

Figure 2b shows the consistency of the biomarker associations with the 11 different anemias and/or metabolic conditions related to the nutritional state and/or fluid balance of the blood, in comparison to the direction of corresponding biomarker associations with "Any Anemia and/or Any Metabolic Condition Related to the Nutritional State and/or Fluid Balance of the Blood".

Figure 3a shows the relation of baseline biomarker levels to the future development of 18 specific anemias and/or metabolic conditions related to the nutritional state and/or fluid balance of the blood (defined by ICD-10 4-character diagnoses) in the form of a heatmap. The results demonstrate that the specific anemias and/or metabolic conditions related to the nutritional state and/or fluid balance of the blood defined by 4-character ICD-10 codes all have highly similar associations with a broad panel of biomarkers measured by NMR spectroscopy of plasma samples from generally healthy humans.

Figure 3b shows the consistency of the biomarker associations with specific anemias and/or metabolic conditions related to the nutritional state and/or fluid balance of the blood (defined by ICD-10 4-character diagnoses), in comparison to direction of the association with "Any Anemia and/or Any Metabolic Condition Related to the Nutritional State and/or Fluid Balance of the Blood".

Figures 4a-4f show the relation of baseline biomarker levels to the future development of 11 different anemias and/or metabolic conditions related to the nutritional state and/or fluid balance of the blood (defined by ICD-10 3-character diagnoses), in the form of foresplots of the hazard ratios for incident disease onset.

Figure 5 shows an example of the relation of multi-biomarker scores to the risk of "Any Anemia and/or Any Metabolic Condition Related to the Nutritional State and/or Fluid Balance of the Blood". Selected examples of multi-biomarker scores are shown to illustrate the improved prediction attained by multi-biomarker scores as compared to individual biomarkers.

Figure 6a shows an intended use case for a multibiomarker score to predict the risk for developing iron deficiency anemia among initially healthy humans.

Metabolic Condition Related to the Nutritional State and/or Fluid Balance of the Blood" will therefore also be predictive of all the listed specific anemias and/or metabolic conditions related to the nutritional state and/or fluid balance of the blood.

5 **Figure 3a** shows the hazard ratios for 20 blood biomarkers for future onset of 18 specific types of anemias and/or metabolic conditions related to the nutritional state and/or fluid balance of the blood, defined by 4-character ICD-10 diagnosis codes. The results illustrate that the pattern of biomarker associations is
10 highly consistent for all the 18 specific disorders.

Figure 3b shows the consistency of all the biomarker associations with the 18 specific anemias and/or metabolic conditions related to the nutritional state and/or fluid balance of the blood (defined by 4-character ICD-10 diagnosis codes) compared to
15 the "Any Anemia and/or Any Metabolic Condition Related to the Nutritional State and/or Fluid Balance of the Blood" definition. Generally, the biomarker associations are all in the same direction of association as for "Any Anemia and/or Any Metabolic Condition
20 Related to the Nutritional State and/or Fluid Balance of the Blood" or not statistically significant in the discordant direction. Any biomarker combination that strongly predicts "Any Anemia and/or Any Metabolic Condition Related to the Nutritional State and/or
25 Fluid Balance of the Blood" will therefore also be predictive of all the listed specific anemias and/or metabolic conditions related to the nutritional state and/or fluid balance of the blood.

Figures 4a-4f show the hazard ratios for 20 blood biomarkers with future onset of each of the 11 specific anemias and/or metabolic conditions related to the nutritional state and/or fluid balance of the blood (defined by 3-character ICD
30 diagnosis codes) studied here. The hazard ratios are shown in absolute concentrations, scaled to the standard deviation of each biomarker. The results are based on statistical analyses of over 115,000 individuals from the UK Biobank; the number of individuals who developed the specific disease during approximately 10 years
35 of follow-up is indicated on the top of each plot. Filled circles denote that the P-value for association was $P < 0.0001$ (corresponding to multiple testing correction), and open circles denote that