      | 0     |
| Abnormalities of gait and mobility                                         | R26      | 0     |
| Other lack of coordination                                                 | R27      | 0     |
| Other symptoms and signs involving the nervous and musculoskeletal systems | R29      | 0     |
| Pain associated with micturition                                           | R30      | 0     |
| Unspecified haematuria                                                     | R31      | 0     |
| Unspecified urinary incontinence                                           | R32      | 0     |
| Retention of urine                                                         | R33      | 0     |
| Anuria and oliguria                                                        | R34      | 0     |
| Polyuria                                                                   | R35      | 0     |
| Urethral discharge                                                         | R36      | 0     |
| Other symptoms and signs involving the urinary system                      | R39      | 0     |
| Somnolence, stupor and coma                                                | R40      | 0     |
| Dizziness and giddiness                                                    | R42      | 0     |
| Disturbances of smell and taste                                            | R43      | 0     |
| Other symptoms and signs involving general sensations and perceptions      | R44      | 0     |
| Symptoms and signs involving emotional state                               | R45      | 0     |
| Symptoms and signs involving appearance and behaviour                      | R46      | 0     |
| Condition                                                                 | Count |
|--------------------------------------------------------------------------|-------|
| Speech disturbances, not elsewhere classified (ICD10: R47)              |       |
| Dyslexia and other symbolic dysfunctions, not elsewhere classified (ICD10: R48) |       |
| Voice disturbances (ICD10: R49)                                         |       |
| Fever of other and unknown origin (ICD10: R48)                          |       |
| Headache (ICD10: R51)                                                   |       |
| Pain, not elsewhere classified (ICD10: R52)                              |       |
| Malaise and fatigue (ICD10: R53)                                        |       |
| Senility (ICD10: R54)                                                   |       |
| Syncope and collapse (ICD10: R55)                                       |       |
| Convulsions, not elsewhere classified (ICD10: R56)                      |       |
| Shock, not elsewhere classified (ICD10: R57)                            |       |
| Haemorrhage, not elsewhere classified (ICD10: R58)                      |       |
| Enlarged lymph nodes (ICD10: R59)                                       |       |
| Oedema, not elsewhere classified (ICD10: R60)                           |       |
| Hyperhidrosis (ICD10: R61)                                              |       |
| Symptoms and signs concerning food and fluid intake (ICD10: R63)        |       |
| Cachexia (ICD10: R64)                                                   |       |
| Other general symptoms and signs (ICD10: R68)                           |       |
| Unknown and unspecified causes of morbidity (ICD10: R69)                |       |
| Elevated erythrocyte sedimentation rate and abnormality of plasma viscosity (ICD10: R70) |       |
| Abnormality of red blood cells (ICD10: R71)                             |       |
| Abnormality of white blood cells, not elsewhere classified (ICD10: R72) |       |
| Elevated blood glucose level (ICD10: R73)                               |       |
| Abnormal serum enzyme levels (ICD10: R74)                               |       |
| Other abnormal immunological findings in serum (ICD10: R76)            |       |
| Other abnormalities of plasma proteins (ICD10: R77)                     |       |
| Findings of drugs and other substances, not normally found in blood (ICD10: R78) |       |
| Other abnormal findings of blood chemistry (ICD10: R79)                 |       |
| Isolated proteinuria (ICD10: R80)                                       |       |
| Glycosuria (ICD10: R81)                                                 |       |
| Other abnormal findings in urine (ICD10: R82)                           |       |
| Abnormal findings in cerebrospinal fluid (ICD10: R83)                   |       |
| Abnormal findings in specimens from respiratory organs and thorax (ICD10: R84) |       |
| Abnormal findings in specimens from digestive organs and abdominal cavity (ICD10: R85) |       |
| Abnormal findings in specimens from male genital organs (ICD10: R86)    |       |
| Abnormal findings in specimens from female genital organs (ICD10: R87)   |       |
| Abnormal findings in specimens from other organs, systems and tissues (ICD10: R89) |       |
| Abnormal findings on diagnostic imaging of central nervous system (ICD10: R90) |       |
| Abnormal findings on diagnostic imaging of lung (ICD10: R91)             |       |
| Abnormal findings on diagnostic imaging of breast (ICD10: R92)           |       |
| Abnormal findings on diagnostic imaging of other body structures (ICD10: R93) |       |
| Abnormal results of function studies (ICD10: R94)                       |       |
| Superficial injury of head (ICD10: S00)                                 |       |
| Open wound of head (ICD10: S01)                                         |       |
Fracture of skull and facial bones (ICD10: S02) 0
Dislocation, sprain and strain of joints and ligaments of head (ICD10: S03) 0
Injury of cranial nerves (ICD10: S04) 0
Injury of eye and orbit (ICD10: S05) 0
Intracranial injury (ICD10: S06) 0
Traumatic amputation of part of head (ICD10: S08) 0
Other and unspecified injuries of head (ICD10: S09) 0
Superficial injury of neck (ICD10: S10) 0
Open wound of neck (ICD10: S11) 0
Fracture of neck (ICD10: S12) 0
Dislocation, sprain and strain of joints and ligaments at neck level (ICD10: S13) 0
Injury of nerves and spinal cord at neck level (ICD10: S14) 0
Injury of blood vessels at neck level (ICD10: S15) 0
Injury of muscle and tendon at neck level (ICD10: S16) 0
Other and unspecified injuries of neck (ICD10: S19) 0
Superficial injury of thorax (ICD10: S20) 0
Open wound of thorax (ICD10: S21) 0
Fracture of rib(s), sternum and thoracic spine (ICD10: S22) 0
Dislocation, sprain and strain of joints and ligaments of thorax (ICD10: S23) 0
Injury of nerves and spinal cord at thorax level (ICD10: S24) 0
Injury of blood vessels of thorax (ICD10: S25) 0
Injury of heart (ICD10: S26) 0
Injury of other and unspecified intrathoracic organs (ICD10: S27) 0
Crushing injury of thorax and traumatic amputation of part of thorax (ICD10: S28) 0
Other and unspecified injuries of thorax (ICD10: S29) 0
Superficial injury of abdomen, lower back and pelvis (ICD10: S30) 0
Open wound of abdomen, lower back and pelvis (ICD10: S31) 0
Fracture of lumbar spine and pelvis (ICD10: S32) 0
Dislocation, sprain and strain of joints and ligaments of lumbar spine and pelvis (ICD10: S33) 0
Injury of nerves and lumbar spinal cord at abdomen, lower back and pelvis level (ICD10: S34) 0
Injury of blood vessels at abdomen, lower back and pelvis level (ICD10: S35) 0
Injury of intra-abdominal organs (ICD10: S36) 0
Injury of urinary and pelvic organs (ICD10: S37) 0
Crushing injury and traumatic amputation of part of abdomen, lower back and pelvis (ICD10: S38) 0
Other and unspecified injuries of abdomen, lower back and pelvis (ICD10: S39) 0
Superficial injury of shoulder and upper arm (ICD10: S40) 0
Open wound of shoulder and upper arm (ICD10: S41) 0
Fracture of shoulder and upper arm (ICD10: S42) 0
Dislocation, sprain and strain of joints and ligaments of shoulder girdle (ICD10: S43) 0
Injury of nerves at shoulder and upper arm level (ICD10: S44) 0
Injury of blood vessels at shoulder and upper arm level (ICD10: S45) 0
Injury of muscle and tendon at shoulder and upper arm level (ICD10: S46) 0
Crushing injury of shoulder and upper arm (ICD10: S47) 0
Traumatic amputation of shoulder and upper arm (ICD10: S48) 0
| Injury Description                                                                 | Count |
|-----------------------------------------------------------------------------------|-------|
| Other and unspecified injuries of shoulder and upper arm (ICD10: S49)             | 0     |
| Superficial injury of forearm (ICD10: S50)                                        | 0     |
| Open wound of forearm (ICD10: S51)                                               | 0     |
| Fracture of forearm (ICD10: S52)                                                 | 0     |
| Dislocation, sprain and strain of joints and ligaments of elbow (ICD10: S53)     | 0     |
| Injury of nerves at forearm level (ICD10: S54)                                     | 0     |
| Injury of blood vessels at forearm level (ICD10: S55)                              | 0     |
| Injury of muscle and tendon at forearm level (ICD10: S56)                          | 0     |
| Crushing injury of forearm (ICD10: S57)                                            | 0     |
| Traumatic amputation of forearm (ICD10: S58)                                       | 0     |
| Other and unspecified injuries of forearm (ICD10: S59)                             | 0     |
| Superficial injury of wrist and hand (ICD10: S60)                                 | 0     |
| Open wound of wrist and hand (ICD10: S61)                                         | 0     |
| Fracture at wrist and hand level (ICD10: S62)                                     | 0     |
| Dislocation, sprain and strain of joints and ligaments at wrist and hand level (ICD10: S63) | 0     |
| Injury of nerves at wrist and hand level (ICD10: S64)                             | 0     |
| Injury of blood vessels at wrist and hand level (ICD10: S65)                      | 0     |
| Injury of muscle and tendon at wrist and hand level (ICD10: S66)                  | 0     |
| Crushing injury of wrist and hand (ICD10: S67)                                     | 0     |
| Traumatic amputation of wrist and hand (ICD10: S68)                               | 0     |
| Other and unspecified injuries of wrist and hand (ICD10: S69)                     | 0     |
| Superficial injury of hip and thigh (ICD10: S70)                                  | 0     |
| Open wound of hip and thigh (ICD10: S71)                                          | 0     |
| Fracture of femur (ICD10: S72)                                                    | 0     |
| Dislocation, sprain and strain of joint and ligaments of hip (ICD10: S73)        | 0     |
| Injury of nerves at hip and thigh level (ICD10: S74)                              | 0     |
| Injury of blood vessels at hip and thigh level (ICD10: S75)                       | 0     |
| Injury of muscle and tendon at hip and thigh level (ICD10: S76)                   | 0     |
| Crushing injury of hip and thigh (ICD10: S77)                                     | 0     |
| Other and specified injuries of hip and thigh (ICD10: S79)                        | 0     |
| Superficial injury of lower leg (ICD10: S80)                                      | 0     |
| Open wound of lower leg (ICD10: S81)                                              | 0     |
| Fracture of lower leg, including ankle (ICD10: S82)                               | 0     |
| Dislocation, sprain and strain of joints and ligaments of knee (ICD10: S83)      | 0     |
| Injury of nerves at lower leg level (ICD10: S84)                                  | 0     |
| Injury of blood vessels at lower leg level (ICD10: S85)                           | 0     |
| Injury of muscle and tendon at lower leg level (ICD10: S86)                       | 0     |
| Crushing injury of lower leg (ICD10: S87)                                         | 0     |
| Traumatic amputation of lower leg (ICD10: S88)                                    | 0     |
| Other and unspecified injuries of lower leg (ICD10: S89)                          | 0     |
| Superficial injury of ankle and foot (ICD10: S90)                                 | 0     |
