Regression without regrets

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3/13/23

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# Preface

The focus of this report is to provide guidance on conducting initial data analysis in a reproducible manner in the context of intended regression analyses.

# 1. Univariate distribution checks

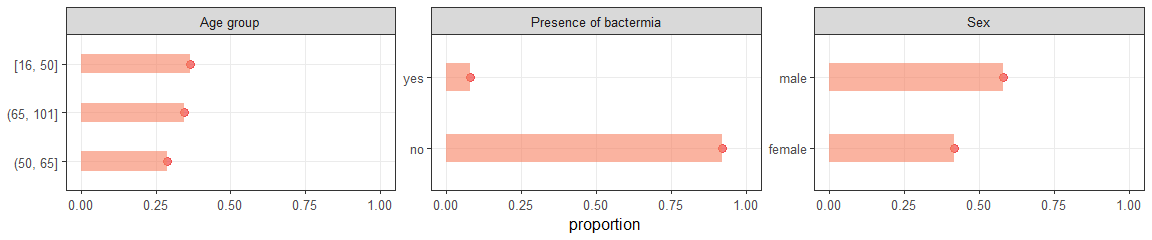
This section reports a series of univariate summary checks of the bacteremia dataset.

## 1.1 U1: Categorical variables

Age group, sex and bactermia status are described by frequencies and proportions in each category.

| Category | Count | Proportion |
| --- | --- | --- |
| Age group |
| (50, 65] | 4250 | 0.29 |
| (65, 101] | 5076 | 0.35 |
| [16, 50] | 5365 | 0.37 |
| Sex |
| female | 6155 | 0.42 |
| male | 8536 | 0.58 |
| Presence of bactermia |
| no | 13511 | 0.92 |
| yes | 1180 | 0.08 |

Also plot the categories.



## 1.2 Continuous variables

### 1.2.1 U2: Univariate distributions of continuous variables

#### 1.2.1.1 U2: Structural variables

The only structural continuous variables is AGE. This variable is also a key predictor (see below).

#### 1.2.1.2 U2: Key predictors

Note: the structural variable Age is also considered a key predictor.

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#### 1.2.1.3 U2: Predictors of medium importance

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#### 1.2.1.4 U2: Remaining predictors

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### 1.2.2 Numerical summaries

#### 1.2.2.1 Key predictors

Rows: 1,350  
Columns: 4  
$ PARAM <chr> "Activated partial thromboplastin time (sec)", "Activated pa~  
$ PARAMCD <chr> "APTT", "APTT", "APTT", "APTT", "APTT", "APTT", "APTT", "APT~  
$ STATISTIC <chr> "mean", "mode", "sd", "skewness", "kurtosis", "min", "median~  
$ RESULT <dbl> 40.056399, 35.000000, 10.966640, 4.165706, 29.738017, 21.400~

kurtosis max max\_1 max\_2 max\_3 max\_4 max\_5   
 50 50 50 50 50 50 50   
 mean median min min\_1 min\_2 min\_3 min\_4   
 50 50 50 50 50 50 50   
 min\_5 mode n\_distinct qt\_05 qt\_10 qt\_25 qt\_50   
 50 50 50 50 50 50 50   
 qt\_75 qt\_90 qt\_95 range sd skewness   
 50 50 50 50 50 50

| PARAM | PARAMCD | mean | min | median |
| --- | --- | --- | --- | --- |
| Activated partial thromboplastin time (sec) | APTT | 40.05639928 | 21.40 | 37.7000000 |
| Alanin transaminase (U/L) | ALAT | 67.66221541 | 0.00 | 26.0000000 |
| Albumin (G/L) | ALB | 33.42457933 | 10.00 | 33.6000000 |
| Alkaline phosphatase (U/L) | AP | 118.77955007 | 11.00 | 84.0000000 |
| Amylase (U/L) | AMY | 90.83225088 | 8.00 | 49.0000000 |
| Aspartate transaminase (U/L) | ASAT | 86.89525006 | 3.00 | 31.0000000 |
| Basophile ratio (%) | BASOR | 0.14504559 | 0.00 | 0.0000000 |
| Basophiles (G/L) | BASO | 0.01724991 | 0.00 | 0.0000000 |
| Bilirubin (mg/dl) | GBIL | 1.40627774 | 0.11 | 0.7700000 |
| Blood platelets (G/L) | PLT | 220.02546249 | 0.00 | 204.0000000 |
| Blood urea nitrogen (mg/dl) | BUN | 22.65653971 | 2.50 | 16.6000000 |
| C-reactive protein (mg/dl) | CRP | 10.91585237 | 0.00 | 8.5700000 |
| Calcium (mmol/L) | CA | 2.21379650 | 1.03 | 2.2200000 |
| Cholesterol (mg/dl) | CHOL | 150.79991706 | 25.00 | 145.0000000 |
| Cholinesterase (kU/L) | CHE | 4.79039611 | 0.98 | 4.6000000 |
| Creatinine (mg/dl) | CREA | 1.32930498 | 0.26 | 1.0000000 |
| Creatinine kinases (U/L) | CK | 385.01435255 | 8.00 | 80.0000000 |
| Eosinophil ratio (%) | EOSR | 1.29742747 | 0.00 | 0.5882353 |
| Eosinophils (G/L) | EOS | 0.11481863 | 0.00 | 0.1000000 |
| Fibrinogen (mg/dl) | FIB | 547.36481359 | 55.00 | 529.0000000 |
| Gamma-glutamyl transpeptidase (G/L) | GGT | 115.05838112 | 3.00 | 49.0000000 |
| Glucoses (mg/dl) | GLU | 126.40565768 | 19.00 | 113.0000000 |
| Haematocrit (%) | HCT | 34.48307734 | 0.00 | 34.3000000 |
| Haemoglobin (G/L) | HGB | 11.56801365 | 3.00 | 11.4000000 |
| Lactate dehydrogenase (U/L) | LDH | 331.15165292 | 39.00 | 239.0000000 |
| Lipases (U/L) | LIP | 63.82141557 | 0.00 | 23.0000000 |
| Lymphocyte ratio (% (mg/dl)) | LYMR | 14.61410741 | 0.00 | 11.3402062 |
| Lymphocytes (G/L) | LYM | 1.36577725 | 0.00 | 1.0000000 |
| Magnesium (mmol/L) | MG | 0.81360084 | 0.20 | 0.8100000 |
| Mean corpuscular hemoglobin (fl) | MCH | 29.57993037 | 14.90 | 29.7000000 |
| Mean corpuscular hemoglobin concentration (g/dl) | MCHC | 33.47141784 | 23.70 | 33.5000000 |
| Mean corpuscular volume (pg) | MCV | 88.35160762 | 51.00 | 88.3000000 |
| Mean platelet volume (fl) | MPV | 10.38182858 | 7.30 | 10.3000000 |
| Monocyte ratio (%) | MONOR | 8.79255066 | 0.00 | 8.0000000 |
| Monocytes (G/L) | MONO | 0.85273797 | 0.00 | 0.8000000 |
| Neutrophile ratio (%) | NEUR | 75.15086887 | 0.00 | 78.3333333 |
| Neutrophiles (G/L) | NEU | 8.36677648 | 0.00 | 7.3000000 |
| Normotest (%) | NT | 83.22087696 | 4.00 | 83.0000000 |
| Pancreas amylase (U/L) | PAMY | 41.65830804 | 1.00 | 22.0000000 |
| Patient Age (years) | AGE | 56.16806208 | 16.00 | 58.0000000 |
| Phosphate (mmol/L) | PHOS | 1.04768756 | 0.30 | 0.9900000 |
| Platelet distribution width (%) | PDW | 12.29323718 | 6.60 | 12.0000000 |
| Potassium (mmol/L) | POTASS | 4.00301191 | 1.92 | 3.9500000 |
| Red blood cell distribution width (%) | RDW | 14.99738299 | 10.60 | 14.5000000 |
| Red blood count (T/L) | RBC | 3.93573436 | 1.00 | 3.9000000 |
| Sodium (mmol/L) | SODIUM | 137.21135059 | 106.00 | 137.0000000 |
| Total protein (G/L) | TP | 64.90141135 | 29.90 | 65.7000000 |
| Triclyceride (mg/dl) | TRIG | 141.70799585 | 14.00 | 115.0000000 |
| Uric acid (mg/dl) | HS | 5.41254514 | 1.30 | 5.0000000 |
| White blood count (G/L) | WBC | 11.22715651 | 0.00 | 9.6000000 |

