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A SELECTION OF TEN READINGS ON TOPICS RELATED TO 2025 FAMILY PRACTICE SKILLS COURSE: AGEING WITH VITALITY

FPSC128 – SATURDAY, 28 JUN 2025 2.00pm-5.30pm
All are available as free full text

Selection of readings made by A/Prof Goh Lee Gan

READING 1 – HERPES ZOSTER VACCINATION KNOWLEDGE, ATTITUDES, AND PRACTICES IN PRIMARY CARE PROVIDERS IN USA

Stempniewicz N,[1] Davenport E,[2] Wang J,[2] Sweeney C.[3] Herpes zoster vaccination: Primary care provider knowledge, attitudes, and practices. Hum Vaccin Immunother. 2025 Dec;21(1):2488093. PMID: 40249278.

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Author information:
[1]US Medical Affairs, GSK, Philadelphia, PA, USA
[2]Biostatistics, RTI Health Solutions, Durham, NC, USA
[3]Surveys and Observational Studies, RTI Health Solutions, Durham, NC, USA

ABSTRACT

Primary care providers (PCPs) play a key role in vaccine recommendations and uptake, but limited information exists about PCP knowledge, attitudes, and practices regarding herpes zoster (HZ) vaccination. Clinical trials have shown that recombinant zoster vaccine (RZV) significantly reduces the risk of developing HZ. Hence, RZV is recommended by the US Advisory Committee on Immunization Practices (ACIP) for adults aged ≥50 years and immunocompromised adults aged ≥19 years. However, RZV uptake varies across age groups, and is lower for adults aged 50-59 compared to those aged ≥60 years.

Using a cross-sectional web-based survey, this study described provider knowledge of HZ risk factors, ACIP recommendations, attitudes toward HZ vaccination, and HZ vaccination practices/barriers.

Among 301 licensed PCPs in the US, knowledge of HZ risk factors was high, but only 29 percent were fully aware of the ACIP recommendations. PCPs indicated that HZ vaccination was important for patients aged 50-59, 60-69, and ≥70 years, with importance increasing with advancing age. During a typical week, an average of 44 percent (standard deviation = 32%) of PCPs reported initiating a conversation about HZ vaccination among adults aged 50-59 years. Key perceived barriers to recommending HZ vaccines to adults were contraindications and insufficient time to assess risk factors, while perceived HZ vaccine administration challenges included patients' out-of-pocket costs and lack of motivation.

Results suggest that PCPs may benefit from updated information about ACIP recommendations, while both patients and providers may benefit from streamlining the vaccination process and educational efforts focused on addressing perceived barriers.

READING 2 – EXCESS RESPIRATORY HOSPITALISATIONS ASSOCIATED WITH INFLUENZA, RESPIRATORY SYNCYTIAL VIRUS, AND SARS-COV-2 IN SINGAPORE FROM 2015 TO 2023

Qi CH,[1] Lim R,[1] Pung R.[1,2] Excess Respiratory Hospitalisations Associated with Influenza, Respiratory Syncytial Virus, and SARS-CoV-2 in Singapore from 2015 to 2023. Influenza Other Respir Viruses. 2025 Apr;19(4):e70098. PMID: 40196916.

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Author information:
[1]Ministry of Health, Singapore
[2]Centre for the Mathematical Modelling of infectious Diseases, Centre for Epidemic Preparedness and Response, and Department of Infectious Disease Epidemiology, London School of Hygiene and Tropical Medicine, London, UK

ABSTRACT

BACKGROUND: The patterns of circulation and burden of influenza and respiratory syncytial virus (RSV) in Singapore are affected by the COVID-19 pandemic containment measures. These patterns in relation to SARS-CoV-2 in a post-pandemic era are unclear.

METHODS: Using data from 2015 to 2023, we estimated excess influenza-, RSV-, and SARS-CoV-2-associated hospitalisation in Singapore, adjusted for rhinovirus/enterovirus activity in generalised additive models. The data include pneumonia and influenza (P&I) hospitalisation from a national inpatient database and a community-wide acute respiratory infection (ARI) sentinel surveillance programme, stratified by age groups.

