# Appendix B: Unit transformation

The “if” column states the computational rules apply to “valueQuantity” when another test unit was used. For example, the global unit for potassium (44I4.) is mmol/L. If nmol/L is used for a potassium test, the “valueQuantity” needs to be multiplied by 10-6 to change the unit of the test to mmol/L.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **ReadCode** | **readCodeDescription** | **HIC\_unit** | **Glasgow\_unit** | **Lothian\_unit** | **DaSH\_unit** | **Unit** | **if** |
| 44I4. | Potassium | mmol/L; nmol/L | mmol/L | mmol/L | mmol/L | mmol/L | if nmol/L value 1e-06 |
| 44J3. | Creatinine | umol/L | umol/L | umol/L | umol/L; umol/l | umol/L |  |
| 451E. | GFR calculated abbreviatd MDRD | mL/min | ml/min; mL/min | ml/min |  | ml/min |  |
| 44I5. | Sodium | mmol/L | mmol/L | mmol/L | mmol/L | mmol/L |  |
| 423.. | Haemoglobin | g/L; g/l | g/l; g/L | g/L | g/L; g/l; HARRY; BOB; DICK | g/L |  |
| 42H.. | WBC | x10^9/L; x10-9/l; x10 9/L | x10^9/l | 10^9/L | x10^9/l; x10^9/; HARRY; BOB | 10^9/L |  |
| 42M.. | Lymphocyte count | x10^9/L; x10-9/l; x10 9/L | x10^9/l; cells/cmm; x10^9/L | 10^9/L | x10^9/l; DICK; BOB | 10^9/L |  |
| 42P.. | Platelet count | x10^9/L; x10-9/l | x10^9/l | 10^9/L | x10^9/l; HARRY; DICK; BOB | 10^9/L |  |
| 429.. | MCHC | g/L; g/l | NoData | g/L | g/dl; g/l; BOB; DICK; HARRY | g/L | if g/dl value 10 |
| 42A.. | MCV | fl | fl | fL | fl; HARRY; DICK | fL |  |
| 428.. | MCH | pg | pg | pg | pg | pg |  |
| 426.. | RBC | x10^12/L; x10-12/l | x10^12/l | 10^12/L | x10^12/l; DICK | 10^12/L |  |
| 42J.. | Neutrophil count | x10^9/L; x10-9/l | x10^9/l; x10^9/L | 10^9/L | x10^9/l; HARRY; BOB; DICK | 10^9/L |  |
| 42N.. | Monocyte count | x10^9/L; x10-9/l | x10^9/l; x10^9/L | 10^9/L | x10^9/l; BOB | 10^9/L |  |
| 42K.. | Eosinophil count | x10^9/L; x10-9/l | x10^9/l; x10^9/L | 10^9/L | x10^9/l; BOB; DICK | 10^9/L |  |
| 42L.. | Basophil count | x10^9/L; x10-9/l | x10^9/l; x10^9/L | 10^9/L | x10^9/l; HARRY | 10^9/L |  |
| 44M4. | Albumin | g/L | g/L | g/L | g/L | g/L |  |
| 44F.. | Serum alkaline phosphatase | U/L | U/L | U/L | U/L | U/L |  |
| 44EC. | Serum total bilirubin level | umol/L | umol/L | umol/L | umol/L | umol/L |  |
| 451L. | AKI warning stage | . | NoData |  |  |  |  |
| 451G. | GFR calctd abbtd MDRD Af Am or | . | NoData | NoData | NoData |  |  |
| 4258. | Haematocrit |  | l/l; % | ratio | % | % |  |
| 44GB. | Serum ALT level | U/L | NoData | U/L | U/L | U/L |  |
| 44J9. | Urea | mmol/L | mmol/L | mmol/L | mmol/L | mmol/L |  |
| 44I8. | Calcium | mmol/L | mmol/L | mmol/L | mmol/L | mmol/L |  |
| 44IC. | Corrected serum calcium level | mmol/L | mmol/L | mmol/L | mmol/l; mmol/L | mmol/L |  |
| 44g.. | Glucose | mmol/L | mmol/L | mmol/L | mmol/L; mmol/l | mmol/L |  |
