

UK-Japan Symposium on Data-Driven Health:Data strategies to predict risk, prevent and manage disease in individuals and populations.

Wednesday 26 February 2020 Academy of Medical Sciences, 41 Portland Place, London



国立研究開発法人 日本医療研究開発機構 Japan Agency for Medical Research and Development







Symposium overview and objectives

This symposium aims to bring together representatives from academia, industry and the healthcare sector in the UK and Japan around the theme of health data.

The event will consider data strategies to predict risk, prevent and manage disease in individuals and populations, and examine the assistive technologies that may arise from these. It will achieve this across three sessions:

- The health data landscape and resources in the UK and Japan
- Health data for public health
- Health data for clinical decision-making

Throughout the day, speakers will address health data optimisation and resources including biobanks; health data for public health and delivering care through digital platforms; and health data to support clinicians through AI and machine learning.

It is the hope of the organisers: the Academy of Medical Sciences (AMS), the Japan Society for the Promotion of Science (JSPS), and the Japan Agency for Medical Research and Development (AMED) that this symposium will contribute to establishing new research connections between the UK and Japan. Through the sharing of experiences in the development and application of data-driven health expertise and technologies, it is expected that both countries will be able advance the level of medical research and healthcare provided to patients and public.

It is hoped that the networking reception will provide a valuable opportunity to continue discussions begun during the day, and to build research partnerships.

WiFi

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A note on coronavirus and personal data

Please be aware that to support appropriate health precautions for international gatherings, the contact details you have provided for this booking will be shared between the co-organisers. In the unlikely event that a guest becomes unwell with coronavirus, they will also be shared with relevant public authorities.

Guests are advised that photography and videography will be taking place. If you do not wish to appear in images or filming from this event, please notify reception staff.

Chairs and speakers

Co-chairs

- Professor Jill Pell, University of Glasgow
- Dr Yuko Harayama, Tohoku University

Invited Speakers

- Liz Ashall-Payne, ORCHA
- Dr Natalie Banner, Wellcome Trust
- Professor David Clifton
- Dr Aiden Doherty, Oxford Big Data Institute
- Dr Tamami Fukushi, AMED
- · Professor Chikashi Ishioka, Tohoku University
- · Professor Masao Iwagami, Tsukuba University
- Dr Eiryo Kawakami, RIKEN
- Professor Andrew Morris, HDR UK
- Phil Quinlan, UKCRC Tissue Directory and Coordination Centre
- Professor Toru Suzuki, University of Leicester (session chair)
- Professor Beverley Anne Yamamoto, Osaka University

Symposium agenda

09.00 - 09.30	Registration
Opening	
09.30 – 09.45	Welcome messages from the organisers Professor Dame Anne Johnson, Academy of Medical Sciences (AMS) Prof Nobuo Ueno, Japan Society for the Promotion of Science (JSPS) Dr Ryo Takagi, Japan Agency for Medical Research and Development (AMED)
09.45 – 10.00	Opening comments by the Co-Chairs Professor Jill Pell, University of Glasgow Professor Yuko Harayama, Tohoku University

<u>Session 1: The health data landscape and resources in the UK and Japan</u> Chair: Professor Jill Pell

Aims: To explore the range, availability and accessibility of data to support health research, and how such data structures might be strengthened and networked globally.

10.00 – 10.15	Improving the use and utility of UK routine data Professor Andrew Morris, HDR UK
10.15 – 10.30	Understanding and predicting disease through AI and mathematical analysis of health and medical data Dr Eiryo Kawakami, RIKEN
10.30 – 10.45	ATLAS: Making the UK's Cohorts Discoverable Phil Quinlan, UKCRC Tissue Directory and Coordination Centre
10.45 – 11.00	The Advanced Research Center for Innovations in Next-Generation Medicine (INGEM) and personalised medicine Professor Chikashi Ishioka, Tohoku University
11.00 – 11.30	Panel discussion
11.30 – 12.00	Coffee & refreshments

Session 2: Health data for public health

Chair: Professor Yuko Harayama

Aims: To consider approaches for disease prevention and management through digital health platforms and how health data strategies can inform public health policy, while maintaining public trust and robust patient data principles through appropriate patient engagement.