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14649 | 42 | 718 | 1 | 220 | 130.1 | 50 | 81 | 140 | 204 | 277 | 369 | 445 |

lowest : 0 1 2 3 4 , highest: 1068 1211 1321 1639 2092

CREA: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAWUlEQVQ4je2TMQoAIAwDE///aG3sIAqCWwqeQ6mKHoWAAqAXaAKD5sT3euN7vZE5DC+rSM4pSctqYBW8nMxqePm4RQjB1Usd93LuXK5pUU9nZX6TzT36cdoBj3gMym+2tjYAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14532 | 159 | 674 | 1 | 1.329 | 0.8518 | 0.620 | 0.690 | 0.810 | 1.000 | 1.350 | 2.160 | 3.144 |

lowest : 0.26 0.27 0.28 0.29 0.30 , highest: 15.24 15.40 15.67 16.64 20.75

BUN: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAZElEQVQ4jdXTwQrAIAwD0NT//+jhaiZ0U7wlCz1IT49iEAx6wiVozO1qLvmJywZWXS4yMgAzF///jLSHzPteHidLA2rEqqVLTlu7tDbsWEJhb98BCzFn//xalW0WbsxT/1yMV1y21QwKyo8xNQAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14519 | 172 | 947 | 1 | 22.66 | 16.92 | 7.1 | 8.6 | 11.6 | 16.6 | 26.9 | 44.8 | 60.8 |

lowest : 2.5 2.7 2.8 2.9 3.0 , highest: 160.6 171.3 171.9 176.0 184.8

NEU: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAZ0lEQVQ4jc2VSw7AIAgFx97/0A19JUVru+WNnwCriRFlJKDlAUcCWh5Ur8BFbfXC18tCLRXAzCvv/0RrK8rn1nvTfF6+Xnq4dnR7/eHqRc9by9qKG+LbvMaz1bgWRkzFJZ077TOpxRPORQvfG+yn6gAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13963 | 728 | 374 | 1 | 8.367 | 5.776 | 1.60 | 2.70 | 4.60 | 7.30 | 10.80 | 15.08 | 18.40 |

lowest : 0.0 0.1 0.2 0.3 0.4 , highest: 54.0 56.4 63.7 71.6 83.8

WBC: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAIIAAAANCAMAAABSO0bCAAAACVBMVEUAAADMzMz////1iUV5AAAAVklEQVQ4je2TSwoAIAhEx+5/6PwRSdB2XDiRVG4e0oNoACEGSwOvrDRBwCA0QHAhqErkFJhjGIQbgciAJGAihBBPQhNb4hf7uVLM8d45Rwm/6vPfBt0b3GoLNRPwTDwAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14229 | 462 | 2710 | 1 | 11.23 | 7.602 | 2.66 | 4.26 | 6.63 | 9.60 | 13.53 | 18.22 | 22.27 |

lowest : 0.00 0.01 0.02 0.03 0.04 , highest: 365.30 383.74 387.73 433.83 604.47

AGE: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAeUlEQVQ4jcXTSw4AERAE0Gr3P/REhzDM+PSHWohVe0iB7IMczYxgGSCgimaSpemF0tFUrnxuz1HLpK4hpZWlxcNVTeXtjkvyevPOgHsldXyEVoraXCDdqby9X9b/0VMhd51VzWi4hhrLLrt+cdw1y7YJEgtalughegBpCgbX7iPW9QAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14691 | 0 | 85 | 1 | 56.17 | 20.78 | 24 | 29 | 43 | 58 | 70 | 79 | 84 |