RESULTS: Across all age groups, the proportion of hospitalisation associated with influenza, SARS-CoV-2, and RSV was 13.2 percent (95% CI 5.0%-21.6%), 19.3 percent (95% CI 13.8%-25.0%), and 4.0 percent (95% CI 0.9%-12.1%) in 2023, respectively. From 2019 to 2023, all-age influenza-associated hospitalisation declined from 264.4 per 100,000 person-years (95% CI 214.2-313.2) to 203.7 per 100,000 person-years (95% CI 76.8-333.6). In contrast, all-age RSV-associated hospitalisation after the pandemic was 62.2 per 100,000 person-years (95% CI 13.8-186.9), similar to pre-pandemic observations. Peak seasonal influenza occurred 3-8 weeks later as compared with the time of pre-pandemic peak influenza activity.

CONCLUSION: The overall burden of influenza has declined after the COVID-19 pandemic and its burden is comparable with SARS-CoV-2. Furthermore, shifts in the timing of peak influenza activity suggest a potential need to review the timing of vaccine recommendations in Singapore.

READING 3 – PUBLIC HEALTH IMPACT OF HERPES ZOSTER VACCINATION ON OLDER ADULTS IN SINGAPORE: A MODELLING STUDY

Oh H,[1] Tan C,[2] Williams C,[3] Giannelos N,[4] Ng C[5] Public health impact of herpes zoster vaccination on older adults in Singapore: a modelling study. Hum Vaccin Immunother. 2024 Dec 31;20(1):2348839.

doi: 10.1080/21645515.2024.2348839. PMID: 38804600. Free full text.

Author information:
[1]Department of Infectious Diseases, Changi General Hospital, Singapore, Singapore
[2]The Good Life Medical Centre, Geriatric Medicine, Mount Alvernia Hospital, Singapore, Singapore
[3]Medical Affairs, GSK, Wavre, Belgium
[4]VEO Vaccines, GSK, Wavre, Belgium
[5]VEO Greater China and Intercontinental, GSK, Singapore, Singapore

ABSTRACT

In Singapore, population ageing and rising life expectancy are increasing herpes zoster (HZ) burden, which may be reduced by vaccination.

The present study modelled the public health impact of HZ vaccination in Singapore using the ZOster ecoNomic Analysis (ZONA) model, adapted with Singapore-specific key model inputs where available. Base case analysis was conducted in adults ≥50 years of age (YOA), exploring three vaccination strategies (no vaccination, recombinant zoster vaccine [RZV], zoster vaccine live [ZVL]) under mass vaccination setting (30% coverage). Scenario and sensitivity analyses were performed.

Out of 1.51 million adults in 2021 (base case population), 406,513 (27.0%) cases of HZ, 68,264 (4.5%) cases of post-herpetic neuralgia (PHN), and 54,949 (3.6%) cases of other complications were projected without vaccination. RZV was estimated to avoid 73,129 cases of HZ, 11,094 cases of PHN, and 9,205 cases of other complications over the subjects' remaining lifetime; ZVL would avoid 17,565 cases of HZ, 2,781 cases of PHN, and 1,834 cases of other complications. The number needed to vaccinate to prevent one case of HZ/PHN was lower for RZV (7/41) than ZVL (26/163). Among all five age-stratified cohorts (50-59/60-64/65-69/70-79/≥80 YOA), RZV (versus no vaccination/ZVL) avoided the largest number of cases in the youngest cohort, 50-59 YOA. Results were robust under scenario and sensitivity analyses.

Mass vaccination with RZV is expected to greatly reduce the public health burden of HZ among Singapore individuals ≥50 YOA. Findings support value assessment and decision-making regarding public health vaccination strategies for HZ prevention in Singapore.