| Open wound of ankle and foot (ICD10: S91)                                         | 0     |
| Fracture of foot, except ankle (ICD10: S92)                                       | 0     |
| Dislocation, sprain and strain of joints and ligaments at ankle and foot level (ICD10: S93) | 0     |
| Injury Type | ICD10 Code | Count |
|-------------|------------|-------|
| Injury of nerves at ankle and foot level | S94 | 0 |
| Injury of blood vessels at ankle and foot level | S95 | 0 |
| Injury of muscle and tendon at ankle and foot level | S96 | 0 |
| Crushing injury of ankle and foot | S97 | 0 |
| Traumatic amputation of ankle and foot | S98 | 0 |
| Other and unspecified injuries of ankle and foot | S99 | 0 |
| Superficial injuries involving multiple body regions | T00 | 0 |
| Open wounds involving multiple body regions | T01 | 0 |
| Fractures involving multiple body regions | T02 | 0 |
| Crushing injuries involving multiple body regions | T04 | 0 |
| Other injuries involving multiple body regions, not elsewhere classified | T06 | 0 |
| Unspecified multiple injuries | T07 | 0 |
| Fracture of spine, level unspecified | T08 | 0 |
| Other injuries of spine and trunk, level unspecified | T09 | 0 |
| Fracture of upper limb, level unspecified | T10 | 0 |
| Other injuries of upper limb, level unspecified | T11 | 0 |
| Fracture of lower limb, level unspecified | T12 | 0 |
| Other injuries of lower limb, level unspecified | T13 | 0 |
| Injury of unspecified body region | T14 | 0 |
| Foreign body on external eye | T15 | 0 |
| Foreign body in ear | T16 | 0 |
| Foreign body in respiratory tract | T17 | 0 |
| Foreign body in alimentary tract | T18 | 0 |
| Foreign body in genitourinary tract | T19 | 0 |
| Burn and corrosion of head and neck | T20 | 0 |
| Burn and corrosion of trunk | T21 | 0 |
| Burn and corrosion of shoulder and upper limb, except wrist and hand | T22 | 0 |
| Burn and corrosion of wrist and hand | T23 | 0 |
| Burn and corrosion of hip and lower limb, except ankle and foot | T24 | 0 |
| Burn and corrosion of ankle and foot | T25 | 0 |
| Burn and corrosion confined to eye and adnexa | T26 | 0 |
| Burn and corrosion of respiratory tract | T27 | 0 |
| Burn and corrosion of other internal organs | T28 | 0 |
| Burns and corrosions of multiple body regions | T29 | 0 |
| Burn and corrosion, body region unspecified | T30 | 0 |
| Burns classified according to extent of body surface involved | T31 | 0 |
| Corrosions classified according to extent of body surface involved | T32 | 0 |
| Superficial frostbite | T33 | 0 |
| Frostbite involving multiple body regions and unspecified frostbite | T34 | 0 |
| Poisoning by systemic antibiotics | T35 | 0 |
| Poisoning by other systemic anti-infectives and antiparasitics | T36 | 0 |
| Poisoning by hormones and their synthetic substitutes and antagonists, not elsewhere classified | T37 | 0 |
| Poisoning by nonopioid analgesics, antipyretics and antirheumatics | T38 | 0 |
| Poisoning by narcotics and psychodyleptics [hallucinogens] | T39 | 0 |
Poisoning by anaesthetics and therapeutic gases (ICD10: T41)
Poisoning by antiepileptic, sedative-hypnotic and antiparkinsonism drugs (ICD10: T42)
Poisoning by psychotropic drugs, not elsewhere classified (ICD10: T43)
Poisoning by drugs primarily affecting the autonomic nervous system (ICD10: T44)
Poisoning by primarily systemic and haematological agents, not elsewhere classified (ICD10: T45)
Poisoning by agents primarily affecting the cardiovascular system (ICD10: T46)
Poisoning by agents primarily affecting the gastrointestinal system (ICD10: T47)
Poisoning by agents primarily acting on smooth and skeletal muscles and the respiratory system (ICD10: T48)
Poisoning by topical agents primarily affecting skin and mucous membrane and by ophthalmological, otorhinolaryngological and dental drugs (ICD10: T49)
Poisoning by diuretics and other and unspecified drugs, medicaments and biological substances (ICD10: T50)
Toxic effect of alcohol (ICD10: T51)
Toxic effect of organic solvents (ICD10: T52)
Toxic effect of halogen derivatives of aliphatic and aromatic hydrocarbons (ICD10: T53)
Toxic effect of corrosive substances (ICD10: T54)
Toxic effect of soaps and detergents (ICD10: T55)
Toxic effect of metals (ICD10: T56)
Toxic effect of other inorganic substances (ICD10: T57)
Toxic effect of carbon monoxide (ICD10: T58)
Toxic effect of other gases, fumes and vapours (ICD10: T59)
Toxic effect of pesticides (ICD10: T60)
Toxic effect of noxious substances eaten as seafood (ICD10: T61)
Toxic effect of other noxious substances eaten as food (ICD10: T62)
Toxic effect of contact with venomous animals (ICD10: T63)
Toxic effect of other and unspecified substances (ICD10: T65)
Unspecified effects of radiation (ICD10: T66)
Effects of heat and light (ICD10: T67)
Hypothermia (ICD10: T68)
Other effects of reduced temperature (ICD10: T69)
Effects of air pressure and water pressure (ICD10: T70)
Asphyxiation (ICD10: T71)
Effects of other deprivation (ICD10: T73)
Maltreatment syndromes (ICD10: T74)
Effects of other external causes (ICD10: T75)
Adverse effects, not elsewhere classified (ICD10: T78)
Certain early complications of trauma, not elsewhere classified (ICD10: T79)
Complications following infusion, transfusion and therapeutic injection (ICD10: T80)
Complications of procedures, not elsewhere classified (ICD10: T81)
Complications of cardiac and vascular prosthetic devices, implants and grafts (ICD10: T82)
Complications of genitourinary prosthetic devices, implants and grafts (ICD10: T83)
Complications of internal orthopaedic prosthetic devices, implants and grafts (ICD10: T84)
Complications of other internal prosthetic devices, implants and grafts (ICD10: T85)
Failure and rejection of transplanted organs and tissues (ICD10: T86)
Complications peculiar to reattachment and amputation (ICD10: T87)
Other complications of surgical and medical care, not elsewhere classified (ICD10: T88)
| Procurement                                      | Count |
|------------------------------------------------|-------|
| Sequelae of injuries of head (ICD10: T90)      | 0     |
| Sequelae of injuries of neck and trunk (ICD10: T91) | 0     |
| Sequelae of injuries of upper limb (ICD10: T92) | 0     |
| Sequelae of injuries of lower limb (ICD10: T93) | 0     |
| Sequelae of injuries involving multiple and unspecified body regions (ICD10: T94) | 0     |
| Sequelae of burns, corrosions and frostbite (ICD10: T95) | 0     |
| Sequelae of poisoning by drugs, medicaments and biological substances (ICD10: T96) | 0     |
| Sequelae of toxic effects of substances chiefly nonmedicinal as to source (ICD10: T97) | 0     |
| Sequelae of other and unspecified effects of external causes (ICD10: T98) | 0     |
| Procedure: A01 Major excision of tissue of brain | 0     |
| Procedure: A02 Excision of lesion of tissue of brain | 0     |
| Procedure: A03 Stereotactic ablation of tissue of brain | 0     |
| Procedure: A04 Open biopsy of lesion of tissue of brain | 0     |
| Procedure: A05 Drainage of lesion of tissue of brain | 0     |
| Procedure: A07 Other open operations on tissue of brain | 0     |
| Procedure: A08 Other biopsy of lesion of tissue of brain | 0     |
| Procedure: A09 Neurostimulation of brain | 0     |
| Procedure: A10 Other operations on tissue of brain | 0     |
| Procedure: A11 Operations on tissue of brain | 0     |
| Procedure: A12 Creation of connection from ventricle of brain | 0     |
| Procedure: A13 Attention to component of connection from ventricle of brain | 0     |
| Procedure: A14 Other operations on connection from ventricle of brain | 0     |
| Procedure: A16 Other open operations on ventricle of brain | 0     |
| Procedure: A17 Therapeutic endoscopic operations on ventricle of brain | 0     |
| Procedure: A18 Diagnostic endoscopic examination of ventricle of brain | 0     |
| Procedure: A20 Other operations on ventricle of brain | 0     |
| Procedure: A22 Operations on subarachnoid space of brain | 0     |
| Procedure: A24 Graft to cranial nerve | 0     |
| Procedure: A25 Intracranial transection of cranial nerve | 0     |
| Procedure: A26 Other intracranial destruction of cranial nerve | 0     |
| Procedure: A27 Extracranial extirpation of vagus nerve (x) | 0     |
| Procedure: A28 Extracranial extirpation of other cranial nerve | 0     |
| Procedure: A29 Excision of lesion of cranial nerve | 0     |
| Procedure: A30 Repair of cranial nerve | 0     |
| Procedure: A31 Intracranial stereotactic release of cranial nerve | 0     |
| Procedure: A32 Other decompression of cranial nerve | 0     |
| Procedure: A33 Neurostimulation of cranial nerve | 0     |
| Procedure: A34 Exploration of cranial nerve | 0     |
| Procedure: A36 Other operations on cranial nerve | 0     |
| Procedure: A38 Extirpation of lesion of meninges of brain | 0     |
| Procedure: A39 Repair of dura | 0     |
| Procedure: A40 Drainage of extradural space | 0     |
| Procedure: A41 Drainage of subdural space | 0     |
| Procedure: A42 Other operations on meninges of brain | 0     |
Procedure: A43 Other extirpation of lesion of meninges of brain
Procedure: A44 Partial extirpation of spinal cord
Procedure: A45 Other open operations on spinal cord
Procedure: A47 Other destruction of spinal cord
Procedure: A48 Other operations on spinal cord
Procedure: A49 Repair of spina bifida
Procedure: A51 Other operations on meninges of spinal cord
Procedure: A52 Therapeutic epidural injection
Procedure: A53 Drainage of spinal canal
Procedure: A54 Therapeutic spinal puncture
Procedure: A55 Diagnostic spinal puncture
Procedure: A57 Operations on spinal nerve root
Procedure: A59 Excision of peripheral nerve
Procedure: A60 Destruction of peripheral nerve
Procedure: A61 Extirpation of lesion of peripheral nerve
Procedure: A62 Microsurgical repair of peripheral nerve
Procedure: A63 Other graft to peripheral nerve
Procedure: A64 Other repair of peripheral nerve
Procedure: A65 Release of entrapment of peripheral nerve at wrist
Procedure: A66 Release of entrapment of peripheral nerve at ankle
Procedure: A67 Release of entrapment of peripheral nerve at other site
Procedure: A68 Other release of peripheral nerve
Procedure: A69 Revision of release of peripheral nerve
Procedure: A70 Neurostimulation of peripheral nerve
Procedure: A73 Other operations on peripheral nerve
Procedure: A75 Excision of sympathetic nerve
Procedure: A76 Chemical destruction of sympathetic nerve
Procedure: A77 Cryotherapy to sympathetic nerve
Procedure: A78 Radiofrequency controlled thermal destruction of sympathetic nerve
Procedure: A79 Other destruction of sympathetic nerve
Procedure: A81 Other operations on sympathetic nerve
Procedure: A83 Electroconvulsive therapy
Procedure: A84 Neurophysiological operations
Procedure: B01 Excision of pituitary gland
Procedure: B04 Other operations on pituitary gland
Procedure: B06 Operations on pineal gland
Procedure: B08 Excision of thyroid gland
Procedure: B09 Operations on aberrant thyroid tissue
Procedure: B10 Operations on thyroglossal tissue
Procedure: B12 Other operations on thyroid gland
Procedure: B14 Excision of parathyroid gland
Procedure: B16 Other operations on parathyroid gland
Procedure: B18 Excision of thymus gland
Procedure: B22 Excision of adrenal gland
| Procedure Code | Description                                                                 | Count |
|----------------|-----------------------------------------------------------------------------|-------|
| B23            | Operations on aberrant adrenal tissue                                       | 0     |
| B25            | Other operations on adrenal gland                                           | 0     |
| B27            | Total excision of breast                                                    | 0     |
| B28            | Other excision of breast                                                    | 0     |
| B29            | Reconstruction of breast                                                    | 0     |
| B30            | Prosthesis for breast                                                       | 0     |
| B31            | Other plastic operations on breast                                          | 0     |
| B32            | Biopsy of breast                                                            | 0     |