#### 1.2.2.2 Predictors of medium importance

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12124 | 2567 | 1084 | 1 | 547.4 | 231 | 247 | 301 | 397 | 529 | 674 | 816 | 892 |

lowest : 55 60 66 67 69 , highest: 1506 1508 1529 1537 1593

POTASS: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAADcAAAANCAMAAAA65Aa/AAAACVBMVEUAAADMzMz////1iUV5AAAAO0lEQVQokWNgZGRkYGAkGTAwMTExgAgSwQDoY6CrPlBwkhGgEPtIt3Do6GMgTx84OKEAFE4gRDB4GRgBpaoEm4UN9kgAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12683 | 2008 | 408 | 1 | 4.003 | 0.6004 | 3.20 | 3.39 | 3.66 | 3.95 | 4.29 | 4.67 | 4.92 |

lowest : 1.92 2.07 2.11 2.12 2.21 , highest: 8.57 11.34 13.55 14.60 36.62

Value 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5  
 Frequency 6 91 650 3385 5088 2455 692 201 73 26 7 2  
 Proportion 0.000 0.007 0.051 0.267 0.401 0.194 0.055 0.016 0.006 0.002 0.001 0.000  
   
 Value 8.0 8.5 11.5 13.5 14.5 36.5  
 Frequency 2 1 1 1 1 1  
 Proportion 0.000 0.000 0.000 0.000 0.000 0.000

For the frequency table, variable is rounded to the nearest 0.5

ASAT: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAUUlEQVQ4je2TOw4AIAjFivc/tKiRz8jGQCNRgeEtRQSkH6yFVjsmV43JVYPxsUTrXA2DTa4a10cjvnPnKPKOfbRuCxOav2NW+e3SB/3Jk7CwAYVuDSQpvkmaAAAAAElFTkSuQmCC)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13537 | 1154 | 650 | 1 | 86.9 | 115.6 | 15 | 17 | 22 | 31 | 56 | 121 | 218 |

lowest : 3 5 6 7 8 , highest: 10845 11928 12079 12380 13991

ALAT: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAGcAAAANCAMAAACD8ID3AAAACVBMVEUAAADMzMz////1iUV5AAAAPElEQVQ4jWNgZGBgpANgYGJgYKIDGLVnkNszmt5G7YHaQw+LQOkNBaNxIImFEZwqQWJoyRNrYsUQAwoAAOjvCPHpfMT7AAAAAElFTkSuQmCC)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13704 | 987 | 578 | 1 | 67.66 | 90.07 | 9 | 11 | 16 | 26 | 48 | 101 | 175 |

lowest : 0 1 2 3 4 , highest: 7109 9136 9314 12329 15059

GGT: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAWElEQVQ4je2TOQoAIBADE///aPdQQVHQLoWD8WwGIaABUA0UAzFL8b3egFt9r2vgbdTso+Z/pZecmLqXmtjwEjNrfQyY2S5ty8M7ffTEufdqbtl6se+ipQIV2Az96NLBUwAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13429 | 1262 | 858 | 1 | 115.1 | 141.3 | 13.0 | 16.0 | 25.0 | 49.0 | 117.0 | 262.2 | 429.0 |

lowest : 3 5 6 7 8 , highest: 2932 3303 3782 3919 5171

CRP: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAaElEQVQ4je2T0QrAIAhFr/7/R5fLVVsRbrD0YUcs9OkgXFAGoGiAGRmOhnqFM/u9nlG9ilkYP0gab3hnUejuNeB6r4WXp57By8XO7LVZ8Y3Xafel4SyPNuhoKf1aTRbUjSVw2tcU1jcBTcULVJrKiXAAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14536 | 155 | 3328 | 1 | 10.92 | 10.39 | 0.29 | 0.77 | 2.87 | 8.57 | 16.45 | 24.49 | 29.61 |

#### 1.2.2.3 Remaining predictors

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14649 | 42 | 506 | 1 | 88.35 | 6.992 | 78.2 | 81.1 | 84.7 | 88.3 | 92.0 | 95.9 | 99.0 |

lowest : 51.0 52.6 54.9 56.3 57.5 , highest: 121.0 121.8 124.6 127.9 128.7

HGB: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAeklEQVQ4jcXVjQqAIAwE4LP3f+jYlQoh4W5TD8MKfz6EIYoY1PD9eRKDSwiG4X9lueEWea7uO+H6NzVblLfIFT437+x5VszmqyKnitlQjwpLPLMNLgnnmBBQrXOFUAJuYmwKyYvj9cZmN5w1+2CP1ufmuzo3rGX4EsoNO8II7dvgDOcAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14650 | 41 | 157 | 1 | 11.57 | 2.558 | 8.2 | 8.8 | 9.9 | 11.4 | 13.2 | 14.6 | 15.4 |

lowest : 3.0 3.1 3.5 3.9 4.1 , highest: 19.5 20.5 20.7 20.8 21.0

HCT: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAcklEQVQ4jc3TUQrAIAwD0Or9Dy1miAjq2kTB/NT91Icjlk7EkDaObMxibBp1a77kkmmqa8kSbZprr1Jkiutfxcv49vhUbD35h/aHWn+fRcnY3/+kK6hicHEXh4rSal2mlUGRsGxsnruHm6Q+2+34+k6YBR+yCdg4QZ3BAAAAAElFTkSuQmCC)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14649 | 42 | 404 | 1 | 34.48 | 7.316 | 24.6 | 26.4 | 29.8 | 34.3 | 39.1 | 42.9 | 44.8 |

lowest : 0.0 0.1 0.2 9.7 9.8 , highest: 61.4 61.9 63.2 65.3 66.6

MCH: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAdElEQVQ4jeWTUQqAMAxDo/c/9Kqb0tZNcMmHaECXr8ejECx0YOEpGbqSwR57WFDC0oC3e2nNSBjwNy9qNGdaVa2R2WM7kruX8mZf8woy3kukNkO5yEQvidkjxkgmewnctgnZmuovlE51yxtVV25RR+1u0b4CzcYLwaC5pgUAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14649 | 42 | 232 | 1 | 29.58 | 2.693 | 25.3 | 26.7 | 28.4 | 29.7 | 31.0 | 32.4 | 33.4 |