12.00 – 12.15	Determining & evaluating the quality of health apps Liz Ashall-Payne, ORCHA
12.15 – 12.30	Using wearables and machine learning to predict cardiovascular disease risk Dr Aiden Doherty, Oxford Big Data Institute
12.30 – 12.45	Involving patients in research Professor Beverley Anne Yamamoto, Osaka University

12.45- 13.00	We need to talk about health data: some insights from Understanding Patient Data (unable to attend) Dr Natalie Banner, Wellcome Trust
13.00 – 13.30	Panel discussion
13.30 – 14.30	Lunch

Session 3: Health data for clinical decision-making

Chair: Professor Toru Suzuki

Aims: To examine how health data might inform machine learning and artificial intelligence solutions to improve clinical care, taking account of the ethical and regulatory considerations, challenges, opportunities, and pathways to implementation for this technology.

14.30 – 14.45	Health data applications in clinical care Professor Masao Iwagami, Tsukuba University
14.45 – 15.00	Using machine learning and clinical AI to improve patient care Professor David Clifton
15.00 – 15.15	Ethics and regulatory policy for utilising health data toward open science in Japan Dr Tamami Fukushi, AMED
15.15 – 15.45	Panel discussion
15.45 – 16.15	Coffee & refreshments

Audience discussion

Chairs: Professor Jill Pell, Professor Yuko Harayama, Professor Toru Suzuki

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16.15 – 16.45	Audience discussion

Closing	
16.45 – 17.00	Wrap-up comments by the Co-Chairs Professor Jill Pell, University of Glasgow Professor Yuko Harayama, Tohoku University
17.00 – 19.00	Networking reception With a toast (kanpai) from Mr Satoshi Katahira, Minister for Economics at the Japan Embassy.

Co-chair biographies

Professor Jill Pell

Professor of Public Health, University of Glasgow



Biography

Jill Pell is the Henry Mechan Professor of Public Health and Director of the Institute of Health and Wellbeing in the University of Glasgow.

She is a Fellow of the Academy of Medical Sciences and a Fellow of the Royal Society of Edinburgh. She was awarded the CBE in 2017 for services to public health research.

Jill has been using routine data and record linkage as a resource for research for more than 20 years. She was Deputy Director then Director of Farr Scotland and is an Associated Director of HDR UK in Scotland.

Professor Yuko Harayama

Professor Emeritus, Tohoku University



Biography

Dr. Yuko Harayama is a former Executive Member of the Council for Science, Technology and Innovation (CSTI) at the Cabinet Office, Government of Japan. Prior to joining the CSTI, she spent two years at the OECD as the Deputy Director of the Directorate for Science, Technology and Industry (STI), and ten years at the Graduate School of Engineering of Tohoku University as a professor of Science and Technology Policy.

In Japan, she served as a member of different commissions related to Science, Technology and Innovation at Cabinet Office and Ministerial levels. Her experience prior to Tohoku University includes being a Fellow at the Research Institute of Economy, Trade and Industry in Japan and an Assistant Professor in the Department of Political Economy at the University of Geneva.

Dr. Harayama's areas of expertise are Science, Technology and Innovation Policy, and Higher Education studies. She holds a Ph.D. in Education Sciences and a Ph.D. in Economics both from the University of Geneva.

She has received Chevalier de la Légion d'honneur in 2011 and was awarded Doctor Honoris Causa from the University of Neuchâtel in 2014.

Session 1: Speaker biographies

Professor Andrew MorrisCBE MSc MD FRCP (Edin, Glas) FRSE FMedSci

Director of Health Data Research UK Professor of Medicine and Vice Principal of Data Science, University of Edinburgh



Biography

Since August 2017 Andrew Morris has been the inaugural Director of Health Data Research UK, the multi-funder UK Institute for health and biomedical informatics research that will capitalise on the UK's renowned data resources and research strengths to transform lives through health data science. He is seconded from his position as Professor of Medicine, and Vice Principal of Data Science at the University of Edinburgh, having taken up position in August 2014. Prior to this Andrew was Dean of Medicine at the University of Dundee.

Andrew was Chief Scientist at the Scottish Government Health Directorate (2012-2017) and has served and chaired numerous national and international grant committees and Governmental bodies.

