International training program on vaccine safety surveillance and effectiveness

International training initiative

GIZ and research company P95 have joined forces to develop an international training program that is supporting low and middle-income countries to build awareness and capacities on vaccine safety and effectiveness. It is part of the ongoing global efforts to address emerging issues as highlighted in the Immunization Agenda 2030 (a Global Strategy to Leave No One Behind). The trainings are enhancing the vaccine pharmacovigilance capacity at country level and are contributing to the overall vision to have effective vaccine pharmacovigilance systems in place in all low and middle-income countries. Vaccine safety is a complex issue involving many stakeholders. It involves detecting, monitoring and reporting adverse events after immunization, setting up national surveillance systems to collect and analyze data, communicating on vaccine safety, continuously monitor the benefit/risks of vaccines.
Having operational surveillance systems in place are even more important when deploying vaccines for the first time, like Covid-19 vaccines during mass campaigns. Monitoring the safety of vaccines and communicating transparently about it, is important seeing that public confidence can be quickly eroded if adverse events are not analyzed and communicated properly. Challenges remain in many countries with the lack of human and financial resources allocated to vaccine pharmacovigilance. In many countries reporting on adverse events following immunization (AEFI) remains low. Furthermore, pharmacovigilance trainings are not systematically part of the undergraduate education and the continuous education of health care professionals.

Vaccine safety surveillance

Essential building blocks[1] of vaccine safety surveillance are:

- a national dedicated vaccine pharmacovigilance capacity, with designated staff for this purpose, stable basic funding, clear mandates and well-defined structures and roles, collaborating with the WHO Program for International Drug Monitoring;
- health-care workers and others encouraged to report vaccine safety issues;
- a reporting form for individual case safety reports (i.e. a national reporting form for AEFI)
- a national database or system for collating, managing and retrieving AEFI reports;
- a national AEFI expert review committee that is able to provide technical assistance on causality assessment of serious AEFI, and clusters of AEFI, so that unwanted risk can be managed;

[1] Source Global Vaccine Safety Blueprint 2.0

- implemented and harmonized methods and tools for the monitoring and investigation of AEFI;
- a regulatory framework is in place that defines the provisions for monitoring and management of AEFI;
- clear lines of accountability have been identified for the conduct of vaccine safety work;
- an institutional development plan is in place for implementation of activities and development of performance indicators; the institutional development plan is periodically evaluated and revised in order to ensure continuous quality improvement when conducting national vaccine safety activities;
- a commitment to sharing information on vaccine safety with other countries.

SARS-CoV-2 pandemic:

Since the outbreak of SARS-CoV2 pandemic several global and regional initiatives have been launched to support countries in preparing and building readiness for the deployment of COVID-19 vaccines. WHO program for international drug monitoring is recommending a strong collaboration at all levels to ensure real-life monitoring, knowledge sharing and efficient communication. WHO advocated that "*alongside preparations to ensure equitable access to the vaccines among people globally, preparations must be made within countries for COVID-19 vaccines safety surveillance on an urgent basis. Safety surveillance must be capable of investigating adverse events following immunization to determine a change in the benefit-risk profile of the vaccine, and to be able to anticipate coincidental events that might be attributed to the vaccine*"[2]. '*Capacity for surveillance of the safety of COVID-19 vaccines should be in place in all countries and existing infrastructure be reactivated and engaged before a vaccine is introduced. Countries should include preparedness plans for COVID-19 vaccine safety in their overall plans for vaccine introduction ...Important for all stakeholders is to be aware of the current available information on vaccine safety when Covid-19 vaccines will be introduced in the national health systems*'[3]. Setting up a Covid-19 vaccine surveillance system is part of the key areas that countries should prepare for a comprehensive Covid-19 country readiness action plan as advocated by the Vaccine Introduction Readiness Assessment Tool launched by WHO, World Bank and UNICEF. For a successful global vaccine safety strategy, collaborative efforts are needed to closely monitor the AEFI/AESI of Covid-19 vaccines.