lowest : 14.9 15.6 15.9 16.0 16.5 , highest: 42.0 42.3 42.4 42.5 47.4

MCHC: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAcUlEQVQ4jd2T0QoAERRE5/r/j17cJQkrM7Vloni446QOTBO8EdUZgiSo0fQFOZeITNKCPoJKPdTdXLQ4w/zu4xiL/zGuYEbFkxHjKyga7Hz6C4tDOxndIWLRkjluD8pyy/LKupVLe9pP12DtKzMX434A7S8LO8VcvNwAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14649 | 42 | 124 | 0.999 | 33.47 | 1.546 | 31.1 | 31.7 | 32.6 | 33.5 | 34.4 | 35.2 | 35.6 |

lowest : 23.7 24.4 24.8 25.1 26.1 , highest: 38.3 38.4 38.9 39.3 43.5

RDW: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAdElEQVQ4jc3TgQqAMAgE0Fv//9G1JErPjTbo1oEEDvIhiJIEluxJFWwc3EleNeHJcFlAMgV38AcZjY2sKluAe+NasTU6uoZLfZ1hEU2Veml+Vp+llA26ZLYJl4Tnfj/C+lhYz8xqEnWmcCWt0LbJ1/d5i0ftuIIK0HvoXwYAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14635 | 56 | 173 | 1 | 15 | 2.385 | 12.4 | 12.7 | 13.4 | 14.5 | 16.0 | 18.0 | 19.5 |

lowest : 10.6 11.1 11.2 11.3 11.4 , highest: 28.6 28.9 29.1 29.7 31.8

MPV: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAdUlEQVQ4jc3T3QrAIAgFYNv7P/SKGdhF5fFndaKLBurHQCqWUIupUj3hQUJjvg9QB/Ukj0sAT7pmqgyZuuEKlWC71gUsoC6/7SNgivtx2x64KsS2qbeq3LJFtcfk5s3KglBmYVufvkJU167wyYhoz0PEgx39vmZECVh6tdxsAAAAAElFTkSuQmCC)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13989 | 702 | 71 | 0.999 | 10.38 | 1.132 | 8.9 | 9.2 | 9.7 | 10.3 | 11.0 | 11.7 | 12.2 |

lowest : 7.3 7.7 7.8 7.9 8.0 , highest: 14.2 14.3 14.6 14.8 15.0

LYM: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAADQAAAANCAMAAADR0728AAAACVBMVEUAAADMzMz////1iUV5AAAAJ0lEQVQokWNgYGAkGTAwMDCRDIapptHQo0QTCDBCICNGUGIJXQZGAAh1BHO9ZpTEAAAAAElFTkSuQmCC)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14429 | 262 | 114 | 0.998 | 1.366 | 1.162 | 0.2 | 0.4 | 0.7 | 1.0 | 1.6 | 2.1 | 2.6 |

lowest : 0.0 0.1 0.2 0.3 0.4 , highest: 149.9 357.5 366.8 375.1 578.1

Value 0 5 10 15 20 30 35 40 45 75 100 115  
 Frequency 13675 703 27 7 4 2 1 1 1 1 1 1  
 Proportion 0.948 0.049 0.002 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000  
   
 Value 150 360 365 375 580  
 Frequency 1 1 1 1 1  
 Proportion 0.000 0.000 0.000 0.000 0.000

For the frequency table, variable is rounded to the nearest 5

MONO: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAZElEQVQ4jc3TQQrAIAxE0R/vf+g2SQVt6/7PQkQMPAJDVLgTpjAq6RqmtAZsMLULt8sEqxZOl6iS275EC0sK+GBsLA/s7bLAPi6JjKWN5wT1L7q9T2PqmC/0cWrXMrde/wfy9QKVEwyUdyZZMgAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14445 | 246 | 67 | 0.996 | 0.8527 | 0.5965 | 0.1 | 0.3 | 0.5 | 0.8 | 1.1 | 1.5 | 1.8 |

lowest : 0.0 0.1 0.2 0.3 0.4 , highest: 13.9 14.6 16.2 17.3 20.4

EOS: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAG0AAAANCAMAAACU0hA+AAAACVBMVEUAAADMzMz////1iUV5AAAAQklEQVQ4jWNgZGBgpBtgYGJgYKIbGLWNmrbRzzoGYJqkX6Kks9/obxvdrBvWtoHSJBoAFZ3AdIqUVvGlWgacHEyFAKxGCXLIBO+sAAAAAElFTkSuQmCC)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14556 | 135 | 36 | 0.867 | 0.1148 | 0.1585 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.3 | 0.4 |

lowest : 0.0 0.1 0.2 0.3 0.4 , highest: 3.8 5.3 9.6 11.5 15.8

BASO: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAADcAAAANCAMAAAA65Aa/AAAACVBMVEUAAADMzMz////1iUV5AAAAJklEQVQokWNgYGAkBzAwMDCRA0aAvtHwxK6PLI0MqAASVoRDkxEAwHkEtC6j9aoAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14545 | 146 | 18 | 0.337 | 0.01725 | 0.03111 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 |

lowest : 0.0 0.1 0.2 0.3 0.4 , highest: 1.3 1.4 1.5 2.2 6.5

Value 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1  
 Frequency 12671 1636 109 59 31 14 6 7 1 2 1 2  
 Proportion 0.871 0.112 0.007 0.004 0.002 0.001 0.000 0.000 0.000 0.000 0.000 0.000  
   
 Value 1.2 1.3 1.4 1.5 2.2 6.5  
 Frequency 1 1 1 1 1 1  
 Proportion 0.000 0.000 0.000 0.000 0.000 0.000