| B33            | Incision of breast                                                          | 0     |
| B34            | Operations on duct of breast                                                | 0     |
| B35            | Operations on nipple                                                        | 0     |
| B36            | Reconstruction of nipple and areola                                         | 0     |
| B37            | Other operations on breast                                                  | 0     |
| B38            | Reconstruction of breast using flap of skin of buttock                      | 0     |
| B39            | Reconstruction of breast using abdominal flap                               | 0     |
| C01            | Excision of eye                                                             | 0     |
| C02            | Extirpation of lesion of orbit                                              | 0     |
| C03            | Insertion of prosthesis of eye                                              | 0     |
| C04            | Attention to prosthesis of eye                                              | 0     |
| C05            | Plastic repair of orbit                                                     | 0     |
| C06            | Incision of orbit                                                           | 0     |
| C07            | Other operations on orbit                                                   | 0     |
| C08            | Replacement of canthal tendon                                               | 0     |
| C09            | Operations on eyebrow                                                      | 0     |
| C10            | Operations on canthus                                                       | 0     |
| C11            | Operations on canthus                                                       | 0     |
| C12            | Extirpation of lesion of eyelid                                             | 0     |
| C13            | Excision of redundant skin of eyelid                                        | 0     |
| C14            | Reconstruction of eyelid                                                    | 0     |
| C15            | Correction of deformity of eyelid                                           | 0     |
| C16            | Other plastic repair of eyelid                                              | 0     |
| C17            | Other repair of eyelid                                                      | 0     |
| C18            | Correction of ptosis of eyelid                                              | 0     |
| C19            | Incision of eyelid                                                          | 0     |
| C20            | Other operations on eyelid                                                  | 0     |
| C21            | Operations on lacrimal gland                                                | 0     |
| C22            | Other operations on lacrimal apparatus                                      | 0     |
| C23            | Connection between lacrimal apparatus and nose                             | 0     |
| C24            | Operations on lacrinal sac                                                  | 0     |
| C25            | Other operations on lacrimal sac                                            | 0     |
| C26            | Operations on nasolacrimal duct                                             | 0     |
| C27            | Other operations on lacrimal apparatus                                      | 0     |
| C28            | Combined operations on muscles of eye                                       | 0     |
| C29            | Recession of muscle of eye                                                  | 0     |
| C30            | Resection of muscle of eye                                                  | 0     |
| C31            | Partial division of tendon of muscle of eye                                 | 0     |
| C32            | Other adjustment to muscle of eye                                           | 0     |
| Procedure   | Description                                         |
|------------|-----------------------------------------------------|
| C37        | Other operations on muscle of eye                   |
| C39        | Extirpation of lesion of conjunctiva                |
| C40        | Repair of conjunctiva                               |
| C41        | Incision of conjunctiva                             |
| C43        | Other operations on conjunctiva                     |
| C44        | Other plastic operations on cornea                  |
| C45        | Extirpation of lesion of cornea                     |
| C46        | Plastic operations on cornea                        |
| C47        | Closure of cornea                                   |
| C48        | Removal of foreign body from cornea                 |
| C49        | Incision of cornea                                  |
| C50        | Other operations on cornea                          |
| C51        | Repair of conjunctiva                               |
| C52        | Excision of sclera                                  |
| C53        | Extirpation of lesion of sclera                     |
| C54        | Buckling operations for attachment of retina        |
| C55        | Incision of sclera                                  |
| C56        | Other operations on sclera                          |
| C57        | Incision of iris                                    |
| C58        | Other operations on trabecular meshwork of eye      |
| C59        | Prosthesis of lens                                  |
| C60        | Filtering operations on iris                        |
| C61        | Other operations on ciliary body                    |
| C62        | Other operations on ciliary body                    |
| C63        | Incision of ciliary body                            |
| C64        | Operations following glaucoma surgery               |
| C65        | Operations on anterior chamber of eye               |
| C66        | Extirpation of ciliary body                         |
| C67        | Other operations on ciliary body                    |
| C68        | Operations on anterior chamber of eye               |
| C69        | Extracapsular extraction of lens                    |
| C70        | Intracapsular extraction of lens                    |
| C71        | Incision of capsule of lens                         |
| C72        | Other extraction of lens                            |
| C73        | Prosthesis of lens                                  |
| C74        | Other extractions of lens                           |
| C75        | Operations on vitreous body                         |
| C76        | Operations on retinal membrane                      |
| C77        | Other operations on retina                          |
| C78        | Photocoagulation of retina for detachment           |
| C79        | Destruction of subretinal lesion                    |
| C80        | Other operations on eye                             |
| C81        | Other operations on eye                             |
| C82        | Destruction of subretinal lesion                    |
| C83        | Other operations on posterior segment of eye        |
| C84        | Local anaesthetics for ophthalmology procedures     |
| C85        | Fixation of retina                                  |
| C86        | Other operations on eye                             |
| C87        | Destruction of subretinal lesion                    |
| C88        | Other operations on posterior segment of eye        |
| C89        | Local anaesthetics for ophthalmology procedures     |
| C90        | Excision of external ear                            |
| C91        | Extirpation of lesion of external ear               |
| C92        | Plastic operations on external ear                  |
| Procedure Code | Procedure Description                                      | Count |
|----------------|------------------------------------------------------------|-------|
| D04            | Drainage of external ear                                    |       |
| D05            | Attachment of auricular prosthesis                          |       |
| D06            | Other operations on external ear                            |       |
| D07            | Clearance of external auditory canal                        |       |
| D08            | Other operations on external auditory canal                 |       |
| D09            | Exenteration of mastoid air cells                           |       |
| D10            | Other operations on mastoid                                |       |
| D11            | Attachment of bone anchored hearing prosthesis              |       |
| D12            | Repair of eardrum                                           |       |
| D13            | Drainage of middle ear                                      |       |
| D14            | Reconstruction of ossicular chain                          |       |
| D15            | Other operations on ossicle of ear                          |       |
| D16            | Expiration of lesion of middle ear                          |       |
| D17            | Other operations on middle ear                              |       |
| D18            | Operations on eustachian canal                              |       |
| D19            | Other operations on cochlea                                 |       |
| D20            | Other operations on vestibular apparatus                    |       |
| D21            | Other operations on ear                                     |       |
| D22            | Excision of nose                                            |       |
| D23            | Plastic operations on nose                                  |       |
| D24            | Operations on septum of nose                                |       |
| D25            | Operations on turbinate of nose                             |       |
| D26            | Surgical arrest of bleeding from internal nose              |       |
| D27            | Packing of cavity of nose                                   |       |
| D28            | Other plastic operations on nose                            |       |
| D29            | Other operations on internal nose                           |       |
| D30            | Operations on external nose                                 |       |
| D31            | Other operations on nose                                    |       |
| D32            | Operations on maxillary antrum using sublabial approach     |       |
| D33            | Other operations on maxillary antrum                        |       |
| D34            | Operations on frontal sinus                                 |       |
| D35            | Operations on sphenoid sinus                                |       |
| D36            | Other operations on frontal sinus                           |       |
| D37            | Operations on unspecified nasal sinus                       |       |
| D38            | Excision of pharynx                                         |       |
| D39            | Operations on adentoid                                      |       |
| D40            | Repair of pharynx                                           |       |
| D41            | Other open operations on pharynx                            |       |
| D42            | Therapeutic endoscopic operations on pharynx                |       |
| D43            | Diagnostic endoscopic examination of pharynx                |       |
| D44            | Other operations on pharynx                                 |       |
| D45            | Operations on cricopharyngeal muscle                        |       |
| D46            | Excision of larynx                                          |       |
| E01            | Excision of nose                                            |       |
| E02            | Plastic operations on nose                                  |       |
| E03            | Operations on septum of nose                                |       |
| E04            | Operations on turbinate of nose                             |       |
