Abstract Book

4th International Conference on Vaccines Research and Development

ICVRD-2026

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April 13-14, 2026 | Hotel Inn Paris CDG Airport, Paris, France

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ICVRD-2026

Abstract

The 4th International Conference on Vaccines Research and Development (ICVRD-2026) was held on April 13–14, 2026 at Hotel Inn Paris CDG Airport, Paris, France. The two-day conference included plenary and keynote lectures by experienced experts, as well as oral talks, poster presentations, workshops, and panel discussions.

The main objective of the meeting was to promote connections among scientists working in vaccines research and development, enabling them to share experiences, disseminate the latest information on progress in their specialties and related fields, gain visibility for their research, encourage interaction between young researchers and established experts, and support professional development.

Vaccines-2026 served as an international platform for researchers from around the world to meet, establish new collaborations, and broaden their professional networks. The event successfully brought together the global scientific community in Paris for an inspiring and productive congress in 2026

Organizing Committee Members:

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Abstract

The clinical application of botanical medicine for immunotherapy through immunomodulation in cancer and chronic disease: Evidence-based clinical trials

Eric A. Scheinbart*

Immunity Redefined LLC, USA

***Corresponding author**: Eric A. Scheinbart

ICVRD-2026

Abstract

These days, more and more people are seeking alternative, integrative natural therapies to complement their traditional medical care or, in some cases, in place of their conventional medical treatment.

The immunotherapeutic stimulation of the patient's own immune response is an important and integral factor in fighting cancer at its optimum level. It enables the body to "seek out" and destroy malignant cells through immunomodulating properties that activate macrophages, natural killer (NK) cells, and T cells to attack tumor cells, along with lymphokines, interleukin-1 and interleukin-2, and CD4 and CD8 responses to activate cell-mediated immunity.

The research, being clinically evidence-based, reveals an effective, organic, sustainable, and safe naturopathic plant-based product. This proprietary, physician-formulated compound has shown promising success in addressing cancers, chronic diseases, and the COVID-19 virus, with a successful track record of more than twenty years.

It is my pursuit to help as many people as possible through this innovative, revolutionary, and unique product by improving patient outcomes and providing a better chance to live longer and thrive with this natural, plant-based immunotherapy.

Biography: Dr. Eric A. Scheinbart, MD practices Integrative and Alternative medicine for cancer and chronic diseases. For more than twenty years, with the conviction to improve health, longevity, and the quality of life with Naturopathic Immunotherapies of plant-based, organic, compounded proprietary blends that stimulate the patient's natural immune system to heal itself. Dr. Scheinbart is a board-certified physician, a Mahareshi Ayurvedic-trained physician, a board-Certified diplomat of the American Academy of Anti-Aging, and a Fellow of the American College of Nutrition. He has been recognized by the NIH/NCI for his work and presented in Bethesda at the NIH.

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Abstract

Vaccine hesitancy, a threat to global health

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Abstract

Background: Vaccination has been a cornerstone of preventive healthcare since Edward Jenner developed the first smallpox vaccine in 1796. It has played a crucial role in controlling, eliminating, and even eradicating several communicable diseases. However, this vital public health achievement is increasingly under threat. Vaccine hesitancy—defined as the delay in acceptance or refusal of vaccines despite their availability—has emerged as a complex and growing global concern. Often driven by misinformation rather than scientific evidence, it poses a serious risk to the progress achieved over the past two centuries.

Method: A systematic literature review was conducted to evaluate existing research on the causes, impacts, and potential solutions to vaccine hesitancy worldwide.

Results: The World Health Organization has identified vaccine hesitancy as one of the top ten global health threats. Its rising prevalence risks reversing decades of progress in combating vaccine-preventable diseases. Key consequences include: (a) resurgence of previously controlled or eliminated diseases, (b) delays in outbreak response and containment, and (c) increased strain on healthcare systems globally. Major contributing factors include: (1) widespread misinformation and the influence of social media, (2) declining trust in governments, healthcare systems, and pharmaceutical companies, (3) complacency in regions where vaccine-preventable diseases are no longer perceived as significant threats, and (4) cultural, religious, and political influences that shape public attitudes toward vaccination.

Conclusion: Despite growing skepticism, extensive scientific evidence confirms that vaccines remain among the most effective tools for preventing infectious diseases. The risks associated with vaccine-preventable illnesses far outweigh the minimal risks linked to vaccination. Vaccine hesitancy undermines immunization programs, facilitates disease resurgence, and complicates responses to public health emergencies, including pandemics. Addressing this challenge requires coordinated, multi-sectoral, culturally sensitive, and evidence-based strategies. Transparent, consistent, and empathetic communication from trusted sources is essential for rebuilding public confidence and protecting global health.