NT: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAg0lEQVQ4jc2U2wqAMAxDM///o7UMUbt2621gJDD30B4iEa1IQDc/R8cdBQJkZ0buYvoxVwYvxTXL6sUVYYtzscULLi9bvDVX4e7eKZau9/ZRCWSRlyc3P5e6mGTisrD5uIbFBsXY1lzy1JjsvxF2P/0S5ZrESBXB8+Dj8bVWfF93I6YTnuAJy58nGcwAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12224 | 2467 | 149 | 1 | 83.22 | 30.56 | 35 | 48 | 67 | 83 | 101 | 118 | 128 |

lowest : 4 5 6 7 8 , highest: 148 149 150 151 152

APTT: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAbklEQVQ4je2TQQ7AIAgEl/7/0Y0ULautPS6HDlERLxOThTGAlQAHg3kggjXgiFSIJ68KZqSA3+sLit/wUqUwqZAkyvxYEgCjc3KZ1M7orJLXYqUV23oJ7Vr00OodixrN/tKvtr7d0whd7Ne4H75OK0cMQxHtiFsAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12142 | 2549 | 631 | 1 | 40.06 | 9.533 | 30.1 | 31.4 | 34.1 | 37.7 | 42.7 | 49.9 | 56.6 |

lowest : 21.4 21.6 23.4 23.5 23.6 , highest: 160.7 163.0 168.7 171.6 176.1

SODIUM: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAeklEQVQ4je2TUQqAMAxDE+9/aLc66uqGig0IYvYTBsteCwFlQpEubJEITZq0GiiKgZhMkVNgfq77CYhcGrR8g6yGOxc1pcwO50vq9qXY2De5Akywr3EFnJErS/bo+cgw40qh1fJYgWDHDc5M172DiXfXSfTybr83AnIFjHcLui7Xzt8AAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13409 | 1282 | 58 | 0.994 | 137.2 | 5.034 | 129 | 132 | 135 | 137 | 140 | 142 | 144 |

lowest : 106 108 109 110 112 , highest: 161 165 166 168 170

CA: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAdklEQVQ4jc3T0QrAIAgF0Gv//9FjkmUjRrfl0F6SMA+RkI2Axk7leovCBlBQg64luvAVKV3KSeeqHCBc9tEVJmOmyijiXQnmsT3RH+9Fq3K5BgoQLjvhiqAtXDmDxLvuv68DMCyfPAZwlr5U2+3WoyXSTy11mwvxHQuvQvNUbgAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13415 | 1276 | 185 | 1 | 2.214 | 0.2213 | 1.89 | 1.96 | 2.09 | 2.22 | 2.35 | 2.45 | 2.51 |

lowest : 1.03 1.15 1.18 1.20 1.23 , highest: 3.84 3.88 3.96 4.18 4.40

PHOS: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAa0lEQVQ4jc2TSQoAIQwEO/7/0YML0SzmOG0RhPTFQmlIAOhDBs2BiY//xglA4ehsEbvhFbG7F1fsWS9TAguri0PldAzQnuv8x6hFFNObMyuiGEornhlqKZoeYg3vyD6lCEafdGa6trR6WfABbasLwR0lD8AAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13449 | 1242 | 306 | 1 | 1.048 | 0.3993 | 0.55 | 0.64 | 0.81 | 0.99 | 1.20 | 1.47 | 1.74 |

lowest : 0.30 0.31 0.32 0.33 0.34 , highest: 4.36 4.43 4.53 5.48 6.22

MG: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAfElEQVQ4jc2TgQqAIAxEb/3/R9dWStq0K5n4Ch2k2yM4CA+UD+dHwEaDBH/lP+wQFIQqnfPYc5PFyAlY0qu2muFFhePJCnl0tMJ/2Wt7XypcbMAr1Kzbu+cUrNZuTEgFymmwcDyaObH32rwQtihv1W0kVTbKPll9W/KW6x1Hygtarmv88wAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12822 | 1869 | 146 | 0.999 | 0.8136 | 0.1609 | 0.59 | 0.64 | 0.72 | 0.81 | 0.89 | 0.98 | 1.06 |

lowest : 0.20 0.21 0.22 0.26 0.28 , highest: 1.83 1.88 1.96 2.07 2.22

HS: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAd0lEQVQ4je3V0QqAIAyF4X+9/0Nnm4TiEinauuigKLv6UKaIF3DLgWHzgl8OzABQ0u+6Sg8onoOErpbvuIxDLqxvvNKHVSO0yexHu8DxvHKOrXN5niQcDWpuiqVRWWuoOByVdSsvvnNoFz6JrE859/YF6xheBK3symYLHOFQ42YAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11630 | 3061 | 169 | 1 | 5.413 | 2.625 | 2.2 | 2.7 | 3.7 | 5.0 | 6.6 | 8.5 | 10.0 |

lowest : 1.3 1.4 1.5 1.6 1.7 , highest: 19.8 20.2 22.2 22.3 22.7

GBIL: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAXklEQVQ4je2TUQrAIAxDk93/0HZpq+BgbH/5MGItbZWHEDAE0E24QlC00uH6J3MuOzA5EX6GtP0vhcP1Vc3lBja5zMhuI6LEtZ/pa1Mpwa5Qz2rlWdW8wu7XwOZE1QZdRA0CQR2HNAAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13250 | 1441 | 885 | 1 | 1.406 | 1.477 | 0.33 | 0.39 | 0.53 | 0.77 | 1.23 | 2.34 | 3.96 |

lowest : 0.11 0.12 0.13 0.14 0.15 , highest: 42.82 43.83 45.10 51.72 51.77

TP: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAh0lEQVQ4jcWV2w7AIAhD6/7/oxfsJNuyecFGGyL6IJ6gCNK8ADOtcIQEmNGBCwRD/RwQhkIhcu3j8szgS8qUDUSqEO3jur2kljRcffWW2jiuNfU4AKRMWT1E172t5opCSdD+9k8QSdDem8FvXKU4l7393OHY5lBGja7e6T5P2VETjeX7KGJbnJG6CWzjhVAaAAAAAElFTkSuQmCC)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13108 | 1583 | 649 | 1 | 64.9 | 12.97 | 45.20 | 49.47 | 56.90 | 65.70 | 73.30 | 78.80 | 82.00 |

lowest : 29.9 30.0 30.3 30.5 30.6 , highest: 107.8 108.1 108.7 112.8 120.9

ALB: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAe0lEQVQ4jb3VUQ4AEQwE0Kn7H9rSn9pEtEM7HyIIL5ICeRwAps9v0y7zObS10VGdIrclMZbyV63ERulYVzAlrrCK0MVctCgsi1TMtQr+Ag3c1wvWjOuwcpUPdlxzeAayaKcFGSaPbTuZCTK0nW4UCMZHpo3tVmU9enpEOnyCB5E+XdsVAAAAAElFTkSuQmCC)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13015 | 1676 | 401 | 1 | 33.42 | 8.513 | 21.3 | 23.6 | 27.9 | 33.6 | 39.1 | 43.2 | 45.2 |