Passive and active vaccine safety surveillance

Spontaneous reporting systems are the core element of a national pharmacovigilance but can be sometimes insufficient to enable rapid assessment and adequate public- health response to vaccine safety signals. Rapid response to vaccine safety signals is required to

[2] Planning for Covid-19 vaccines safety surveillance ; Sonali Kochhar et al ; Vaccine July 2020

[3] WHO Covid-19 vaccines: safety surveillance manual, for public consultation for review of draft, https://www.who.int/news-room/articles-detail/public-consultation-for-review-of-draft-covid-19-vaccines-safety-surveillance-manual

identify those rare instances where real adverse reactions occur, so that their impact can be minimized as they emerge. An increased level of vaccine safety activity is judged to be necessary for countries introducing the newly-developed Covid-19 vaccines.
Where resources are available, countries should consider developing active surveillance systems to monitor and research the Covid-19 vaccine safety. These could include active screening for targeted conditions of interest (hospitalization due to adverse drug reactions), monitoring of new data sources and real-time methodologies to detect changes in vaccine safety data. Cohort event monitoring is a standard method of active pharmacovigilance.
The spectrum of pharmacovigilance is large and includes: spontaneous reporting, intensified reporting, targeted reporting, cohort event monitoring, electronic health record mining, etc
Countries should select approaches that are most suitable for the national context.

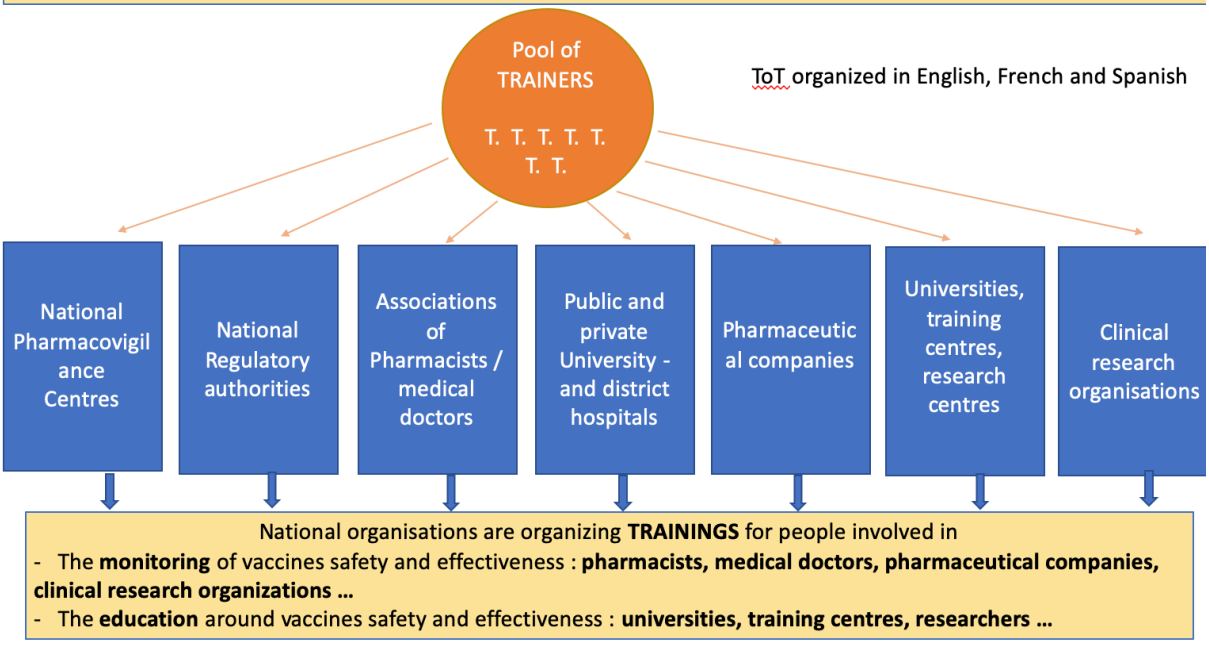
Trainings

Trainings are organized for health professionals that are implicated in the monitoring of vaccines safety and effectiveness. To facilitate the scaling up and dissemination of the knowledge, "Trainings of trainers" (ToT) are organized (online).
Following national organizations and/institutions are invited to apply and nominate trainers to participate in the ToT:

- National Regulatory Authorities
- National Pharmacovigilance Centers
- National Immunization Programs
- Regional/Provincial/district health directorates
- University/ District Hospitals dealing with vaccination
- Faculty or higher education for health professionals teaching pharmacovigilance
- Business association of pharmaceutical companies
- Clinical research organizations.
- Association of medical doctors and/ or pharmacists involved in continuous professional development.

