# Adult Tracheostomy in Japan: Demographic Profiles, Clinical Outcomes, and Time Trends

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**Objective** : We examined the characteristics, underlying diseases, and outcomes of adult patients who underwent tracheostomy in Japan over a 6-year period, focusing on annual changes and trends.

**Methods** : This was a retrospective, descriptive study using the Diagnosis Procedure Combination inpatient database between January 2016 and December 2021. We included patients aged 20 years or older who received a tracheostomy, excluding those from hospitals not continuously participating in the database. We analyzed yearly trends in patient demographics, comorbidities, Charlson Comorbidity Index, department performing the procedure, ICU admission, body mass index at admission, length of stay, timing of mechanical ventilation, and discharge disposition.

**Results** : A total of 22,480 patients were identified (66.0% male; median age 73 years). Respiratory diseases were the most common indication (36.6%), followed by neurological (29.4%), cardiovascular (21.2%), and malignant/benign tumors (19.9%). The median hospital stay was 56 days, decreasing slightly to 53 days in 2021. Transfers to other hospitals rose from 51.0% in 2016 to 55.9% in 2021. Among 10,499 patients requiring ICU ventilatory support, 26.3% underwent tracheostomy within 7 days of mechanical ventilation, with no clear trend toward earlier procedures during the study period.

**Conclusion** : Respiratory diseases were the leading indication for tracheostomy, and most procedures followed initiation of mechanical ventilation, suggesting prolonged ventilation as a major reason. These findings emphasize the need for further studies to refine recommendations on tracheostomy timing and indications in adult patients.

# Evaluating SARS-CoV-2 ascertainment bias abroad via spatial backcalculation of Japan's airport data

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**Background :** The COVID-19 pandemic strained surveillance systems globally with overwhelming volume of cases, involving substantial ascertainment biases. The present study compared Japan's airport entry screening data with local surveillance data of travelers' countries of origin thereby evaluating the extent of bias at the origin countries.

**Methods :** We analyzed entry screening data among non-Japanese travelers arriving from 25 countries, categorized by income level, i.e., high-income (HICs), upper-middle-income (UMICs), and lower-middle-income countries (LMICs). A statistical model was developed to estimate entry screening positivity based on each country's local surveillance data, adjusting for intervention measures including refusal of new entry and re-entry and vaccination.

**Results :** Ascertainment bias was lowest in HICs with1.76 (95% CI: 1.42, 2.13) times the observed data. UMICs and LMICs showed substantially greater biases, 25.71 times (95% CI: 21.72, 30.09) and 24.38 times (95% CI: 21.29, 27.72), respectively. Refusal of new entry was shown to have reduced the risk of infection by 22% among travelers from UMICs (RR = 0.78, 95% CI: 0.72, 0.83) but showed no significant effect for LMICs (RR = –0.13, 95% CI: –0.33, 0.03). Vaccination program had minimal impact on traveler positivity.

**Conclusions :** Adjusting for interventions, comparison between entry screening and local surveillance data revealed that ascertainment bias varied by income level. Programs associated with vaccination had limited impact on reducing the infection risk among travelers.

# Predictability of mortality in the JST-IC among Japanese older adults using SONIC study data

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The Japan Science and Technology Agency Index of Competence developed the Capability Index (JST-IC) to evaluate higher levels of instrumental activities of daily living (IADL). This study investigated whether the JST-IC and its four subscales predict mortality in community-dwelling older adults, as well as whether predictive validity differs between young-old and old-old adults. The participants were 344 individuals(146 men and 198 women) living in the community selected from the SONIC study. The mean age of the young-old group (n = 224) was 73 ± 1 years, and the mean age of the old-old group (n = 120) was 83 ± 1 years. The analysis included sex, years of education, number of diseases at the time of survey participation (2013–2015), and total JST-IC and subscale (technology use, information practice, life management, and social participation) scores at the time of survey participation. Survival status was determined as of February 1, 2025. A Cox proportional hazards model adjusted for the four variables above was applied to analyze the entire cohort and age groups. During the follow-up period, 93 deaths occurred (27.8% overall; 15.4% in the younger group and 56.6% in the older group). The average survival period for deceased participants was 2,098 days. In the entire study population, total JST-IC scores (HR = .92, p = .035), technology use (HR = .82, p =.018), and life management (HR = .84, p =.028) were associated with a reduced risk of death. In age-specific analyses, information practice was associated with a reduced risk of death in the younger group (HR = .73, p =.047), while the results for the older group were consistent with the overall findings.. These results suggest that higher total and subscale scores on the JST-IC are associated with a lower risk of death over a period of approximately 10 years. However, the predictability of the subscales differs by age group. This suggests that different abilities contribute to survival at each stage of old age.