Andrew was awarded a CBE in the 2018 New Year's Honour's List.

His research interests span informatics and chronic diseases. He has published over 300 original papers and has attracted over £50million in grant funding.

Professor Eiryo Kawakami

Team Leader, Health Data Mathematical Reasoning Team, Medical Sciences Innovation Hub Program (MIH), RIKEN Professor of Artificial Intelligence Medicine, Chiba University



Biography

Professor Kawakami is a Professor of Artificial Intelligence Medicine at the Graduate School of Medicine, Chiba University.

He is a Team Leader in the Health Data Mathematical Reasoning Team and Unit Leader in the Healthcare and Medical Data Driven AI based Predictive Reasoning Development Unit, at the Medical Sciences Innovation Hub Program, RIKEN, Japan. Previously, he was a Senior Scientist in the Disease Biology Group of the same program.

Prior to joining RIKEN in 2013, Professor Kawakami was a Postdoctoral Researcher at the ERATO Kawaoka Infection-induced Host Responses Project, JST. Previously, he qualified as a medical doctor and gained a Ph.D. of Medicine, Division of Virology, both from the University of Tokyo.

Dr Chikashi Ishioka

Professor of the Medical Oncology at the Tohoku University Hospital and the Division of Clinical Oncology Institute of Development, Aging and Cancer Tohoku University



Biography

Chikashi Ishioka is one of the first JSMO board certified-medical oncologists in Japan and has been the Professor of the Medical Oncology at the Tohoku University Hospital since 2003. He has been also the Director of the Cancer Center (since 2012) and the Vice President (since 2015) of the Tohoku University Hospital, and contributed for promotion of cancer research, development of the local cancer medical care. Also, he has contributed to the training of the cancer medical care specialists such as medical oncologist through the activities as the Coordinator of the Tohoku Cancer Professional Training Promotion Plan (supportive by the MEXT Japan, since 2007).

He obtained MD degree from the Tohoku University School of Medicine in 1984 and a PhD in Medical Science from the Tohoku University Post-graduate School of Medicine in 1988. After the clinical training on both gastrointestinal oncology and haematological oncology in the Tohoku University and the associated hospitals, he studied cancer molecular genetics, TP53 function and hereditary cancer as a Research Associate in Dr Stephen Friend's lab at the Cancer Center of the Massachusetts General Hospital (MGH) and Harvard Medical School from 1992 to 1994.

From 2019, he has been the President of the Japanese Society of Medical Oncology (JSMO). His main research interests include chemotherapy of gastrointestinal cancer and other cancers, and translational research such as the development of biomarker for colorectal cancer and breast cancer through multi-omics analysis of cancer tissues.

Dr Philip Quinlan

Head of Digital Research Service at University of Nottingham Director of the UKCRC Tissue Directory and Coordination Centre



Biography

Dr Quinlan us a leader in health research and data analytics research infrastructures with a passion and drive to build the necessary relationships with clinical, academic and industry partners in order to deliver step-change in research capabilities.

He leads a team of 20 research software engineers at the University of Nottingham to support researchers across all disciplines in fulfilling the potential of their research by utilising data handling and analytics methods.

He is an Associate Director in Health Data Research UK with a focus on making datasets that are within the UKs richest cohorts discoverable to prevent duplication of effort. This crosses with his role as the Director of the UKCRC Tissue Directory and Coordination Centre (also know as BBMRI.uk) to support UK biobanks being accessed and used by researchers for the benefit of current and future patients.

Session 2: Speaker biographies

Liz Ashall-Payne

ORCHA Founding CEO



Biography

Initially a Speech and Language Therapist, Liz has worked in Health and Care for over 20 leading National and European change programmes and networks to deliver transformational shift.

Passionate about the opportunities that technology offers to improve healthcare efficiencies and outcomes, Liz founded ORCHA in 2015, determined to present a way to offer much needed guidance to app developers to help raise app quality, as well as helping the public and professionals to confidently find and apply apps that could genuinely improve public, patient and organisational outcomes.

Liz has received numerous awards and accolades for her work including winning Chamber of Commerce Entrepreneur of the Year UK in 2018, Technology CEO UK this year along with being recognized as one of the countries most ambitious leaders by the Telegraphs LDC 2019.