READING 4 – OF RESPIRATORY SYNCYTIAL VERSUS SARS-COV-2 OMICRON AND INFLUENZA INFECTION AMONGST HOSPITALISED SINGAPOREAN ADULTS: A NATIONAL COHORT STUDY

Wee LE,[1-4] Ho RWL,[1] Tan KB,[1,2,5,6,12] Lim JT,[1,5] Young B,[1,5,7] Boon Lye DC,[1,5,7] Chiew CJ,[1,6] Yung CF,[2,5,11] Venkatachalam [1,3,4] Sim JXY,[3,4] Cheong HY,[8] Ng TY.[9,10] Severity of respiratory syncytial virus versus SARS-CoV-2 Omicron and influenza infection amongst hospitalised Singaporean adults: a national cohort study. Lancet Reg Health West Pac. 2025 Feb 20;55:101494. PMID: 40060306.

doi: 10.1016/j.lanwpc.2025.101494. PMID: 40060306. Free full text.

Author information:
[1]National Centre for Infectious Diseases, Singapore
[2]Duke-NUS Graduate Medical School, National University of Singapore, Singapore
[3]Department of Infectious Diseases, Singapore General Hospital, Singapore
[4]Department of Infection Prevention and Epidemiology, Singapore General Hospital, Singapore
[5]Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore
[6]Ministry of Health, Singapore
[7]Department of Infectious Diseases, Tan Tock Seng Hospital, Singapore
[8]Department of Infectious Diseases, Changi General Hospital, Singapore
[9]Department of Pathology, Sengkang General Hospital, Singapore
[10]Department of Microbiology, Singapore General Hospital, Singapore
[11]Infectious Disease Service, Department of Pediatrics, KK Women's and Children's Hospital, Singapore
[12]Saw Swee Hock School of Public Health, National University of Singapore, Singapore

ABSTRACT

BACKGROUND: More data is required to contextualise respiratory-syncytial-virus (RSV) disease burden, versus other vaccine-preventable respiratory-viral-infections (RVIs) in older adults. We aimed to compare severity of RSV in hospitalised adults versus influenza/boosted COVID-19.

METHODS: Retrospective population-based cohort study, including all adult RSV hospitalisations (2021-2023) in Singapore. Disease severity (28-day mortality/intensive-care-unit [ICU] admission) and healthcare utilisation in RSV hospitalisations were compared with contemporaneous influenza hospitalisations and COVID-19 hospitalisations in 2023. Outcomes for COVID-19 were stratified by type/receipt of boosters. Comparative severity of RSV versus COVID-19/influenza was evaluated using multivariate logistic regression, adjusted for confounders. Generalised linear models were utilised to estimate excess length-of-stay/costs of RSV hospitalisation versus COVID-19/influenza as a rate-ratio.

FINDINGS: A total of 12,811 hospitalised adults were included (RSV: N=1,332; influenza: N=3,999; COVID-19: N=7,480). Amongst RSV hospitalisations, 5.4 percent (72/1,332) died within 28 days; 3.8 percent (51/1,332) required ICU. Median length-of-stay (RSV) was 5.0 days (IQR=3.0-8.0). Older age/diabetes were associated with greater odds of 28-day mortality in RSV hospitalisations. Higher odds of 28-day mortality/ICU admission and higher healthcare utilisation was observed in RSV hospitalisations versus influenza. Conversely, RSV was less severe than unboosted COVID-19, with lower odds of 28-day mortality (adjusted-odds-ratio, aOR=0.56 [95% CI=0.40-0.79]) and rate-ratio for length-of-stay/costs significantly <1. However, higher odds of ICU (aOR=1.80 [95% CI=1.07-3.00]) were observed in RSV hospitalisations, versus COVID-19 hospitalisations boosted <1 year prior with updated vaccines.

INTERPRETATION: Hospitalisations attributed to RSV were more severe than influenza. RSV disease was less severe versus COVID-19 in unboosted patients but severity was not significantly different from COVID-19 in boosted individuals.

READING 5 – CARDIAC EVENTS IN ADULTS HOSPITALISED FOR RESPIRATORY SYNCYTIAL VIRUS VS COVID-19 OR INFLUENZA

Wee LE,[1-4] Ho RWL,[1] Tan KB,[1,2,5,6,8,9] Lim JT,[1,5] Lye DCB,[1,5,7,8] Chiew CJ.[1,6] Cardiac Events in Adults Hospitalised for Respiratory Syncytial Virus vs COVID-19 or Influenza. JAMA Netw Open. 2025 May 1;8(5):e2511764. PMID: 40402498.

