Hiroaki Murayama

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Curriculum Vitae

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Education

2019 – present Medical Student, Dept. of Medicine, School of Medicine, International University of Health and Welfare, Chiba, Japan

Career/Academic Appointments

2020 – present **Advisor, The National COVID-19 Cluster Taskforce, Ministry of Health, Labour and Welfare, Tokyo, Japan** (Prof. Hiroshi Nishiura)

- Performed ad-hoc analysis and research to provide risk assessment of coronavirus disease 2019 (COVID-19) epidemic and evaluate the impact of public health responses, including estimation and projection of the Alpha variant epidemic, evaluating vaccine effectiveness against death from population-level data, exploring the impact of healthcare burden on temporal case fatality risk, and more.

2021 – 2022 **Research Assistant, Graduate School of Social Sciences, Chiba University, Chiba, Japan** (Assist Prof. Shouto Yonekura)

- Proposed a novel Bayesian framework for estimating waning vaccine effectiveness from population-level surveillance data in the presence of multi-variant circulation, working with Dr. Akira Endo (in London School of Hygiene and Tropical Medicine as of 2022).

2021 – present **Member, CoV-Navi** (https://covnavi.jp/)

- Reviewed the scientific evidence for science communication to the general public.

2022 – present **Research Assistant, Graduate School of Public Policy, University of Tokyo, Japan** (Assoc. Prof. Taisuke Nakata)

Publications

Peer-Reviewed Original Research (†: equally contributed)

1. **Murayama H**, Pearson CAB, Abbott S, Miura F, Jung S, Fearon E, Funk S, & Endo A. Accumulation of immunity in heavy-tailed sexual contact networks shapes mpox outbreak sizes. *The Journal of Infectious Diseases*. 2023. (in press)
2. Endo A, **Murayama H**, Abbott S, Ratnayake R, Pearson CAB, Edmunds WJ, Fearon E†, Funk S†. Heavy-tailed sexual contact networks and monkeypox epidemiology in the global outbreak, 2022. *Science*. 2022 Sep 25;0(0):eadd4507.
3. Ko Y, **Murayama H**, Yamasaki L, Kinoshita R, Suzuki M, Nishiura H. Age-Dependent Effects of COVID-19 Vaccine and of Healthcare Burden on COVID-19 Deaths, Tokyo, Japan. *Emerging Infectious Diseases*. 2022;28(9).
4. **Murayama H**†, Yamasaki L†, Hashizume M. The impact of temperature on the transmissibility and virulence of COVID-19 in Tokyo, Japan. *Scientific Reports*. 2021;11(1):24477.
5. **Murayama H**, Kayano T, Nishiura H. Estimating COVID-19 cases infected with the variant alpha (VOC 202012/01): an analysis of screening data in Tokyo, January-March 2021. *Theoretical Biology and Medical Modelling*. 2021;18(1):13.

Preprint (†: equally contributed)

1. **Murayama H**, Pearson CAB, Abbott S, Miura F, Jung S, Fearon E, Funk S, & Endo A. Accumulation of immunity in heavy-tailed sexual contact networks shapes monkeypox outbreak sizes. *medRxiv*. 2022 Jan 1;2022.11.14.22282286.
2. **Murayama H**, Endo A, Yonekura S. Estimating waning vaccine effectiveness from population-level surveillance data in multi-variant epidemics. *medRxiv*. 2022 Jan 1;2022.07.14.22277647.

Report

1. Ko KY, **Murayama H**, Yamasaki L, Kinoshita R, Nishiura H, Suzuki M. Evaluating the Age-Specific Effectiveness of COVID-19 Vaccines Against Death from surveillance data in Tokyo. *National Institute of Infectious Diseases, Infectious Diseases Surveillance Center*. 2021 Dec. https://www.niid.go.jp/niid/ja/2019-ncov/2484-idsc/10873-covid19-65.html (Japanese only)

Conference

1. Sung-mok Jung†, Fuminari Miura†, **Hiroaki Murayama**, Justin Lessler, Akira Endo. Dynamic landscape of mpox importation risk driven by heavy-tailed sexual contact networks among men who have sex with men. *Ecology and Evolution of Infectious Diseases*. 2023 May. (Poster)
2. **Murayama H**. Impacts of vaccine, healthcare burden, and temperature on the transmissibility or virulence of COVID-19. *COVID-19 pandemic conference*. 2022 Sep. (Oral)
3. Ko KY, **Murayama H**, Yamasaki L, Kinoshita R, Suzuki M, Nishiura H. Evaluating the Age-Specific Effectiveness of COVID-19 Vaccines Against Death and the Impact of Healthcare Burden on Age-Specific Case Fatality Risk in Tokyo, Japan. *The 32th Annual Scientific Meeting of the Japan Epidemiological Association*. 2021 Dec. (Oral)

Skills & Interests

Analytical

Infectious disease epidemiology, Theoretical epidemiology, Mathematical modelling of infectious diseases, Bayesian inference, COVID-19, Monkeypox

Programming

R, Julia, Stan

Membership

1. Japan Epidemiological Association
2. Japanese Society of Tropical Medicine