| E05            | Surgical arrest of bleeding from internal nose              |       |
| E06            | Packing of cavity of nose                                   |       |
| E07            | Other plastic operations on nose                            |       |
| E08            | Other operations on internal nose                           |       |
| E09            | Operations on external nose                                 |       |
| E10            | Other operations on nose                                    |       |
| E11            | Operations on maxillary antrum using sublabial approach     |       |
| E12            | Other operations on maxillary antrum                        |       |
| E13            | Operations on frontal sinus                                 |       |
| E14            | Operations on sphenoid sinus                                |       |
| E15            | Other operations on frontal sinus                           |       |
| E16            | Operations on unspecified nasal sinus                       |       |
| E17            | Excision of pharynx                                         |       |
| E18            | Operations on adentoid                                      |       |
| E19            | Repair of pharynx                                           |       |
| E20            | Other open operations on pharynx                            |       |
| E21            | Therapeutic endoscopic operations on pharynx                |       |
| E22            | Diagnostic endoscopic examination of pharynx                |       |
| E23            | Other operations on pharynx                                 |       |
| E24            | Operations on cricopharyngeal muscle                        |       |
| E25            | Excision of larynx                                          |       |
| E26            | Open extirpation of lesion of larynx                        |       |
| Procedure Code | Description                                                                 |
|----------------|-----------------------------------------------------------------------------|
| E31            | Reconstruction of larynx                                                   |
| E33            | Other open operations on larynx                                             |
| E34            | Microtherapeutic endoscopic operations on larynx                           |
| E35            | Other therapeutic endoscopic operations on larynx                          |
| E36            | Diagnostic endoscopic examination of larynx                                |
| E38            | Other operations on larynx                                                 |
| E39            | Partial excision of trachea                                                |
| E40            | Plastic operations on trachea                                              |
| E41            | Open placement of prosthesis in trachea                                    |
| E42            | Exteriorisation of trachea                                                 |
| E43            | Other open operations on trachea                                           |
| E44            | Open operations on carina                                                  |
| E48            | Therapeutic fibreoptic endoscopic operations on lower respiratory tract    |
| E49            | Diagnostic fibreoptic endoscopic examination of lower respiratory tract    |
| E50            | Therapeutic endoscopic operations on lower respiratory tract using rigid bronchoscope |
| E51            | Diagnostic endoscopic examination of lower respiratory tract using rigid bronchoscope |
| E52            | Other operations on bronchus                                               |
| E53            | Transplantation of lung                                                    |
| E54            | Excision of lung                                                           |
| E55            | Open extirpation of lesion of lung                                         |
| E57            | Other open operations on lung                                               |
| E59            | Other operations on lung                                                    |
| E61            | Open operations on mediastinum                                             |
| E62            | Therapeutic endoscopic operations on mediastinum                           |
| E63            | Diagnostic endoscopic examination of mediastinum                           |
| E65            | Ventilation support                                                        |
| E87            | Oxygen therapy support                                                     |
| E99            | Other respiratory support                                                  |
| E91            | Oximetry testing                                                           |
| E92            | Respiratory tests                                                          |
| E93            | Respiratory measurements                                                   |
| E95            | Tuberculosis support                                                       |
| F01            | Partial excision of lip                                                    |
| F02            | Extirpation of lesion of lip                                               |
| F03            | Correction of deformity of lip                                             |
| F04            | Other reconstruction of lip                                                |
| F05            | Other repair of lip                                                        |
| F06            | Other operations on lip                                                    |
| F08            | Implantation of tooth                                                      |
| F09            | Surgical removal of tooth                                                  |
| F10            | Simple extraction of tooth                                                 |
| F11            | Preprosthetic oral surgery                                                 |
| F12            | Surgery on apex of tooth                                                   |
| F13            | Restoration of tooth                                                       |
| Procedure | Description | Count |
|-----------|-------------|-------|
| F14 | Orthodontic operations | 0 |
| F15 | Other orthodontic operations | 0 |
| F16 | Other operations on tooth | 0 |
| F17 | Operations on teeth using dental crown or bridge | 0 |
| F18 | Excision of dental lesion of jaw | 0 |
| F20 | Operations on gingiva | 0 |
| F22 | Excision of tongue | 0 |
| F23 | Extirpation of lesion of tongue | 0 |
| F24 | Incision of tongue | 0 |
| F26 | Other operations on tongue | 0 |
| F28 | Extirpation of lesion of palate | 0 |
| F29 | Correction of deformity of palate | 0 |
| F30 | Other repair of palate | 0 |
| F32 | Other operations on palate | 0 |
| F34 | Excision of tonsil | 0 |
| F36 | Other operations on tonsil | 0 |
| F38 | Extirpation of lesion of other part of mouth | 0 |
| F39 | Reconstruction of other part of mouth | 0 |
| F40 | Other repair of other part of mouth | 0 |
| F42 | Other operations on mouth | 0 |
| F43 | Other examinations of mouth | 0 |
| F44 | Excision of salivary gland | 0 |
| F45 | Extirpation of lesion of salivary gland | 0 |
| F46 | Incision of salivary gland | 0 |
| F48 | Other operations on salivary gland | 0 |
| F51 | Open extraction of calculus from salivary duct | 0 |
| F52 | Ligation of salivary duct | 0 |
| F53 | Other open operations on salivary duct | 0 |
| F55 | Dilation of salivary duct | 0 |
| F56 | Manipulative removal of calculus from salivary duct | 0 |
| F58 | Other operations on salivary duct | 0 |
| F63 | Insertion of dental prosthesis | 0 |
| G01 | Excision of oesophagus and stomach | 0 |
| G02 | Total excision of oesophagus | 0 |
| G03 | Partial excision of oesophagus | 0 |
| G04 | Open extirpation of lesion of oesophagus | 0 |
| G05 | Attention to connection of oesophagus | 0 |
| G06 | Repair of oesophagus | 0 |
| G07 | Artificial opening into oesophagus | 0 |
| G08 | Incision of oesophagus | 0 |
| G09 | Open operations on varices of oesophagus | 0 |
| G14 | Fibreoptic endoscopic extirpation of lesion of oesophagus | 0 |
| G15 | Other therapeutic fibreoptic endoscopic operations on oesophagus | 0 |
| G16 | Diagnostic fibreoptic endoscopic examination of oesophagus | 0 |
Procedure: G17 Endoscopic extirpation of lesion of oesophagus using rigid oesophagoscope
Procedure: G18 Other therapeutic endoscopic operations on oesophagus using rigid oesophagoscope
Procedure: G19 Diagnostic endoscopic examination of oesophagus using rigid oesophagoscope
Procedure: G21 Other operations on oesophagus
Procedure: G23 Repair of diaphragmatic hernia
Procedure: G24 Antireflux operations
Procedure: G25 Revision of antireflux operations
Procedure: G27 Total excision of stomach
Procedure: G28 Partial excision of stomach
Procedure: G29 Open extirpation of lesion of stomach
Procedure: G30 Plastic operations on stomach
Procedure: G31 Connection of stomach to duodenum
Procedure: G32 Connection of stomach to transposed jejunum
Procedure: G33 Other connection of stomach to jejunum
Procedure: G34 Artificial opening into stomach
Procedure: G35 Operations on ulcer of stomach
Procedure: G36 Other repair of stomach
Procedure: G38 Other open operations on stomach
Procedure: G40 Incision of pylorus
Procedure: G41 Other operations on pylorus
Procedure: G42 Other fibreoptic endoscopic extirpation of lesion of upper gastrointestinal tract
Procedure: G43 Fibreoptic endoscopic extirpation of lesion of upper gastrointestinal tract
Procedure: G44 Other therapeutic fibreoptic endoscopic operations on upper gastrointestinal tract
Procedure: G45 Diagnostic fibreoptic endoscopic examination of upper gastrointestinal tract
Procedure: G47 Intubation of stomach
Procedure: G48 Other operations on stomach
Procedure: G49 Excision of duodenum
Procedure: G50 Open extirpation of lesion of duodenum
Procedure: G51 Bypass of duodenum
Procedure: G52 Operations on ulcer of duodenum
Procedure: G53 Other open operations on duodenum
Procedure: G54 Therapeutic endoscopic operations on duodenum
Procedure: G55 Diagnostic endoscopic examination of duodenum
Procedure: G58 Excision of jejunum
Procedure: G59 Extirpation of lesion of jejunum
Procedure: G60 Artificial opening into jejunum
Procedure: G61 Bypass of jejunum
Procedure: G63 Other open operations on jejunum
Procedure: G64 Therapeutic endoscopic operations on jejunum
Procedure: G65 Diagnostic endoscopic examination of jejunum
Procedure: G67 Other operations on jejunum
Procedure: G69 Excision of ileum
Procedure: G70 Open extirpation of lesion of ileum
Procedure: G71 Bypass of ileum
Procedure: G72 Other connection of ileum
Procedure: G73 Attention to connection of ileum
Procedure: G74 Creation of artificial opening into ileum
Procedure: G75 Attention to artificial opening into ileum
Procedure: G76 Intra-abdominal manipulation of ileum
Procedure: G78 Other open operations on ileum
Procedure: G79 Therapeutic endoscopic operations on ileum
Procedure: G80 Diagnostic endoscopic examination of ileum
Procedure: G82 Other operations on ileum
Procedure: H01 Emergency excision of appendix
Procedure: H02 Other excision of appendix
Procedure: H03 Other operations on appendix
Procedure: H04 Total excision of colon and rectum
Procedure: H05 Total excision of colon
Procedure: H06 Extended excision of right hemicolon
Procedure: H07 Other excision of right hemicolon
Procedure: H08 Excision of transverse colon
Procedure: H09 Excision of left hemicolon
Procedure: H10 Excision of sigmoid colon
Procedure: H11 Other excision of colon
Procedure: H12 Extirpation of lesion of colon
Procedure: H13 Bypass of colon
Procedure: H14 Exteriorisation of caecum
Procedure: H15 Other exteriorisation of colon
Procedure: H16 Incision of colon
Procedure: H17 Intra-abdominal manipulation of colon
Procedure: H18 Open endoscopic operations on colon
Procedure: H19 Other open operations on colon
Procedure: H20 Endoscopic extirpation of lesion of colon
Procedure: H21 Other therapeutic endoscopic operations on colon
Procedure: H22 Diagnostic endoscopic examination of colon