lowest : 10.0 10.2 10.5 10.6 10.7 , highest: 52.9 53.2 53.7 54.0 55.7

AMY: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAACUAAAANCAMAAAAZv1dqAAAACVBMVEUAAADMzMz////1iUV5AAAAH0lEQVQYlWNgYCQCMDAwEQEGr6qR4EcQwO4xRpg4AwAewgM2/m5ecQAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10778 | 3913 | 488 | 1 | 90.83 | 100.5 | 18 | 23 | 33 | 49 | 76 | 125 | 187 |

lowest : 8 9 10 11 12 , highest: 4984 5248 40372 43970 56146

Value 0 500 1000 1500 2000 2500 4000 4500 5000 40500 44000 56000  
 Frequency 10432 268 39 14 12 4 2 2 2 1 1 1  
 Proportion 0.968 0.025 0.004 0.001 0.001 0.000 0.000 0.000 0.000 0.000 0.000 0.000

For the frequency table, variable is rounded to the nearest 500

PAMY: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAABYAAAANCAMAAACae25RAAAACVBMVEUAAADMzMz////1iUV5AAAAGklEQVQYlWNgYMQGGBiYsAHaCg8el2BzCwMAGi8B4ah/57sAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7577 | 7114 | 280 | 0.999 | 41.66 | 47.28 | 7 | 9 | 14 | 22 | 36 | 64 | 97 |

lowest : 1 2 3 4 5 , highest: 1673 2083 2116 3066 38369

Value 0 500 1000 1500 2000 3000 38500  
 Frequency 7495 65 7 6 2 1 1  
 Proportion 0.989 0.009 0.001 0.001 0.000 0.000 0.000

For the frequency table, variable is rounded to the nearest 500

LIP: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAEAAAAANCAMAAAAucZheAAAACVBMVEUAAADMzMz////1iUV5AAAAKklEQVQokWNgYGCkCDAwMDBRBEYNABswGguDwQAkAApVSNjCWATiiIERACyhBYM6jKyHAAAAAElFTkSuQmCC)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10992 | 3699 | 444 | 1 | 63.82 | 89.88 | 6 | 8 | 14 | 23 | 40 | 79 | 135 |

lowest : 0 1 2 3 4 , highest: 11469 15843 18560 22339 45991

CHE: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAc0lEQVQ4jb3TUQrAIAwD0HT3P/TQakFo2bBp86GCqA8hkCiY0VnGQoem4HEDP7bhnyLGfyFgHcJu17epw5d1VeGOOy9IJiPrdsXuSZaSPhJcGtZ/kVksGtgolaVxNa6ly7mqWCkiKFX8EwlXMqsMkVXpMb07Bwe5a1dAeQAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12244 | 2447 | 997 | 1 | 4.79 | 2.378 | 1.70 | 2.17 | 3.15 | 4.60 | 6.22 | 7.65 | 8.49 |

lowest : 0.98 0.99 1.00 1.01 1.02 , highest: 12.39 12.55 12.97 13.32 13.89

AP: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAH8AAAANCAMAAAC3iUHrAAAACVBMVEUAAADMzMz////1iUV5AAAAR0lEQVQ4jWNgBAIGBsaBAgxMQMAABEwDA0btH+H2Q9L/gOWAAff/YLF/gFwwiOwfEBcwQJM/GDCSD8FpGYyReSgpHYsIIyMAyJIK1pgJl1IAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13291 | 1400 | 672 | 1 | 118.8 | 91.51 | 42 | 49 | 63 | 84 | 123 | 206 | 302 |

lowest : 11 14 15 16 17 , highest: 1980 2132 2549 2596 2995

LDH: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAYUlEQVQ4je2VQQrAMAgEx/7/0VWzlR7agzcPDsQYkbAIi5gDNg0uh4yjWF09VlePdCLzDKl5jRvY6uoRgmCesNI1TFgYEVHJN2pU9FcuVrRdIzu3vRauqlQpv3na/rzo5wZjhw0MlTTx5wAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12977 | 1714 | 1137 | 1 | 331.2 | 240.9 | 136 | 152 | 187 | 239 | 332 | 508 | 724 |

lowest : 39 46 54 55 56 , highest: 10473 10784 10822 11246 13906

CK: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAHYAAAANCAMAAABLnGohAAAACVBMVEUAAADMzMz////1iUV5AAAAQElEQVQ4jWNgZGBgpD9gYGJgYKI/GLV2GFs7mpJHraW+tQNgMSglwwAjGoMRyoCkPShGkMg5gAGNjySBKQ4UAABqTQpC9fFEkwAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12611 | 2080 | 1506 | 1 | 385 | 615.4 | 18 | 25 | 42 | 80 | 184 | 577 | 1155 |

lowest : 8 9 10 11 12 , highest: 60799 63011 82180 83880 98801

GLU: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAYklEQVQ4je2TSwrAIAwFJ73/oVs/bWIRtKu8RWchBkUGYTAHMBU4Hi6tMCXze33j5SVjJusVEqjkJTjg/4PWf/kOJTN1LyKpRo2pl4BZ6Y8VkxtWyu319nOrb3lR47iZ4b2cJ/QMq8QIwM4AAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10499 | 4192 | 389 | 1 | 126.4 | 48.3 | 78 | 85 | 97 | 113 | 138 | 177 | 216 |

lowest : 19 22 23 26 28 , highest: 843 848 890 1349 1403

TRIG: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAF4AAAANCAMAAAAXFikFAAAACVBMVEUAAADMzMz////1iUV5AAAARElEQVQ4jWNgZGRgYKQZYGBiYgBiWoFR4wkZTzvzGUAph3ZJh9aup4fxNDOfPsbTynxIykED0HIIhhnhNLIIEcmGkREAyCUIGNCg8jUAAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9630 | 5061 | 538 | 1 | 141.7 | 90.33 | 54 | 64 | 83 | 115 | 165 | 241 | 307 |

