

2024 Online Conference  
24–25 July 2024

# 2024 Annual Conference

## Welcome

The Committee of the Public Health Observatory of NZ Inc welcomes you to the 2024 PHONZ Online Conference. PHONZ was established in 2022 to provide a forum for people working and interested in health intelligence in New Zealand and internationally. We have grown our membership to more than 450 and held highly successful conferences in 2022 and 2023. Our 2024 Conference has distinguished international and national speakers giving presentations on critically important topics such as Bad Science, Bad Evidence, the future of Health Intelligence, the use of AI in health intelligence, and several case studies of applications of health intelligence. We are especially honoured that the internationally acclaimed Professor Ben Goldacre, Director of

the Bennett Institute for Applied Data Science, University of Oxford, England, agreed to be our keynote speaker. Professor Goldacre has a highly distinguished career in informatics, epidemiology, and evidence-based medicine, and his presentation will focus on a topic of utmost relevance to people working in health intelligence.

We would also like to acknowledge the support PHONZ has received from Environmental Health Intelligence NZ (EHINZ), the National Public Health Agency, Health New Zealand, and the Ministry for Pacific Peoples.

Thank you for supporting PHONZ.

### Public Health Observatory NZ Inc

#### Committee of PHONZ:

Barry Borman, Chair  
Tim Hopley, Secretary  
Corina Grey, Treasurer

Patrick Hipgrave,  
Chief Information Officer

Ruth Cunningham  
Peter Himona  
Ron King

Chris Skelly  
Dyfed Thomas



## Day 1 Wednesday 24 July

9:00–9:05  
**Welcome & Karakia**  
Barry Borman &  
Peter Himona

### Chair **Chris Skelly – Session 1: Bad Science, Bad Evidence**

Start	Presenter	Title
09:05–09:50	<b>Key note speaker</b> Professor Ben Goldacre	Better, Broader, Safer: Using Health Data for Research and Analysis
09:50–10:15	Leonid Schnieder	Broken science and how we can fix it
10:15–10:20	Break	
10:20–10:40	Dr David Bilmer	Parody Science
10:40–11:00	Dr Brian Jones	Detecting Dodgy Papers
11:00–11:20	Professor Andrew Grey (University of Auckland)	Complicated shadows – the strange world of publication integrity

### Chair **Tim Hopley – Session 2: Tales from the frontline of health intelligence**

11:20–11:40	Professor Shanthi Ameratunga (Health NZ)	Addressing health intelligence gaps in monitoring and evaluating long-term recovery following childhood injuries and related equity impacts
11:40–12:00	Giles Graham (ESR)	A discussion of an evaluation of using wastewater for Influenza and RSV surveillance
12:00–12:20	Matt Radford (Health NZ)	Filling the gaps: The use of pharmacy dispensing data post-Cyclone Gabrielle in Hawkes Bay
12:20–12:40	Lunch	

## Day 1

### Wednesday 24 July (continued)

**Chair Peter Himona**

12:40–13:00	James Scarfe (Health NZ)	Childhood Scabies in New Zealand 2001-2023: an exploratory analysis
13:00–13:20	Dr Lynn Riggs (Health NZ)	The Relationship Between Multidimensional Disadvantage, Poor Health and Wellbeing
13:20–13:40	Dr Kaaren Mathias (University of Canterbury)	The black box - how do frontline community mental health workers address health determinants and improve equity?
13:40–14:00	Bernadine Williams (Massey University)	The wellbeing of children in emergency housing motels: Service providers' perspective
14:00–14:20	Frances Arenhold (Heart Foundation)	Paying it forward- Tohu Manawa Ora   Healthy Heart Award makes an investment in tamariki and early learning environments
14:20–14:40	Giles Graham (ESR)	The “Augh” in ARI Surveillance: mistakes and lessons learned from maintaining the ARI surveillance dashboard
14:40	Karakia: Peter Himona	

## Day 2 Thursday 25 July

9:00–9:05  
**Karakia**  
Tim Hopley

### Chair **Tim Hopley – Session 3: The future of health intelligence**

Start	Presenter	Title
09:05–09:25	Dr Chris Skelly & Professor Barry Borman (Department of Health & Social Care, UK, & Massey University)	Public Health Intelligence: past, present, future: a personal perspective
09:25–09:45	Dr Juliet Rumball-Smith (National Public Health Service, Health NZ)	Establishing in-house operational Public Health Intelligence for NPHS
09:45–10:05	Dr Kristie Carter (Public Health Agency, Ministry of Health)	The Public Health Surveillance Strategic Plan
10:05–10:15	Break	

### Chair **Ruth Cunningham**

10:15–10:35	Tara Swadi (Ministry of Health)	The role of evidence at the Ministry of Health
10:35–10:55	Vince Galvin (Statistics NZ)	The Future of Population and Social Statistics
10:55–11:15	Len Cook	Tracking the path of the global population storm so we might know what to do about it in NZ
11:15–11:35	Dr James Greenwell (Ministry for Pacific Peoples)	A novel analysis of government surveys that should challenge common policy assumptions
11:35–11:55	Professor Richard Arnold (Victoria University of Wellington)	Estimating the risk of SARS-CoV-2 infection in New Zealand border arrivals
11:55–12:15	Dr Osman Mansoor (Health NZ)	A Substack on Tairāwhiti District Data
12:15–12:30	Lunch	