National organization/institutions are responsibility to select participants for the ToT and cascade the trainings. Training application can be accessed through following link:
https://forms.gle/zJpT8vJGdemHX6uk7
The participants of the ToT are expected to have already essential knowledge on pharmacovigilance and have the capacities and willingness to cascade the trainings.
Morocco, Ecuador and Ghana have been selected as pilot countries.

National organizations from **public** & **private** sector interested in reinforcing and disseminating knowledge on vaccines safety and effectiveness can apply for online **Training of Trainers (ToT) :** https://forms.gle/zJpT8vJGdemHX6uk7



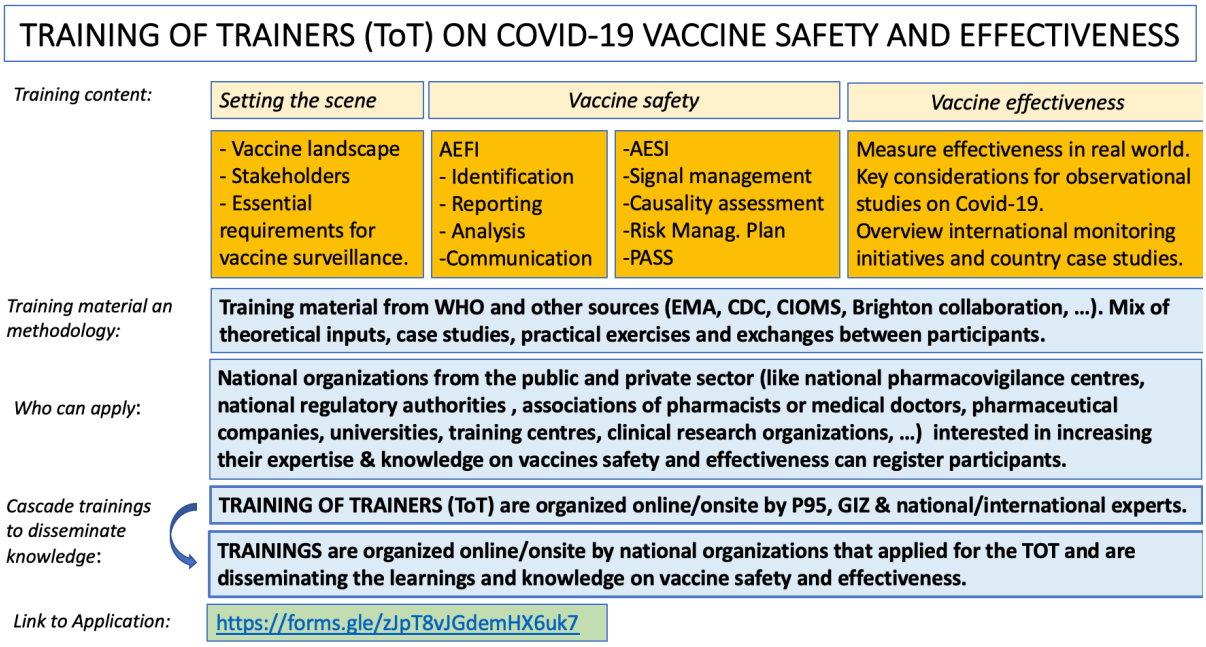
National organisations are organizing **TRAININGS** for people involved in
- The **monitoring** of vaccines safety and effectiveness : **pharmacists, medical doctors, pharmaceutical companies, clinical research organizations …**
- The **education** around vaccines safety and effectiveness : **universities, training centres, researchers …**

The international training program acknowledge that countries are at different stages of advancement with the in-country safety surveillance system and that some countries still faces challenges and gaps with:

- existing AEFI surveillance systems including processes or tools for conducting AEFI reporting, investigation and causality assessment (AEFI, adverse events following immunization)
- risk communication and response to serious AEFI.
- capacity of the national AEFI committee.
- implementing Risk Management Plans and the need to continuously update the safety profile of COVID-19 vaccines that are being used.
- the use of local and national safety data to generate information for action.
- monitoring and reporting system for AESI and implementation an active surveillance for AESI at selected sentinel sites based on case definitions defined by the Brighton collaboration (AESI, adverse events of specific interest).
- review of sources of epidemiological information at national and subnational level that could provide information on background rates of selected AESI's.
- electronic tools for data collection, collation, transmission and processing.
- participation in regional and global safety surveillance data networks.
- the involvement of the private sector and their roles in safety monitoring and reporting on specific studies and post approval studies.
- research on vaccine safety concerns.
- Measurement of vaccine effectiveness and impact of Covid-19 vaccines in real-world populations.
- Adapting vaccination programs and policies according to the performance of the new vaccines.

- Recent information on international initiatives to monitor vaccine effectiveness.

Content of the trainings are covering a wide variety of topics and can be tailored to the needs and expectations of the applying countries/organization.



Training of Trainers

A first online Training of trainers is planned between **15.3 and 19.3.21** in English for participants of different countries. Please find below the training agenda. Participants will be contacted before the training to assess expectations on the training content.
The training material is based on the modules of "Covid-19 vaccines safety surveillance manual" of the WHO (https://www.who.int/publications/i/item/10665338400) as well as other training sources from EMA,P95, CDC, UNICEF, SPEAC, CIOMNS, Brighton collaboration and other stakeholders implicated in the vaccine landscape. The sources of the materials used during the trainings, will systematically be mentioned to access and/or download the documents.
Key messages and key information will be presented together with additional concrete case-studies and practical examples to illustrate and further explain the content. Each presentation will be followed with Questions and Answer session. Reference documents will be provided to the participants for further readings and more in-depth information.
A training certificate is provided for the participants that attended all the training course and participated at the survey to evaluate the training.

What the training doesn't cover

The trainings do not pretend to replace the existing well established national and international training courses on vaccine pharmacovigilance but rather provide a brief overview of the essential elements of a pharmacovigilance system in the light of the

imminent introduction and monitoring of Covid-19 vaccines. The trainings are not tackling the regulatory aspects, issues with supply chain management, cold chain management, laboratory aspects, good manufacturing practices and safeguard injection safety.

AGENDA "Training of Trainers" on COVID-19 vaccines safety and effectiveness
March 15-19, 2021
Online

Day 1 (Monday, 15-March)

Session moderator: Margarita Riera

Time	Topic	Main facilitator
9:00am to 9:30am	Welcome and Introduction of GIZ and P95. Introduction of trainers	GIZ and Thomas Verstraeten/ Margarita Riera
9:30am to 9:45am	Overview of the training course and presentation of objectives	Thomas Verstraeten/ Margarita Riera
9:45am to 10:00am	Quiz to assess knowledge on vaccine safety and effectiveness at the start of the training	Wendy Hartig-Merkel
10:00am to 11:00am	Covid-19 pharmacovigilance strategy in the country and challenges faced	Training participants
11:00am to 11:15 am	Coffee break	
11:15am to 12:15am	Presentation: COVID-19 vaccine candidates: characteristics, efficacy and safety profile (20 min) Q&A (40 min)	Omar Okasha
12:15am to 12:45am	Presentation: Brief overview of the major international stakeholders in COVID-19 vaccines benefit/ risk monitoring (e.g. WHO, COVAX, CEPI, Brighton Collaboration) (15 min) Q&A (15 min)	Kaatje Bollaerts
12:45am to 1pm	Wrap up	GIZ and Margarita Riera
	End of Day 1	

Day 2 (Tuesday, 16-March):

Session moderator: Thomas Verstraeten

Time	Topic	Main facilitator
9:00am to 9:15am	Welcome Day 2	GIZ and Thomas Verstraeten
9:15am to 10:30am	Presentation: Adverse events following immunization (AEFIs) surveillance in the context of COVID-19 vaccine introduction: General principles of reporting (30 min) Q&A (45 min)	Andrea Lohée
	Coffee break	
10:45am to 12:20am	Presentation: Adverse events following immunization (AEFIs) surveillance in the context of COVID-19 vaccine introduction: Investigation and Causality assessment of potential COVID-19 vaccine-related AEFIs (40 min) Case studies (1h)	Andrea Lohée and Thomas Verstraeten
12:45am to 1pm	Wrap up	GIZ and Thomas Verstraeten
	End of Day 2	

