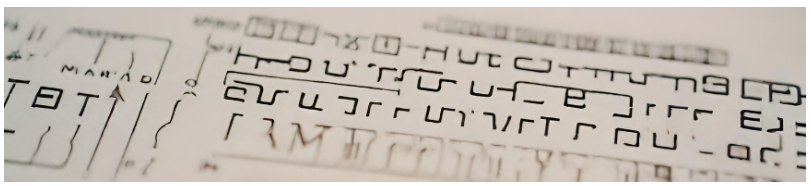
Safety by Numbers

Highlighting collaboration and data to support vaccine safety communication

This newsletter is produced by: Global Vaccine Data Network.

Collaborating partners: VAC4EU, Institute for Vaccine Safety, Brighton Collaboration, The Task Force for Global Health, Vaccine Confidence Project

News & updates



Cryptic vaccine-associated adverse events

The critical need for a new vaccine safety surveillance paradigm to improve public trust in vaccines

In the latest issue of Vaccine, a thought-provoking article by Drs. Gregory Poland and Steven Black presents a compelling case for revolutionising our approach to vaccine safety surveillance. They confront an intriguing challenge: the detection and management of vaccine-associated adverse events that escape the grasp of traditional monitoring—those that are subtle, difficult to measure, or completely imperceptible.

The authors argue for a paradigm shift to include a more transparent and rigorous surveillance system, which is not just a scientific necessity but a cornerstone for nurturing public confidence in vaccination programmes. Poland and Black's vision extends the scope of active safety surveillance into the digital sphere, leveraging the power of artificial intelligence and natural language processing to tap

into the vast data reservoir of social media, thus identifying emerging symptom patterns that might otherwise go unnoticed.

Their insights are particularly timely and resonate with the broader discourse on vaccine safety:

"Vaccine safety is of paramount importance, both in personalizing vaccine choice and weighing risk vs benefit, but also in establishing trust in the population."

The article does not shy away from the inherent challenges—such as distinguishing signal from noise in the detection of cryptic adverse events and the ever-present quest to ascertain causality. Yet, it is this very recognition of the complexity of the task at hand that underscores the urgency of their call to action. Addressing concerns about potential risks must be done comprehensively and with empathy to fortify the public's trust in vaccines.

VAC4EU

VAccine monitoring Collaboration for Europe

Happy “late” birthday to VAC4EU!

We would like to take this opportunity to celebrate the incredible progress made in 2023. VAC4EU celebrated its official “birthday” in October, having spent its fourth year consolidating strategy, stimulating scientific discussion and methodological development, strengthening the network as a European partnership, and demonstrating its capacity to generate robust and trustworthy evidence for post-licensure vaccine questions. We would like to thank the Executive Board for their voluntary leadership and guidance over these four years, the Secretariat for their work in implementing this broad vision and strategic

plan, and all association members for their participation in working groups, studies, and activities that have helped build a solid community. Network highlights from 2023 include two General Assembly Meetings, the completion of the Covid Vaccine Monitor study, the establishment of a team devoted to developing the Quality Management System, and the creation of five e-modules for members to drive training and education efforts (the VAC4EU Academy).

VAC4EU successes can also be illustrated by the work of our members in the core four working groups. The Principle Investigator (PI) Working Group, where PIs share learnings across studies, has established several taskforces to strengthen the development and validation of VAC4EU tools such as diagnostic code lists and the pregnancy algorithm. The Methods, Statistics and Programming Working Group focused on creating programming guidelines and discussing the best approach for synthetic data production, and self-controlled risk interval (SCRI) design analysis. Project Managers and Lead Operating Center (LOC) personnel also have their own working group. In 2023, they contributed to the development of a Quality Management System, developed study tools, and presented a poster at ICPE on challenges and lessons learned in managing COVID vaccine studies within VAC4EU. Finally, the newest team is the Working Group for Data Access Partners, established to develop work instructions for reviewing study results as well as the code list.

We have entered 2024 with the drive to continue all these efforts. We look forward to the 9th General Assembly Meeting in May, hosted by member organisation University of Bordeaux, which will be yet another moment to reflect on achievements and challenges while planning and strategising for the future of VAC4EU and vaccine research as a whole.