## Day 2

### Thursday 25 July (continued)

**Chair Corina Grey – Session 4: The Implications of AI for Health Intelligence**

12:30–12:50	Professor Alistair Knott (Victoria University of Wellington)	Uses and risks of generative AI in healthcare
12:50–13:10	Associate Professor Michael O’Sullivan (University of Auckland)	An AI-Enabled Framework for Transferable Pandemic Modelling
13:10–13:30	Dr Robyn Whittaker (Health NZ)	AI governance and development within Te Whatu Ora
13:30–13:50	Rooshan Ghous (Whitecliffe College)	A Robust Machine Learning Model for Long-Term Survival Prediction of Breast Cancer Patients in New Zealand
13:50–14:10	Dr Chris Galloway & Dr David Squirrel	TBA
14:15	Karakia: Tim Hopley	

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# 2024 Annual Conference

Speaker bios and abstracts

Day 1  
**Wednesday 24 July**



**Professor  
Ben Goldacre**  
Director of Bennett  
Institute for Applied  
Data Science  
University of Oxford,  
England

Professor Ben Goldacre’s academic and policy work is in informatics, epidemiology and evidence-based medicine. As Director of the Bennett Institute for Applied Data Science, he works on various problems, including variation in care, better uses of routinely collected electronic health data, evidence-based social policy, access to clinical trial data, efficient trial design, and retracted papers. Professor Goldacre has produced a landmark report on data analysis in the UK health sector, “Better, broader, safer: using health data for research and analysis”, which was presented as “The Goldacre Review – Progress to date” at the UK’s first Health and Care Analytics Conference (HACA) in 2023. Professor Goldacre is also the author of the books “Bad Science”, “Bad Pharma”, and “I Think You’ll Find It’s A Bit More Complicated Than That”, which have sold over 600,000 copies, and his TED talks have had over 4 million views.

**Key Note Speaker – Presentation**  
**Better, Broader, Safer: Using Health Data for Research and Analysis**



**Leonid Schnieder**

Leonid is a former biologist, now independent science journalist behind For Better Science, hated and occasionally plagiarised by all those official certified watchdogs of research integrity.

### **Presentation**

#### **Broken science and how we can fix it**

Science is broken. My colleagues keep uncovering new cases of data manipulation and outright research fraud daily. All research fields and all journals are affected, up to Nature and Science. Bad science happens in small universities and in Harvard, it even affects Nobel Prize laureates. On top of that, a flourishing market of utterly made-up publications has been established by Asian papermills. There, money is used to buy authorships and citations and to bribe academic editors, thousands of papermilled studies have been retracted, but many thousands more remain standing. I am an independent science journalist and operate the website and community project ForBetterScience.com I will tell you where science fraud comes from, how papermills operate, and what we all can do to fight back.



**Dr David Bilmer**

Dr David Bilmer is a semi-retired perceptual psychologist, particularly interested in colour vision, facial expressions, and Attachment Theory. Under the secret identity “Smut Clyde” he fights crime and guest-blogs at [‘forbetterscience.com/’](https://forbetterscience.com/). That activity has been mentioned in Nature and Science, which is more coverage than he received there as a legitimate researcher.

### **Presentation**

#### **Parody Science**

The scientific record, including health research, is increasingly contaminated by faked results. One source of fakery recently attracting attention in the media is the phenomenon of “papermills” - organised academic ghostwriting, where researchers in need of publications buy authorship of a manuscript in which they had no involvement. The phenomenon is a response to the various incentives and pressures upon researchers and clinicians, and takes many forms. I provide illustrations of milling activity as evidence that there is a genuine problem. I offer no policy advice, except to remind everyone to maintain a skeptical attitude towards what we read in journals; even towards literature reviews and meta-analyses that may have unintentionally laundered faked results; and most of all, towards our own ability to detect bullshit.



**Dr Brian Jones**

Dr Brian Jones is a fish pathologist who has worked in New Zealand, Australia South East Asia and the Pacific. He has published over 200 scientific papers since the 1970's in diverse fields including taxonomy, aquaculture, fish nutrition, fish diseases, diseases of molluscs, oceanography, high seas tuna fisheries, aquaculture, mathematical modelling of disease spread, import risk assessment and auditing of laboratory testing and biosecurity processes. He is currently an Adjunct Professor at Murdoch University, Perth in the School of Veterinary Science.

### **Presentation**

#### **Detecting Dodgy Papers**

Keeping up with scientific papers on almost any subject is now a daunting task since the number of papers published is increasing exponentially. For example, within 12 months of COVID-19 being named in February 2020, there were over 300,00 citations in Google Scholar and about 50 of those papers had already been retracted. Today, there are over a million citations on the topic. It is just not possible to read them all and COVID is not an isolated example. In part, the problem stems from a change in publication practice from long-established subscription journals in which publication is slow but free to the author, to a new business model where authors pay thousands of dollars to publish quickly on-line and where peer review is basic or non-existent. Alongside that has been the rise of media managers promoting papers from their institute as novel and important together with a pressure to “publish or perish” to justify grant applications and tenure. Academic publishing is now a US\$12 billion industry. This has led to the selling of co-authorship's and the rise of the so-called “paper mills” that sell complete papers and authorship's online.

How then do you judge the scientific merits of a paper? Some of the pointers to check before you use a potentially fraudulent paper as a citation are discussed.

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**Professor  
Andrew Grey**  
**Department of  
Medicine**  
**Faculty of Medical and  
Health Sciences**  
**University of Auckland**

Professor Andrew Grey is an academic endocrinologist at the University of Auckland with research interests in publication integrity, research dissemination and metabolic bone disease.