Day 3 (Wednesday, 17-March):

Session moderator: Omar Okasha

Time	Topic	Main facilitator
9:00am to 9:15am	Welcome Day 3	GIZ and Omar Okasha
9:15am to 10:15am	Presentation: COVID-19 vaccine-related adverse events of special interest (AESIs): case definition (30 min) Q&A (30 min)	Omar Okasha
10:15am to 11:15am	Presentation: COVID-19 vaccine related AESI surveillance: Routine pharmacovigilance activities Targeted Follow-up questionnaires, signal detection… (30 min) Q&A (30 min)	Elodie Solé

	Coffee break	
11:30am to 12:45am	Presentation: COVID-19 vaccine related AESI active surveillance or Additional pharmacovigilance activities (45 min) Q&A (30 min)	Kaatje Bollaerts
12:45am to 1pm	Wrap up	GIZ and Omar Okasha
	End of Day 3	

Day 4 (Thursday, 18-March):

Session moderator: Anke Stuurman

Time	Topic	Main facilitator
9:00am to 9:15am	Welcome Day 4	GIZ and Anke Stuurman
9:15am to 11:15am	Vaccine effectiveness and impact studies Examples for COVID-19 vaccines International initiatives and feasibility in the country (1h15) Q&A (45 min)	Kaatje Bollaerts
	Coffee break	
11:30am to 12:45	Presentation: Risk Management Plans (30 min) Discussion of examples of RMPs (45 min)	Elodie Solé
12:45am to 1pm	Wrap up	GIZ and Anke Stuurman
	End of Day 4	

Day 5 (Friday, 19-March):

Session moderator: Elodie Solé

Time	Topic	Main facilitator
9:00am to 9:15am	Welcome Day 5	GIZ and Elodie Solé
9:15am to 11:15am	Case studies of additional post-marketing activities/ evaluation of vaccination programs Safety and effectiveness	Kaatje Bollaerts/ Anke Stuurman/ Omar Okasha (3 breakout rooms)
11:15am to 11:30am	Coffee break	
11:30am to 12:15am	Presentation: COVID-19 vaccine safety communication and challenges (30 min) Q&A (15 min)	Alexandria Williams

12:15am to 12:45am	Quiz to assess knowledge on vaccine safety and effectiveness after the training	Wendy Hartig-Merkel
12:45am to 1:15pm	Conclusion and next steps (cascade of the training and future advanced trainings by GIZ/P95) Feedback from participants	GIZ and Thomas Verstraeten/ Margarita Riera
	End of Workshop	

About P95

P95 is a for-profit SME serving a global clientele through excellence in science. P95 was founded by Thomas Verstraeten in June 2011.
Our focus is on finding new solutions for complex health problems and we address our clients' needs with a sense of urgency. P95's main area of expertise is vaccine related epidemiology, pharmaco-epidemiology and pharmacovigilance. We care about public health and how we can contribute to it.
Our clients are non-profit organizations such as the World Health Organization (WHO), Coalition for Epidemic Preparedness Innovations (CEPI) and the Bill and Melinda Gates Foundation as well as many pharmaceutical companies, to whom we provide support throughout all clinical development and post- marketing stages of their pharmaceutical products. In addition, P95 is a partner in several European Union (EU) Innovative Medicines Initiative projects ADVANCE (Accelerated Development of VAccine beNefit-risk Collaboration in Europe), DRIVE (Development of Robust and Innovative Influenza Vaccine Effectiveness) and VITAL (Vaccines and infectious diseases in the ageing population) and provides scientific and administrative support to the European Commission Scientific Panel for Health. Through engagement and collaboration with academics, private companies, and the public sector, we innovate in health research across Europe and beyond.

Since the COVID-19 pandemic began, P95 has been supporting several pharmaceutical companies in the development of COVID-19 vaccines: assessment of safety data from clinical trials, options for post-marketing pharmacovigilance activities, safety and effectiveness studies, and risk minimisation strategies. P95 is proud to be part of the global effort to fight COVID-19.