Procedure: H23 Endoscopic extirpation of lesion of lower bowel using fibreoptic sigmoidoscope
Procedure: H24 Other therapeutic endoscopic operations on lower bowel using fibreoptic sigmoidoscope
Procedure: H25 Diagnostic endoscopic examination of lower bowel using fibreoptic sigmoidoscope
Procedure: H26 Endoscopic extirpation of lesion of sigmoid colon using rigid sigmoidoscope
Procedure: H27 Other therapeutic endoscopic operations on sigmoid colon using rigid sigmoidoscope
Procedure: H28 Diagnostic endoscopic examination of sigmoid colon using rigid sigmoidoscope
Procedure: H29 Subtotal excision of colon
Procedure: H30 Other operations on colon
Procedure: H31 Excision of rectum
Procedure: H34 Open extirpation of lesion of rectum
Procedure: H35 Fixation of rectum for prolapse
Procedure: H36 Other abdominal operations for prolapse of rectum
Procedure: H40 Operations on rectum through anal sphincter
Procedure: H41 Other operations on rectum through anus
Procedure: H42 Perineal operations for prolapse of rectum
Procedure: H44 Manipulation of rectum
Procedure: H46 Other operations on rectum
Procedure: H47 Excision of anus
Procedure: H48 Excision of lesion of anus
Procedure: H49 Destruction of lesion of anus
Procedure: H50 Repair of anus
Procedure: H51 Excision of haemorrhoid
Procedure: H52 Destruction of haemorrhoid
Procedure: H53 Other operations on haemorrhoid
Procedure: H54 Dilation of anal sphincter
Procedure: H55 Other operations on perianal region
Procedure: H56 Other operations on anus
Procedure: H57 Other operations on the anal sphincter to control continence
Procedure: H58 Drainage through perineal region
Procedure: H59 Excision of pilonidal sinus
Procedure: H60 Other operations on pilonidal sinus
Procedure: H62 Other operations on bowel
Procedure: H66 Therapeutic operations on ileoanal pouch
Procedure: H68 Diagnostic endoscopic examination of enteric pouch using colonoscope
Procedure: H69 Diagnostic endoscopic examination of enteric pouch using fibreoptic sigmoidoscope
Procedure: H70 Diagnostic endoscopic examination of enteric pouch using rigid sigmoidoscope
Procedure: J02 Partial excision of liver
Procedure: J03 Extirpation of lesion of liver
Procedure: J04 Repair of liver
Procedure: J05 Incision of liver
Procedure: J07 Other open operations on liver
Procedure: J08 Therapeutic endoscopic operations on liver using laparoscope
Procedure: J09 Diagnostic endoscopic examination of liver using laparoscope
Procedure: J10 Transluminal operations on blood vessel of liver
Procedure: J11 Transjugular intrahepatic operations on blood vessel of liver
Procedure: J12 Other therapeutic percutaneous operations on liver
Procedure: J13 Diagnostic percutaneous operations on liver
Procedure: J14 Other puncture of liver
Procedure: J16 Other operations on liver
Procedure: J17 Endoscopic ultrasound examination of liver
Procedure: J18 Excision of gall bladder
Procedure: J19 Connection of gall bladder
Procedure: J20 Repair of gall bladder
Procedure: J21 Incision of gall bladder
Procedure: J23 Other open operations on gall bladder
Procedure: J24 Therapeutic percutaneous operations on gall bladder
Procedure: J26 Other operations on gall bladder
| Procedure | Description |
|-----------|-------------|
| J27       | Excision of bile duct |
| J28       | Extirpation of lesion of bile duct |
| J29       | Connection of hepatic duct |
| J30       | Connection of common bile duct |
| J31       | Open introduction of prosthesis into bile duct |
| J32       | Repair of bile duct |
| J33       | Incision of bile duct |
| J34       | Plastic repair of sphincter of Oddi using duodenal approach |
| J35       | Incision of sphincter of Oddi using duodenal approach |
| J36       | Other operations on ampulla of Vater using duodenal approach |
| J37       | Other open operations on bile duct |
| J38       | Endoscopic incision of sphincter of Oddi |
| J39       | Other therapeutic endoscopic operations on ampulla of Vater |
| J40       | Endoscopic retrograde placement of prosthesis in bile duct |
| J41       | Other therapeutic endoscopic retrograde operations on bile duct |
| J42       | Therapeutic endoscopic retrograde operations on pancreatic duct |
| J43       | Diagnostic endoscopic retrograde examination of bile duct and pancreatic duct |
| J44       | Diagnostic endoscopic retrograde examination of bile duct |
| J45       | Diagnostic endoscopic retrograde examination of pancreatic duct |
| J46       | Therapeutic percutaneous attention to connection of bile duct |
| J47       | Therapeutic percutaneous insertion of prosthesis into bile duct |
| J48       | Other therapeutic percutaneous operations on bile duct |
| J49       | Therapeutic operations on bile duct along T tube track |
| J50       | Percutaneous examination of bile duct |
| J52       | Other operations on bile duct |
| J53       | Endoscopic ultrasound examination of bile duct |
| J54       | Transplantation of pancreas |
| J55       | Total excision of pancreas |
| J56       | Excision of head of pancreas |
| J57       | Other partial excision of pancreas |
| J58       | Extirpation of lesion of pancreas |
| J59       | Connection of pancreatic duct |
| J61       | Open drainage of lesion of pancreas |
| J62       | Incision of pancreas |
| J65       | Other open operations on pancreas |
| J66       | Therapeutic percutaneous operations on pancreas |
| J67       | Diagnostic percutaneous operations on pancreas |
| J69       | Total excision of spleen |
| J70       | Other excision of spleen |
| J72       | Other operations on spleen |
| J74       | Endoscopic ultrasound examination of pancreas |
| K01       | Transplantation of heart and lung |
| K04       | Repair of tetralogy of Fallot |
| K07       | Correction of total anomalous pulmonary venous connection |
Procedure: K09 Repair of defect of atrioventricular septum
Procedure: K10 Repair of defect of interatrial septum
Procedure: K11 Repair of defect of interventricular septum
Procedure: K12 Repair of defect of unspecified septum of heart
Procedure: K13 Transluminal repair of defect of septum
Procedure: K16 Other therapeutic transluminal operations on septum of heart
Procedure: K18 Creation of valved cardiac conduit
Procedure: K20 Refashioning of atrium
Procedure: K22 Other operations on wall of atrium
Procedure: K23 Other operations of wall of heart
Procedure: K25 Plastic repair of mitral valve
Procedure: K26 Plastic repair of aortic valve
Procedure: K27 Plastic repair of tricuspid valve
Procedure: K28 Plastic repair of pulmonary valve
Procedure: K29 Plastic repair of unspecified valve of heart
Procedure: K30 Revision of plastic repair of valve of heart
Procedure: K33 Operations on aortic root
Procedure: K34 Other open operations on valve of heart
Procedure: K35 Therapeutic transluminal operations on valve of heart
Procedure: K37 Removal of obstruction from structure adjacent to valve of heart
Procedure: K38 Other operations on structure adjacent to valve of heart
Procedure: K40 Saphenous vein graft replacement of coronary artery
Procedure: K41 Other autograft replacement of coronary artery
Procedure: K42 Allograft replacement of coronary artery
Procedure: K43 Prosthetic replacement of coronary artery
Procedure: K44 Other replacement of coronary artery
Procedure: K45 Connection of thoracic artery to coronary artery
Procedure: K46 Other bypass of coronary artery
Procedure: K47 Other open operations on coronary artery
Procedure: K48 Other open operations on coronary artery
Procedure: K49 Transluminal balloon angioplasty of coronary artery
Procedure: K50 Other therapeutic transluminal operations on coronary artery
Procedure: K51 Diagnostic transluminal operations on coronary artery
Procedure: K52 Open operations on conducting system of heart
Procedure: K56 Transluminal heart assist operations
Procedure: K57 Other therapeutic transluminal operations on heart
Procedure: K58 Diagnostic transluminal operations on heart
Procedure: K59 Cardioverter defibrillator introduced through the vein
Procedure: K60 Cardiac pacemaker system introduced through vein
Procedure: K61 Other cardiac pacemaker system
Procedure: K62 Therapeutic transluminal operations on heart
Procedure: K63 Contrast radiology of heart
Procedure: K65 Catheterisation of heart
Procedure: K66 Other operations on heart
Procedure: K67 Excision of pericardium
| Procedure | Code  | Description                                                                 | Count |
|-----------|-------|-----------------------------------------------------------------------------|-------|
| Procedure: | K68   | Drainage of pericardium                                                    |       |
| Procedure: | K69   | Incision of pericardium                                                    |       |
| Procedure: | K71   | Other operations on pericardium                                            |       |
| Procedure: | K75   | Percutaneous transluminal balloon angioplasty and insertion of stent into coronary artery |       |
| Procedure: | L03   | Transluminal operations on abnormality of great vessel                     |       |
| Procedure: | L04   | Open operations on pulmonary arterial tree                                 |       |
| Procedure: | L06   | Other connection to pulmonary artery from aorta                            |       |
| Procedure: | L13   | Transluminal operations on pulmonary artery                                 |       |
| Procedure: | L16   | Extra-anatomic bypass of aorta                                             |       |
| Procedure: | L18   | Emergency replacement of aneurysmal segment of aorta                       |       |
| Procedure: | L19   | Other replacement of aneurysmal segment of aorta                           |       |
| Procedure: | L20   | Other emergency bypass of segment of aorta                                 |       |
| Procedure: | L21   | Other bypass of segment of aorta                                            |       |
| Procedure: | L22   | Attention to prosthesis of aorta                                           |       |
| Procedure: | L23   | Plastic repair of aorta                                                    |       |
| Procedure: | L25   | Other open operations on aorta                                              |       |
| Procedure: | L26   | Transluminal operations on aorta                                            |       |
| Procedure: | L27   | Transluminal insertion of stent graft for aneurysmal segment of aorta      |       |
| Procedure: | L28   | Transluminal operations on aneurysmal segment of aorta                     |       |
| Procedure: | L29   | Reconstruction of carotid artery                                           |       |
| Procedure: | L30   | Other open operations on carotid artery                                     |       |
| Procedure: | L31   | Transluminal operations on carotid artery                                   |       |
| Procedure: | L33   | Operations on aneurysm of cerebral artery                                   |       |
| Procedure: | L34   | Other open operations on cerebral artery                                    |       |
| Procedure: | L35   | Transluminal operations on cerebral artery                                  |       |
| Procedure: | L37   | Reconstruction of subclavian artery                                        |       |
| Procedure: | L38   | Other open operations on subclavian artery                                 |       |
| Procedure: | L39   | Transluminal operations on subclavian artery                               |       |
| Procedure: | L41   | Reconstruction of renal artery                                             |       |
| Procedure: | L42   | Other open operations on renal artery                                      |       |
| Procedure: | L43   | Transluminal operations on renal artery                                     |       |
| Procedure: | L45   | Reconstruction of other visceral branch of abdominal aorta                  |       |
| Procedure: | L46   | Other open operations on other visceral branch of abdominal aorta          |       |
| Procedure: | L47   | Transluminal operations on other visceral branch of abdominal aorta        |       |