### **Presentation**

#### **Complicated shadows – the strange world of publication integrity**

Publication integrity is critical to patients' health, healthcare systems and scientific progress. It can be compromised for reasons that range from typographical errors to study fabrication. Evidence suggests a worryingly high prevalence of compromised publication integrity and consequent adverse effects. Existing structures to protect publication integrity are broken or were never built. Academics, institutions, publishers, funders and regulators can all act to improve matters.

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**Professor  
Shanthi Ameratunga**  
Service Improvement  
& Innovation  
Population Health  
Gain Team  
Health New Zealand  
Te Whatu Ora

Professor Ameratunga is a Sri Lankan born, New Zealand and US-trained paediatrician and public health physician, on a lifelong journey learning what it takes to be a good ancestor. She is a senior medical researcher at Te Whatu Ora - Service Improvement & Innovation (Population Health Gain team) and Kidz First Children's Hospital in South Auckland. She holds honorary professorial appointments at the University of Auckland, Monash University, and University College London. Drawing on her experiences as a migrant, commitment to social justice, and relentless optimism regarding the potential of shared aspirations, her work focuses on intersectoral approaches to addressing inequities in child and youth health and trauma outcomes.

### **Presentation**

#### **Addressing health intelligence gaps in monitoring and evaluating long-term recovery following childhood injuries and related equity impacts**

“Injuries are the leading cause of childhood death in Aotearoa beyond the first year of life. Due to long overdue advances in injury control measures and trauma care systems, increasing proportions of children now survive major trauma (life-threatening injuries). However, there are pervasive and distressing paradoxes from an equity perspective. While tamariki Māori and Pacific children bear a disproportionately high burden of injury deaths and hospital admissions, they are considerably less likely to be claimants of the Accident Compensation Corporation, New Zealand's universal no-fault injury insurance scheme that provides funding support for the care and rehabilitation of injured people. In contrast to injured adults, research examining long-term health and disability outcomes of injured children, is sparse. The void in robust routinely collected data illuminating long-term non-fatal outcomes following childhood injuries imperils opportunities to implement equity-focused early interventions.

This presentation outlines approaches to address this knowledge gap, drawing on findings from research reviews and longitudinal studies conducted with a range of collaborators. Key inputs include investigations of recovery trajectories of injured children using population-based and pooled cohort data from international studies, and critical appraisals of outcome measures and approaches that could stimulate meaningful policy-relevant action. These initiatives reveal high risks of long-term disability following serious childhood injury, particularly psychosocial sequelae that can impact child and adolescent development, education, health and wellbeing across the life course. The findings highlight the imperative to implement robust health intelligence systems that can monitor non-fatal outcomes of injuries and inform equity-focused models of trauma care.



**Giles Graham**  
Health Intelligence  
team  
Environmental  
Science and Research  
Institute

Giles Graham is an Epidemiology Analyst at ESR in the Health Intelligence Team.

Within work his interests include system and process improvements, Flutracking, the use of R to enhance surveillance analysis practice, and increasing team bicultural competency.

Outside work his interests include reading, writing and mathematics.

#### **Presentation**

##### **A discussion of an evaluation of using wastewater for Influenza and RSV surveillance**

At the start of the year we did an evaluation of detecting Influenza and RSV in wastewater for surveillance. This presentation is about the process of that evaluation.

#### **Presentation**

##### **The “Augh” in ARI Surveillance: mistakes and lessons learned from maintaining the ARI surveillance dashboard**

The ARI surveillance dashboard collates a lot of different data sources in different formats; we also have constantly evolving outputs and aims for the dashboard; sometimes things go awry. All this means maintaining the data integrity is often an adventure. This talk will explore a few (2 or 3, time depending) of the more interesting hapa, what lessons we took from them and how others can learn from our mistakes.



**Dr Matt Radford**  
Public Health  
Physician  
Te Matai-a-Māui,  
Hawke’s Bay  
Health New Zealand  
Te Whatu Ora

Dr Matt Radford is a Public Health Registrar currently working at the Public Health Service, Te Matai-a-Māui, Hawke’s Bay, as part of Te Whatu Ora. Originally from Dunedin, I have spent the past decade in Hawke’s Bay, where I live with my wife and three young children. My career began as a General Practitioner, but I have since transitioned to a focus on Public Health where I am keen on using innovative solutions to solving health challenges, including surveillance.

#### **Presentation**

##### **Filling the gaps: The use of pharmacy dispensing data post Cyclone Gabrielle in Hawke’s Bay**

Cyclone Gabrielle significantly impacted Hawke’s Bay, displacing thousands and causing prolonged power outages. Concerns arose about a potential rise in infectious and environmental diseases. It was hypothesised that pharmacy dispensing data could provide early warning signals of illnesses in the region.

Health Hawke’s Bay, the region’s primary healthcare organisation, collaborated with ReCare to collect and analyse pharmacy dispensing data, including both prescription and over-the-counter medications. These medications were categorised by indications, such as gastroenteritis, respiratory illnesses, and skin infections. From late February 2023 to the present, ReCare provided daily and later weekly data from nearly all pharmacies in the region.

The data revealed an increase in skin and gastroenteritis infections in the months following the cyclone. This information has been instrumental in ongoing disease surveillance post Cyclone Gabrielle, monitoring winter illnesses, managing a scabies outbreak, and assessing illness related to abnormal drinking water tests. Additional potential future applications include evaluating health interventions, monitoring medication stock levels, and assessing medication adherence.

This study marks the first real-time use of pharmacy dispensing data for surveillance in Aotearoa, New Zealand. This approach enhances the availability of community-level data and accelerates information dissemination, improving the efficiency and effectiveness of public health monitoring and response. Future enhancements could include integrating demographic and geographic data to assess inequities, as well as expanding the system nationally.