Learn more about us: https://www.p-95.com/

About trainers

Thomas Verstraeten graduated as MD from Ghent University in 1987 and obtained a degree in Tropical Medicine from the Institute of Tropical Medicine in Antwerp in 1988. After about 10 years working in the field in emergency relief in Africa and HIV/STD research and surveillanceand obtaining a Masters in biostatistics from the University of Limburg, he was selected for a 2-year fellowship as Epidemiology Intelligence Service officer at the Centers for

Disease Controlwithin the Vaccine Safety Branch. After completing the fellowship, he joined GSK for 10 years where he first led the vaccine epidemiology group, later leading the vaccine safety group and finally in charge of the Health Outcomes Group. After leaving GSK, he founded P95 in 2011 and is the current Chief Executive Officer.

Margarita Riera graduated as MD from the Universidad de Barcelona in 1998. After specializing in Internal Medicine, she pursued an MSc in Tropical Medicine and International Health at the London School of Hygiene and Tropical Medicine. She went on to work in medical emergency relief in Asia and Africa and then joined the European Program for Intervention Epidemiology Training (EPIET) at the European Centre for Disease Prevention and Control (ECDC), after which she worked for Epicentre research bases in Niger and Uganda. She joined P95 as epidemiologist in 2013 and currently serves as the Chief Operating Officer.

Kaat Bollaerts is a statistician with a passion for epidemiology. She holds Masters in Psychometrics (2001), Teaching (2002) and Statistics (2004). In 2009, she obtained her PhD in Statistics with a thesis topic on epidemiology. Before joining P95 in 2013, she worked for 4 years at Public Health Belgium.

Wendy Hartig-Merkel holds the degrees Doctor of Veterinary Medicine (2003) and PhD in Herd and Population oriented Research (veterinary medicine; 2014) from the University of Copenhagen (Denmark). In her PhD, she examined the scientific background for the establishment of a national health database. After her PhD, she worked within research and development, regulatory affairs, and pharmacovigilance within the veterinary sector and joined P95 as a medical writer in May 2020.

Omar Okasha is an epidemiologist with background in medicine from Cairo, Egypt, currently based in Helsinki, Finland. He has an eclectic experience in infectious disease epidemiology with diverse focus areas, including viral hepatitis, healthcare-associated infections, and vaccine-preventable diseases. He has carried out a broad range of responsibilities in several international research projects/public health programs across the MENA and EU regions.

Andrea Lohée holds a degree in psychomotricity and joined the pharmaceutical industry in 1997 as case processor in the drug safety/pharmacovigilance group at GlaxoSmithKline Biologicals where she occupied different positions. In her last position at GSK Biologicals, she was heading the case management group. In 2009, she started working as an independent consultant and providing operational pharmacovigilance support to different companies.

Anke Stuurman graduated in Epidemiology from Utrecht University in 2011 and specialized in infectious diseases. She worked at the Centre for Infectious Disease Control at the Dutch National Institute for Public Health for a short while on the underreporting of foodborne infections and at Pallas Health Research and Consultancy for 3 years, before joining P95 in 2015. Amongst others, she has conducted numerous systematic literature reviews for the pharmaceutical industry and ECDC, has worked on post-licensure vaccine safety studies using the CPRD, and designed and conducted prospective epidemiological studies with primary data collection to study vaccine effectiveness and in the field of vaccine safety.

Elodie Solé graduated as pharmacist specializing in hospital pharmacy in 2012 and completed this academic background with a Master of Pharmacoepidemiology and Pharmacovigilance. The following five years Elodie worked for a National Competent Authority as pharmacovigilance assessor. She was involved in the assessment of post-marketing and clinical trials safety data in different therapeutic areas. She joined P95 as safety scientist in 2018.

Alexandria Williams has been an epidemiologist at P95 since April 2020. She obtained her MSc. in Public Health Microbiology and Emerging Infectious Disease from the George Washington University in Washington, DC. Originally from the USA, she has multinational experience working and living in Ecuador, Peru, Switzerland, and Belgium.

If you need additional information please contact
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Danny Denolf danny.denolf@giz.de