The wider scientific community has joined VAC4EU members at five meetings throughout 2023 as part of the Journal Club. Anyone with a passion for vaccine research is welcome to join these meetings, which are intended as an informal space where people can come together to discuss academic research in our field (learn more at our website).

We have also published recordings from webinars and some of our events. You can find all of these on our website, including footage from the Covid Vaccine Monitor "Lessons Learned" Closing Event, a course on Target Trial Emulation, and much more. You might also check our website for up-to-date information on VAC4EU studies, a complete list of publications, our Zenodo Community for all public study reports, and our LinkedIn for more frequent updates.

The Brighton Collaboration standardised module for vaccine benefit-risk assessment

In August 2021, the Benefit-Risk Assessment Module Working Group was formed to develop a standard module to support the planning, conduct, and evaluation of structured benefit-risk (B-R) assessments for multiple vaccine platforms. The module is designed for use by vaccine developers, funders, regulators, and policy-makers. It is

intended to help inform decision-making and facilitate transparent communication and scientific dissuasion concerning development, licensure, deployment, and other lifecycle decisions for vaccines. This module can be used as an independent document for planning, conducting, or reporting vaccine B-R assessments or an optional supplemental B-R add-on to the standardised Benefit-Risk Assessment of VAccines by TechnolOgy (BRAVATO) vaccine templates. It has the flexibility to accommodate stakeholders with limited B-R experience. The latest version of the B-R module with all instructions is available in Vaccine.

Brighton Collaboration case definitions and guidelines for TTS and VITT

The Brighton Collaboration is excited to announce publication of the updated Brighton Collaboration case definition and guidelines for Thrombosis with Thrombocytopenia Syndrome (TTS) and a new Brighton case definition and guidelines for Vaccine-Induced Immune Thrombocytopenia and Thrombosis (VITT) in Vaccine.

Read more about the background and evolution of these case definitions on the Brighton Collaboration website.

SPEAC

Andy Stergachis is presented with an award by the International Society of Pharmacovigilance in Bali in November 2023.

Dr. Andy Stergachis awarded first place for poster at ISoP 2023

SPEAC Expert Dr. Andy Stergachis received the first-place poster award at the annual conference of the International Society of Pharmacovigilance (ISoP) in Bali, Indonesia in November 2023.

He presented research on the safety, immunogenicity, and effectiveness of COVID-19 vaccines for pregnant persons. Together with co-authors, Dr. Stergachis conducted a living systematic review and meta-analysis of nearly 600,000 pregnant persons who received COVID-19 vaccines.

The Safety Platform for Emergency vACcines (SPEAC) is now on LinkedIn!

Follow our page Safety Platform for Emergency vACcines (SPEAC) to see regular updates on our work and news from the global vaccine safety community.

New University of Alberta-based study to examine very rare adverse events linked to COVID-19 vaccines

A University of Alberta professor is co-leading a new international vaccine safety network to examine why some people who received a COVID-19 vaccine experienced very rare adverse events associated with the vaccine.

The International Network of Special Immunization Services (INSIS), based at the U of A, is a consortium of academic medical centres around the world coming together to study very rare adverse events after vaccination. An adverse

reaction is considered very rare when it affects less than .001 percent of the population.

“The bar for safety with vaccines is very high because we’re giving them to healthy people to prevent them from getting sick,” says U of A pediatric infectious disease professor Dr. Karina Top, who alongside Dr. Robert T. Chen, scientific director of the Brighton Collaboration is co-leading INSIS. “We don’t want these events to occur, and we want to understand why, so we can prevent them in the future.”

New study published... What would have happened anyway?

Population data source considerations when estimating background incident rates of adverse events following immunisation to inform vaccine safety

A new study published in the journal Vaccine by our colleagues in Victoria, Australia focused on finding out how often certain health events might be expected to occur by chance alone after people get vaccinated.