Biography: Dr. Angela Ikeme is a Doctor of Nursing Practice–prepared leader with over 33 years of experience in clinical and administrative nursing. She holds a California RN license and advanced degrees in executive leadership and nursing education. Dr. Ikeme serves as Adjunct Faculty at the University of San Francisco and is the Co-founder and Executive Provost of Merit College of Nursing Sciences in Nigeria. A strong advocate for evidence-based practice, quality care, equity, and social justice, she is also a mentor, speaker, and published author. She is passionate about building collaborative communities and advancing nursing education globally.

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Abstract

Maternal immunization - clinical development challenges and solutions

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Abstract

Maternal immunisation is emerging as a cornerstone strategy for protecting infants during the critical early months of life, when vulnerability to severe infectious diseases is highest and infant vaccines have not yet taken full effect. Building on decades of experience with tetanus, influenza, and pertussis vaccination during pregnancy, recent clinical development programs—particularly those targeting respiratory syncytial virus (RSV)—have generated the most comprehensive evidence base to date for evaluating the feasibility, safety, and public health impact of maternal vaccination. The evolution of RSV maternal vaccine development provides important insights into the scientific and regulatory challenges in this field. Early candidates demonstrated immunogenicity but failed to meet efficacy or safety expectations, highlighting the importance of antigen design, optimal gestational timing, and robust obstetric safety monitoring. Subsequent programs emphasized the need for harmonised definitions of obstetric outcomes, reliable background rates, and globally consistent safety evaluation frameworks. The successful licensure of Pfizer's RSVpreF vaccine represents a major milestone, demonstrating that maternal immunisation can meet modern regulatory standards when supported by strong infant clinical endpoints and comprehensive safety data. Across programs, key themes consistently emerge, including the critical role of gestational timing in optimizing transplacental IgG transfer, the complexity of identifying and interpreting obstetric safety signals such as preterm birth, and the increasing importance of maternal and cord neutralising antibody titres as correlates of infant protection. These insights are shaping regulatory expectations, informing immunobridging strategies, and guiding policy decisions at both national and global levels. Collectively, the lessons from RSV maternal vaccine development provide a clear roadmap for future maternal immunisation strategies targeting pathogens such as group B Streptococcus, influenza, and emerging viral threats. Continued progress will depend on rigorous clinical development frameworks, harmonised global safety standards, and coordinated implementation strategies to ensure equitable access and sustained public confidence.

Biography: Dr. Frederick Wittke holds a medical degree from the Medical School Hannover (MHH), Germany, and his Dr. med. degree from MHH and the Fraunhofer Institute Hannover. After his studies, he developed his clinical and research experience in various biomedical fields, including oncology and infectious diseases. This was further broadened at the Necker Hospital in Paris, France and the Institute for Hygiene and Clinical Microbiology at the University of Erlangen-Nürnberg, Germany. After completing his academic education, he moved into industry, where he held various positions with increasing responsibilities in clinical development. He worked on Cancer Immunotherapeutics with GSK and led the clinical development of the Novartis Vaccines Group's B Streptococcus maternal immunization program before moving to Switzerland to develop a *Staphylococcus*-specific antimicrobial agent at Debiopharm in Lausanne.

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Abstract

The misunderstood individuals on the autism spectrum and how to help them with a multimodality holistic process

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ICVRD-2026

Abstract

This presentation will include not only a body of research on methods of healing, but also offer a process of self-care and inner development for the special children. It offers a multi-modality approach for these children and adults to heal and to creatively express themselves.

These special children and adults are here as teachers. Classical Homeopathy is a holistic method that works on the many and varied root causes of autism and goes far beyond attempts to detox or eliminate particular symptoms. It recognizes each person as a unique individual. The remedies are chosen so they match the child on the physical as well as the emotional level. My method will be described in broad strokes for practitioners who use homeopathy as an adjunct.

The presentation will include information on how to provide the best educational settings for their high level of intelligence, how the family can create an environment that supports creativity, and information on nourishment, grounding, EMF, and more.

I will share the results of a retrospective study of 25 children with a formal diagnosis of autism in my practice. Each of them on average has improved 48.5% based on the Autism Evaluation Checklist provided by the Autism Research Institute. Other children with various challenges that are either undiagnosed or have other diagnoses such as PANS/PANDAS are evaluated separately in this study.

Biography: Dr. Farah Ganjei Gron received the degree of Bachelor of Arts in Computer Science in 1984. She found her calling in 1996 when she attended an introductory talk on homeopathy presented by Luc De Schepper, M.D., Licensed Acupuncture Practitioner and a world-renowned homeopath. She studied with him for 14 years and wrote her post-fellowship thesis in 2011 on her particular method of using homeopathy to help the children with a diagnosis of autism in her practice. In 2009, Dr. De Schepper asked her to become his successor upon his retirement. Over the past 16 years, she has been helping the general population, particularly children and adults on the autism spectrum, as well as others with special needs.