| 42Z7. | RDW |  | NoData | NoData | NoData |  |  |
| 425.. | HCT | % | NoData | NoData | l/l; DICK | % |  |
| 442W. | TSH | mU/L | mU/L | mU/L | mU/L; mu/L | mU/L |  |
| 44CC. | Plasma C reactive protein | mg/L | NoData | NoData | NoData | mg/L |  |
| 44G3. | ALT | U/L | U/L | NoData | NoData | U/L |  |
| 44P.. | Serum cholesterol | mmol/L | mmol/L | NoData | NoData | mmol/L |  |
| 44P5. | HDL Cholesterol | mmol/L | mmol/L | mmol/L | mmol/L | mmol/L |  |
| 44I9. | Phosphate | mmoL/L; mmol/L | mmol/L | mmol/L | mmol/L | mmol/L |  |
| 4266. | Nucleated RBC | x10-9/l; /100 WBC | x10^9/l; x10^9/L | 10^9/L | x100 WBC's | exclude from analysis |  |
| 44PF. | Total cholesterol:HDL ratio | . | NoData | NoData |  |  |  |
| 44LD. | Serum magnesium level | mmoL/L; mmol/L | NoData | mmol/L | mmol/L | mmol/L |  |
| 44CS. | C Reactive Protein | mg/L | mg/L | mg/L | mg/L | mg/L |  |
| 42W5. | HbA1c (IFCC) | mmol/mol | mmol/mol |  | mmol/mol | mmol/mol |  |
| 44I7. | Bicarbonate | mmol/L | mmol/L | mmol/L | mmol/L | mmol/L |  |
| 42QE. | INR |  |  | ratio |  |  |  |
| 42Q5. | Prothrombin Time | secs.; Secs | s | seconds | secs | s |  |
| 42R4. | Ferritin | ug/L; ng/mL | ug/l | ug/L | ug/l | ug/L | if ng/mL value 1 |
| 46TC. | Urine albumin:creatinine ratio | mg/mmol Creat; mg/mmol | mg/mmol creatinine | mg/mmol |  | mg/mmol |  |
| 44M3. | Total Protein | g/L | g/L | g/L | g/L | g/L |  |
| 42jG. | APTT | secs.; Secs | s |  | secs | s |  |
| 442V. | Free T4 | pmol/L | pmol/L | pmol/L | pmol/L | pmol/L |  |
| 42B.. | Plasma viscosity | mPa.s.; cp | mPas |  | cp | mPas | if cp value 1 |
| 44Q.. | Triglyceride | mmol/L | mmol/L | mmol/L | mmol/L | mmol/L |  |
| 44lF. | Cholesterol/HDL ratio |  |  |  | NoData |  |  |
| 44G9. | Gamma Glut Trans | U/L | U/L | U/L | U/L | U/L |  |
| 42Qu. | APTT Ratio |  |  | ratio | ratio |  |  |
| 42R7. | Iron | umol/L | umol/L | umol/L | umol/L | umol/L |  |
| 44CB. | Transferrin | g/L | g/L | g/L | g/l; g/L | g/L |  |
| 42d1. | Transferrin saturation index | % | % | % | % | % |  |
| 46W.. | Urine microalbumin | mg/L | NoData | NoData | NoData | mg/L |  |
| 42U5. | Serum Folate | ng/mL; ug/l | ug/l | ug/L | ug/l | ug/L | if ng/mL value 1 |
| 44D8. | Plasma lactate level | mmol/L | NoData |  | NoData | mmol/L |  |
| 42T.. | Vitamin B12 | pg/mL; ng/l | ng/l | ng/L | ng/l | ng/L | if pg/mL value 1 |
| 46M7. | Creatinine (Urine) | mmol/L | mmol/L; umol/L | mmol/L | umol/L; mmol/L | mmol/L | if umol/L value 0.001 |
| 421B. | Blood film microscopy |  |  | NoData |  |  |  |
| 44CN. | Amylase | U/L | U/L | U/L | U/L | U/L |  |
| 4IA1. | Sample appearance |  | NoData | NoData | NoData |  |  |
| 46N4. | Urine Albumin | mg/L | mg/L | mg/L | mg/L; mg/l | mg/L |  |
| 43ZF. | Total PSA level | ug/L | NoData | NoData | NoData | ug/L |  |