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**James Scarfe**  
Intelligence  
Directorate  
National Public  
Health Service  
Health New Zealand  
Te Whatu Ora

James Scarfe is a Public Health Analyst who has been working in the field for 10 years. He has completed a Master of Public Health with first class honours at the University of Auckland and received the School of Population Health Prize in Public Health. James has authored two reports on behalf of Toi Te Ora Public Health on the topic of childhood Serious Skin Infection and co-authored an article in LOGIC, the Official Journal of the New Zealand College of Primary Health Care Nurses on the same topic. Other areas of interest include alcohol-related harm and the health impacts of air pollution. James lives with his family in Rotorua and enjoys biking and tinkering with bikes in his down time.

#### **Presentation**

##### **Childhood Scabies in New Zealand 2001-2023: an exploratory analysis**

Scabies is a common parasitic infection that is highly contagious and can take considerable effort to eliminate from a household. Left untreated the lesions caused by scabies can result in bacterial skin infection. Serious scabies infections can result in preventable hospitalisation of children. This exploratory analysis tracks overnight hospitalisations for scabies in children aged 0-14 from 2001 to 2023 and first prescribing for the antiparasitic treatment permethrin from 2007 to 2022. The trends in both community prescribing data and hospitalisation data display classical signs, including increased inequalities, that New Zealand progressed through an epidemic of scabies. The impact of the pandemic response measures is also present in the data. The scabies data highlights the potential of administrative data for the surveillance of non-notifiable communicable disease.

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**Dr Lynn Riggs**  
Health Economist  
Health New Zealand  
Te Whatu Ora

Dr Lynn Riggs is currently a Health Economist with Health NZ | Te Whatu Ora. She has a wide range of experience conducting research both in New Zealand as well as in the US. Throughout her career, Lynn has worked extensively with large, confidential data sets. Her research interests are in health, labour, education, and financial economics. Lynn received her PhD from the University of Wisconsin-Milwaukee.

#### **Presentation**

#### **The Relationship Between Multidimensional Disadvantage, Poor Health and Wellbeing**

While poverty is thought to be an enduring cause of socioeconomic disadvantage, determining which people live in poverty is not a straightforward task. Hence, examining the relationship between poverty, disadvantage and wellbeing is complicated by the difficulty of determining the extent to which people live in poverty or the extent to which they are disadvantaged. In the past, poverty measurement has predominantly been income-based. However, due to the limitations of income measurement and the somewhat arbitrary setting of income poverty thresholds, some people who are not impoverished are counted as impoverished and vice versa. Recent work in poverty measurement has endeavoured to capture measures of both deprivation and social exclusion as poverty indicators. This paper differs from previous research by examining the dimensions of disadvantage, irrespective of an a priori classification of indicators, to assess the extent to which indicators of disadvantage are in fact measuring different dimensions of disadvantage. These measures are then used to examine the relationship between these different dimensions, poor health and wellbeing.



**Dr Kaaren Mathias**  
Te Kaupeka Oranga –  
Faculty of Health  
University of  
Canterbury

Dr Kaaren Mathias is a public health physician and researcher whose specialisation is psychosocial mental health care in communities. Her career has primarily been as a practitioner and has spanned positions working with Canterbury District Health Board, the Emmanuel Hospital Association and other nonprofits in India for 15 years, and she is now at the University of Canterbury. Kaaren's current projects include examining the assets for mental health care in communities, youth mental health care research priorities, and lived experience in mental health service design and delivery.

#### **Presentation**

#### **The black box - how do frontline community mental health workers address health determinants and improve equity?**

Purpose: Frontline community workers (CHWs) promote mental health in communities. Recent literature has called for more attention to the ways they operate and the strategies used. For example, how do they translate biomedical concepts into frameworks that are acceptable and accessible to communities? How do micro-innovations lead to positive mental health outcomes, including social inclusion and recovery? The aim of this study was to examine the skills and strategies to address social dimensions of mental health used by CHWs working together with people with lived experience of mental distress in Te Wai Pounamu (New Zealand) and Uttarakhand (North India). Methods: We interviewed CHWs and family members across both sites (n = 52) who worked for local non-profit community mental health providers. Notes taken during cross-checked with audio recordings and coded and analysed thematically.

Results: CHWs displayed sophisticated social, cultural, and psychological skills in forming trusting relationships which acted as a springboard for further interventions. Using their in-depth knowledge of the context of their client's lives and family dynamics they analysed political, social, and economic factors influencing mental health for clients and their family members. The careful analysis and agile intervention skills of community health workers built on contextual knowledge to implement micro-innovations in a bespoke way, applying these to individuals and the local ecology of PWLE. These approaches addressed social and structural determinants that shaped the mental health of clients. Conclusion: CHWs in this study addressed social aspects of mental health, individually, and structurally. The micro-innovations of CHWs are dependent on non-linear elements, including local knowledge, time, and relationships. To strengthen mental health in Aotearoa and globally, attentive qualitative research is needed to understand mechanisms and processes used by CHWs to inform locally acceptable and relevant mental health care.



**Bernadine Williams**  
Massey University

Bernadine Williams brings over thirteen years of dedicated experience in social services to her role as a seasoned Health Advisor at a government organization. With a Master's degree in Public Health and a background in Psychology and Communication, Bernadine integrates deep expertise in disease prevention and mental health insights into her strategic guidance aimed at enhancing health outcomes. Her commitment to fairness and accessibility is evident in her advocacy for integrating psychological support services into public health initiatives, ensuring holistic well-being for diverse populations. Bernadine's collaborative approach extends across government agencies, non-profits, and community groups, fostering productive relationships that drive positive outcomes in public health initiatives. Outside of work, Bernadine cherishes time with her supportive husband, three children, and energetic border collie, finding joy in outdoor activities and family bonding. She eagerly looks forward to contributing her insights at the upcoming conference, advancing the collective mission of promoting public health and well-being.