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Abstract

Why data matters for AI success

Joel Nichols*

Founder - BioT Digital Solutions, USA

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Abstract

Artificial Intelligence (AI) is transforming vaccine research, development, and manufacturing, yet its success is increasingly limited by the quality and readiness of underlying data. While computational power has grown exponentially, data complexity—spanning genomics, clinical trials, real-world evidence, and manufacturing systems—has expanded even faster. Much of this data remains unstructured, siloed, or lacking context, leading to significant challenges in deploying scalable and reliable AI solutions.

Recent reports indicate that a majority of AI initiatives fail to progress beyond pilot stages due to poor data quality, inadequate governance, and lack of integration. This highlights a critical shift from algorithm-centric to data-centric innovation. In vaccine ecosystems, where regulatory compliance and patient safety are paramount, ensuring data integrity, traceability, and contextual relevance is essential.

This study presents a strategic framework based on five pillars—Prepare, Preside, Prevent, Preprocess, and Preserve—to establish AI-ready data infrastructures. The framework emphasizes defining clear objectives, implementing robust data governance, preventing errors at the source, transforming raw data into structured and enriched datasets, and optimizing storage for accessibility and scalability.

Real-world examples, including rapid mRNA vaccine development, demonstrate how integrated data platforms can significantly accelerate timelines and improve outcomes. Current AI applications such as antigen discovery, sequence optimization, predictive manufacturing, pharmacovigilance, and cold chain management further illustrate the impact of high-quality data.

Ultimately, this work underscores that meaningful, trustworthy, and well-governed data is the cornerstone of successful AI in vaccines. Organizations that invest in smart data strategies will be better positioned to drive innovation, enhance efficiency, and respond effectively to global health challenges.

Biography: Mr. Joel Nichols is the founder of BIoT Digital Solutions and a strategic advisor to biopharma, biotech, and medtech companies. He partners with executive and functional teams to design and scale digital capabilities, data platforms, interoperability, and AI within GxP and enterprise constraints. Recently the CIO for Tessera Therapeutics and Quanterix, Joel has more than 25 years in the industry with multiple senior leadership positions in the US and internationally. An active industry speaker and advisor, he focuses on pragmatic roadmaps, value realization, and change management from lab to clinic to market.

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Abstract

Raising antibodies against phosphorylcholine by a vaccine to prevent cardiovascular disease, chronic inflammation, and infection

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Abstract

Chronic inflammation is a hallmark of several major diseases, including atherosclerosis and cardiovascular disease (CVD), as well as dementia, diabetes, cancer, and infectious diseases. This work focuses on phosphorylcholine (PC), a small lipid epitope exposed in oxidized low-density lipoprotein (OxLDL), dead cells, and certain pathogens, where it acts as both a danger-associated molecular pattern (DAMP) and a pathogen-associated molecular pattern (PAMP). Naturally occurring IgM antibodies against PC are present in all humans and may constitute approximately 5–10% of circulating IgM. Atherosclerotic plaques are characterized by inflammatory cell infiltration, accumulation of oxidized lipids, and cell debris, where PC is prominently expressed. We propose that reduced levels of anti-PC antibodies, particularly IgM anti-PC, represent a key underlying factor contributing to chronic inflammatory diseases such as atherosclerosis and CVD, while also influencing susceptibility to infections. Using a combination of large-scale epidemiological studies and experimental approaches, our findings demonstrate that both IgM and IgG1 anti-PC are strongly associated with protection against chronic inflammatory conditions, often exceeding traditional risk factors. Mechanistically, anti-PC antibodies exhibit anti-inflammatory effects, reduce OxLDL uptake in arterial walls, promote regulatory T-cell responses, and enhance clearance of dead cells. In line with an expanded hygiene hypothesis, reduced exposure to microorganisms may contribute to lower anti-PC levels, while populations with traditional lifestyles and higher microbial exposure exhibit elevated anti-PC levels and a lower prevalence of chronic inflammatory diseases. Additional observations, including high anti-PC levels in hibernating animals despite adverse metabolic conditions, further support a protective role. Moreover, emerging data suggest a protective association with viral infections such as COVID-19. Collectively, these findings support the potential of anti-PC as both a predictive biomarker and a target for immunization strategies, with ongoing work leveraging AI-driven simulations to optimize vaccine design targeting PC epitopes.

Biography: Dr. Johan Frostegard is a professor of Medicine at the Institute of Environmental Medicine and Head of Unit of Immunology and Chronic Disease. Main research interest is how different types of lipids, mainly phospholipids, activate immune reactions and how these affect atherosclerosis, cardiovascular disease, and inflammation in general. The research is both experimental and clinically oriented.

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Abstract

Second-generation capless messenger RNA: Development of cheaper vaccines

Jerome Lemoine*

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Abstract

Messenger Biopharma managed to replace the cap of mRNA with RNA sequences. The first sequences protect the 5' end of the mRNA from the exonuclease Xrn1. They are followed by an internal ribosome entry site (IRES) to constitute the 5'UTR. All these sequences, as well as the 3'UTR and poly(A), were optimized to obtain a first-generation capless mRNA. We then demonstrated that our uncapped mRNA can be used to induce transfected cells to produce a transmembrane or secreted protein. In vivo, our first-generation capless mRNA rivals its capped counterpart in luciferase expression across various mouse organs, including the spleen and muscle.