| 44K5. | Urate | umol/L | umol/L; mmol/L | mmol/L | umol/L | umol/L | if mmol/L value 1000 |
| 44HG. | Serum creatine kinase level | U/L | U/L | U/L | NoData | U/L |  |
| 44lD. | U Protein:Creatinine | mg/mmol | mg/mmol creatinine |  | mg/mmolcr | mg/mmol |  |
| 47K.. | Quantitv faecal immunochem tst | ug/Hb/g stool; ugHb/g stool | NoData | NoData | ug Hb/g | ug Hb/g |  |
| 44dB. | Plasma LDL cholesterol level | mmoL/L | NoData | NoData | NoData | mmoL/L |  |
| 44PI. | LDL-Cholest (calc'd) | mmol/L | mmol/L | NoData | NoData | mmol/L |  |
| 44MG. | Serum troponin I level | ug/L; ng/L | ug/L | NoData | ng/L | ng/L | if ug/L value 1000 |
| 44A1. | Parathyroid Hormone | pmol/L | pmol/L | NoData | pmol/L | pmol/L |  |
| 43Z2. | PSA | ug/L | ug/L | ug/L | ug/L | ug/L |  |
| 44NA. | Protein electrophoresis |  | NoData |  | NoData |  |  |
| 44D5. | Lactate | mmol/L | mmol/L | NoData | mmol/L; mmol/l | mmol/L |  |
| 44p.. | Icteric | ng/mL; pmol/L; umol/mmol Cholesterol; .; nmol/mmol Triglyceride; nmol/mmol TG; U/L; g/L; nmol/mmol Trig; h; pmol/8x10\*8 RBCs; kg; pg/mL; nmol/min/mgP; mg/mmol creat; ug/mL; pmol/8x10^8 Cells; nmol/L; mU/L; nmol/hr/mL; mmol/mmol; AU | NoData | mg/mmol; AU/ml; Limits; Hours; L or %; mmol/24hr; umol/mmol; mg/L or ug/L or ug/ml; mmol/mol | Hrs; AU/ml; umol/mmol; %; mg/L; ug/ml; min; pmol/L; ug/mL; umol/L; ug/L; AU/mL; nmol/min/mgP | exclude from analysis |  |
| 42Qn. | Fibrinogen | g/l | g/l | g/L | g/l | g/L |  |
| 42X.. | Reticulocyte count | x10^9/l | x10^9/L |  | x10^9/l | x10^9/L |  |
| 43J5. | IgA | g/L | g/L | g/L | g/L; g/l | g/L |  |
| 443h. | FSH | U/L | U/L | U/L | U/L | U/L |  |
| 43J3. | IgG | g/L | g/L | g/L | g/L; g/l | g/L |  |
| 44WY. | Gentamicin | mg/L | mg/L | mg/L | mg/L | mg/L |  |
| 42Qf. | D-Dimer | ng/ml | ng/ml | ng/ml | ng/ml | ng/ml |  |
| 43J4. | IgM | g/L | g/L | g/L | g/L; G/L; g/l | g/L |  |
| 46O3. | Urine: Bence Jones' protein | g/L; mg/mmol creat |  | g/L |  | exclude from analysis |  |
| 4JR1. | Hepatitis B screening test |  | NoData | NoData | NoData |  |  |
| 44HF. | Lactate Dehydrogenase | U/L | U/L | U/L | U/L | U/L |  |
| 443e. | LH | U/L | U/L | U/L | U/L | U/L |  |
| 44MC. | Troponin T | ng/L | NoData | NoData | NoData | ng/L |  |
| 44a6. | CA125 level | kU/L; U/mL | kU/L |  | U/ml; kU/L | kU/L | if U/ml value 1 |
| 4473. | Testosterone | nmol/L | nmol/L | nmol/L | nmol/L | nmol/L |  |
| 44LA. | Serum vitamin D | nmol/L | nmol/L |  | nmol/l; nmol/L | nmol/L |  |
| 43ad. | Tissu transglutaminase IgA lev | u/ml | U/mL | NoData | NoData | U/mL |  |
| 43d5. | HIV antibody/antigen (Duo) |  |  | NoData | NoData |  |  |
| 44a0. | CEA | ug/L; U/L | ug/L | ug/L | mg/L; ug/L | ug/L | if mg/L value 1000; if U/L value NA |
| 42Y0. | CarboxyHb. | % | %; %Total Hb | % | % | % |  |
| 44uI. | Tacrolimus | ug/L | ug/L | ug/L | ug/l; ug/L | ug/L |  |