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Author information:
[1]National Centre for Infectious Diseases, Singapore
[2]Duke-NUS Graduate Medical School, National University of Singapore, Singapore
[3]Department of Infectious Diseases, Singapore General Hospital, Singapore
[4]Department of Infection Prevention and Epidemiology, Singapore General Hospital, Singapore
[5]Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore
[6]Ministry of Health, Singapore
[7]Department of Infectious Diseases, Tan Tock Seng Hospital, Singapore
[8]Yong Loo Lin School of Medicine, National University of Singapore, Singapore
[9]Saw Swee Hock School of Public Health, National University of Singapore, Singapore

ABSTRACT

INTRODUCTION: Respiratory viral infections (RVIs) are associated with elevated cardiovascular risk; however, less is known about cardiac complications after hospitalisation for respiratory syncytial virus (RSV) vs other vaccine-preventable RVIs (COVID-19 or influenza).

OBJECTIVE: To compare the risk of acute cardiovascular complications in adults hospitalised for RSV vs COVID-19 or influenza.

DESIGN, SETTING, AND PARTICIPANTS: This population-based cross-sectional study, conducted before the RSV vaccination rollout in Singapore, assessed all adults hospitalised for RSV or influenza (1 January 2017 to 30 June 2024) and all adult hospitalised for COVID-19 during Omicron XBB/JN.1 transmission (1 January 2023 to 30 June 2024).

EXPOSURE: Hospitalisation for RSV, influenza (vaccinated or unvaccinated), or COVID-19 (boosted [≥3 vaccine doses] or unboosted [<3 vaccine doses]).

MAIN OUTCOMES AND MEASURES: Cardiovascular events during RSV, influenza, or COVID-19 hospitalisation, defined as any cardiac, cerebrovascular, or thrombotic event, occurring from admission until discharge or death. Odds of any cardiovascular event (RSV vs COVID-19 or RSV vs influenza) and severe RVI (intensive care unit admission) with or without an acute cardiovascular event were estimated using multivariate logistic regression, adjusted for sociodemographic and clinical characteristics.

READING 6 – HERPES ZOSTER INCIDENCE AND BURDEN IN OLDER CHINESE IN HUNNAN: A SYSTEMATIC REVIEW AND META-ANALYSIS

Zheng B,[1] Geng Y,[1] Li Q,[1] Cao W,[1] Yin D,[2] Yin M,[3] Ning Y,[4,5] Petersen JD.[6-9] Herpes zoster incidence and burden in older Chinese: a systematic review and meta-analysis. BMC Public Health. 2025 Apr 22;25(1):1494. PMID: 40264149.

doi: 10.1186/s12889-025-22703-6. PMID: 40264149. Free full text.

Author information:
[1]School of Public Health, Key Laboratory of Tropical Translational Medicine of Ministry of Education, Hainan Medical University, Haikou, 571199, Hainan Province, China
[2]Hainan Provincial Centre for Disease Control and Prevention, Haikou, 571129, China
[3]Library, Hainan Medical University, Haikou, 571199, China
[4]School of Public Health, Key Laboratory of Tropical Translational Medicine of Ministry of Education, Hainan Medical University, Haikou, 571199, Hainan Province, China. NingYi@vip.163.com
[5]The First Affiliated Hospital of Hainan Medical University, Haikou, 570102, China. NingYi@vip.163.com
[6]School of Public Health, Key Laboratory of Tropical Translational Medicine of Ministry of Education, Hainan Medical University, Haikou, 571199, Hainan Province, China. dingjindong_10@hotmail.com
[7]Department of Neurology, The Second Affiliated Hospital of Hainan Medical University, Haikou City, 570311, Hainan Province, China. dingjindong_10@hotmail.com
[8]Research Unit for General Practice, Department of Public Health, University of Copenhagen, Copenhagen, 1353, Denmark. dingjindong_10@hotmail.com
[9]Research Unit for General Practice, Department of Public Health, University of Southern Denmark, Odense, 5000, Denmark. dingjindong_10@hotmail.com

ABSTRACT

BACKGROUND: Previous studies have documented variations in herpes zoster (HZ) incidence across regions and periods. We aimed to synthesise data on HZ incidence, complications, and associated healthcare costs (inpatient and outpatient) in the Chinese population aged 50 years and older over the last two decades.