Our uncapped mRNA costs 5.5 times less to synthesize than capped mRNA due to the omission of a cap analog from the IVT mixture. Furthermore, it is no longer necessary to determine the effectiveness of capping during quality control, resulting in additional savings.

We have demonstrated that our 5'UTR, consisting of protection sequences and an IRES, is toxic neither in vitro nor in vivo.

The formation of double-stranded RNA during in vitro transcription in the absence of a cap analog is greatly reduced. This implies that the cost of the mRNA purification process can also be decreased. This will result in more savings.

We then wanted to further improve the translation efficiency of capless mRNA. For this, we developed a second-generation uncapped mRNA. The latter contains an ORF coding for two proteins: the protein of interest and a helper protein. The two proteins are separated in the cytosol by the peptide P2A, which is a small "self-cleaving" peptide that acts during translation of mRNA by a ribosome. The protein of interest can be intracellular, transmembrane or secreted.

The helper protein is intracellular and indirectly stimulates IRES to exclusively enhance translation of capless mRNA. This strategy cannot be used for capped mRNA.

Luciferase expression is significantly increased compared to first-generation uncapped mRNA and is higher than that of its capped counterpart in cultured cells. Finally, there is no evidence of in vitro toxicity. In conclusion, our second-generation capless mRNA represents a breakthrough in the field of mRNA and will enable the development of even cheaper mRNA vaccines. This will facilitate the development of low-cost vaccines for low- and middle-income countries.

Biography: Dr. Jerome Lemoine is a French transfection specialist who completed his doctoral thesis in the Center for Pharmacogenetics of the School of Pharmacy at the University of Pittsburgh from 2001 to 2005. He continued his scientific career in transfection in Robert Debs' lab at the CPMCRI in San Francisco as a postdoctoral fellow. Thereafter, he returned to France to develop a biotechnology platform on messenger RNA and to found a biotech company. After more than three years of research at the University of Clermont-Ferrand, he founded Messenger Biopharma in September 2015, of which he is President.

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Abstract

Next-generation respiratory syncytial virus (RSV) vaccine

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Abstract

Respiratory syncytial virus (RSV) is a prevalent respiratory pathogen that primarily affects infants, young children, older adults, and individuals with compromised immune systems. Current RSV subunit vaccines are based on a fusion protein that is stabilized in the prefusion conformation and linked to a heterologous foldon trimerization domain to obtain a prefusion F (preF) trimer. Previous research had shown that current RSV vaccines induce undesirable antibodies in non-human primates, mice and humans.

To overcome this, we designed a foldon-free RSV preF trimer by adding endogenous trimerization domains, introducing six pairs of inter-chain disulfide bonds between monomers, and removing negative hotspots of charge repulsion. The highly stable prefusion conformation of RSV F trimer was validated using X-ray crystal structure, antigenic and electron microscopy analysis. The preF is immunogenic and protective in naive mouse models and boosts neutralizing antibody titers in RSV-pre-exposed mice and non-human primates, while achieving similar titers to approved RSV vaccines in mice.

The stable preF demonstrates enhanced stability under both refrigerated and elevated temperature conditions compared to current RSV vaccines. This stable preF design is a promising option as a foldon-independent candidate for a next-generation RSV vaccine immunogen.

Biography: Dr. Lei Chen, Founder and CEO at Yikang Biotech (Suzhou) Co., Ltd., holds a Ph.D. in Biochemistry from Osaka University. With substantial tenure at the Vaccine Research Center, National Institute of Allergy and Infectious Diseases, National Institutes of Health, he has established expertise in structure-based development of innovative vaccines. His remarkable contributions encompass critical patents on prefusion RSV F proteins and seminal publications in Science and Cell regarding structural design of fusion glycoprotein immunogens. He has driven notable advancements in viral antigen research and immunogen design.

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Abstract

The intestinal tract is the main reservoir of viruses hidden in carriers after infection, where vaccines are not effective. New medicine

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Abstract

Every virus is a parasite and is fully dependent on its carrier. This is the basic condition of its existence. The carrier of viruses is a living cell. Based on many years work with BLV in stables, I came to the conclusion that the carrier of the virus is a bacterial cell. This idea was subsequently tested in an HIV model, which also showed that both bacteria and yeast in the intestinal tract can serve as hosts. Similarly, rectal swabs were taken from patients who had recovered from the novel coronavirus infection. The results confirmed that 83% of the patients still had the virus in their intestinal tract.

