**Supplementary Material 1. Examination components of the Korea National Health and Nutrition Examination Survey**

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| **Survey** | | **Components** | **1998** | **2001** | **2005** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** |
| **Health**  **interview** | | Socioeconomic status |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Smoking |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Alcohol use |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| AUDIT |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Physical activity |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| IPAQ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| GPAQ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Mental health |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PHQ-9 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Quality of life: EQ-5D |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| EQ-VAS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HINT-8 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Sleep: STOP-Bang |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Chronic disease conditions |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Health screening |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Vaccination |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Healthcare utilization |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Activity limitations |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ADL, IADL |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Obesity and weight control |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Oral health |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Reproductive health |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Safety |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Family history of disease |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Nutrition**  **survey** | | 24-hour dietary recall |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Food frequency questionnaire (FFQ) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Dish-based, semi-quantitative FFQ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Food security |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| HFSSM |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Dietary behavior |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Survey** | **Components** | **1998** | **2001** | **2005** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** |
| **Health**  **Examination** | Body measurements |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Blood pressure |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Spirometry |  | \* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Dental caries |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Periodontal disease |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| DEXA: Bone density |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Body composition |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Chest X-rays |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Knee, hip-joint X-rays |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Tuberculin skin tests |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Visual acuity, autorefraction |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Retinal photos |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Visual fields |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Intraocular pressure |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Intraocular lens master |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Optical coherence tomography |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Audiometry |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Balance |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Nasal endoscopy |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Laryngoscopy |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Voice disorder test |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Grip strength test |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Physical activity monitor |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Indoor air quality |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

AUDIT, alcohol use disorders identification test; IPAQ, international physical activity questionnaire; GPAQ, global physical activity questionnaire; PHQ-9, patient health questionnaire-9; EQ-5D, EuroQol-

5 dimension; EQ-VAS, EuroQol visual analogue scale; HINT-8, health-related quality of life instrument with 8 items: STOP-Bang: snoring, tired, observed, blood pressure, body mass index, age, neck

circumference, gender; ADL/IADL, activities of daily living/instrumental Activities of daily living; FFQ, food frequency questionnaire; HFSSM, household food security survey module; DEXA, dual

energy x-ray absorptiometry

\*: Unleased to the public

**Supplementary Material 2. Laboratory components of the Korea National Health and Nutrition Examination Survey**

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| **Components** | **1998** | **2001** | **2005** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** |
| Alanine aminotransferase (blood) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Alkaline phosphatase (blood) | - | - | - | - | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - |
| Arsenic (urine) | - | - | - | ○\* | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - |
| Aspartate aminotransferase (blood) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| C reactive protein (blood) | - | - | - | - | - | - | - | - | - | - | - | ○ | ○ | ○ | ○ | - | - |
| Cadmium (blood) | - | - | ○ | ○\* | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | - | - | - |
| Cotinine (urine) | - | - | ○\* | ○\* | ○ | ○ | ○ | ○ | - | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Creatinine (blood) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Creatinine (urine) | - | - | - | ○\* | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Ferritin (blood) | - | - | - | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - |
| Folic acid (blood) | - | - | - | - | - | - | - | - | - | - | - | - | ○ | ○ | ○ | - | - |
| Formaldehyde (urine) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | ○ |
| Free thyroxine (blood) | - | - | - | - | - | - | - | - | - | ○ | ○ | ○ | - | - | - | - | - |
| Gamma-glutamyl transferase (blood) | - | - | - | - | - | - | ○ | ○ | - | - | - | - | - | - | - | - | - |
| Glucose (blood) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Glycohemoglobin (blood) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| HDL-cholesterol (blood) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Hematocrit (blood) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Hemoglobin (blood) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Hepatitis A antibody (blood) | - | - | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - |
| Hepatitis B anti-HBs (blood) | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hepatitis B HBsAg (blood) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Hepatitis C antibody (blood) | - | - | - | - | - | - | - | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Hepatitis C RNA (blood) | - | - | - | - | - | - | - | - | ○ | ○ | ○ | ○ | - | - | - | - | - |
| Immunoglobulin E-allergens (blood) | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | ○ |  |
| Insulin (blood) | - | - | - | ○ | ○ | ○ | ○ | - | - | - | - | ○ | - | - | - | ○ | ○ |
| Iodine (urine) | - | - | - | - | - | - | - | - | - | ○ | ○ | ○ | - | - | - | - | - |
| Iron (blood) | - | - | - | - | - | - | ○ | ○ | ○ | - | - | - | - | - | - | - | - |
| Lead (blood) | - | - | ○ | ○\* | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | - | - | - |
| Manganese (blood) | - | - | - | ○\* | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - |
| Mercury (blood) | - | - | ○ | ○\* | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | - | - | - |
| Microalbumin (urine) | - | - | - | - | - | - | - | ○ | ○ | ○ | ○ | - | - | - | - | ○ | ○ |
| Nickle (blood) | - | - | - | - | - | - | - | - | - | - | - | - | - | ○ | - | - | - |

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| **Components** | **1998** | **2001** | **2005** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** |
| NNAL (urine) | - | - | - | - | - | - | - | - | - | - | - | - | ○ | ○ | ○ | - | - |
| Parathyroid hormone (blood) | - | - | - | - | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - |
| Potassium (urine) | - | - | - | - | - | - | - | - | - | - | - | - | ○ | ○ | ○ | ○ | ○ |
| Sodium (urine) | - | - | - | - | ○ | ○ | ○ | ○ | - | - | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Thyroid peroxidase antibody (blood) | - | - | - | - | - | - | - | - | - | ○ | ○ | ○ | - | - | - | - | - |
| Thyroid-stimulating hormone (blood) | - | - | - | - | - | - | - | - | - | ○ | ○ | ○ | - | - | - | - | - |
| Total cholesterol (blood) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Total iron binding capacity (blood) | - | - | - | - | - | - | ○ | ○ | ○ | - | - | - | - | - | - | - | - |
| Triglycerides (blood) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Uric acid (blood) | - | - | - | - | - | - | - | - | - | - | - | - | ○ | ○ | ○ | ○ | ○ |
| Vitamin A (Retinol, blood) | - | - | - | - | - | - | - | - | - | - | - | - | ○ | ○ | ○ | - | - |
| Vitamin D (25-hydroxyvitamin D, blood) | - | - | - | ○\* | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | - | - | - | - |
| Vitamin E (α-tocopherol, blood) | - | - | - | - | - | - | - | - | - | - | - | - | ○ | ○ | ○ | - | - |
| Volatile organic compounds (VOC) (urine) | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | ○ |
| Zinc (blood) | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - |

HDL, high-density lipoprotein; LDL, low-density lipoprotein; HBsAg, hepatitis B surface antigen; anti-HBs, antibodies against hepatitis B surface antigens; NNAL, 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanol

\*: Unleased to the public