| Procedure: | L49   | Other replacement of aneurysmal iliac artery                               |       |
| Procedure: | L50   | Other emergency bypass of iliac artery                                     |       |
| Procedure: | L51   | Other bypass of iliac artery                                               |       |
| Procedure: | L52   | Reconstruction of iliac artery                                             |       |
| Procedure: | L53   | Other open operations on iliac artery                                       |       |
| Procedure: | L54   | Transluminal operations on iliac artery                                     |       |
| Procedure: | L56   | Emergency replacement of aneurysmal femoral artery                         |       |
| Procedure: | L57   | Other replacement of aneurysmal femoral artery                             |       |
| Procedure: | L58   | Other emergency bypass of femoral artery                                   |       |
| Procedure: | L59   | Other bypass of femoral artery                                             |       |
| Procedure | Description |
|------------|-------------|
| M15 | Operations on kidney along nephrostomy tube track |
| M16 | Other operations on kidney |
| M17 | Interventions associated with transplantation of kidney |
| M18 | Excision of ureter |
| M19 | Urinary diversion |
| M20 | Replantation of ureter |
| M22 | Repair of ureter |
| M23 | Incision of ureter |
| M25 | Other open operations on ureter |
| M26 | Therapeutic nephroscopic operations on ureter |
| M27 | Therapeutic ureteroscopic operations on ureter |
| M28 | Other endoscopic removal of calculus from ureter |
| M29 | Other therapeutic endoscopic operations on ureter |
| M30 | Diagnostic endoscopic examination of ureter |
| M31 | Extracorporeal fragmentation of calculus of ureter |
| M32 | Operations on ureteric orifice |
| M33 | Percutaneous ureteric stent procedures |
| M34 | Total excision of bladder |
| M35 | Partial excision of bladder |
| M36 | Enlargement of bladder |
| M37 | Other repair of bladder |
| M38 | Open drainage of bladder |
| M39 | Other open operations on contents of bladder |
| M41 | Other open operations on bladder |
| M42 | Endoscopic extirpation of lesion of bladder |
| M43 | Endoscopic operations to increase capacity of bladder |
| M44 | Other therapeutic endoscopic operations on bladder |
| M45 | Diagnostic endoscopic examination of bladder |
| M47 | Urethral catheterisation of bladder |
| M48 | Operations on bladder |
| M49 | Other operations on bladder |
| M51 | Combined abdominal and vaginal operations to support outlet of female bladder |
| M52 | Abdominal operations to support outlet of female bladder |
| M53 | Vaginal operations to support outlet of female bladder |
| M54 | Open operations on outlet of female bladder |
| M55 | Other open operations on outlet of female bladder |
| M56 | Therapeutic endoscopic operations on outlet of female bladder |
| M58 | Other operations on outlet of female bladder |
| M61 | Open excision of prostate |
| M62 | Other open operations on prostate |
| M64 | Other open operations on outlet of male bladder |
| M65 | Endoscopic resection of outlet of male bladder |
| M66 | Other therapeutic endoscopic operations on outlet of male bladder |
| M67 | Other therapeutic endoscopic operations on prostate |
Procedure: M70 Other operations on outlet of male bladder
Procedure: M71 Other operations on prostate
Procedure: M72 Excision of urethra
Procedure: M73 Repair of urethra
Procedure: M75 Other open operations on urethra
Procedure: M76 Therapeutic endoscopic operations on urethra
Procedure: M77 Diagnostic endoscopic examination of urethra
Procedure: M79 Other operations on urethra
Procedure: M81 Operations on urethral orifice
Procedure: M83 Other operations on urinary tract
Procedure: M85 Diagnostic endoscopic examination of urinary diversion
Procedure: M86 Therapeutic endoscopic operations on urinary diversion
Procedure: N01 Extirpation of scrotum
Procedure: N03 Other operations on scrotum
Procedure: N05 Bilateral excision of testes
Procedure: N06 Other excision of testis
Procedure: N07 Extirpation of lesion of testis
Procedure: N08 Bilateral placement of testes in scrotum
Procedure: N09 Other placement of testis in scrotum
Procedure: N10 Prosthesis of testis
Procedure: N11 Operations on hydrocele sac
Procedure: N13 Other operations on testis
Procedure: N15 Operations on epididymis
Procedure: N17 Excision of vas deferens
Procedure: N18 Repair of spermatic cord
Procedure: N19 Operations on varicocele
Procedure: N20 Other operations on spermatic cord
Procedure: N22 Operations on seminal vesicle
Procedure: N24 Operations on male perineum
Procedure: N26 Amputation of penis
Procedure: N27 Extirpation of lesion of penis
Procedure: N28 Plastic operations on penis
Procedure: N29 Prosthesis of penis
Procedure: N30 Operations on prepuce
Procedure: N32 Other operations on penis
Procedure: N34 Other operations on male genital tract
Procedure: N35 Non-operative interventions to male genitalia
Procedure: O01 Transluminal coil embolisation of aneurysm of artery
Procedure: O02 Transluminal balloon assisted coil embolisation of aneurysm of artery
Procedure: O03 Transluminal stent assisted coil embolisation of aneurysm of artery
Procedure: O05 Operations on dural arteriovenous fistula
Procedure: O06 Hybrid prosthetic replacement of shoulder joint using cemented humeral component
Procedure: O07 Hybrid prosthetic replacement of shoulder joint using cemented glenoid component
Procedure: O10 Complex reconstruction of shoulder
| Procedure: O15 | Operations on blood vessel |
|---------------|-----------------------------|
| Procedure: O17 | Secondary closed reduction of fracture of bone and internal fixation |
| Procedure: O18 | Hybrid prosthetic replacement of knee joint using cement |
| Procedure: O23 | Total prosthetic replacement of elbow joint |
| Procedure: O25 | Prosthetic replacement of head of radius not using cement |
| Procedure: O27 | Other stabilising operations on joint |
| Procedure: O29 | Excision of bone |
| Procedure: P01 | Operations on clitoris |
| Procedure: P03 | Operations on Bartholin gland |
| Procedure: P05 | Excision of vulva |
| Procedure: P06 | Extirpation of lesion of vulva |
| Procedure: P07 | Repair of vulva |
| Procedure: P09 | Other operations on vulva |
| Procedure: P11 | Excision of lesion of female perineum |
| Procedure: P13 | Other operations on female perineum |
| Procedure: P14 | Incision of introitus of vagina |
| Procedure: P15 | Other operations on introitus of vagina |
| Procedure: P17 | Excision of vagina |
| Procedure: P18 | Other obliteration of vagina |
| Procedure: P19 | Excision of band of vagina |
| Procedure: P20 | Extirpation of lesion of vagina |
| Procedure: P21 | Plastic operations on vagina |
| Procedure: P22 | Repair of prolapse of vagina and amputation of cervix uteri |
| Procedure: P23 | Other repair of prolapse of vagina |
| Procedure: P24 | Repair of vault of vagina |
| Procedure: P25 | Other repair of vagina |
| Procedure: P26 | Introduction of supporting pessary into vagina |
| Procedure: P27 | Exploration of vagina |
| Procedure: P29 | Other operations on vagina |
| Procedure: P31 | Operations on pouch of Douglas |
| Procedure: P32 | Other plastic operations on vagina |
| Procedure: Q01 | Excision of cervix uteri |
| Procedure: Q02 | Destruction of lesion of cervix uteri |
| Procedure: Q03 | Biopsy of cervix uteri |
| Procedure: Q05 | Other operations on cervix uteri |
| Procedure: Q07 | Abdominal excision of uterus |
| Procedure: Q08 | Vaginal excision of uterus |
| Procedure: Q09 | Other open operations on uterus |
| Procedure: Q10 | Curettage of uterus |
| Procedure: Q11 | Other evacuation of contents of uterus |
| Procedure: Q12 | Intrauterine contraceptive device |
| Procedure: Q13 | Introduction of gamete into uterine cavity |
| Procedure: Q14 | Introduction of abortifacient into uterine cavity |
| Procedure: Q15 | Introduction of other substance into uterine cavity |
| Procedure Code | Description                              | Count |
|----------------|------------------------------------------|-------|
| Q16            | Other vaginal operations on uterus       | 0     |
| Q17            | Therapeutic endoscopic operations on uterus | 0     |
| Q18            | Diagnostic endoscopic examination of uterus | 0     |
| Q20            | Other operations on uterus               | 0     |
| Q22            | Bilateral excision of adnexa of uterus   | 0     |
| Q23            | Unilateral excision of adnexa of uterus  | 0     |
| Q24            | Other excision of adnexa of uterus       | 0     |
| Q25            | Partial excision of fallopian tube       | 0     |
| Q27            | Open bilateral occlusion of fallopian tubes | 0     |
| Q31            | Partial excision of fallopian tube       | 0     |
| Q32            | Incision of fallopian tube               | 0     |
| Q33            | Operations on fimbria                    | 0     |
| Q34            | Other open operations on fallopian tube  | 0     |
| Q35            | Endoscopic bilateral occlusion of fallopian tubes | 0     |
| Q36            | Other endoscopic occlusion of fallopian tube | 0     |
| Q37            | Endoscopic reversal of female sterilisation | 0     |
| Q38            | Other therapeutic endoscopic operations on fallopian tube | 0     |
| Q41            | Other operations on fallopian tube       | 0     |
| Q43            | Partial excision of ovary                | 0     |
| Q44            | Open destruction of lesion of ovary      | 0     |
| Q45            | Repair of ovary                          | 0     |
| Q47            | Other open operations on ovary           | 0     |
| Q48            | Oocyte recovery                          | 0     |
| Q49            | Therapeutic endoscopic operations on ovary | 0     |
| Q50            | Diagnostic endoscopic examination of ovary | 0     |
| Q51            | Other operations on ovary                | 0     |
| Q52            | Operations on broad ligament of uterus   | 0     |
| Q54            | Operations on other ligament of uterus   | 0     |
| Q55            | Other examination of female genital tract | 0     |
| Q56            | Other operations on female genital tract | 0     |
| R02            | Other operations on amniotic cavity      | 0     |
| R04            | Therapeutic percutaneous operations on fetus | 0     |
| R05            | Diagnostic percutaneous examination of fetus | 0     |
| R10            | Other operations on amniotic cavity      | 0     |
| R12            | Operations on gravid uterus              | 0     |
| R14            | Surgical induction of labour             | 0     |
| R15            | Other induction of labour                | 0     |
| R17            | Elective caesarean delivery              | 0     |
| R18            | Other caesarean delivery                 | 0     |
| R19            | Breech extraction delivery               | 0     |
Procedure: R20 Other breech delivery
Procedure: R21 Forceps cephalic delivery
Procedure: R22 Vacuum delivery
Procedure: R23 Cephalic vaginal delivery with abnormal presentation of head at delivery without instrument
Procedure: R24 Normal delivery
Procedure: R25 Other methods of delivery
Procedure: R27 Other operations to facilitate delivery
Procedure: R28 Instrumental removal of products of conception from delivered uterus
Procedure: R29 Manual removal of products of conception from delivered uterus
Procedure: R30 Other operations on delivered uterus
Procedure: R32 Repair of obstetric laceration
Procedure: R34 Other obstetric operations
Procedure: R36 Routine obstetric scan
Procedure: R37 Non-routine obstetric scan for fetal observations
Procedure: R38 Other non-routine obstetric scan
Procedure: R40 Other maternal physiological assessments
Procedure: R43 Ultrasound monitoring
Procedure: S01 Plastic excision of skin of head or neck
Procedure: S02 Plastic excision of skin of abdominal wall
Procedure: S03 Plastic excision of skin of other site
Procedure: S04 Other excision of skin
Procedure: S05 Microscopically controlled excision of lesion of skin
Procedure: S06 Other excision of lesion of skin
Procedure: S07 Photodynamic therapy of skin
Procedure: S08 Curettage of lesion of skin
Procedure: S09 Photodestruction of lesion of skin