### **Presentation**

#### **The wellbeing of children in emergency housing motels: service providers' perspective**

Children who are homeless experience compounding social vulnerabilities including unhealthy and/or insecure housing, food insecurity and disruptions to education and medical care. Homeless children require appropriate, collaborative and holistic interventions to ensure wellbeing. Despite extensive national and international research, child homelessness continues to persist (Bornman & Mitchell, 2020). The New Zealand Government defines child homelessness as those children residing in 'temporary accommodation' and spends a significant amount on emergency housing every financial quarter; with the Waikato Region spending more than other regions in New Zealand to house children and their whānau in emergency housing motels. This qualitative research used an intersectional approach to investigate the wellbeing of children in emergency housing motels in Hamilton City, Waikato. The aim of the research was to identify what service providers in Hamilton provide in terms of health interventions and wellbeing measures for children residing in emergency housing motels, including barriers and enablers to providing services.

The perspectives of service providers supporting children who are homeless were explored through in-depth interviews. Inquiry was guided by the following research questions (1) how are children who reside in emergency housing motels in Hamilton currently supported? (2) are there social factors which strengthen or undermine these support services? and (3) are there opportunities for collaboration between various stakeholders to deliver services at emergency housing motels?

Thematic analysis was used to inductively identify themes to form the research findings. The findings identified that living conditions, personal safety, barriers between service providers and whānau, and collaboration hinder the wellbeing of children residing in emergency housing motels and that it is important to support whānau through strengths-based education. The responses of service providers to children residing in emergency housing is complex and may inadvertently lead to the compounding of disadvantage.

Service systems require a collaborative approach to improve the living conditions and personal safety of children, and to promote co-ordination between services in order to support the wellbeing of children residing in emergency housing motels. Aotearoa New Zealand can learn from international models such as those used in Finland to address and minimise homelessness through purpose-built housing with proactive services, such as health and social services located within the residence. It is recommended that further research be conducted to understand the first-person experiences of whānau, and children living in emergency housing and explore how they perceive the influence of various social support services on their wellbeing.



**Frances Arenhold**  
**Heart Foundation**

Frances Arenhold, is a New Zealand registered Dietitian with over 10 years public health experience. Over the past five years, Frances, has been working with the Heart Foundation on school and early learning programme and project improvements and resource development.

#### **Presentation**

#### **Paying it forward - Tohu Manawa Ora | Healthy Heart Award makes an investment in tamariki and early learning environments**

The Tohu Manawa Ora | Healthy Heart Award programme aids early learning services in Aotearoa in promoting nutritional health and physical activity. To evaluate its impact and social value, the Heart Foundation partnered with ImpactLab. This evaluation combined programme impact values with global literature evidence and assessed the potential for positive health outcomes. Annually, the programme benefits oral health, physical activity, and diabetes reduction for tamariki, and overall improved health equity and lifelong wellbeing. Each dollar invested returns 450% in social value.

## Day 2

# Thursday 25 July 2024



**Dr Chris Skelly**  
Department of Health  
and Social Care, UK

Dr Chris Skelly has been working in and out of public health intelligence since 1997 (starting with the NZ MoH), but he got his first taste of supporting public health actions in Townsville, Qld's dengue outbreaks in the early 1990s (as an academic). The early part of his career was focussed on developing the right data, information or knowledge and getting it to the right people to best support public health intervention. At some point in this journey the feeling that "it's not making much of a difference" began to grow, resulting in a change of focus. Consequently, the later part of his journey (currently in the UK's DHSC) has been seeking a different approach to public health intelligence known as 'systems thinking'



**Professor  
Barry Borman**  
Environmental Health  
Intelligence NZ  
Massey University

Professor Barry Borman is Professor of Epidemiology at Massey University, Wellington and Director of Environmental Health Intelligence NZ and NZ Congenital Anomalies Register and chair of the Public Health Observatory of NZ. He has over 30 years of experience in applied epidemiology, perinatal and congenital anomaly epidemiology, surveillance, and investigating disease clusters. Barry was previously the Manager of Public Health Intelligence (PHI), the epidemiology group of the Ministry of Health.

### **Presentation**

#### **Public Health Intelligence: past, present and future: a personal perspective**

Despite its common usage, there is no consistent definition for public health intelligence. It can range from data collection and collation, employing some analysis (calculating rates) of data to producing tables, charts, maps, but rarely involves the add-value of interpretation – addressing the "so what", "what does all this mean. As a consequence, such groups bestowed with this title appear and disappear at regular intervals. This presentation will reflect on our joint experiences working in health intelligence in NZ, Australia, and the UK, and provide recommendations for sustaining a public health intelligence focus and function in the evolving NZ health system.