Based on these results, it was concluded that many, if not all, viruses can be transmitted by bacteria or by yeast**.** After overcoming the viral infection, the virus enters the body. This suggests a growing number of new variants of the novel coronavirus that do not originate in China but originate in the intestinal tracts of infected people. The high infectivity found in wastewater worldwide suggests that the coronavirus is still present in the digestive tract, long after the epidemic is over. Viruses hidden within carriers in the intestinal tract are controlled by the immune system.

Vaccines are ineffective in the intestinal tract. Vaccines work only in the target cells. In HIV, it is the cells of the hematopoietic system that have the CD4 receptor. In the case of the new coronavirus, these are cells with the ACE2 receptor.

Viral load in the tract is constantly increasing worldwide. By identifying the carrier and its elimination, we will also destroy the virus. After overcoming the immune barrier, viral pathogens in carriers can penetrate the blood system into the body, settle in a suitable place and attack the relevant organ 24 hours a day, for months and years. It is very likely that this mechanism is responsible for degenerative diseases, including tumors, which also manifest themselves in later life. It is necessary to perform a comprehensive analysis of the contents of the intestinal tract, to detect and eliminate all viruses hidden in the carriers. New Medicine.

Biography: Dr. Vladimir Zajac has completed his PhD. in 1982 at the Cancer Research Institute of Slovak Academy of Sciences in Bratislava (Slovakia), where he worked as the Head of Department of Cancer Genetics from 1996 to 2010. He joined the Medical Faculty of the Comenius University as Associate Professor of Genetics in 2007. He has published 78 works, mostly in renowned journals, and is the author of chapters in four professional books. He is the editor of the book "Bacteria, Viruses and Parasites in the AIDS Process" (In Tech, 2011).

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Abstract

Strategic planning and execution of vaccine development program across global sites

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Abstract

The rapid evolution of global health threats has underscored the urgent need for agile and resilient vaccine development strategies. This presentation explores the strategic planning and execution of vaccine development programs across global sites, emphasizing the importance of speed, coordination, and trust. Central to this discussion is the "100-Day Mission," a global benchmark driven by organizations such as CEPI and the G7, aiming to accelerate vaccine development timelines without compromising safety or efficacy.

Key challenges in regulatory alignment, clinical trial execution, and logistics are addressed, highlighting opportunities to streamline processes and reduce delays. The presentation examines the need for harmonized regulatory frameworks, decentralized and technology-driven clinical trials, and robust logistics systems, including cold chain innovations and real-time data tracking to ensure vaccine integrity.

Furthermore, the role of advanced technologies such as artificial intelligence and digital twins in optimizing trial design and site selection is discussed. Equally important is the human dimension—building public trust, addressing vaccine hesitancy, and strengthening community engagement through transparent communication and trained healthcare personnel.

Ultimately, this presentation provides actionable insights into achieving operational excellence, enhancing regional self-reliance, and fostering global collaboration to prepare for future pandemics. The integration of urgency, innovation, and trust is positioned as the foundation for resilient and effective vaccine development ecosystems.

Biography: Dr. Darlene Labonte is a seasoned clinical development executive with extensive expertise spanning preclinical research to global clinical leadership. She began her career at Yale University and has held key roles at leading biopharmaceutical companies, including Regeneron, ImClone, and Eli Lilly. She has collaborated with major organizations such as Bristol Myers Squibb, Merck, Syneos, VaxInnate, and Advaxis, contributing to global clinical strategies. With a strong focus on translating scientific innovation into patient impact, she combines scientific rigor with business insight. Dr. Labonte has published in respected journals and holds an MBA in Business Leadership, driving results at the intersection of science and strategy.

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Abstract

Gonadal steroids, protectors of immunity

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Abstract

The interaction between the endocrine and immune systems has emerged as a critical factor in determining host responses to infections. This study explores the role of gonadal steroids in modulating immune function, with a particular focus on sex-based differences observed during the COVID-19 pandemic. Historically viewed as separate disciplines, reproductive endocrinology and immunology are now recognized as interconnected systems influencing disease susceptibility and outcomes.

A retrospective analysis of 214 patients with COVID-19 pneumonia (Delta variant) revealed notable sex differences. Although disease severity, complication rates, and need for mechanical ventilation were comparable, male patients experienced significantly longer hospital stays. These findings highlight the potential influence of hormonal milieu on recovery dynamics.

Mechanistically, estrogens enhance immune responses by promoting anti-inflammatory cytokine production, improving antibody affinity, and supporting effective innate and adaptive immunity. In contrast, androgens tend to suppress immune activation, contributing to reduced antiviral responses and increased cellular exhaustion. These differences may partly explain the higher susceptibility and poorer outcomes observed in males during COVID-19.

Additionally, factors such as obesity, metabolic disorders, endocrine dysfunctions, and disrupted circadian rhythms further impair immune resilience. Evidence suggests that maintaining hormonal balance, including appropriate estrogen levels, may improve immune protection and clinical outcomes.