Procedure: S10 Other destruction of lesion of skin of head or neck
Procedure: S11 Other destruction of lesion of skin of other site
Procedure: S12 Phototherapy to skin
Procedure: S13 Punch biopsy of skin
Procedure: S14 Shave biopsy of skin
Procedure: S15 Other biopsy of skin
Procedure: S17 Distant flap of skin and muscle
Procedure: S18 Distant flap of skin and fascia
Procedure: S19 Distant pedicle flap of skin
Procedure: S20 Other distant flap of skin
Procedure: S22 Sensory flap of skin
Procedure: S23 Flap operations to relax contracture of skin
Procedure: S24 Local flap of skin and muscle
Procedure: S25 Local flap of skin and fascia
Procedure: S26 Local subcutaneous pedicle flap of skin
Procedure: S27 Other local flap of skin
Procedure: S30 Other operations on flap of skin to head or neck
Procedure: S31 Other operations on flap of skin to other site
Procedure: S35 Split autograft of skin
Procedure: S36 Other autograft of skin
Procedure: S37 Other graft of skin
Procedure: S39 Graft of other tissue to skin
Procedure: S40 Other closure of skin
Procedure: S41 Suture of skin of head or neck
Procedure: S42 Suture of skin of other site
Procedure: S43 Removal of repair material from skin
Procedure: S44 Removal of other inorganic substance from skin
Procedure: S45 Removal of other substance from skin
Procedure: S47 Opening of skin
Procedure: S48 Insertion of skin expander into subcutaneous tissue
Procedure: S49 Attention to skin expander in subcutaneous tissue
Procedure: S50 Introduction of other inert substance into subcutaneous tissue
Procedure: S51 Introduction of destructive substance into subcutaneous tissue
Procedure: S52 Introduction of therapeutic substance into subcutaneous tissue
Procedure: S53 Introduction of substance into skin
Procedure: S54 Exploration of burnt skin of head or neck
Procedure: S55 Exploration of burnt skin of other site
Procedure: S56 Exploration of other skin of head or neck
Procedure: S57 Exploration of other skin of other site
Procedure: S58 Larvae therapy of skin
Procedure: S60 Other operations on skin
Procedure: S62 Other operations on subcutaneous tissue
Procedure: S64 Extirpation of nail bed
Procedure: S66 Other operations on nail bed
Procedure: S68 Excision of nail
Procedure: S70 Other operations on nail
Procedure: T01 Partial excision of chest wall
Procedure: T02 Reconstruction of chest wall
Procedure: T03 Opening of chest
Procedure: T05 Other operations on chest wall
Procedure: T07 Open excision of pleura
Procedure: T08 Open drainage of pleural cavity
Procedure: T09 Other open operations on pleura
Procedure: T10 Therapeutic endoscopic operations on pleura
Procedure: T11 Diagnostic endoscopic examination of pleura
Procedure: T12 Puncture of pleura
Procedure: T13 Introduction of substance into pleural cavity
Procedure: T14 Other operations on pleura
Procedure: T15 Repair of rupture of diaphragm
Procedure: T16 Other repair of diaphragm
Procedure: T17 Other operations on diaphragm
Procedure: T19 Simple excision of inguinal hernial sac
Procedure: T20 Primary repair of inguinal hernia
Procedure: T21 Repair of recurrent inguinal hernia
Procedure: T22 Primary repair of femoral hernia
Procedure: T23 Repair of recurrent femoral hernia
Procedure: T24 Primary repair of umbilical hernia
Procedure: T25 Primary repair of incisional hernia
Procedure: T26 Repair of recurrent incisional hernia
Procedure: T27 Repair of other hernia of abdominal wall
Procedure: T28 Other repair of anterior abdominal wall
Procedure: T29 Operations on umbilicus
Procedure: T30 Opening of abdominum
Procedure: T31 Other operations on anterior abdominal wall
Procedure: T33 Open extirpation of lesion of peritoneum
Procedure: T34 Open drainage of peritoneum
Procedure: T36 Operations on omentum
Procedure: T37 Operations on mesentery of small intestine
Procedure: T38 Operations on mesentery of colon
Procedure: T39 Operations on posterior peritoneum
Procedure: T41 Other open operations on peritoneum
Procedure: T42 Therapeutic endoscopic operations on peritoneum
Procedure: T43 Diagnostic endoscopic examination of peritoneum
Procedure: T45 Image controlled operations on abdominal cavity
Procedure: T46 Other drainage of peritoneal cavity
Procedure: T48 Other operations on peritoneum
Procedure: T50 Transplantation of fascia
Procedure: T52 Excision of other fascia
Procedure: T53 Extirpation of lesion of fascia
Procedure: T54 Division of fascia
Procedure: T55 Release of fascia
Procedure: T56 Other excision of other fascia
Procedure: T57 Other operations on fascia
Procedure: T59 Excision of ganglion
Procedure: T60 Re-excision of ganglion
Procedure: T62 Operations on bursa
Procedure: T64 Transposition of tendon
Procedure: T65 Excision of tendon
Procedure: T67 Primary repair of tendon
Procedure: T68 Secondary repair of tendon
Procedure: T69 Freeing of tendon
Procedure: T70 Adjustment to length of tendon
Procedure: T71 Excision of sheath of tendon
Procedure: T72 Other operations on sheath of tendon
Procedure: T74 Other operations on tendon
Procedure: T76 Transplantation of muscle
| Procedure | Description |
|-----------|-------------|
| T77       | Excision of muscle |
| T79       | Repair of muscle |
| T80       | Release of contracture of muscle |
| T81       | Biopsy of muscle |
| T83       | Other operations on muscle |
| T85       | Block dissection of lymph nodes |
| T86       | Sampling of lymph nodes |
| T87       | Excision or biopsy of lymph node |
| T88       | Drainage of lesion of lymph node |
| T90       | Contrast radiology of lymphatic tissue |
| T91       | Operations on sentinel lymph node |
| T92       | Other operations on lymphatic tissue |
| T94       | Operations on branchial cleft |
| T96       | Other operations on soft tissue |
| T97       | Repair of recurrent umbilical hernia |
| U01       | Diagnostic imaging of whole body |
| U05       | Diagnostic imaging of central nervous system |
| U06       | Diagnostic imaging of face and neck |
| U07       | Diagnostic imaging of chest |
| U08       | Diagnostic imaging of abdomen |
| U09       | Diagnostic imaging of pelvis |
| U10       | Diagnostic imaging of heart |
| U11       | Diagnostic imaging of vascular system |
| U12       | Diagnostic imaging of genitourinary system |
| U13       | Diagnostic imaging of musculoskeletal system |
| U14       | Nuclear bone scan |
| U15       | Diagnostic imaging of respiratory system |
| U16       | Diagnostic imaging of hepatobiliary system |
| U17       | Diagnostic imaging of digestive tract |
| U19       | Diagnostic electrocardiography |
| U20       | Diagnostic echocardiography |
| U21       | Diagnostic imaging procedures |
| U22       | Neuropsychology tests |
| U25       | Breath tests |
| U26       | Diagnostic testing of genitourinary system |
| U27       | Diagnostic application tests on skin |
| U28       | Other diagnostic tests on skin |
| U29       | Diagnostic endocrinology |
| U30       | Autonomic cardiovascular testing |
| U31       | Pacemaker testing |
| U32       | Diagnostic blood tests |
| U33       | Other diagnostic tests |
| U35       | Other diagnostic imaging of vascular system |
| U36       | Other diagnostic imaging procedures |
| Procedure: | Description                                      | Count |
|------------|--------------------------------------------------|-------|
| U37        | Other diagnostic imaging of genitourinary system | 0     |
| U50        | Rehabilitation for musculoskeletal disorders     | 0     |
| U51        | Rehabilitation for neurological disorders        | 0     |
| U52        | Rehabilitation for psychiatric disorders         | 0     |
| U53        | Rehabilitation for trauma and reconstructive surgery | 0 |
| U54        | Rehabilitation for other disorders               | 0     |
| V01        | Plastic repair of cranium                        | 0     |
| V03        | Opening of cranium                               | 0     |
| V05        | Other operations on cranium                      | 0     |
| V06        | Excision of maxilla                              | 0     |
| V07        | Excision of bone of face                         | 0     |
| V08        | Reduction of fracture of maxilla                 | 0     |
| V10        | Division of bone of face                         | 0     |
| V11        | Fixation of bone of face                         | 0     |
| V13        | Other operations on bone of face                 | 0     |
| V14        | Excision of mandible                             | 0     |
| V15        | Reduction of fracture of mandible                | 0     |
| V16        | Division of mandible                             | 0     |
| V17        | Fixation of mandible                             | 0     |
| V19        | Other operations on mandible                     | 0     |
| V20        | Reconstruction of temporomandibular joint        | 0     |
| V21        | Other operations on temporomandibular joint      | 0     |
| V22        | Primary decompression operations on cervical spine | 0 |
| V23        | Revisional decompression operations on cervical spine | 0 |
| V24        | Decompression operations on thoracic spine       | 0     |
| V25        | Primary decompression operations on lumbar spine | 0     |
| V26        | Revisional decompression operations on lumbar spine | 0 |
| V27        | Decompression operations on unspecified spine    | 0     |
| V28        | Insertion of lumbar interspinous process spacer  | 0     |
| V29        | Primary excision of cervical intervertebral disc | 0     |
| V30        | Revisional excision of cervical intervertebral disc | 0 |
| V31        | Primary excision of thoracic intervertebral disc | 0     |
| V33        | Primary excision of lumbar intervertebral disc   | 0     |
| V34        | Revisional excision of lumbar intervertebral disc | 0 |
| V35        | Excision of unspecified intervertebral disc      | 0     |
| V36        | Prosthetic replacement of intervertebral disc    | 0     |
| V37        | Primary fusion of joint of cervical spine        | 0     |
| V38        | Primary fusion of other joint of spine           | 0     |
| V39        | Revisional fusion of joint of spine              | 0     |
| V40        | Stabilisation of spine                           | 0     |
| V41        | Instrumental correction of deformity of spine     | 0     |
| V42        | Other correction of deformity of spine           | 0     |
| V43        | Extirpation of lesion of spine                   | 0     |
Procedure: V44 Decompression of fracture of spine
Procedure: V45 Other reduction of fracture of spine
Procedure: V46 Fixation of fracture of spine
Procedure: V47 Biopsy of spine
Procedure: V48 Denervation of spinal facet joint of vertebra
Procedure: V49 Exploration of spine
Procedure: V50 Manipulation of spine
Procedure: V52 Other operations on intervertebral disc
Procedure: V54 Other operations on spine
Procedure: V60 Primary percutaneous decompression using coblation to intervertebral disc
Procedure: V62 Primary percutaneous intradiscal radiofrequency thermocoagulation to intervertebral disc
Procedure: V67 Other primary decompression operations on lumbar spine
Procedure: W01 Complex reconstruction of thumb
Procedure: W02 Other complex reconstruction of hand
Procedure: W03 Complex reconstruction of forefoot
Procedure: W04 Complex reconstruction of hindfoot
Procedure: W05 Prosthetic replacement of bone
Procedure: W06 Total excision of bone
Procedure: W07 Excision of ectopic bone
Procedure: W08 Other excision of bone
Procedure: W09 Extirpation of lesion of bone
Procedure: W10 Open surgical fracture of bone
Procedure: W12 Angulation periarticular division of bone
Procedure: W13 Other periarticular division of bone
Procedure: W14 Diaphyseal division of bone
Procedure: W15 Division of bone of foot
Procedure: W16 Other division of bone
Procedure: W17 Other reconstruction of bone
Procedure: W18 Drainage of bone
Procedure: W19 Primary open reduction of fracture of bone and intramedullary fixation
Procedure: W20 Primary open reduction of fracture of bone and extramedullary fixation
Procedure: W21 Primary open reduction of intra-articular fracture of bone
Procedure: W22 Other primary open reduction of fracture of bone
Procedure: W23 Secondary open reduction of fracture of bone