**Dr Juliet Rumball-Smith**  
**Director of Intelligence**  
**National Public Health Service**  
**Health New Zealand**  
**Te Whatu Ora**

Dr Juliet Rumball-Smith is a public health physician and epidemiologist. She came into the role of Director of Intelligence in August 2022. Previous positions include Clinical Chief Advisor for Primary Care at the Ministry of Health and Clinical Lead for the COVID-19 vaccine programme, policy consultant for the World Health Organization, Clinical Director for Precision Driven Health, chair and founder of the Wāhine Connect Charitable Trust, and Medical Officer of Health for Northland District Health Board. She has also held some international positions, including 2016/17 New Zealand Harkness Fellow in Healthcare Policy & Practice (based at the thinktank RAND in California), senior research fellow in the Institute for Health Policy, Management and Evaluation at the University of Toronto, and post-doctoral research fellow in the Institute for Health and Social Policy at McGill University. Her medical and research career has been largely focused on equity, and the role of health services in providing high quality equitable care. Juliet currently lives with her husband, four children and two dogs in Wellington.

**Presentation**

**Establishing in-house operational Public Health Intelligence for NPHS**

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**Dr Kristie Carter**  
**Group Manager,**  
**Intelligence**  
**Surveillance and**  
**Knowledge**  
**Public Health Agency**  
**Ministry of Health**

Dr Kristie Carter began her career at the University of Auckland, completing a PhD in stroke epidemiology before becoming a senior research fellow. Kristie has subsequently contributed her expertise to a number of public sector roles, including at the Department of the Prime Minister and Cabinet and Te Puni Kōkiri. In March 2024, Kristie joined the Ministry of Health as the Public Health Agency's Intelligence, Surveillance and Knowledge Group Manager, guiding the group's leadership of public and population health evidence, surveillance, and insights.

**Presentation**

**The Public Health Surveillance Strategic Plan**

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**Tara Swadi**  
**Office of the Chief  
Science Advisor**  
**Evidence, Research  
and Innovation  
Directorate**  
**Ministry of Health**

Tara Swadi is a Principal Advisor in the Office of the Chief Science Advisor in the Evidence, Research and Innovation Directorate at the New Zealand Ministry of Health. She has a background in microbiology, public health, and the machinery of government. During the COVID-19 Pandemic, Tara served as the Chief Advisor (Public Health) at the Ministry, and was the Group Manager for Strategy and Planning in the National Immunisation Programme. Her current role focuses on supporting the Ministry in evidence-based decision making.

#### **Presentation**

##### **The role of evidence at the Ministry of Health**

Being evidence-led is one of the Ministry of Health's key operating principles. In July 2022 the Ministry of Health went through a change to its structure to better reflect its obligations in the new reformed health system. The new Ministry saw the establishment of Te Pou Whakamārama, the Evidence, Research and Innovation Directorate (ERI) sector.

The role of ERI is to lead the Ministry's analytics, research, evidence, economics and horizon scanning functions. This serves to provide a strong evidence base for the Ministry's enhanced stewardship role. ERI hosts The Office of the Chief Science Advisor (OCSA), which plays several critical roles. For example, OCSA serves to connect the Ministry to the wider science community, to lead the strategic use of evidence in the Ministry, and to provide evidence-informed advice to key decision makers. This presentation will give attendees context to the background of ERI and OCSA, and share our aspirations for building a dynamic and evidence-informed health system.



**Vince Galvin**

Vince Galvin is Statistics New Zealand's Chief Methodologist and has spent most of his 40-year career with Statistics NZ, alongside stints with other national statistical agencies in London and Australia. Vince is the inaugural Chair of the Pacific Statistics Regional Methods Board. In recent years Vince has been a member of the private sector market research industry board and has been active in the analytics industry. Internationally, Vince is a member of the Executive Committee of the High-Level Group for the Modernisation of Official Statistics.

#### **Presentation**

##### **The Future of Population and Social Statistics**

Statistics New Zealand has to make decisions about how the 2028 Census will be conducted. Its taking the opportunity of looking at options for doing things differently. This talk will outline some of what is being thought about as options and focus on what we know about how ready we are to measure the population with administrative data.



**Len Cook**

Len Cook was the Government Statistician of New Zealand from 1992 to 2000, after working in Statistics New Zealand in a variety of roles from 1971 to 1991. From 2000 to 2005 he was National Statistician of the United Kingdom.

From 2015 to 2018, Len was the Families Commissioner and Chair of the Board of Superu. He has been a member of the Remuneration Authority.

Some recent roles include President, Institute of Public Administration NZ (2009-13); Member, NZ Royal Commission on Social Policy (1987-88); Vice-President, International Statistics Institute (2005-2009).

Len's longstanding interests are in the areas of population change and public policy, public administration, official statistics and the place of science in policy. More recently, he has focused on accountability to Māori of the Justice system.

### **Presentation**

#### **Tracking the path of the global population storm so we might know what to do about it in NZ**

Around the world, countries are facing unprecedented demographic change as large and volatile migration flows coincide with declining fertility and increased longevity. In many places, Indigenous populations whose distinctive characteristics were previously ignored in public policy have become significant contributors to the economic potential of the population, as have new migrant communities. New Zealand is facing this population storm, and their effects now. What characterised population structures and dynamics 25 years ago is not relevant today and will not be so in 20 years' time. The variability of population change at both a national level, and among places, has made traditional demographic sources and methods of estimating and projecting populations insufficient when responding to climate change, managing ecosystem integrity or placing large scale infrastructure investment, and housing. Differences in age structure, ethnic mix, workforce needs, and locality preferences is shaping how populations locally are changing. The consequence of varying structural influences already affect the timely adaptability of the health, education and care services that people will continue to need.



**Dr James Greenwell**  
Chief Data Scientist  
Ministry for Pacific Peoples

Dr James Greenwell is the Chief Data Scientist at the Ministry for Pacific Peoples and an Honorary Senior Lecturer in Epidemiology and Biostatistics at the University of Auckland. James was an epidemiologist and public health researcher at the Ministry of Health and a member of the Pacific Health Team in 2023 that authored the first Pacific health strategy Te Mana Ola. His objective at the Ministry for Pacific Peoples is to support government agencies to lift the quality of data underpinning indicators and measures relating to Pacific peoples.

