Serological epidemiology of Q fever among livestock farm workers in high-risk regions, South Korea

Joonsu Jang (1,2)
Jiyeon Oh (1,2), Seongwoo Park (2), Hannah Oluwadunsin Adelusi (1,2), Heri Suleiman Nyamvi (2,3), Byung Chul Chun (1,2)

1 : Department of Public Health, Korea University Graduate School
2 : Department of Preventive Medicine, Korea University College of Medicine
3 : Department of Biomedical Sciences, Korea University Graduate School

Q fever, caused by *Coxiella burnetii*, is a Category 3 notifiable infectious disease in South Korea. Cases have risen since 2015. Risk factors among livestock farm workers are limited, despite high-risk surveys reporting >10% seropositivity. Asymptomatic infection and low diagnostic yield complicate burden assessment, highlighting the need for community-level risk profiling.This study aim to estimate Q fever seroprevalence and identify individual- and farm-level risk factors among livestock farm workers in high-incidence rural areas, providing One Health–oriented evidence for prevention.We surveyed workers from three townships in Aug. 2024, including farm and National livestock cooperative workers. Serology (IFA for Phase I/II IgM/IgG) and PCR were performed; titers ≥1:16 prompted repeat testing at 4 weeks. Case definitions followed the Korea Disease Control and Prevention Agency. Individual surveys covered demographics, work history, PPE, and parturition; farm surveys included biosecurity. Variables with $p<0.20$ in univariable tests entered multivariable logistic regression at individual and farm levels. Farms with ≥1 seropositive worker were classified as positive.Participants were 145 individuals from 114 farms. Overall seroprevalence was 28.3% (41/145): 8.3% acute confirmed, 10.3% acute probable, 9.7% chronic probable; all PCR tests were negative. Individual-level predictors of seropositivity included 10–19 years of livestock work, involvement in livestock parturition, and ocular exposure to animal feces. Farm-level analysis highlighted biosecurity: routine disinfection of incoming vehicles and visitors was protective. Knowledge of Q fever was low (mean 12/100). Seropositivity tended to be higher among goat-farm workers (37.5%) than cattle-farm workers (27.1%), but not significantly ($p=0.389$).Findings emphasize modifiable individual behaviors (PPE, training) and the critical role of farm biosecurity for Q fever control within a One Health approach.

Association between gallstones and gallbladder cancer – who is the actual culprit?

Shubha Rani Sharma (1)
Bhavna Sharma (1), Ratnakar Shukla (2), Anand Nagar (3), Nishith Ekka (4), Vinay Kumar Kapoor (3), Anu Behari (5)

1 : Department of Bioengineering and Biotechnology, Birla Institute of Technology, Mesra
2 : Sharda School of Allied Health Science, Greater Noida
3 : Department of Surgery, Mahatma Gandhi College and Hospital, Jaipur
4 : Department of Surgery, Rajendra Institute of Medical Sciences, Ranchi
5 : Department of Surgical Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow

Gallstones are one of the most traumatic gastrointestinal diseases. We don't have any cure for gallstones till date. The only option left is cholecystectomy or laparoscopy for removal of gallstones. From time immemorial gallstones have been considered to be an important hazard factor for causing gallbladder carcinoma. They are thought to be the cause of gallbladder inflammation which is known as chronic cholecystitis. But the exact relationship between gallstones and GBC is not clear till date. Here in this study, we have compared the gallstones from normal patients and those from patients with gallbladder carcinoma. We have performed the compositional as well as heavy metal analysis of the gallstones from both type of patients by techniques like FTIR, FESEM and ICP-MS. The size, volume and weight of these gallstones were comparatively analyzed. We found the gallstones from the gallbladder carcinoma patients were only cholesterol gallstones while the gallstones from normal gallbladder patients exhibited mixed and pigmented type. Heavy metals such as As, Pb, Fe have been detected in gallstones from GBC patients. The size, weight and volume of gallstones from GBC patients have been found on the higher side. Thus, these could be regarded as the contributing factors to gallbladder carcinoma in the presence of gallstones. Further the mechanism of instigation of gallbladder cancer by presence of cholesterol, heavy metals in the gallstones needs to be focused on so that novel strategies are attempted to curb this problem of gallbladder cancer.

A Study of Transmission Dynamics of Pertussis in Japan

Md Gulzar ull Hasan (1)
Haruka Hayashi (1), Mayu Nagata (1), Seiko Fujiwara (1), Shota Nishiyama (1), Quan Roshan (1), Hiroshi Nishiura (1)

1 : School of Public Health, Kyoto University

Background : Pertussis is designated as a category V infectious disease in Japan. Despite high vaccine coverage outbreaks have recurred, including a resurgence in 2025. Understanding transmission dynamics, heterogeneity in age-specific susceptibility and contact patterns between different age groups is essential. The low case ascertainment, long time delays from infection to diagnosis, and the impact of school schedules on transmission among children make modelling challenging.

