Knowledge Translation from Epidemiology Research into Policy: Lessons from the JAGES

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Background : While the need to translate research into policy is well-known, few projects successfully sustain this. The Japan Gerontological Evaluation Study (JAGES) serves as a successful model. In 2018, the WHO highlighted the JAGES initiative, which builds a scientific foundation for prevention policies for older adults in Japan, the world's most rapidly aging society. JAGES has since become an incorporated association, accumulating valuable experience in knowledge translation (KT).

Objective : This study identifies the key conditions for effective KT by analyzing the JAGES initiatives.

Methods : We conducted a descriptive study of JAGES, outlining its activities and discussing the key conditions for successful KT.

Results : In 2018, researchers from various universities established JAGES as an incorporated association. They secure funding through joint research agreements with municipalities. JAGES collaborates with over 200 municipalities every three years to conduct the Long-Term Care Prevention and Daily Life Area Needs Survey, which informs municipal long-term care insurance plans. This has created a repeated cross-sectional database of over one million older adults. By linking this with municipal long-term care certification data, JAGES also developed a longitudinal research database.

Conclusion : Effective KT requires more than traditional epidemiological research. Our findings suggest key conditions for success are: 1) understanding municipal challenges through joint meetings, not just one-way information dissemination; 2) providing hands-on support from the planning stage of programs; 3) conducting multifaceted evaluations, including economic ones; and 4) disseminating findings to society via press releases and workshops, in addition to academic papers.

Saved and lost: Health impact of routine vaccination and COVID-19-related restrictions in North Korea (1980–2024), a modelling study

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Background : North Korea has historically achieved high routine vaccination coverage, but these programs were substantially restricted during the COVID-19 pandemic. We estimated the cumulative averted disease burden from routine vaccination (1980–2024) and the excess burden associated with coverage declines during the pandemic.

Methods : We conducted a modeling study using WHO–UNICEF coverage data to estimate vaccine-preventable deaths and disability-adjusted life years (DALYs) for 8 pathogensEstimates were derived using mathematical and statistical models informed by the Vaccine Impact Modelling Consortium (VIMC), a global network of over 20 institutions, and the Global Burden of Disease (GBD) study. We primarily applied the year-of-vaccination (YoV) approach, which evaluates program performance, and additionally used the calendar-year (CY) approach to capture annual health system burden. Based on historical coverage, pathogen-specific mortality, and vaccine efficacy since 1980, we quantified deaths and DALYs averted. To assess COVID-19-related disruptions (2021–2024), we compared actual coverage with a counterfactual assuming uninterrupted vaccination to estimate excess burden.

Findings : Between 1980 and 2024, routine vaccination averted an estimated 219 071 deaths (95% credible interval [CrI] 199 896–239 734) and 9.3 million DALYs, with hepatitis B (44·37%) and measles (28·57%) contributing most. Pandemic-related disruptions in 2021–2024 resulted in 15 624 excess deaths (11 379-20 747) and 649,565 DALYs (525 172-787 409) under the YoV method, partly mitigated by catch-up.

Interpretation : Routine vaccination saved lives and prevented disability. Government-imposed COVID-19 restrictions reduced vaccination coverage, resulting in excess burden that catch-up efforts cannot fully mitigate. This uniquely constrained setting underscores the vital need for global cooperation and context-sensitive support to safeguard uninterrupted vaccination during national crises.

Research on Targeted Self-Assembled Nano-Antibiotics Based on Reversible Phase Separation for Enhanced Tigecycline Therapy Against CRKP Infection