In conclusion, gonadal steroids play a pivotal role in shaping immune responses and influencing disease progression. Understanding these mechanisms provides valuable insights for personalized therapeutic strategies, vaccine optimization, and public health policies aimed at enhancing immune resilience across populations.

Biography : Dr. Natalija Pavlović is a medical professional from Belgrade, Serbia, and a graduate of the Medical Faculty, University of Belgrade (2021). She began her career as a general practitioner at the COVID Hospital Batajnica. Currently, she works at the National Centre for Infertility and Endocrinology of Gender, within the University Clinical Center of Serbia. She is a PhD candidate and resident in internal medicine. Dr. Pavlović has actively contributed to international congresses with presentations on infertility, menopause, and endocrine disorders. In 2024, she received a scholarship to attend the World Congress on Menopause in Melbourne, where she was a finalist in the Menopausal Olympics competition.

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The development and automation of activity assays for enzymes involved *in vitro* transcription used for mRNA vaccine development

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Abstract

Radioactive assays have been the golden standard for determining the activity of most of the *In Vitro* Transcription (IVT) enzymes used in mRNA vaccine development. However, these assays are not only harmful to the environment and unsafe to the executor but also make use of expensive isotope labelled substrates and require specialised equipment and facilities.

We developed alternative assays to determine the activity of enzymes involved in mRNA vaccine production, including T7 RNA polymerase, Vaccine Capping enzyme, Pyrophosphatase, Restriction Enzymes, DNase and RNA inhibitor. These assays can be performed in well plates to increase output and require a spectrofluorometer for detection. We also went on to develop several quality control tests to ensure the quality of IVT enzymes for mRNA vaccine production. These tests will be used to evaluate the quality of IVT enzymes which are begin produced by a local start-up biotechnology company in South Africa to ensure local products are up to global standards. We went on to validate these assays by independent methods and we developed and optimised a fluorescence-based mammalian cell culture expression system to confirm the functionality of the enzymes.

To increase the throughput of these assays we automated the assays on a Tecan Fluent® Automated Workstation, the first of its kind in Africa. This enabled us to scale our reactions down to a 384 well plate, drastically increasing our throughput while at the same time decreasing reagent costs. With this automation we aim to address critical bottlenecks in Africa's mRNA vaccine production pipeline, and we aim to use this system to strengthen the local mRNA vaccine supply chain and support pandemic preparedness in Africa.

Biography: Dr Barnard-Matthee completed her undergraduate degree in Human Life Sciences with Psychology at Stellenbosch University, followed by an Honours degree in Biochemistryat the same university, focusing on manipulating soil bacteria to produce antimicrobial peptides with specific properties. She then pursued a Master's degree in Biochemistry, shifting her research focus to characterizing enzymes involved in a novel steroidogenic pathway. She completed her PhD in the same department in 2020, studying the effects of novel androgens on the development and progression of prostate cancer. Afterward, she undertook a postdoctoral fellowship at the Tygerberg Medical Campus, Stellenbosch University, where she researched the effects of mutations in *Mycobacterium tuberculosis*on iron metabolism, lipid composition and oxygen consumption as well as the effects of the COVID-19 pandemic on the acquisition of mutations in *M. tuberculosis*infections due to an increase in lost-to-follow-up cases. Currently, she is a postdoctoral fellow in the Microbiology Department at Stellenbosch University, developing assays to determine the activity and quality of locally produced IVT enzymes used in mRNA vaccine production.

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Abstract

Long-Term protection against infectious diseases is associated with high homeostatic antigen-specific precursor cells

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Abstract

Long-term protective immunity relies not only on the generation of effector T cells but also on the establishment of durable memory T-cell subsets capable of self-renewal and rapid reactivation. Among these, stem-cell–like memory T cells (TSCM), referred to in this study as precursor cells with high proliferative capacity (PHPC), is increasingly recognized as key mediators of sustained immune protection.

This study was motivated by earlier findings from a 2014 HIV DNA vaccine study in macaques, where complete protection was associated with persistent PHPC populations despite modest effector responses. Building on this observation, we investigated whether licensed human vaccines and natural infections similarly induce long-lived PHPC responses.

Peripheral blood mononuclear cells (PBMCs) from 13 healthy donors with documented vaccination or infection histories were stimulated with antigens from six pathogens: influenza, measles, varicella-zoster virus (VZV), poliovirus (PV), hepatitis B virus (HBV), and Mycobacterium tuberculosis (BCG). Effector memory T-cell responses were assessed following short-term stimulation, while PHPC responses were evaluated after prolonged culture with cytokine support (IL-2, IL-7, and IL-15).

Effector memory T cells specific to all six pathogens were detectable years after exposure. Robust PHPC responses were observed for PV, HBV, BCG, measles, and VZV, indicating the presence of durable, renewal-competent memory T-cell populations. In contrast, influenza antigens failed to induce measurable PHPC responses despite preserved effector memory T-cell activity.