Researchers analysed hospital admissions, emergency department presentations, and general practice consultations from 2015 to 2019 in Victoria, Australia to estimate background incident rates for 37 conditions considered potential adverse events following immunisation of special interest (AESI) per 100,000 population. They then calculated and presented as cases expected to occur coincidentally 1 day, 1 week, and 6 weeks after vaccination, by life-stage age-groups and presenting healthcare setting.

Having local real-world data is crucial for keeping vaccines safe by helping detect problems and

investigate them. Knowing how often certain health events typically happen anyway may help people feel more confident about getting vaccinated.

The researchers conclude that emergent safety concerns are inevitable in population-wide implementation of new vaccines, therefore understanding local background rates aids both safety signal detection as well as maintaining public confidence in vaccination. Hospital and primary care data sources can be interrogated to inform expected background incident rates of adverse events that may occur following vaccination. However, it is necessary to understand which data-source provides the best intelligence according to nature of condition and presenting healthcare setting.

GVDN is now on LinkedIn

Visit the GVDN LinkedIn page and click on "Follow" to receive information and updates from the global immunisation community.

Meet GVDN Lead Epidemiologist Jennifer Griffin

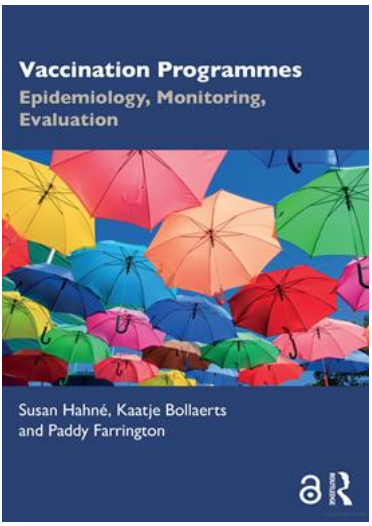
Jennifer is attending the 6th International Neonatal & Maternal Immunization Symposium to present the *GVDN Maternal and Neonatal Safety Post-COVID-19 Vaccination Study Protocol and Cohort Description*. If you are at the Symposium, please introduce yourself to her.

The primary study objective is to determine if the risks of core pregnancy and neonatal health outcomes are increased following COVID-19 vaccination during pregnancy by vaccine platform.

Secondary objectives include assessment of the risk of core outcomes by vaccine brand, regimen, gestational age/trimester at vaccination, maternal characteristics, and when co-administered with other vaccines; the risk of adverse events of special interest; and the effectiveness of vaccination to prevent COVID-19 disease, hospitalisation, and death. The study also investigates the risk of exploratory pregnancy and neonatal outcomes by vaccine platform, brand, regimen, gestational age/trimester at vaccination, and maternal characteristics.

Media

CEPI grant provides open access to Vaccination Programmes | Epidemiology, Monitoring, Evaluation book



The book 'Vaccination Programmes | Epidemiology, Monitoring, Evaluation' by Susan Hahné, Kaatje Bollaerts, and Paddy Farrington is now available to all to view and use online through a new #openaccess – access grant provided by CEPI.

Aimed at those involved, or planning to be involved, in many aspects of vaccination programmes, including public health professionals and epidemiologists, the book explores epidemiologic methods that can be used to study, in real life, their impacts, benefits, and risks.

You can download the book or read the book online through this link.

Disinformation posted on social media claims COVID-19 vaccines caused excess deaths

The truth about COVID-19 vaccines and all-cause mortality

Helen Petousis-Harris, BSc, PGDipSci (Dist), PhD

The accumulation of evidence solidly affirms that COVID-19 vaccines not only directly save lives by preventing virus-specific deaths but also play a crucial role in reducing all-cause mortality among

vaccinated individuals. These findings highlight the critical importance of ongoing vaccination efforts as a central strategy for mitigating the pandemic's toll and safeguarding public health.

While claims about COVID-19 vaccines being associated with increased mortality are circulating, they are often based on misinterpretation of data, anecdotal evidence, or preliminary research that does not stand up to rigorous scientific scrutiny. The consensus among health authorities and scientific research is that COVID-19 vaccines are a critical tool in reducing mortality and severe illness from the virus, with the benefits significantly outweighing the risks.