# Causes of Suicide Attempts in Mongolia: Analysis of Natonal Injury Surveillance Data 2016–2023

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**Background :** In 2021, the suicide rate reached 18 cases per 100,000 population which is twice the global average (2). Suicide accounts for 20–25% of deaths among young people aged 15–29 (3), highlighting the urgent need for research on underlying causes and prevention strategies.

**Objective :** This study aimed to examine trends and causes of suicide attempts in Mongolia between 2016 and 2023, stratified by geographic location and demographic characteristics.

**Methods :** We analysed national injury surveillance data collected at the National Trauma and Orthopaedics Research Centre of Mongolia during 2016–2023. Joinpoint regression was used to assess suicide trends. Negative binomial regression was applied to estimate incidence rate ratios by age, sex, and geographic area. We focused on three major causes of suicide attempts: psychological distress, physical illness, and family conflict.

**Results :** Between 2016 and 2023, a total of 5,846 suicide attempts were recorded. Among them, 83.7% (n = 4,896) were attributed to three major causes: psychological distress (59.4%), physical illness (12.8%), and family conflict (11.5%). No significant sex differences were observed overall. Suicides due to physical illness showed a decreasing trend. Suicide attempts related to family conflict increased markedly among women aged 25–64 (average annual growth 132.3%–419.5%) from 2020 to 2023. Suicide attempts linked to psychological distress rose among 20–24-year-olds (men: 11.5%, women: 12.1%; Ulaanbaatar: 10.5%, rural areas: 15.2%) from 2016 to 2023. Across locations, suicide attempts were two to three times higher in Ulaanbaatar than in rural areas.

**Conclusion :** Targeted mental health policies are urgently needed to support young adults aged 20–24. In addition to strengthening suicide prevention measures in Ulaanbaatar, locally tailored strategies should be developed and implemented at the provincial level.

# Personal health records use and improvement in health behavior and checkup results

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**Background** : Personal health records (PHR) have been widely used to support self-management of non-communicable diseases (NCDs). However, the effect of PHR use in preventing NCDs among healthy or at-risk populations was unclear.

**Methods** : This retrospective cohort study used employment-based claims data, health checkup data, and PHR usage data. PepUp® is a PHR service operated by JMDC, Inc., through which users can check their checkup results, read health-related articles, and record their daily measurement data. We extracted those who underwent a health checkup in FY 2022 and had never used the PHR before the checkup. Outcome variables were improvements in self-reported health behavior (exercise, diet, sleep, drinking, and smoking), and changes in blood pressure [BP], triglycerides [TG], LDL cholesterol, and impaired glucose tolerance between FY 2022 and 2023 checkups. We assessed the association between PHR use until the FY 2023 health checkup and the outcomes among those whose FY 2022 checkup data were categorized as slightly abnormal or worse using multivariable regression analyses (linear or logistic).

**Results** : We extracted 1,038,173 participants (mean 42.1 years [SD 11.1], 64.7% were men), 61,801 of whom used PHR between FY 2022 and 2023 health checkups. PHR users experienced greater improvements in checkup results than non-users (1.35 mmHg [95% CI 0.81 to 1.89] lower systemic BP; 0.86 mmHg [0.56 to 1.15] lower diastolic BP; 6.45 mg/dL [3.20 to 9.71] lower TG; and 1.18 mg/dL [0.77 to 1.18] lower LDL cholesterol). PHR users were more likely to experience greater improvements in health behaviors than non-users (diet: aOR 1.21, 95% CI 1.11-1.31; sleep: aOR 1.07, 95% CI 1.00-1.15; and smoking: aOR 1.35, 95% CI 1.25-1.47).

**Conclusion** : Using a PHR for checking and recording their health information was associated with improved health behaviors. PHR users were more likely to experience greater improvements in checkup results, but not to a clinically relevant level.