These findings suggest that not all vaccines or infections equally generate stem-like memory T cells, highlighting the importance of PHPC induction as a potential correlate of long-term immunity. This has important implications for vaccine design and evaluation, particularly in the development of next-generation immunization strategies.

Biography: Dr. Iman Almahmis is a PhD researcher in Infectious Diseases and Vaccinology at University Grenoble Alpes, France, specializing in immune memory and vaccine development. Her research focuses on mechanisms that enhance long-term vaccine-induced immune responses, using advanced immunological techniques including PBMC isolation, cell culture, flow cytometry, ELISA, and ELISPOT. With a strong background in clinical immunology and medical microbiology, she is experienced in data analysis, scientific writing, and multidisciplinary collaboration, and is passionate about advancing immunological research and innovation.

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Abstract

Grassroots mobilisation: Leveraging civil society and community leadership to bridge gaps in vaccine coverage

Mariano Votta*

Director Active Citizenship Network, Italy
***Corresponding author**: Mariano Votta

ICVRD-2026

Abstract

The WHO has defined community engagement as “a process of developing relationships that enable stakeholders to work together to address health-related issues and promote well-being to achieve positive health impact and outcomes” and it underlines the “Community and civil society engagement” as a pillar of its “Global Action Plan for Healthy Lives and Well-being for All”. On December 5, 2023, on the occasion of the adoption by the European Commission of the EU4Health 2024 work program to implement key health policy priorities within the European Health Union, Stella Kyriakides, European Commissioner for Health and Food Safety, said that "Civil society has a crucial role to play in reaching out to our citizens".

Recently, on the occasion of the G7 Ministers’ Meeting on Health held on 9/11 Oct. 2024 in Ancona (Italy), global leaders emphasis that “vaccination is an essential preventive measure and reiterate the crucial role of routine immunisation and campaigns”, higlihting “the importance of raising awareness and involving the general population by providing evidence-based information through campaigns aimed at citizens’ empowerment and increasing health literacy regarding prevention, research and care”. In concrete way, the aim of the presentation is to show how the so-called intermediated bodies of the society, when recognized as a stakeholder, can play an active role in support of public policy on vaccionation. Around this goal, the Vaccination Informal Platform (V.I.P.) for life-course immunization promotion, a collective of leaders of patient and citizen organizations across Europe, promoted by the Active Citizenship Network, has united with the aim of strengthening the exchange of experiences among the many expressions of active citizenship working to support public vaccination policies. The ultimate goal is to update a narrative that, when it comes to vaccination, almost never refers to the active role of Civil Society Organizations (CSOs) and Patient Advocacy Groups (PAGs), instead focusing mainly on hesitant or even hostile attitudes toward vaccines, which, though present, do not represent the whole picture. There are many of actors from the intermediated bodies of the society that can play a constructive role with institutional and non-institutional stakeholders, as well as act as a driving force for other organizations, and there are different typologies of initiatives to testify their activist on vaccination arena.

Biography: Dr. Mariano Votta is responsible for EU Affairs at the Italian NGO Cittadinanzattiva and Director of its EU branch “Active Citizenship Network”. Passionate about health & consumer issues, Mariano has 25 years of experience in advocacy, stakeholder engagement, communication, European Public Affairs & EU funded-projects. Mariano holds a Degree in Political Science and two post-graduate master's degrees in European Public Relations and Corporate Social Responsibility. He is also a journalist with more than 50 publications in international peer-reviewed journals. He led the political initiative to launch in 2015 at the EU Parliament the Interest Group "EU Patients' Rights & Cross-Border Healthcare," – now at its third mandate - endorsed by more than 100 organizations across Europe and dozens of Members of the European Parliament. In 2016 Mariano won the Efhre International University Excellence Awards on patients’ rights.

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Abstract

Reclassifying media as an exposure for vaccine hesitancy

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Abstract

Background: We conducted a phase III, non-inferiority trial comparing the safety and efficacy of the RCP recombinant spike protein COVID-19 vaccine with the BBIBP (Sinopharm) vaccine.

Methods: The adult Iranian population received RCP or BBIBP in a randomized, double-blind trial with an additional non-randomized, open-label trial arm. Eligible participants signed a written informed consent and received two intramuscular injections three weeks apart. In the randomized arm, an intranasal dose of the vaccine or an adjuvant-only preparation was administered to the RCP and BBIBP recipients on day 51, respectively. Participants were actively followed for up to 4 months for safety and efficacy outcomes. The primary outcome was PCR+ symptomatic COVID-19 disease two weeks after the second dose. The non-inferiority margin was set at 10% of the reported BBIBP vaccine efficacy (HR = 1.36).