METHODS: We searched studies published in English between 1 January 2000 and 31 March 2023 in PubMed, Cochrane Library, Embase, EBSCO, OVID, and Web of Science, supplemented by Chinese databases CNKI, Wan Fang, CQVIP, and Yiigle. Main search terms included "Herpes Zoster", "Herpesvirus 3, Human", "Neuralgia Postherpetic", "incidence", "morbidity", "epidemiology", "complication", "healthcare cost", "expenditure", "economic", and "burden". The Agency for Healthcare Research and Quality tool and Newcastle-Ottawa Scale were used for quality assessment.

RESULTS: Of 6,958 studies, 19 (73,044,981 total population) were included for analysis (1,107,682 HZ cases, mean age 63.03±8.30 years, 47.10% male). The pooled annual HZ incidence from 13 studies (two with high quality, 11 with medium quality) from 2000 to 2020 was 6.28 per 1,000 PYs (95%CI: 5.42, 7.15), with a significant increasing trend over the period (meta-regression coefficient: 0.0031, 95%CI: 0.0027, 0.0036), and more pronounced among females and those with advancing age. Neuralgia system disorders were the most frequently reported complications, followed by ear and eye diseases. Furthermore, HZ-associated inpatient costs showed a 4.4-fold dramatic increases, rising from 3,260 RMB in 2010-2012 to 14,303 RMB per patient in 2017-2018, while outpatient costs increased from 336 RMB to 1,329 RMB.

CONCLUSIONS: Despite the medium overall quality of the studies, our findings highlight an urgent need for effective public health strategies including vaccines aimed at reducing HZ incidence and associated healthcare costs in China.

READING 7 – THE EPIDEMIOLOGY OF RESPIRATORY SYNCYTIAL VIRUS AND THE IMPACT OF COVID-19 PANDEMIC IN A RETROSPECTIVE EVALUATION

Zheng B,[1] Geng Y,[1] Li Q,[1] Cao W,[1] Yin D,[2] Yin M,[3] Ning Y,[4,5] Petersen JD.[6-9] Herpes zoster incidence and burden in older Chinese: a systematic review and meta-analysis. BMC Public Health. 2025 Apr 22;25(1):1494. PMID: 40264149.

doi: 10.1186/s12889-025-22703-6. PMID: 40264149. Free full text.

Author information:
[1]Division of Respiratory Medicine, Cardiovascular and Thoracic Department, AOU Città Della Salute e Della Scienza di Torino, University of Turin, 10126 Torino, Italy
[2]Medical Sciences Department, University of Turin, 10126 Torino, Italy
[3]Division of Virology, Department of Public Health and Pediatrics, AOU Città Della Salute e Della Scienza di Torino, University of Turin, 10126 Torino, Italy
[4]Department of Medical Sciences, Unit of Infectious Diseases, University of Turin, 10149 Torino, Italy
[5]Respiratory Diseases Unit, Medical Department, AOU Maggiore Della Carità di Novara, 28100 Novara, Italy
[6]Division of Geographic Medicine, Tufts University School of Medicine, Tufts University, Boston, MA, USA

ABSTRACT

INTRODUCTION: Respiratory syncytial virus (RSV) is the main aetiological agent in paediatric lower respiratory tract infections. The limited availability of therapeutic options for severe clinical cases associated with RSV infection makes prophylactic interventions a priority for containment. The aim of the current study was to evaluate the epidemiology of RSV in the Piedmont population and the consequences of containment measures applied during the pandemic on viral circulation in the immediate and medium-term post-pandemic phase.

METHODS: This study considered all biological samples analysed for RSV at the City of Health and Science of Turin collected from 1 January 2016 to 31 December 2023. Evaluation of the positivity rates of samples was performed and differences between paediatric and adult population swabs (nasopharyngeal, pharyngeal, nasal aspirates) and bronchoalveolar samples were reported.

