

Supplement 2. Identification of the residence of National Health Insurance beneficiaries

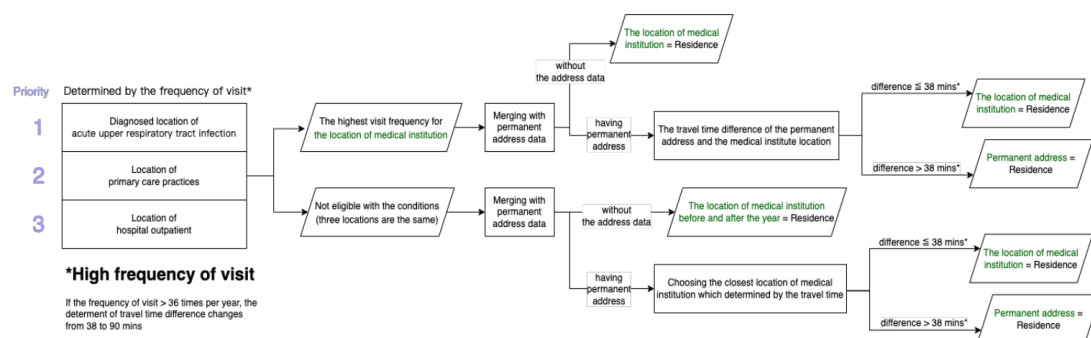
Generally speaking, the original place of household registration should be considered the long-term residence of the people. Although changes in household registration can be processed, it is still common in the country for long-term residences to be inconsistent with the original place of birth. Therefore, to reasonably allocate the disease burden across different geographical levels, this project refers to past literature to propose a process for estimating the residence of National Health Insurance (NHI) beneficiaries. The data sources will include the NHI prescription and treatment detail files for outpatient and emergency visits; the NHI insured file, and the average travel time for each township, city, and district from the Ministry of Transportation and Communications. The estimation will be based on the medical treatment habits to infer the possible residence location of NHI beneficiaries.

The estimation will be conducted annually (each cycle runs from January 1 to December 31), and the process is illustrated in Figure 2. First, the NHI outpatient and emergency files will be used to determine the "location of medical institutions" (hereafter referred to as the "medical location") based on the most frequent visits for the year: the number of minor illness visits during the year (where minor illness is defined as common colds), the number of primary care visits during the year, and the number of outpatient visits during the year (where the number of outpatient visits must be at least 36 times, i.e., at least 3 times per month on average). Additionally, if different residences are inferred, the "minor illness visit" will be given the highest priority, followed by "primary care institution visits," and finally, the "number of outpatient visits" for the subsequent residence estimation process.

Next, it will be determined whether the conditions are met, and the NHI insured file will be linked to obtain the household registration information. For those who meet the conditions, if there is no household registration, the medical location will be considered the residence; if there is a household registration, and the travel time between the household registration and the medical location is less than or equal to 38 minutes (based on the "National Happiness Index" published by the Directorate General of Budget, Accounting and Statistics under the category of "work-life balance," which indicates that the daily commute time for full-time workers in Taiwan

is approximately 38 minutes), the household registration will be considered the residence. If the travel time exceeds 38 minutes, the medical location will be considered the residence.

For those who do not meet these conditions, it is only possible if the number of visits to all three locations is the same. Among them, if there is no household registration, the medical location from the previous or subsequent year will be considered the residence; if there is a household registration, the closest medical location to the household registration will be chosen, and the travel time difference will be compared. If the difference is less than or equal to 38 minutes, the household registration will be considered the residence; otherwise, the medical location will be considered the residence. In this classification, if the number of annual visits exceeds 36, the standard for the travel time difference will be changed to 90 minutes.



Diagnostic codes for acute upper respiratory tract infection: ICD_9: 460, 461, 462, 463, 464, 465, 466, 487; ICD_10: J00, J01.00, J01.10, J01.20, J01.30, J01.40, J01.90, J02.9, J03.90, J04.0, J04.10, J04.11, J04.20, J04.30, J04.31, J05.0, J05.10, J05.11, J06.0, J06.9, J20.9, J21.0, J21.8, J11.00, J12.9, J10.1, J11.1, J11.2, J11.81, J11.89