Direct effect – Prevention of COVID-19 deaths

Research across various COVID-19 vaccines, including those developed by Pfizer-BioNTech, Moderna, AstraZeneca, and Johnson & Johnson, has consistently demonstrated their effectiveness in averting deaths attributable to the virus. Clinical trials and real-world effectiveness studies have shown that these vaccines substantially lower the risk of severe disease, hospitalisation, and mortality due to COVID-19, particularly among high-risk groups such as older adults and individuals with underlying health conditions (Polack et al., 2020; Baden et al., 2021; Voysey et al., 2021).

Indirect effects – Reduction in all-cause mortality

Beyond preventing deaths directly attributed to COVID-19, research indicates that vaccination is associated with a reduction in all-cause mortality. This means that vaccinated individuals have a lower risk of dying from any cause compared to their unvaccinated counterparts during similar time periods. This effect is likely due to multiple factors:

- Reduction in healthcare system burden: With fewer severe cases of COVID-19, the pressure on healthcare systems is alleviated, ensuring

better availability of care for both COVID-19 and non-COVID-19-related health issues, which may contribute to lower mortality rates from various causes (Lopez Bernal et al., 2021).
- Prevention of long-term health effects: COVID-19 can lead to persistent health complications, known as "Long COVID," which might increase mortality risk. Vaccination lowers the likelihood of Long COVID (Catala et al., 2024, Razzaghi et al., 2024) by either preventing the initial infection or mitigating its severity.

Population-Level studies

Evidence at the population level further corroborates the reduction in all-cause mortality associated with vaccination. Studies comparing mortality rates in populations with high vaccination coverage to those with lower levels of vaccination have consistently found reduced all-cause mortality rates in the more highly vaccinated groups, even after adjusting for factors such as age, sex, socioeconomic status, and pre-existing health conditions. This suggests a significant protective effect of vaccination on overall mortality (Thompson et al., 2021).

The global analysis of all-cause mortality and COVID-19 vaccination coverage by Mendoza-Cano et al. (2023) showed lower levels of all-cause mortality in countries with high vaccination coverage across 2020 and 2021.

Read more

6th International Neonatal & Maternal Immunization Symposium

12–14 March, 2024

Participants will receive up-to-date information on key areas in maternal and neonatal health and immunisation from post-pandemic status updates to breakthroughs in vaccine development and immunisation program implementation, vaccine safety, hesitancy, and promotion.

Read more

ispe International Society for Pharmacoepidemiology

ISPE Mid-Year Meeting

14–17 April, 2024

The 2024 Mid-Year Meeting focus will be Expanding Pharmacoepidemiology to Address Emerging Global Challenges.

Read more

National Foundation for Infectious Diseases®

NFID Annual Conference in Vaccinology Research (Online)

8–10 May 2024

Join international experts for online discussions regarding scientific advances in vaccine research, development, implementation, and evaluation, as well as the future of vaccinology.

Read more

Spotlight

Q&A with SPEAC Expert, Dr. Manu Chaudhary

Dr. Manu Chaudhary co-leads SPEAC's special populations workstream alongside Dr. Flor Muñoz. Dr. Chaudhary is an American Board of Pediatrics Certified Pediatric Infectious Disease Specialist practicing at Rainbow Children's Hospital in Bangalore and a Fellow of the American Academy of Pediatrics.

How did Dr. Chaudhary get into the vaccine safety field? Read about her career path, from her involvement in India's Pulse Polio immunisation programme, to her fellowship in paediatric infectious diseases, her experience working with neonatal and pediatric critical care patients and individuals living with HIV, and her current work with the Safety Platform for Emergency vACcines in the Q&A With SPEAC Expert, Dr. Manu Chaudhary.

We want to hear from you

Seen some interesting research? Maybe something awesome is happening in your line of work? Or do you want to celebrate a recent milestone? Whatever it is, send your contributions to the Safety by Numbers Editorial Board.

Respond

Global Vaccine Data Network®

Secretariat, Global Vaccine Data Network™
Global Coordinating Centre
C/- UniServices at Waipapa Taumata Rau | University of Auckland
Private Bag 92019, Victoria Street West
Auckland 1142
New Zealand

globalvaccinedatanetwork.org