



# NTU-KU Joint Funding

## Final Report

### Section 1

NTU principle investigator	
Name (last name, first name)	Akhmetzhanov, Andrey
Position	Assistant Professor
Faculty/Department	College of Public Health/Global Health Program

KU principle investigator	
Name (last name, first name)	Nishiura, Hiroshi
Position	Professor
Faculty/Department	Graduate School of Medicine/Department of Health and Environmental Sciences
Visiting ECR*	
Name (last name, first name)	Kono, Miku; Ponce, Luis
Position	Master students
Faculty/Department	College of Public Health/Global Health Program

\*Please complete this section if the KU principal investigators hosted ECRs from NTU.

Host researcher*	
Name (last name, first name)	
Position	
Faculty/Department	

\*Please complete this section if the host researcher is different from the KU principal investigator.

### Section 2

Project title
Devising risk-based safe border control during COVID-19 pandemic: lessons from Taiwan and Japan

### Section 3

Period of project	
From dd/mm/yy to dd/mm/yy	01/04/2022 to 28/02/2023

## Section 4

Summary of the project (approx. 100 words)
*KU PIs are required to submit a summary of the project in Japanese in addition to the English summary (approx. 200–300 characters).

**Andrey Akhmetzhanov (PI from NTU):** In October 2022, a joint seminar was organized, comprising two sessions: one on October 6 presented by KU and the other on October 13 by NTU. Each session featured four invited speakers and was integrated into the NTU College of Public Health's college-level elective course on COVID-19 epidemiology. Subsequently, in January 2023, two NTU students visited the KU School of Public Health for a ten-day stay, which involved their presentations and collaboration on a research project. Following their stay at KU, one of the students attended the annual meeting of the Japanese Epidemiological Association and presented a poster on a topic related to the project.

**Hiroshi Nishiura (PI from KU):** 新型コロナウイルス感染症の流行の影響を受けて、プロジェクト開始当初は必ずしも予定通りに交流は進みませんでした。しかし、2022年10月にオンラインでの共同セミナーを開催したことを皮切りに、2023年1月末にはNTUからの修士課程大学院生の受入れを実現することができました。2022年10月の共同セミナーではCOVID-19の疫学研究を課題にしたことから、多数の参加者を日台共に得ることができました。2023年1月の訪問時にはCOVID-19の基本再生産数の推定研究を開始し、現在も共同研究としての分析を継続しています。

## Section 5 (Please complete this section if ECRs from NTU participated in collaborative research at KU)

Achievements and Outcomes of ECRs' Stay (approx. 100–250 words)
*This section should be filled by each of the ECR(s) (one paragraph per ECR) based on his/her experience of staying in Japan.

(Please enter the achievements and outcomes for each of the ECR(s).)

*Miku Kono will describe our trip in general, and Luis Ponce will describe the research project they did during our stay in Kyoto.*

**Miku Kono:** We visited Kyoto University from 23 January to 1 February 2023. The purpose of the visit was to meet professor Hiroshi Nishiura and his lab members to learn and discuss mathematical modeling for COVID-19.

During the visit to Kyoto University, we attended professor Nishiura's lab meetings every Tuesday, and each of us had an opportunity to give a presentation about themselves and their

thesis. We received questions and comments from the lab members they can consider as they create progress on their thesis research.

We stayed at professor Nishiura's lab with other lab members during their stay in Kyoto. We had an opportunity to ask the lab members about their research projects to deepen their understanding of the lab. The lab members are from various backgrounds and cover a wide range of topics on COVID-19 currently. Professor Nishiura's lab makes an important contribution to combatting the COVID-19 pandemic.

On 25 February 2023, we traveled to Chubu University with professor Nishiura where he gave a seminar talk on mathematical modeling in handling COVID-19 infection. They had a valuable time listening to professor Nishiura's experience since the emergence of COVID-19 and how he and his lab members contributed to minimizing the COVID-19 impacts in Japan from the beginning to now. We also had time to talk to professor Nishiura during their traveling to and from Chubu University about their plans after graduation and their research project with professor Nishiura.

**Luis Ponce:** During our visit to Kyoto University, we worked with Kyoto University's School of Medicine Professor Hiroshi Nishiura on a COVID-19 research project. We were tasked with collecting necessary data from an expansive database of polymerase chain reaction (PCR)-confirmed COVID-19 household transmissions from the UK's Office for National Statistics (ONS). We then used data on the estimated weekly prevalence, particularly in England and Wales, to estimate the proportion of the population that would be infectious when COVID-19 is in an endemic state. Moreover, we used data on PCR sensitivity and SARS-CoV-2's survivability in a cell culture to more accurately estimate the prevalence that would be observed at an equilibrium endemic state. We visualized the prevalence data to illustrate the trend that is being formed among confirmed cases. In addition, we visualized the expected endemic prevalence according to different values of the basic reproduction number,  $R_0$ , and different durations of immunity. Finally, we created a distribution graph of their expected prevalence and will continue to write about their findings and conclusions.