RESULTS: This study analysed 14,085 samples and highlighted a trend in Piedmont RSV infections characterised by a higher paediatric population involvement of 82 percent compared to the adult population at 17 percent. A higher number of URT infections (95%) compared to LRT infections (4.6%) was also identified. This study shows a peak in RSV cases from November to April between 2016 and 2020. Our data show no RSV positivity during the 2020/2021 winter season, a result most likely due to the influence of containment measures implemented during the COVID-19 pandemic.

CONCLUSIONS: Our study provided an epidemiological panorama of RSV and its high prevalence in paediatrics and adults. Paediatrics had a higher prevalence, while adults presented a delayed trend of about one month compared to paediatrics. The effectiveness of infection control measures applied during the SARS-CoV-2 pandemic to limit viral infections were proved. Future studies may further investigate the impact of the SARS pandemic on RSV epidemiology considering patients at a higher risk of severe symptoms.

READING 8 – A SYSTEMATIC LITERATURE REVIEW OF EPIDEMIOLOGY AND BURDEN OF HERPES ZOSTER IN ASIA PACIFIC COUNTRIES

Chen J,[1] Ke Y,[1] Ong CR,[1] Shantakumar S,[1] Abrahamson PE,[2] Parikh R.[3] A systematic literature review of the epidemiology and burden of herpes zoster in selected locales in Asia Pacific. Hum Vaccin Immunother. 2024 Dec 31;20(1):2344983. PMID: 38767209.

doi: 10.1080/21645515.2024.2344983. PMID: 38767209. Free full text.

Author information:
[1]Epidemiology and Health Outcomes, GSK, Singapore
[2]Salmon Bay Epidemiology Consulting LLC, Seattle, WA, USA
[3]Medical Affairs, GSK, Wavre, Belgium

ABSTRACT
Herpes zoster (HZ) is a painful rash that typically affects older adults. This is of concern in Asia-Pacific given its ageing population. As HZ epidemiology and burden are evolving, this systematic literature review aimed to update the current understanding of HZ burden and associated costs for selected Asia-Pacific locales.

MEDLINE and Embase were searched for English articles of HZ studies conducted in Australia, China, Hong Kong, Japan, Korea, New Zealand, Singapore, and Taiwan. Eligible outcomes included HZ incidence and prevalence, occurrence of HZ-related complications, healthcare resource utilisation, costs, and HZ-associated quality of life outcomes. This paper focused on HZ data in the general adult population (N = 90 articles).

Substantial HZ-related disease and economic burden were observed in these locales, consistent with global trends.

These findings reinforce the increasing burden of HZ and need for preventive strategies, which may include raising awareness and encouraging timely vaccination.

READING 9 – KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS HERPES ZOSTER (HZ) AND HZ VACCINATION IN ASIA PACIFIC COUNTRIES

Chen J,[1] Shantakumar S,[1] Si J,[2] Gowindah R,[2] Parikh R,[3] Chan F,[4] Chan M,[5] Choi WS,[6] Huang E,[7] Huang KC,[8] Huang LM,[9] Kim H,[10] Leong CK,[11] Leong HN,[12] Seo Y,[13] Williams C,[14] Wong AT.[15] Knowledge, attitude, and practice toward herpes zoster (HZ) and HZ vaccination: Concept elicitation findings from a multi-country study in the Asia Pacific. Hum Vaccin Immunother. 2024 Dec 31;20(1):2317446. PMID: 38436584.

doi: 10.1080/21645515.2024.2317446. PMID: 38436584. Free full text.

Author information:
[1]Epidemiology and Health Outcomes, GSK, Singapore
[2]Oracle Life Sciences, Singapore
[3]Medical Affairs, GSK, Wavre, Belgium
[4]Division of Geriatric Medicine, University Department of Medicine, University of Hong Kong, Pok Fu Lam, Hong Kong
[5]Medical Affairs, GSK, Hong Kong
[6]Department of Internal Medicine, Korea University College of Medicine, Korea University Ansan Hospital, Ansan-si, Gyeonggi-do, Republic of Korea
[7]Medical Affairs, GSK, Taipei City, Taiwan
[8]Department of Family Medicine, National Taiwan University Hospital Hsin-Chu Branch, Hsinchu City, Taiwan
[9]Department of Paediatrics, National Taiwan University Hospital, Taipei City, Taiwan
[10]Early Pipeline Vaccines, GSK, Rockville, MD, USA
[11]Mission Medical Clinic, Singapore
[12]Rophi Clinic, Singapore
[13]Department of Internal Medicine, Kangnam Sacred Heart Hospital, Hallym University, Seoul, Republic of Korea
[14]Medical Affairs, GSK, Singapore
[15]Infectious Diseases, Central Medical Practice, Hong Kong