lowest : 14 15 16 20 22 , highest: 1796 2247 2662 2918 5440

CHOL: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAZ0lEQVQ4jc2TQQrAIAwEN/7/0Y1aBLep4sXNgAZyGgIDI+DwTgAKUb384/VtQi9k88JAfbI/L/XJ0npNERCqGG3qka2kF1t6CdXSe4VWOjNsrFRutTl8QmQsfi1he0efoydenLTo7wG9Hgvy83CMIQAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9646 | 5045 | 339 | 1 | 150.8 | 59.23 | 74 | 89 | 113 | 145 | 182 | 219 | 243 |

lowest : 25 26 27 28 29 , highest: 646 662 676 710 1104

BASOR: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAHMAAAANCAMAAACttaFlAAAACVBMVEUAAADMzMz////1iUV5AAAAPklEQVQ4jWNgZGBgpDNgYGJgYKIzGLVzmNk5mm5H7RyKdgLTLTbACMGgVAakGZHSNgOcQEuNjCgSuHIDUBwA2JUKBUCC2pEAAAAASUVORK5CYII=)

n missing distinct Info Mean Gmd .05 .10 .25   
 13959 732 419 0.322 0.145 0.2679 0.0000 0.0000 0.0000   
 .50 .75 .90 .95   
 0.0000 0.0000 0.5501 1.0526

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| lowest : | 0.0000000 | 0.1358696 | 0.1545595 | 0.1652893 | 0.1818182 |
| highest: | 11.1111111 | 15.2173913 | 16.6666667 | 18.4210526 | 23.6559140 |

EOSR: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAGEAAAANCAMAAACO7vCwAAAACVBMVEUAAADMzMz////1iUV5AAAARElEQVQ4je2SQQoAIAzDGv//aFEKQ/Da4cFCCzuFQYRENBrSiOYTHiG0uJR9ookQRXQRkpDlkoNbg4ddYetKPh3XTSSYF4MIVFDP+KgAAAAASUVORK5CYII=)

n missing distinct Info Mean Gmd .05 .10 .25   
 13959 732 927 0.891 1.297 1.825 0.0000 0.0000 0.0000   
 .50 .75 .90 .95   
 0.5882 1.7857 3.4900 5.0000

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| lowest : | 0.0000000 | 0.1834862 | 0.2028398 | 0.2178649 | 0.2188184 |
| highest: | 39.1752577 | 46.6019417 | 46.9026549 | 50.0000000 | 73.4883721 |

LYMR: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAZ0lEQVQ4jdXTUQrAIAwD0NT7H9o5rBNXtV+mBhERwUchkC8okRhB0qAlBYjliiBrBNzg4tP0/5HFlmn/DBe1mphNizy1rYskc7ge2XkcHCzG4OBWnQXCruIu0q316X8tdR8fvDXUUwbBUQsZjNtF2AAAAABJRU5ErkJggg==)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13959 | 732 | 3121 | 1 | 14.61 | 11.87 | 2.752 | 4.000 | 6.757 | 11.340 | 18.182 | 27.869 | 36.620 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| lowest : | 0.0000000 | 0.3215434 | 0.4484305 | 0.4608295 | 0.4636785 |
| highest: | 97.2413793 | 97.4193548 | 98.0000000 | 99.1847826 | 100.0000000 |

MONOR: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAZUlEQVQ4jdWTQQrAIAwEJ/7/0U2tRkkRest2ZFHBwxBZbAPHNKAt6DQJ9L0ICnWCP3kpiEX/2Kls4tAJQaQGNhXQ83IN3qh6FZuRv1BEjdTEhD2x4ykud4d6Rpvn1petB1+66LkAcgcMIWflPQ8AAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13959 | 732 | 2334 | 1 | 8.793 | 5.4 | 2.000 | 3.390 | 5.634 | 8.000 | 10.870 | 14.141 | 17.021 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| lowest : | 0.0000000 | 0.2747253 | 0.3412969 | 0.3448276 | 0.4566210 |
| highest: | 68.5446009 | 69.2307692 | 70.3703704 | 72.7272727 | 100.0000000 |

NEUR: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAcUlEQVQ4jcXUgQqAIAwE0NP//+gsI8TtRDRvR0iMKY9oIgUETVhL1gZ9SsXtk5ocF8JdHonCZC6uinK9f9E4ZpN2+njU8zinMp/spGueZGHI5AJRozrZ/64l0CkXuzKXZbjnpT5w3kjZNHzrbp4jyzxeD/MJrwib458AAAAASUVORK5CYII=)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13959 | 732 | 3850 | 1 | 75.15 | 15.6 | 47.42 | 57.88 | 69.23 | 78.33 | 85.32 | 90.13 | 92.63 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| lowest : | 0.000000 | 1.484829 | 1.935484 | 1.960784 | 2.413793 |
| highest: | 99.122807 | 99.166667 | 99.476440 | 99.484536 | 100.000000 |

PDW: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAfklEQVQ4jc3V3QqAIAwF4LPe/6FrGV3o/optddCikPkljEB+AJ587Qs2PwBPILI2K+5ehwZz/uFa871LUrXIrB00VAdNbzJbheIG1T874Co8M6V0BFVKk+vGWVU2qeZD1a3LBC6lXqKyT5B7CvwH5DHuGaF5GC8IF2FQzmfaAVQ1CjiAt1m9AAAAAElFTkSuQmCC)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13589 | 1102 | 167 | 1 | 12.29 | 2.375 | 9.3 | 9.8 | 10.8 | 12.0 | 13.4 | 15.1 | 16.4 |

lowest : 6.6 6.8 6.9 7.0 7.1 , highest: 24.1 24.7 24.9 25.2 25.3

RBC: Parameter analysis value (Numeric)