## Section 6

### Photographs with captions

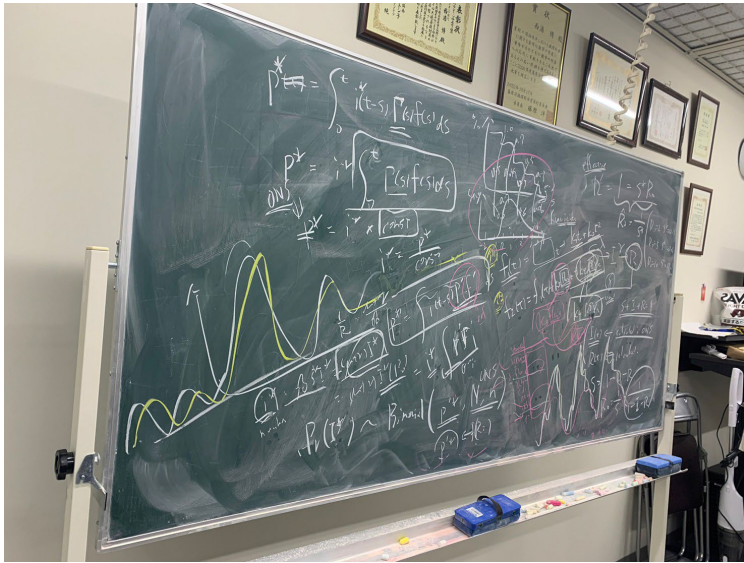
\*Please submit digital files (such as JPEG or GIF files) of the photographs used in your report as attachments. The size of each image should be at least 4MB, so that it can be used for printed materials. Please ensure that none of the photographs submitted will cause any issues relating to portrait rights.



**Caption:** Miku and Luis working on their project together.



**Caption:** Seminar talk Luis and Miku participated in at Chubu University on January 25th



**Caption:** Research discussion with Professor Nishiura





**Caption:** Walk to the lab on a snow day



**Joint seminar of Kyoto University and National Taiwan University**  
COVID-19 Pandemic : Science, Response and Future Prospects

**Chaired by:**  
 西浦博 Hiroshi Nishiura  
Professor at Health and Environmental Sciences  
Kyoto University School of Public Health

安亞克 Andrei R. Akhmetzhanov  
Asst. Professor at Global Health Program &  
Inst. of Epid. and Prev. Medicine  
National Taiwan University  
College of Public Health 

**Oct 6: Session of Kyoto University (10:20 ~ 12:10)**

**Reflections of COVID-19 modelling and response in Japan**

1. Hiroshi Nishiura, overview, suppression strategy and immune landscape
2. Taishi Kayano, vaccine-induced protections
3. Katsuma Hayashi, case fatality risk over the course of time
4. Tetsuro Kobayashi, what happened on Diamond Princess.

**Oct 13: Session of National Taiwan University (10:20 ~ 12:10)**

**Management of COVID-19 spread in Taiwan: lessons learned**  
program will be announced later

**Interested?** Join both sessions either in person R213  
or remotely on WebEx <http://tiny.cc/20221006-Kyoto>



**Caption:** Poster for the first session of the NTU/KU workshop that was held on Oct 6.



**Caption:** Installment of the remote talk on the first session of Oct 6.

 <p><b>Joint seminar of Kyoto University and National Taiwan University</b> COVID-19 Pandemic : Science, Response and Future Prospects</p> <p><b>Chaired by:</b> 安亞克 Andrei R. Akhmetzhanov Asst. Professor at Global Health Program &amp; Institute of Epidemiology and Prev. Medicine National Taiwan University College of Public Health</p> <p>西浦博 Hiroshi Nishiura Professor at Health and Environmental Sciences Kyoto University School of Public Health</p> <p><b>Oct 13: Session of National Taiwan University (10:20 - 12:10)</b></p> <p><b>Management of COVID-19 spread in Taiwan: lessons learned</b></p> <ol style="list-style-type: none"> <li>1. Hsien-Ho Lin, modeling to assist Covid-19 response in Taiwan: early experiences</li> <li>2. Yu-Lun Liu (Taiwan CDC), mobility data and COVID-19 spread in Taiwan</li> <li>3. Andrei R. Akhmetzhanov, epidemiological parameters of Omicron infections</li> <li>4. Raymond Kuo, political division, trust of social media, and vaccine hesitancy in Taiwan</li> </ol> <p><b>Oct 6: Session of Kyoto University</b> Reflections of COVID-19 modelling and response in Japan past meeting</p> <p><b>Interested?</b> Join both sessions either in person R213 or remotely on WebEx <a href="http://tiny.cc/20221013-NTU">http://tiny.cc/20221013-NTU</a></p> 	<p><b>Caption:</b> Poster for the second session of the NTU/KU workshop that was held on Oct 13.</p> <p><b>URL at which project outcomes can be viewed (Optional)</b></p> <p>*E.g. workshop notifications/programs/reports, evidence of academic papers published or otherwise made available, etc.</p> <p>URL: N/A</p>
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