Along with her role at ORCHA Liz holds a number of other roles including being a National Innovation Accelerator Fellow with NHS England, being a Board Advisor to OCS and sitting as the Associate Vice Chair for standards for British Computing Society.

Dr Aiden Doherty

Group Leader in biomedical data science at the University of Oxford



Biography

I am a group leader in biomedical data science at the University of Oxford. Our group develops reproducible methods to analyse wearable sensor data in very large health studies to better understand the causes and consequences of disease. For example, we have developed methods to objectively measure physical activity in UK Biobank which are now actively used by researchers worldwide to demonstrate new associations with cardiovascular disease, depression, mood disorders, and others. We have further enhanced the UK Biobank resource via the development of machine learning methods to identify sleep and functional physical activity behaviours such as walking. In addition, we have discovered the first genetic variants associated with machine-learned sensor phenotypes. This work shows the first genetic evidence that device measured physical activity might causally lower blood pressure.

In 2015 I was fortunate to be one of only three Marie Sklodowska-Curie Award winners (selected from ~9000 fellows) for contributions to health sensor data analysis. I have also contributed to the creation of guidelines on the use of mobile devices in clinical trials, in collaboration with the US Food and Drug Administration (FDA) supported Clinical Trials Transformation Initiative on "Mobile Clinical Trials".

Professor Beverley Yamamoto

Professor in the Graduate School of Human Sciences, Osaka University, Osaka University



Biography

Beverley was awarded a PhD in East Asian Studies from the Faculty of Social Sciences, University of Sheffield in UK in 2000 for a thesis investigating issues associated with teenage pregnancy, abortion and early motherhood in Japan. Youth sexual and reproductive health, health promotion and education have been long term research interests. Beverley chairs the Osaka University UNESCO Chair in Global Health and Education.

Beverley has been increasingly involved in research around public/patient involvement in the medical research process. She is currently involved in a two projects as a co-researcher exploring patient involvement in evidence generation for medical research that is mediated by a digital platform, RUDY Japan. She been working on patient involvement as authors on scientific publications. Beverley is principle investigator on the Japan side for a new joint UKRI-JST funded project aimed at building sustainable platforms for public and professional stakeholder engagement around the implementation of AI into clinical settings. Her counterpart on the UK side is Professor Jane Kaye at the University of Oxford. Beverley's research is informed and enriched by her active involvement at the leadership level in two non-profit rare disease patient advocacy organizations, one based in Japan and another US based.

Dr Natalie Banner

Lead, Understanding Patient Data, Wellcome



Biography

Dr Natalie Banner leads Understanding Patient Data (UPD), an initiative hosted at Wellcome to ensure uses of patient data for care and research are visible, understandable and trustworthy. UPD works with patients, charities, researchers and health professionals to champion responsible uses of data, feeding into policy development, creating accessible resources and horizon scanning for emerging issues that may affect public confidence in the use of health data. This includes exploring how to create trustworthy frameworks for developing data-driven technologies in healthcare and research.

Natalie formerly led Wellcome's policy work on GDPR and data protection, seeking to ensure UK legislation and regulation creates a supportive environment for health research using patient and health-related data.

In 2018, she was named in BioBeat's "50 Movers and Shakers in BioBusiness".

Prior to joining Wellcome, Natalie was a postdoctoral research fellow in philosophy at King's College London.

Session 3: Speaker biographies

Professor Toru Suzuki (session chair)

Chair of Cardiovascular Medicine and Honorary Consultant Cardiologist, University of Leicester



Biography

Professor Toru Suzuki is Chair of Cardiovascular Medicine at the University of Leicester and Honorary Consultant Cardiologist in the University Hospitals of Leicester (UHL) Trust's Glenfield Hospital, which is one of the UK's and Europe's main cardiac specialist hospitals. He is a unique clinical academic of Japanese nationality that works in both the UK higher education and NHS healthcare sectors. He was recruited from the University of Tokyo to his current position in 2014.

Since 2018, he has been tasked with the Directorship of the Leicester Clinical Data Science Initiative which has been tasked with developing and delivering the strategy for the University in collaboration with its affiliated trust (UHL). He is also Director/PI of the EU-funded Leicester Life Science Accelerator which provides an ecosystem to nurture innovation for academics and enterprise in the life sciences, with an emphasis on promoting clinical/healthcare data science. He is also Associate Dean of Clinical Data within the College of Life Sciences.