![image](data:image/png;base64;base64,iVBORw0KGgoAAAANSUhEUgAAAJcAAAANCAMAAACTvAxuAAAACVBMVEUAAADMzMz////1iUV5AAAAcklEQVQ4jc3TUQrAMAgD0Lj7H7otlO7LGjWwZRT20/g2EFYIsM6bSkc04kkGTrI90RiNSm5Ldd1VX7kildRG93AqmYzeJd4l2U/y6zIqyT+jGrKq/7rasvB+xSSwXe92TE3b2h14jyJuu+3JZjhvexfnGZo2CX2KyxI1AAAAAElFTkSuQmCC)

| n | missing | distinct | Info | Mean | Gmd | .05 | .10 | .25 | .50 | .75 | .90 | .95 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14230 | 461 | 65 | 0.999 | 3.936 | 0.8772 | 2.7 | 2.9 | 3.4 | 3.9 | 4.5 | 4.9 | 5.2 |

### 1.2.3 Suggested transformations

Next we investigate whether a pseudolog transformation of continuous variables may substantially symmetrize the univariate distributions of the continuous variables, and may hence be useful for multivariate summaries. We employ a function ida\_trans for this purpose, which optimises the parameter sigma of the pseudo-logarithm for that purpose. The optimization targets the best possible linear correlation of the transformed values with normal deviates. If no better transformation can be found, or if the improvement in correlation is less than 0.2 correlation units, no transformation is suggested.

Register transformed variables in the data set. The updated data set with suggested log transformed data sets is save at **data/ADLB\_02.rds**.

| PARAMCD | n |
| --- | --- |
| Activated partial thromboplastin time (sec) |
| APTT | 14691 |
| Alanin transaminase (U/L) |
| ALAT | 14691 |
| Alanin transaminase (U/L) : pseudo log transformed |
| ALAT\_T | 14691 |
| Albumin (G/L) |
| ALB | 14691 |
| Alkaline phosphatase (U/L) |
| AP | 14691 |
| Alkaline phosphatase (U/L) : pseudo log transformed |
| AP\_T | 14691 |
| Amylase (U/L) |
| AMY | 14691 |
| Amylase (U/L) : pseudo log transformed |
| AMY\_T | 14691 |
| Aspartate transaminase (U/L) |
| ASAT | 14691 |
| Aspartate transaminase (U/L) : pseudo log transformed |
| ASAT\_T | 14691 |
| Basophile ratio (%) |
| BASOR | 14691 |
| Basophiles (G/L) |
| BASO | 14691 |
| Bilirubin (mg/dl) |
| GBIL | 14691 |
| Bilirubin (mg/dl) : pseudo log transformed |
| GBIL\_T | 14691 |
| Blood platelets (G/L) |
| PLT | 14691 |
| Blood urea nitrogen (mg/dl) |
| BUN | 14691 |
| C-reactive protein (mg/dl) |
| CRP | 14691 |
| Calcium (mmol/L) |
| CA | 14691 |
| Cholesterol (mg/dl) |
| CHOL | 14691 |
| Cholinesterase (kU/L) |
| CHE | 14691 |
| Creatinine (mg/dl) |
| CREA | 14691 |
| Creatinine (mg/dl) : pseudo log transformed |
| CREA\_T | 14691 |
| Creatinine kinases (U/L) |
| CK | 14691 |
| Creatinine kinases (U/L) : pseudo log transformed |
| CK\_T | 14691 |
| Eosinophil ratio (%) |
| EOSR | 14691 |
| Eosinophils (G/L) |
| EOS | 14691 |
| Eosinophils (G/L) : pseudo log transformed |
| EOS\_T | 14691 |
| Fibrinogen (mg/dl) |
| FIB | 14691 |
| Gamma-glutamyl transpeptidase (G/L) |
| GGT | 14691 |
| Gamma-glutamyl transpeptidase (G/L) : pseudo log transformed |
| GGT\_T | 14691 |
| Glucoses (mg/dl) |
| GLU | 14691 |
| Haematocrit (%) |
| HCT | 14691 |
| Haemoglobin (G/L) |
| HGB | 14691 |
| Lactate dehydrogenase (U/L) |
| LDH | 14691 |
| Lactate dehydrogenase (U/L) : pseudo log transformed |
| LDH\_T | 14691 |
| Lipases (U/L) |
| LIP | 14691 |
| Lipases (U/L) : pseudo log transformed |
| LIP\_T | 14691 |
| Lymphocyte ratio (% (mg/dl)) |
| LYMR | 14691 |
| Lymphocytes (G/L) |
| LYM | 14691 |
| Lymphocytes (G/L) : pseudo log transformed |
| LYM\_T | 14691 |
| Magnesium (mmol/L) |
| MG | 14691 |
| Mean corpuscular hemoglobin (fl) |
| MCH | 14691 |
| Mean corpuscular hemoglobin concentration (g/dl) |
| MCHC | 14691 |
| Mean corpuscular volume (pg) |
| MCV | 14691 |
| Mean platelet volume (fl) |
| MPV | 14691 |
| Monocyte ratio (%) |
| MONOR | 14691 |
| Monocytes (G/L) |
| MONO | 14691 |
| Neutrophile ratio (%) |
| NEUR | 14691 |
| Neutrophiles (G/L) |
| NEU | 14691 |
| Normotest (%) |
| NT | 14691 |
| Pancreas amylase (U/L) |
| PAMY | 14691 |
| Pancreas amylase (U/L) : pseudo log transformed |
| PAMY\_T | 14691 |
| Patient Age (years) |
| AGE | 14691 |
| Phosphate (mmol/L) |
| PHOS | 14691 |
| Platelet distribution width (%) |
| PDW | 14691 |
| Potassium (mmol/L) |
| POTASS | 14691 |
| Red blood cell distribution width (%) |
| RDW | 14691 |
| Red blood count (T/L) |
| RBC | 14691 |
| Sodium (mmol/L) |
| SODIUM | 14691 |
| Total protein (G/L) |
| TP | 14691 |
| Triclyceride (mg/dl) |
| TRIG | 14691 |
| Triclyceride (mg/dl) : pseudo log transformed |
| TRIG\_T | 14691 |
| Uric acid (mg/dl) |
| HS | 14691 |
| White blood count (G/L) |
| WBC | 14691 |
| White blood count (G/L) : pseudo log transformed |
| WBC\_T | 14691 |

### 1.2.4 Comparison of univariate distributions with and without pseudo-log transformation

The comparison is only shown for variables where a transformation is suggested.

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