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The inappropriate use of antibiotics, coupled with the ongoing evolution of drug-resistant bacteria, poses a significant threat to the effectiveness of tigecycline (Tig) in treating carbapenem-resistant Klebsiella pneumoniae (CRKP) infections. In this study, we designed an elastin-like peptide (ELP)-based carrier (Ts-ELP) that is functionalized with the antimicrobial peptide S-thanatin (Ts) for the first time. This carrier can self-assemble with Tig to form the Tig@Ts-ELP (Tig@TsE) nanomedicine delivery system for treating CRKP-induced pneumonia. Systematic in vivo and in vitro evaluations demonstrate that the prepared Tig@TsE nano-antibiotic exhibits several advantageous properties, including convenient and economical preparation, specific recognition of CRKP, targeted in vivo delivery, responsiveness to both the acidic pH and the MMP9 enzyme present in the infection microenvironment, controlled drug release and favorable biosafety. Furthermore, the Ts peptide acts synergistically with Tig, significantly enhancing its antibacterial efficacy both in vitro and in vivo. This novel antibiotic delivery system offers a promising strategy to overcome CRKP infections by improving the pharmacokinetic profile of Tig, increasing its local concentration at the site of infection, enhancing bactericidal activity, and reducing systemic toxicity.

Oral frailty and its associated factors among Japanese employees

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Background : Oral frailty commonly arises before old age; however, evidence on oral frailty among the working population is limited.

Objective : This cross-sectional study aimed to investigate the prevalence of oral frailty and associated factors among Japanese.

Methods : A web-based questionnaire survey was conducted among 366 employees aged 20–69 years (male = 188; female = 178) who were working at companies in the King Sky Front area of Kawasaki City, Japan. Questionnaire items included sociodemographic characteristics, lifestyles, psychological distress, occupational factors, and oral health behaviors. Psychological distress was assessed using the Kessler 6-Item Psychological Distress Scale (K6) and categorized into four groups (<5, 5–9, 10–12, and ≥13 points). Work functioning impairment was measured using the work functioning impairment scale, with a total score of ≥21 points. Oral frailty, which was the outcome valuable, was assessed using the oral frailty 5-item checklist. More than two “yes” responses on five questions indicated oral frailty. Logistic regression model was used to identify potential factors affecting oral frailty.

Results : The overall prevalence of oral frailty was 20.2%, Participants with severe psychological distress (K6 ≥ 13) had significantly higher odds of oral frailty (adjusted odds ratio [AOR] 4.22, 95% confidence interval [CI], 1.75–10.20) compared to those without psychological distress. Similarly, work functioning impairment was associated with increased odds of oral frailty (AOR, 2.40; 95% CI, 1.30–4.44) compared to those without such impairment.

Conclusion : The results indicate that psychological distress and work functioning impairment were factors associated with oral frailty in this population.

Elevated ALT and evaluation rates: A retrospective workplace study

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Background : In 2023, the Nara Declaration, which the Japan Society of Hepatology announced, recommended that individuals with ALT >30 IU/L be referred to a physician. This study aimed to assess whether participants with ALT >30 IU/L in health checkups underwent further examinations before the Nara Declaration.

Method : This study was conducted using company health insurance data. We collected annual health checkup data from 2012 to 2019 and health insurance claims data from 2013 to 2019. Because these datasets were not originally linked, they were merged using birthdate, sex, and insured identification number.Participants aged ≤65 years who had elevated alanine aminotransferase (ALT) levels (> 30 IU/L) for the first time during health checkups were identified. In addition, we identified whether participants underwent further examinations, including HBV/HCV testing and blood test. Based on the dates of health checkup and insurance claims data, we calculated the time interval from the first abnormal checkup result to further examinations.

Result : A total of 241,654 participants who underwent health checkups were included. 72,153 had ALT >30 IU/L. Within 1 year after the health checkups, 4,417 (6.1%) underwent HBV testing and 4,289 (5.9%) underwent HCV testing. By the end of 2019, 11,966(16.6%) had received HBV testing and 11,833 (16.4%) had received HCV testing. Within 1 year after the health checkups, 19,698 (27.3%) underwent blood tests. Among them, 5,384 reported that neither blood pressure, fasting glucose, cholesterol, nor hemoglobin level required further medical examination. By the end of 2019, 19,389 (26.9%) had received blood tests. 6,708 (9.3%) participants never visited a hospital during the study period.

Conclusion : Among individuals with ALT >30 IU/L, approximately 22% underwent HBV or HCV tests, and approximately 64% underwent blood tests. Further studies are needed to clarify whether the declaration has increased the rate of evaluations.