He also clinically manages the UK's first/only aortic medicine programme within UHL, and for research, he is the Leicester PI of the MRC-funded National Phenome Centre Partnership, UK Consortium on MetAbolic Phenotyping (MAP/UK), as the clinical/translational hub of the national landscape.

Dr Masao Iwagami

Assistant Professor

Department of Health Services Research, University of Tsukuba, Japan

Electronic Health Records Research Group, LSHTM



Biography

Masao Iwagami is a Clinical Epidemiologist and Assistant Professor in the Department of Health Services Research, University of Tsukuba, Japan, and Honorary Assistant Professor in the Faculty of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine (LSHTM).

He graduated from the University of Tokyo in 2008, completed his internship and residency in Japanese hospitals, received the Educational Commission for Foreign Medical Graduates (ECFMG) certificate in the USA in 2010, and worked as a Research Assistant Professor in the Department of Haemodialysis and Apheresis, the University of Tokyo Hospital in 2013. He studied clinical epidemiology and pharmacoepidemiology at the School of Public Health, the University of Tokyo in 2012, at MSc Epidemiology in 2013/2014, Pharmacoepidemiology and Pharmacovigilance short course in 2017/2018, and PhD Epidemiology and Population Health in 2014-2018 at LSHTM.

He is well experienced in conducting medical research using large databases of routinely collected medical data, such as UK Clinical Practice Research Datalink (CPRD), Japanese Diagnosis Procedure Combination (DPC) Database, Medical Data Vision (MDV) Database, and Japan Medical Data Centre (JMDC) Claims Database. His life's work is regarding how to better use routinely collected medical data to improve the society.

Professor David Clifton

Professor of Clinical Machine Learning, University of Oxford



Biography

David Clifton is Professor of Clinical Machine Learning with the Department of Engineering Science of the University of Oxford. He is a Research Fellow of the Royal Academy of Engineering, and leads the Computational Health Informatics (CHI) Laboratory, which focuses on creating healthcare interventions based on AI.

Prof. Clifton trained in information engineering at the same department; his research focuses on the development of machine learning for tracking the health of complex systems, with an emphasis on healthcare technologies that are deployed within the UK National Health Service.

Prof. Clifton's research has been awarded 26 scholarships and prizes, including a Grand Challenge award from the UK Engineering and Physical Sciences Research Council. In 2018, his lab of 27 researchers opened a second site in China, with support from the Chinese government. His research was awarded the overall inaugural Vice-Chancellor's Innovation Award in 2018 which aims to recognise leading interdisciplinary research across the entirety of Oxford University. In 2019, the Wellcome Trust's first "Flagship Centre" will open, which joins Prof. Clifton's Oxford-based lab to the Oxford University Clinical Research Unit in Ho Chi Minh City, Vietnam, with a focus on translating healthcare technologies into resource-constrained settings.

Dr Tamami Fukushi

Deputy Manager, Department of Research Infrastructure

Japan Agency for Medical Research and Development (AMED)



Biography

Tamami Fukushi is Deputy Manager in the Department of Research Infrastructure at Japan Agency for Medical Research and Development (AMED). She graduated Nara Women's University (Physical Education) and Graduate School of Science, Kyoto University (Primatology) then took Ph.D. in Behavioural Science at Department of Psychology, Hokkaido University in 1999. From 1999 to 2005, she worked for Department of Neuroscience, University of Minnesota as Postdoctoral/Research Associate for motor control research focusing on humans and non-human primates.

She started her bioethics career in "neuroethics", when she moved back to Japan at the Research Institute of Science and Technology for Society (RISTEX), Japan Science and Technology Agency (JST) as a researcher of cohort project called "Japan Children's Study Group". By organizing the first international symposium of neuroethics held in Asian region, she contributed to dissemination of neuroethics to Japanese and Asian stakeholders. Since 2009, she has extended her career to science policy analysis and international cooperation policy in life science and medicines. In June 2017, she joined AMED as science policy and information analyst.