Procedure: W24 Closed reduction of fracture of bone and internal fixation
Procedure: W25 Closed reduction of fracture of bone and external fixation
Procedure: W26 Other closed reduction of fracture of bone
Procedure: W27 Fixation of epiphysis
Procedure: W28 Other internal fixation of bone
Procedure: W29 Skeletal traction of bone
Procedure: W30 Other external fixation of bone
Procedure: W31 Other autograft of bone
Procedure: W32 Other graft of bone
Procedure: W33 Other open operations on bone
| Procedure | Description | Count |
|-----------|-------------|-------|
| W34       | Graft of bone marrow | 0     |
| W35       | Therapeutic puncture of bone | 0     |
| W36       | Diagnostic puncture of bone | 0     |
| W37       | Total prosthetic replacement of hip joint using cement | 0     |
| W38       | Total prosthetic replacement of hip joint not using cement | 0     |
| W39       | Other total prosthetic replacement of hip joint | 0     |
| W40       | Total prosthetic replacement of knee joint using cement | 0     |
| W41       | Total prosthetic replacement of knee joint not using cement | 0     |
| W42       | Other total prosthetic replacement of knee joint | 0     |
| W43       | Total prosthetic replacement of other joint using cement | 0     |
| W44       | Total prosthetic replacement of other joint not using cement | 0     |
| W45       | Other total prosthetic replacement of other joint | 0     |
| W46       | Prosthetic replacement of head of femur using cement | 0     |
| W47       | Prosthetic replacement of head of femur not using cement | 0     |
| W48       | Other prosthetic replacement of head of femur | 0     |
| W49       | Prosthetic replacement of head of humerus using cement | 0     |
| W50       | Prosthetic replacement of head of humerus not using cement | 0     |
| W51       | Other prosthetic replacement of head of humerus | 0     |
| W52       | Prosthetic replacement of articulation of other bone using cement | 0     |
| W53       | Prosthetic replacement of articulation of other bone not using cement | 0     |
| W54       | Other prosthetic replacement of articulation of other bone | 0     |
| W55       | Prosthetic interposition reconstruction of joint | 0     |
| W56       | Other interposition reconstruction of joint | 0     |
| W57       | Excision reconstruction of joint | 0     |
| W58       | Other reconstruction of joint | 0     |
| W59       | Fusion of joint of toe | 0     |
| W60       | Fusion of other joint and extra-articular bone graft | 0     |
| W61       | Fusion of other joint and other articular bone graft | 0     |
| W62       | Other primary fusion of other joint | 0     |
| W63       | Revisional fusion of other joint | 0     |
| W64       | Conversion to fusion of other joint | 0     |
| W65       | Primary open reduction of traumatic dislocation of joint | 0     |
| W66       | Primary closed reduction of traumatic dislocation of joint | 0     |
| W67       | Secondary reduction of traumatic dislocation of joint | 0     |
| W68       | Open operations on synovial membrane of joint | 0     |
| W69       | Open operations on semilunar cartilage | 0     |
| W70       | Other open operations on intra-articular structure | 0     |
| W71       | Prosthetic replacement of ligament | 0     |
| W72       | Prosthetic reinforcement of ligament | 0     |
| W73       | Other reconstruction of ligament | 0     |
| W74       | Other open repair of ligament | 0     |
| W75       | Other operations on ligament | 0     |
| W76       | Stabilising operations on joint | 0     |
| W77       | Release of contracture of joint | 0     |
Procedure: W79 Soft tissue operations on joint of toe
Procedure: W80 Debridement and irrigation of joint
Procedure: W81 Other open operations on joint
Procedure: W82 Therapeutic endoscopic operations on semilunar cartilage
Procedure: W83 Therapeutic endoscopic operations on other articular cartilage
Procedure: W84 Therapeutic endoscopic operations on other joint structure
Procedure: W85 Therapeutic endoscopic operations on cavity of knee joint
Procedure: W86 Therapeutic endoscopic operations on cavity of other joint
Procedure: W87 Diagnostic endoscopic examination of knee joint
Procedure: W88 Diagnostic endoscopic examination of other joint
Procedure: W89 Other therapeutic endoscopic operations on other articular cartilage
Procedure: W90 Puncture of joint
Procedure: W91 Other manipulation of joint
Procedure: W92 Other operations on joint
Procedure: W93 Hybrid prosthetic replacement of hip joint using cemented acetabular component
Procedure: W94 Hybrid prosthetic replacement of hip joint using cemented femoral component
Procedure: W95 Hybrid prosthetic replacement of hip joint using cement
Procedure: W96 Total prosthetic replacement of shoulder joint using cement
Procedure: W97 Total prosthetic replacement of shoulder joint not using cement
Procedure: W98 Total prosthetic replacement of shoulder joint
Procedure: X01 Replantation of upper limb
Procedure: X02 Replantation of lower limb
Procedure: X07 Amputation of arm
Procedure: X08 Amputation of hand
Procedure: X09 Amputation of leg
Procedure: X10 Amputation of foot
Procedure: X11 Amputation of toe
Procedure: X12 Operations on amputation stump
Procedure: X14 Clearance of pelvis
Procedure: X15 Operations for sexual transformation
Procedure: X19 Correction of congenital deformity of shoulder or upper arm
Procedure: X21 Correction of congenital deformity of hand
Procedure: X22 Correction of congenital deformity of hip
Procedure: X23 Correction of congenital deformity of leg
Procedure: X24 Primary correction of congenital deformity of foot
Procedure: X25 Other correction of congenital deformity of foot
Procedure: X27 Correction of minor congenital deformity of foot
Procedure: X28 Intermittent infusion of therapeutic substance
Procedure: X29 Continuous Infusion of therapeutic substance
Procedure: X30 Injection of therapeutic substance
Procedure: X31 Injection of radiocontrast material
Procedure: X32 Exchange blood transfusion
Procedure: X33 Other blood transfusion
Procedure: X34 Other intravenous transfusion
| Procedure | Description                                                                 | Count |
|-----------|-----------------------------------------------------------------------------|-------|
| X35       | Other intravenous injection                                                 | 0     |
| X36       | Blood withdrawal                                                           | 0     |
| X37       | Intramuscular injection                                                    | 0     |
| X38       | Subcutaneous injection                                                     | 0     |
| X39       | Other route of administration of therapeutic substance                      | 0     |
| X40       | Compensation for renal failure                                             | 0     |
| X41       | Placement of ambulatory apparatus for compensation for renal failure        | 0     |
| X42       | Placement of other apparatus for compensation for renal failure             | 0     |
| X44       | Administration of vaccine                                                  | 0     |
| X45       | Donation of organ                                                          | 0     |
| X46       | Donation of other tissue                                                   | 0     |
| X48       | Immobilisation using plaster cast                                           | 0     |
| X49       | Other external support of limb                                             | 0     |
| X50       | External resuscitation                                                     | 0     |
| X52       | Oxygen therapy                                                             | 0     |
| X53       | Expiration of unspecified organ                                            | 0     |
| X55       | Other operations on unspecified organ                                       | 0     |
| X56       | Intubation of trachea                                                      | 0     |
| X59       | Anaesthetic without surgery                                                | 0     |
| X60       | Rehabilitation assessment                                                  | 0     |
| X61       | Complementary therapy                                                      | 0     |
| X63       | Category retired - refer to introduction                                    | 0     |
| X65       | Radiotherapy delivery                                                      | 0     |
| X66       | Cognitive behavioural therapy                                              | 0     |
| X67       | Preparation for external beam radiotherapy                                  | 0     |
| X68       | Preparation for brachytherapy                                               | 0     |
| X70       | Procurement of drugs for chemotherapy for neoplasm in Bands 1-5            | 0     |
| X71       | Procurement of drugs for chemotherapy for neoplasm in Bands 6-10           | 0     |
| X72       | Delivery of chemotherapy for neoplasm                                       | 0     |
| X73       | Delivery of oral chemotherapy for neoplasm                                  | 0     |
| X82       | High cost hypertension drugs                                               | 0     |
| X83       | High cost other cardiovascular drugs                                       | 0     |
| X85       | High cost neurology drugs                                                  | 0     |
| X86       | High cost anti-infective drugs                                             | 0     |
| X89       | High cost immunosuppressant drugs                                          | 0     |
| X90       | High cost haematology and nutrition drugs                                  | 0     |
| X91       | High cost metabolic drugs                                                  | 0     |
| X92       | High cost musculoskeletal drugs                                             | 0     |
| X93       | High cost ophthalmology drugs                                              | 0     |
| X96       | High cost immunology drugs                                                | 0     |
| Y32       | Re-exploration of organ NOC                                                | 0     |
| Z49       | Skin of trunk                                                              | 0     |
| Z94       | Laterality of operation                                                    | 0     |
Figure S1. ROC curves for the GBM model in the training, validation and test sets.
Figure S2. Distribution of leg bioimpedance in relation to incident heart failure in the subset of individuals who did not have any prior hospitalization for cardiovascular disease (i.e. any primary or secondary diagnosis in ICD10 Chapter 9 – “Diseases of the circulatory system”), nor any self-reported history of hypertension, stroke, TIA, high cholesterol, diabetes, angina pectoris, myocardial infarction, or heart failure. (n = 309,079)
Figure S3. Distributions of leg bioimpedance in full population (n = 502,636) in relation to prevalent (primary or secondary I50 diagnosis or self-reported heart failure) and incident (primary I50 diagnosis) heart failure.
Figure S4. Distributions of leg bioimpedance in full population (n = 502,636) in relation to prevalent cardiovascular disease (any primary or secondary diagnosis in ICD-10 Chapter 9 – “Diseases of the circulatory system”) and incident (primary I50 diagnosis) heart failure.
Figure S5. Distributions of leg bioimpedance in individuals with known prevalent heart failure at inclusion (Primary or secondary ICD10 I50 diagnosis or self-reported history of heart failure; n = 2,188). A total of 41 individuals experienced 5 or more hospitalizations for heart failure during follow-up, and had lower leg bioimpedance than those with 0-4 hospitalizations.
Figure S6. Calibration of small Cox model (age + sex + history of MI + leg bioimpedance).
Figure S7. Calibration of fully adjusted Cox model.
Supplemental References:

1. Friedman JH. Greedy Function Approximation: A Gradient Boosting Machine. *Ann Stat.* 2001;29:1189–1232.

2. Weiss GM. Mining with Rarity: A Unifying Framework. *SIGKDD Explor.* 2004;6:7–19.