ABSTRACT

Herpes zoster (HZ) is a prevalent disease characterised by a painful rash. A multi-country study was conducted to elicit public and physician knowledge, attitude, and practice (KAP) towards HZ disease and vaccination for the assessment of local factors influencing HZ vaccine perceptions in four Asian-Pacific countries/territories.

One-to-one qualitative interviews were conducted in 2022, among the public (people aged ≥50 years, adults with parents aged ≥50 years, zoster vaccine live-vaccinated individuals aged ≥50 years in Republic of Korea, and HZ patients; n=78) and physicians (general practitioners and specialists; n=24). Themes surrounding KAP toward HZ and HZ vaccination were summarised using a thematic analysis.

A substantial knowledge gap related to HZ was observed among the public, including its causes, long-term impacts, and the at-risk population. There was a low perceived risk of HZ and low general awareness of HZ vaccine availability, although country/territory-specific differences existed. Fear of HZ-associated pain contributed toward vaccination intent among HZ patients and adults with parents aged ≥50 years. HZ-naïve adults who were encouraged to receive the vaccine by others were not motivated to do so due to optimism bias. Physicians were perceived to be a reliable source of information. However, physicians did not always proactively discuss HZ vaccination due to time constraints and a perceived need to prioritise other vaccinations including influenza and pneumococcal vaccines.

Initiatives are needed to improve public awareness of HZ and its complications, in terms of overall impact on individuals and society, and highlight the important role of physicians in recommending vaccination.

READING 10 – A SYSTEMATIC REVIEW AND META-ANALYSIS OF HERPES ZOSTER RISK IN ADULTS WITH IMMUNOCOMPROMISED CONDITIONS AND AUTOIMMUNE DISEASES IN ASIA-PACIFIC

Chen J,[1] Shantakumar S,[1] Ho CY,[2,3] Tu YK,[2,3] Lin YC,[3,4] Hsia Y,[3,5] Lin YC.[3,6] A systematic review and meta-analysis of herpes zoster risk in adults with immunocompromised conditions and autoimmune diseases in Asia-Pacific. Hum Vaccin Immunother. 2025 Dec;21(1):2496048. PMID: 40299930.

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Author information:
[1]GSK, Singapore
[2]Health Data Research Centre, National Taiwan University, Taipei, Taiwan
[3]Institute of Epidemiology & Preventive Medicine, College of Public Health, National Taiwan University, Taipei, Taiwan
[4]Department of Nephrology, National Taiwan University Hospital Jinshan Branch, New Taipei City, Taiwan
[5]Department of Ophthalmology, National Taiwan University Hospital, Taipei, Taiwan
[6]Department of Anaesthesiology, MacKay Memorial Hospital, Taipei, Taiwan

ABSTRACT

Asia-Pacific (APAC) faces an increasing burden of herpes zoster (HZ) over time. The risk of HZ and its complications are increased in immunocompromised (IC) patients and those with autoimmune diseases (AID).

Our study aimed to synthesise evidence on the epidemiological burden of HZ and its complications among the general adult population and patients with IC/AID conditions in APAC. Following a systematic literature review, we performed meta-analyses for outcomes where ≥3 studies met the inclusion criteria.

Of the 271 articles identified, 75 were included for meta-analysis. We found a high burden of HZ and its complications (i.e., postherpetic neuralgia, HZ ophthalmicus), particularly among individuals with IC/AID conditions in APAC. Patients with IC/AID conditions had significantly increased HZ risk and a higher proportion of HZ recurrence than the general adult population.

These findings may inform clinical practice and public health decisions regarding HZ prevention, including HZ vaccination strategies, among the IC/AID population in APAC.