Objectives: In this study, we estimated the weekly effective reproduction number (Rt) based on infection timing for the 2025 pertussis outbreak in Japan considering heterogeneity in immunity, contact patterns across age groups and delays from infection to diagnosis. We also estimated the age-specific case ascertainment, relative susceptibility and infection acquired immunity.

Methods : National weekly age-specific diagnosed case counts were obtained from publicly available data. We used a renewal equation to model age-specific weekly diagnoses. The standard renewal equation model was extended with a next-generation matrix constructed from estimated contact patterns across age groups, waning of vaccine- and infection-acquired immunity, and delays from infection to diagnosis. To capture changes in mixing during school holidays over time, we modelled relative susceptibility as a time-varying step function. Bayesian estimation was performed using a Markov chain Monte Carlo approach.

Conclusions : An expanded renewal equation model was constructed to capture the transmission dynamics of Pertussis in Japan 2025. The Weekly effective reproduction number, age-specific immunity and time varying relative susceptibility across age groups are estimated.The credible interval of estimates covers the most observed number of cases showing good fit in all age groups. Ascertainment bias for age group 20-49 was estimated as higher value than other age groups.

Inappropriate Papers and the Risk Communication Crisis

Sadao Suzuki (1)

1 : Department of Public Health, Graduate School of Medical Sciences, Nagoya City University

Background : Cases are emerging where anti-vaccine advocates submit and get accepted peer-reviewed papers that raise doubts about vaccine safety. These papers often contain **statistical misconduct** and have fatal flaws in their methodology, making their conclusions invalid. Leaving such papers unaddressed poses a significant **risk communication** problem, necessitating appropriate countermeasures.

Methods : This paper reviews several peer-reviewed articles that claim to raise questions about vaccine safety. We identify their flaws, examine common issues among them, and consider potential corrective actions.

Results :

1) Yaju & Tsubaki Paper (JJNS, 2019): This paper claimed a high odds ratio for several post-HPV vaccination symptoms. We identified this as a case of **statistical misconduct** and **misleading reporting**, and after a retraction request was denied, we filed a formal "Research Misconduct Allegation" with the Japan Academy of Nursing Science.

2) Gibo Paper (Cureus, 2024): This article asserted that age-adjusted cancer mortality rates increased after the third dose of the COVID-19 vaccine. The journal **Cureus has since retracted this paper**, and we published a commentary supporting this decision.

3) Hirai's Opinion Article (Rinshohyoka, 2024): This article proposed a mathematical model linking post-vaccine deaths to the vaccine itself. Given that its data was based on voluntary reports, we submitted a "**Retraction Request**" letter to the publishing society.

In addition to these, we have submitted retraction requests or counterarguments for five other anti-vaccine papers and opinion articles. A common issue among these papers is the **leniency of the peer-review process** in regards to their clearly flawed methodologies.

Conclusion : The anti-vaccine movement is now expanding from social media into scientific journals. It is dangerous to leave such papers unaddressed, as they can spread information without scientific basis and undermine public health risk communication.

Assessment of Carcinogen Exposure Biomarkers Among Cooks

Sungji Moon (1)
Soseul Sung (2), Youjin Hong (2), Woojin Lim (2), Taehoon Kim (2), Sue K. Park
1 : Department of Social and Preventive Medicine, Sungkyunkwan University School of Medicine
2 : Department of Preventive Medicine, Seoul National University College of Medicine

Although exposure to cooking oil fumes has been linked to an increased risk of lung cancer, limited data exist on the actual levels of carcinogen exposure among cooks. This study aimed to assess environmental exposure to carcinogens during occupational cooking among school meal workers in Korea. We conducted a cross-sectional study involving 252 school staff members, including school meal workers, across 28 school cafeterias in Seoul. Biomarkers assessed included benzo[a]pyrene diol epoxide (BPDE)-DNA adducts in peripheral blood and several urinary polycyclic aromatic hydrocarbon (PAH) metabolites. Among 234 non-smoking female participants, biomarker levels were compared between 195 cooks and 39 non-exposed individuals using multivariable linear regression. Cooks exhibited significantly higher BPDE-DNA adduct levels compared to controls (median: 0.0233 ng/ug DNA, IQR: [0-0.0557] vs. 0.0008 ng/ug, IQR: [0-0.0261]; adjusted P=0.011). Urinary levels of 2-naphthol and 2-hydroxyfluorene were also elevated in cooks (2-naphthol: mean [SD], 7.57 [3.98] ug/L vs. 4.71 [10.24] ug/L; 2-hydroxyfluorene: 0.25 [0.33] ug/L vs. 0.16 [0.10] ug/L). Home cooking for more than 2 hours per day was associated with higher BPDE-DNA adduct levels compared to cooking for 1 hour or less (Beta coefficient = 0.0496, P=0.02). In addition to occupational exposure, lifestyle factors such as consumption of leached tea and grilled foods were positively associated with BPDE-DNA adduct levels, while green tea consumption showed an inverse association. School cooks are exposed to significantly higher levels of carcinogens compared to non-exposed school staff. Further studies involving a broader population of cooks, including those not under institutional oversight, are warranted.