| 43X2. | Hepatitis C antibody test |  |  | NoData | NoData |  |  |
| 44I6. | Chloride | mmol/L | mmol/L | mmol/L | mmol/L; mmol/l | mmol/L |  |
| 44HB. | AST | U/L | U/L | U/L | NoData | U/L |  |
| Table | Microbiology | NoData |  | NoData | NoData |  |  |
| 42B6. | ESR | mm/hr | mm/hr | mm/hr | mm/hr | mm/hr |  |
| STYP | POC Specimen Type | NoData |  | NoData | NoData |  |  |
| 442f. | Total T3 | NoData | nmol/L | NoData | NoData | nmol/L |  |
| TCT | Thrombin time | NoData | s | NoData | NoData | s |  |
| TCTR | TCT ratio | NoData |  | NoData | NoData |  |  |
| PTCR | PT Ratio | NoData |  | NoData | NoData |  |  |
| VLDLC | VLDL-Chol (calc'd) | NoData | mmol/L | NoData | NoData | mmol/L |  |
| 44L2. | Magnesium | NoData | mmol/L | NoData | NoData | mmol/L |  |
| 4I3L. | Urine volume (ml) | mL | mL | L | NoData | mL | if L value 1000 |
| 46N3. | Urine Protein | g/L | g/L |  | NoData | g/L |  |
| WCV | 2019 NCoV | NoData |  | NoData | NoData |  |  |
| 43hD. | Adenovirus :; Influenza A virus :; Influenza B virus :; M. pneumoniae :; RSV : | NoData |  | NoData | NoData |  |  |
| 44hB. | Actual Bicarbonate | NoData | mmol/L | NoData | NoData | mmol/L |  |
| 44ZG. | Base Excess | mmol/L | mmol/L | mmol/L | mmol/L; mmol/l | mmol/L |  |
| 44YD. | cH+/Hydrogen Ion | nmol/L | nmol/L | nmol/L | nmol/L; nmol/l | nmol/L |  |
| 44h0. | Potassium ion | NoData | mmol/L | mmol/L | NoData | mmol/L |  |
| PHT | cH+ (temp corrected) | NoData | nmol/L | NoData | NoData | nmol/L |  |
| 44YA. | Oxygen Saturation | % | % | % | % | % |  |
| PPO2T | PO2 (temp corrected) | NoData | kPa | NoData | NoData | kPa |  |
| 42VR. | Oxyhaemoglobin | AU | % | % | % | exclude from analysis |  |
| 44hD. | Calcium (ionised) | mmol/L | mmol/L | NoData | NoData | mmol/L |  |
| PHHB | Deoxyhaemoglobin | NoData | % | NoData | NoData | % |  |
| PTEMP | Patient Temperature | NoData | 'C | NoData | NoData | 'C |  |
| 44Y6. | pCO2 | kPa | kPa | kPa | kPa | kPa |  |
| PPCO2T | PCO2 (temp corrected | NoData | kPa | NoData | NoData | kPa |  |
| 44TJ. | Blood glucose |  | mmol/L |  | mmol/L; mmol/l | mmol/L |  |
| 44h2. | Chloride ion | NoData | mmol/L | mmol/L | NoData | mmol/L |  |
| 42VB. | Methaemoglobin | % | % | % | % | % |  |
| 44h1. | Sodium Ion | mmol/L | mmol/L | mmol/L | mmol/L | mmol/L |  |
| 44Y4. | pO2 | kPa | kPa | kPa | kPa | kPa |  |
| FIO2 | Ventilation / O2% | NoData | % | NoData | NoData | % |  |
| 44ZP. | Lactate | mmol/L | mmol/L | mmol/L | mmol/L | mmol/L |  |
| UPRO24 | Urine Protein/volume | NoData | g/volume | NoData | NoData | g/volume |  |
| XZXCVSN | SARS-CoV-2 | NoData |  | NoData | NoData |  |  |
| 44ME. | Troponin I hs | NoData | ng/L |  | NoData | ng/L |  |
| XZXCVS | SARS-CoV-2 | NoData |  | NoData | NoData |  |  |
| 44PJ. | Cholesterol | NoData | NoData | mmol/L | mmol/L; mmol/l | mmol/L |  |