Her current interest is how to develop research metric methodology for evidence-based policy making in life science and advanced medical technology fields in the context of science policy, regulatory science and ELSI. She is also interested in strategic management of "Open Science" as governmental funding agency.

Academy of Medical Sciences

The Academy of Medical Sciences is the independent body in the UK representing the diversity of medical science. Our mission is to promote medical science and its translation into benefits for society.

The Academy's elected Fellows are the United Kingdom's leading medical scientists from hospitals, academia, industry and the public service. We work with them to promote excellence, influence policy to improve health and wealth, nurture the next generation of medical researchers, link academia, industry and the NHS, seize international opportunities and encourage dialogue about the medical sciences.



Japan Agency for Medical Research and Development (AMED)

The Japan Agency for Medical Research and Development (AMED) was established in 2015 for the advancement of medical discoveries that make life better for everyone. Based on effective partnerships and innovative collaboration, we pursue medical breakthroughs through an approach consisting of three vital components:

- 1) Support Funding medical studies and research facilities
- 1) Connect Linking organisations, institutions and researchers
- 1) Promote Promoting the practical application of beneficial research outcomes. People are at the heart of everything we do.

We support, connect and promote, helping researchers to make incredible discoveries and change the lives of patients around the globe. AMED allocates funding to support researchers, providing a single point of contact from initial research to outcomes that benefit society.



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Japan Agency for Medical Research and Development

Japan Society for the promotion of Science (JSPS)

JSPS was established in 1932 and is the largest governmental funding agency in Japan for support of fundamental research in all fields from postgraduate level and above. JSPS offers a range of international funding programmes at institutional, group and individual levels to foster collaboration.

Individual Fellowships:

JSPS has a range of short term and long term fellowships give the opportunity for UK researchers to conduct joint research activities with a host in Japan. These fellowships provide a return air ticket, living expenses, a research support allowance and overseas travel insurance covering sickness, injury and personal liability. All career levels and research fields in the natural and physical sciences as well as the humanities and social sciences are eligible. For more information about the application procedures for these programmes, level of funding and fellowship start periods, please visit: http://www.jsps.org/fellowships/

Group Level Bilateral Programme:

The purpose of this scheme is to encourage bilateral collaboration between Japan and one other country through either a 1 week seminar or 1 to 2 year project. JSPS provides the Japan group with up to 2,000,000 JPY for organising or participating in a seminar or the same amount per year for running a project. A matching fund is desirable but not compulsory from the counterpart group in the other country. For more information, please visit:

http://www.jsps.org/bilateral_research_fundin/

Multilateral Programme: The JSPS Core to Core programme

The purpose of the JSPS Core to Core programme is to create world-class research centres in cutting edge fields between Japan and at least 2 other countries over a 5 year period. Up to 18,000,000 JPY per year is provided by JSPS to the Japan group and a cost sharing pattern must be established between all countries involved. For more information, please visit:

http://www.jsps.org/multilateral/2018/02/core-to-core-programme.html

You can find reports from UK researchers who have taken part in these international programmes at the following web link: http://www.jsps.org/funding_case_studies/

Programmes to host a Japanese Researcher:

There are 3 JSPS fellowship programmes called Research Fellowships for Young Scientists, Overseas Research Fellowships and Overseas Challenge Programme for Young Researchers which all provide the opportunity for early career Japanese researchers to work at an institution in the UK and gain experience. These fellowships include a return air ticket, living expenses and a research support allowance. There is also the Grants in Aid for Scientific Research (KAKENHI) for established researchers like PIs to conduct research activities including research visits to overseas institutions. For more information please visit: http://www.jsps.org/japanese_researchers/

An overview of application periods for all these JSPS International Programmes can be found at this link: http://www.jsps.org/documents/Application_Schedule_Chart.pdf



Notes



Academy of Medical Sciences 41 Portland Place London W1B 1QH

@acmedsci



+44 (0)20 3141 3200 info@acmedsci.ac.uk www.acmedsci.ac.uk

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Japan Society for the Promotion of Science 14 Stephenson Way, Kings Cross, London NW1 2HD

+44(0) 20 7255 4660 enquire@jsps.org



Japan Agency for Medical Research and Development 20F Yomiuri Shimbun bldg. 1-7-1 Otemachi Chiyoda-ku Tokyo 100-0004 Japan