### **Presentation**

#### **A novel analysis of government surveys that should challenge common policy assumptions**

The Ministry for Pacific Peoples (MPP) is the Crown's principal advisor on policies and interventions aimed at improving outcomes for Pacific peoples in Aotearoa New Zealand. A key area of work for MPP is to ensure planning and decision-making for and by Pacific communities is based on accurate data and insights.

Government agencies conduct household sample surveys which aim to be representative of the whole New Zealand population, including Pacific peoples. They gather valuable person-centred data about social attributes and outcomes, providing essential information that cannot be obtained elsewhere.

Given their wide use across government, analysts at MPP wanted to understand the statistical strength of the surveys in relation to Pacific peoples and the extent that conclusions could be drawn. We examined six prominent household surveys and identified shortcomings present across the surveys which reduce the usability of the data in relation to Pacific peoples.

In the process of trying to learn more about each of the household surveys we came to understand them in a new way. Running each survey is already a major government enterprise. However, their coordination is limited to the use of sample frames based on the census. From a population perspective there are practical advantages in further developing the surveys as a whole of government programme, including opportunities to develop New Zealand's data infrastructure to improve the quality and representativeness of data relating to Pacific peoples.



**Professor  
Richard Arnold**  
School of Mathematics  
and Statistics  
Victoria University  
of Wellington

Professor Richard Arnold is a Professor of Statistics and Data Science at Victoria University of Wellington, and is a deputy director of the Centre for Data Science and Artificial Intelligence at the University. He works in a variety of applications of statistics, including system reliability, directional statistics, clustering, epidemiology, environmental modelling, and statistical seismology.

#### **Presentation**

##### **Estimating the risk of SARS-CoV-2 infection in New Zealand border arrivals**

During its period of strict border control (April 2020-February 2022) the New Zealand government sought methods of estimating the risk of SARS-CoV-2 infection among arriving passengers. As advice to the Ministry of Health and the Department of PM and Cabinet, a group of statisticians developed a statistical model to predict the country-level infection risk, based on the reported incidence in each country, combined with actual infection rates among recent arrivals from that country. The model was robust for prediction for two weeks ahead, and was used by the New Zealand Ministry of Health to help inform border control policy during 2021. This talk will cover the data used, and the details of the prediction model.

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**Dr Osman Mansoor**  
**Medical Officer of**  
**Health for Tairāwhiti**  
**National Public**  
**Health Service**  
**Health New Zealand**  
**Te Whatu Ora**

Dr Osman Mansoor is a public health medicine (PHM) specialist with national and international policy experience in immunization, programme design and implementation, and communicable disease control. He had clinical experience across medical specialities before establishing a general practice in Wellington in 1987. He continued to work in his practice during his PHM training and while national policy lead on immunization for the Public Health Commission and then the New Zealand Ministry of Health. From 2000, he worked internationally, as New Vaccines Officer for the World Health Organization at the regional office and then at UNICEF headquarters. Since his return to Aotearoa (NZ) in 2014, he has worked in local public health units in Wellington, Napier and Gisborne. Since 2020, he has been the Medical Officer of Health for Tairāwhiti, part of the National Public Health Service of Health NZ.

### **Presentation**

#### **A Substack on Tairāwhiti District Data**

As Medical Officer of Health, I receive local disease notifications and update the medical community on these diseases. There has been particular interest in Covid-19 data. Since the virus started spreading locally in late January 2022, I had been doing a daily email update on COVID-19 cases. In July 2023, I stated a weekly update on district data, including COVID-19 cases. I was prompted to use Substack to do this, to engage a wider audience and to cover topical public health issues. In this presentation I will share some of the material I have shared, with a focus on the calculation of excess deaths in Tairāwhiti during the COVID-19 pandemic. And reflect on the role of such information in today's contaminated information environment.



**Professor**  
**Alistair Knott**  
**School of Engineering**  
**and Computer Science**  
**Victoria University**  
**of Wellington**

Professor Alistair Knott is Professor of Artificial Intelligence at Victoria University of Wellington. He has been an AI and computational linguistics researcher for 30 years. He studied Philosophy and Psychology at Oxford University, then obtained MSc and PhD degrees in AI at the University of Edinburgh, then moved to New Zealand, working first at Otago University and now at Victoria University of Wellington. He co-founded Otago University's Centre for AI and Public Policy, where he worked on Government uses of AI, and on the impact of AI on jobs and work. He now co-leads the Global Partnership on AI's project on Social Media Governance. Ali has also contributed to the Christchurch Call's Algorithms Workstream, and to work on AI policy at the Forum for Information and Democracy. He was on the expert panel for the report on AI and Healthcare in New Zealand, recently released by the Prime Minister's Chief Science Advisor.

### **Presentation**

#### **Uses and risks of generative AI in healthcare**

Generative AI models are able to analyse and produce content of various kinds: text, images, audio and video, to name a few. In my talk I will focus on generative models that work with text, and consider their possible uses in healthcare. AI is always a double-edged sword. There are intriguing possibilities, for AI tools that monitor doctors' interactions with patients, and summarise these in case notes, or perhaps even intervene in conversations, to suggest alternative diagnoses or offer second opinions. But there are also considerable risks: AI systems can get things badly wrong, and human operators are often prone to 'automation bias' if systems' performance is often good. I will survey the potential of these new AI methods, and also consider how systems can be comprehensively evaluated, to assess if they are safe to use, in safety-critical domains like medicine.



