

Supplementary Methods

This population-based cohort was established by linking datasets from three major national health institutions in South Korea: the National Health Insurance Service (NHIS), the Korea Disease Control and Prevention Agency (KDCA), and the Health Insurance Review and Assessment Service (HIRA), via the Korean Healthcare Big Data system operated by the Ministry of Health and Welfare.

South Korea maintains a single-payer healthcare system administered by the NHIS, which provides universal coverage to more than 98% of adults aged 20 years or older. As part of its role, the NHIS compiles extensive healthcare claims data, including patient demographics, diagnostic codes, and records of medical treatments.

Vaccination data are maintained by the KDCA, encompassing details such as demographic characteristics of recipients, types of vaccines administered, and vaccination dates. In Korea, both live attenuated herpes zoster vaccines (ZOSTAVAX™, Merck & Co., Inc., Rahway, NJ, USA; SKYZoster®, SK bioscience, Seongnam, Korea) and the recombinant vaccine (Shingrix; GlaxoSmithKline, London, UK) are approved for use. This study cohort includes explicitly individuals who received the live attenuated vaccine, which is recommended as a single dose for adults aged 50 and older. As this vaccine is not part of the National Immunization Program, it must be obtained voluntarily and paid for out of pocket.

Additionally, all Korean adults aged 20 years and older are eligible to receive biennial national health screenings. These screenings include physical assessments (e.g., height, weight, waist circumference, body mass index, and blood pressure), laboratory tests (e.g., fasting glucose, serum creatinine, hemoglobin, estimated glomerular filtration rate, total cholesterol, and triglycerides), and self-reported questionnaires on lifestyle and medical history, covering factors such as smoking, alcohol consumption, physical activity, medication use, and chronic conditions. Clinical evaluations and physician consultations based on these results are also provided. Most of the data collected from these screenings are systematically recorded and managed by HIRA.