| 44P6. | LDL Cholesterol | NoData | NoData | mmol/L | mmol/L | mmol/L |  |
| 44g0. | Glucose (Random) | NoData | NoData | mmol/L | NoData | mmol/L |  |
| 44ID. | Ionised Calcium | NoData | NoData | mmol/L | mmol/L | mmol/L |  |
| 44hC. | Standard Bicarbonate | mmol/L | NoData | mmol/L | NoData | mmol/L |  |
| 44h3. | Actual Bicarb. | mmol/L | NoData | mmol/L | mmol/L; mmol/l | mmol/L |  |
| 44Y2. | pH |  | NoData | \* |  |  |  |
| 44IA. | Anion Gap | NoData | NoData | mmol/L | NoData | mmol/L |  |
| 44N.. | Prot E'phoresis | NoData |  |  | NoData |  |  |
| 68W1. | Anti-tTG IgA (DS2) | AU/mL; U/mL | NoData |  | NoData | exclude from analysis |  |
| 42g.. | Warfarin dosage | secs.; %; g/L; u/dl | NoData | %; U/ml | mg; ng/ml | exclude from analysis |  |
| 43G1. | Anti Nuclear Antibody | NoData | NoData |  | NoData |  |  |
| 4Q3J. | f-Calprotectin-ALP | ug/g; ug/g stool | NoData |  |  | ug/g |  |
| 44E3. | Bilirubin (POCT) | NoData | NoData | umol/L | NoData | umol/L |  |
| 42j9. | APTT (Mixture) | Secs. | NoData | seconds | secs | seconds |  |
| 44g1. | Fasting Glucose | mmol/L |  | mmol/L | mmol/L | mmol/L |  |
| 44AJ. | PTH | NoData | NoData | pmol/L | NoData | pmol/L |  |
| 44MB. | Monoclonal Band | g/L | g/L | g/L; mg/L | g/l | g/L | if mg/L value 1e-03 |
| 42h6. | Haemolysis | NoData | NoData | NoData |  |  |  |
| 4QA.. | Lipaemia | NoData | NoData | NoData |  |  |  |
| 42bE. | % Hypochromia | NoData | NoData | NoData | %; HARRY | % |  |
| 42Z5. | MPV | NoData | NoData | NoData | fl; HARRY; DICK; BOB |  |  |
| 42ZD. | LUC | NoData | NoData | NoData | x10^9/l; HARRY; BOB | x10^9/l |  |
| 42P5. | Large Platelets | NoData | NoData | NoData | x10^9/l; DICK | x10^9/l |  |
| 44H5. | Asp Amino Trans | NoData | NoData | NoData | U/L | U/L |  |
| 44PL0 | Non-HDL Cholesterol | NoData | NoData | NoData | mmol/L | mmol/L |  |
| 42W4. | HbA1c | NoData | NoData | NoData | % | % |  |
| 44H4. | Total CK | NoData | NoData | NoData | U/L | U/L |  |
| 46I.. | 24hr Urine Vol | mL | NoData | NoData | ml | ml |  |
| 44ZJ. | Point of care Blood Ketones | NoData | NoData | NoData | mmol/L | mmol/L |  |
| 46N.. | Urine Protein Conc | g/L | NoData | g/L | mg/L | g/L | if mg/L value 1e-03 |
| 46Q8. | Benzodiazepines |  |  |  |  |  |  |
| 46QB. | Methadone |  |  |  |  |  |  |
| 46QF. | Opiates | NoData | NoData | NoData |  |  |  |
| 44q5. | Cannabinoids |  |  |  |  |  |  |
| 46QA. | Cocaine |  |  | NoData |  |  |  |
| 44qF. | Amphetamines |  |  | NoData |  |  |  |
| 43Z8. | Paraprotein Type |  | NoData | NoData |  |  |  |
| 44B.. | Alpha Feto Protein | kU/L | kU/L | kU/L | kU/L; kU/l | kU/L |  |
| 442U. | Serum free T3 level | pmol/L | NoData | pmol/L | pmol/L; pmo/L | pmol/L |  |
| 4482. | Cortisol | nmol/L | NoData | nmol/L | nmol/L | nmol/L |  |