**Associate Professor  
Michael O'Sullivan**  
Department of  
Engineering Science  
and Biomedical  
Engineering  
University of Auckland

Associate Professor Michael O'Sullivan, is an Associate Professor in Engineering Science and Biomedical Engineering at the University of Auckland who specialises in Operations Research (OR). After completing a degree in Mathematics and Computer Science and a Masters in OR at the University of Auckland, Michael spent time at Stanford University in the US where he obtained a MS in Engineering-Economic Systems and OR, and a PhD in Management Science and Engineering. Michael created the research group Operations Research Union Analytics (ORUA) which combines OR and analytics to develop intelligent systems to investigate decision making algorithms and tools in many application areas including Finance, Healthcare, and Infrastructure Planning. He is Deputy Director of Aotearoa | New Zealand's Centre of Research Excellence in Complex Systems, Te Pūnaha Matatini. He likes using modelling and technology such as AI and VR to help communities access science and engineering to support them to be heard when problem solving complex issues.

#### **Presentation**

##### **An AI-Enabled Framework for Transferable Pandemic Modelling**

The Global Partnership on Artificial Intelligence (GPAI) is a multi-stakeholder initiative which aims to bridge the gap between theory and practice on AI by supporting cutting-edge research and applied activities on AI-related priorities. Built around a shared commitment to the OECD Recommendation on Artificial Intelligence, GPAI brings together engaged minds and expertise from science, industry, civil society, governments, international organisations and academia to foster international cooperation. The Pandemic Resilience project has been running within the Responsible AI Working Group within the Global Partnership on AI since 2021. As part of this project a calibration framework has been developed that utilises a standard dataset and enables multiple pandemic spread models to be simultaneously calibrated across multiple locations. These models capture the effect of different non-pharmaceutical public health interventions and can be rapidly transferred to new locations and recalibrated so they quickly provide a customised ensemble of pandemic models that can help inform the effect of public health interventions. The approach used in this research is an exemplar of how standardised datasets, modelling and AI can support public health decision making.



**Dr Robyn Whittaker**  
Director of Evidence  
Research and Clinical  
Trials  
Service Improvement  
& Innovation  
Directorate  
Health New Zealand  
Te Whatu Ora

Dr Robyn Whittaker is a public health physician and Director of Evidence Research and Clinical Trials in the Service Improvement & Innovation directorate within Te Whatu Ora. She is a long time academic at the National Institute of Health Innovation at the University of Auckland. She is an invited member of the WHO Governance & Ethics of AI in Healthcare expert group, and chair of the Te Whatu Ora National AI & Algorithm Expert Advisory Group.

#### **Presentation**

##### **AI governance and development within Te Whatu Ora**

Robyn will talk about the national AI expert advisory group within Te Whatu Ora and the process for assessing and approving the use of AI tools in practice. She will also touch on the Te Whatu Ora AI Laboratory and projects underway.



**Rooshan Ghous**  
Whitecliffe College

Rooshan Ghous's background is in healthcare, having participated in various research and administrative projects both in New Zealand and overseas. She trained as a dentist from Pakistan shortly after which I moved to NZ and stepped into public health. For the past three years, Rooshan has been involved in an educational project in New Zealand as a research associate. Motivated to return to healthcare and recognizing the growing importance of data in healthcare, she is currently pursuing a Master's in Data Science. Her research focuses on the exciting potential of artificial intelligence (AI) within healthcare, specifically its applications in cancer research.

### **Presentation**

#### **A Robust Machine Learning Model for Long-Term Survival Prediction of Breast Cancer Patients in New Zealand**

Despite advancements in screening programs and treatment options, breast cancer remains a leading cause of female mortality worldwide. While progress has been made in improving short-term survival rates, understanding long-term risk factors remains challenging.

Traditional statistical models and staging systems have limitations in predicting long-term outcomes, particularly for high-risk patients. We aim to bridge this gap by utilizing Machine Learning (ML) time-to-event algorithms capable of handling complex patterns that inherently exist in cancer data.

This study aims to develop a robust machine learning model using patient data for predicting 5, 10, and 15-year survival outcomes in breast cancer patients. In the first phase, we extracted data from the US-based Surveillance, Epidemiology, and End Result (SEER) program, to identify predictor variables associated with the highest risk of developing breast cancer. Subsequently, we developed multiple ML models to forecast a 5-year survival rate for patients using SEER data. In the second phase, the most effective machine learning models identified from the SEER dataset will be applied to New Zealand data obtained from the Breast Cancer Foundation National Register, New Zealand.

We constructed and evaluated several supervised, semi-supervised, and unsupervised machine learning models using the SEER data. Our experimental findings indicate that the XGBoost model demonstrates the highest accuracy performance based on metrics such as AUC and F-1 scores. We have acquired the dataset from New Zealand's Breast Cancer Foundation National Register and anticipate obtaining experimental results with this dataset soon. We aim to customize our models on New Zealand data to enable case-specific risk assessment. This study aims to unfold a deeper understanding of breast cancer prognosis to improve patient outcomes and optimize medical resource allocation, particularly for high-risk patients.



**Dr Chris Galloway**  
Massey University

Dr Chris Galloway's key disciplines are public relations and crisis communication – but in recent years he has become more and more immersed in the world of AI, both writing about it and giving presentations and interviews. He is enthusiastic about “extended” AI i.e. the use of AI-enabled technologies to support and extend human capabilities, rather than completely to supplant them.

### **Presentation**

#### **Doctor, I can trust this result, right?**