Results: We recruited 23110 participants (7224 in the randomized and 15886 in the non-randomized arm). We observed 604 primary outcome events during 4 months of active follow-up, including 121 and 133 in the randomized and 157 and 193 cases in the non-randomized arms, among recipients of RCP and BBIBP, respectively. Adjusted hazard ratios for the primary outcome in those receiving RCP compared with the BBIBP interval were 0.91 (0.71-1.16) and 0.62 (0.49 – 0.77) in the randomized and non-randomized arms, respectively. The upper boundary of 99.1% confidence interval of HR=0.91 (0.67 – 1.22) remained below the margin of non-inferiority in the randomized arm after observing the early stopping rules using O'Brien Fleming method.

Conclusion: Our study showed that the RCP efficacy is non-inferior, and its safety profile is comparable to that of BBIBP.

Biography: Dr. Esha Brahmbhatt is a Master of Public Health candidate at the Geisel School of Medicine at Dartmouth, where she studies the intersection of media consumption and health outcomes. She has conducted research on Alzheimer's disease and epileptiform activity and holds a B.S. from NYU in Media, Culture, and Communication and Global Public Health. She is also the founder of Cabin Fever Magazine, an interdisciplinary publication bridging science and media.

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Abstract

Application of the zebrafish embryo acute toxicity test as a potential quality control assay for veterinary autogenous vaccines: Preliminary data

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ICVRD-2026

Abstract

Introduction: Veterinary vaccines play an important role in the control and prevention of animal diseases; furthermore, auto-genous vaccines (AVs) are an efficient tool against antibiotic resistance. AVs, like all injectable products, undergo a quality control process (QC) to ensure their safety and suitability. The acceptance of the 3Rs principle is driving the adoption of in vitro methods across several QC processes.

The zebrafish embryo toxicity test (ZFET) can be used to identify chemical concentrations that cause acute toxicity in fish in aquatic environments. The method uses zebra fish embryos and determines the concentration at which 50% (LC50) of the embryos do not survive (i.e. is lethal) after being exposed to a chemical for 96 hours.

In this work, we described the first application of ZFET as a QC assay for AVs produced at IZSUM Pharmaceutical Unit.

Materials and Methods: After the in vivo fertilisation embryos with synchronous development were exposed to bovine enterotoxemia, salmonid furunculosis and ovine gangrenous mastitis vaccine matrices, from the early stages of segmentation up to 96 hours post-fertilisation (hpf).

At first, the toxicity of the vaccines and related media was assessed by exposing the embryos to the entire sample and then 4 different concentrations were selected (range of 1%–7.5%). Embryos were daily inspected to monitor the acute toxicity endpoints (embryo coagulation; failure of somite formation; failure of tail detachment; absence of heartbeat), moreover the monitoring of hatching from 48 hpf until the end of the test (96 hpf) was performed, finally the LC50 value in embryos at 96 hpf was established. Moreover, positive and negative controls were included in the experiment.

Results: Even if at the end of the test (96 hpf), 100% mortality was recorded for all undiluted samples, LC50 values appeared in a dose-dependent manner: 5% for bovine enterotoxemia and salmonid furunculosis, and finally 2.5% for ovine gangrenous mastitis, respectively.

Discussion and Conclusion: The application of in vitro methods for AVs QC, instead of in vivo tests, could substantially reduce the use of animals for toxicity assessment. These preliminary results on Abs matrices, together with those previously obtained with other in vitro assays, need to be implemented and are necessary to establish a correlation with the lab animal evidence. The final perspective is the standardization of protocols and the application of validated alternative tests, capable of providing informative power. Funded by the Italian Ministry of Health, IZSUM PALTEX22 and PMETAL25.

Biography: Dr. Antonella Di Paolo is a postdoctoral researcher at the Pharmaceutical Department of Istituto Zooprofilattico Sperimentale dell'Umbria e delle Marche in Perugia. She earned her MS in Biological Sciences and PhD in Animal Health and Food Safety from the University of Perugia. Her research focuses on veterinary autogenous vaccines, particularly recombinant protein applications, and immune system gene expression. She works to implement the 3Rs principles to reduce animal use in vaccine quality control using in vitro methods. Her expertise also includes mycobacteriology, bovine tuberculosis, and paratuberculosis.

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Abstract

South African vaccine initiatives: Strategic research, development and innovation (RDI) priorities

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Abstract

South Africa has emerged as a key contributor to vaccine research, development, and manufacturing on the African continent. Strengthening national and regional vaccine capabilities is critical for improving health security, addressing endemic diseases, and ensuring equitable access to life-saving technologies. This abstract outlines South Africa's strategic Research, Development and Innovation (RDI) priorities aimed at advancing a resilient and sustainable vaccine ecosystem. The country's vaccine initiatives focus on strengthening translational research, expanding clinical trial capacity, and accelerating the development of locally relevant vaccines targeting priority diseases such as HIV, tuberculosis, emerging infectious threats, as well as transformative platforms for optimal delivery of vaccines against established non-communicable diseases, such as cervical cancer. Central to this is the integration of public sector research institutions, universities, industry partners, and global collaborations to enhance knowledge generation, technology transfer, and product development. Investments in advanced biomanufacturing platforms, regulatory strengthening, and skills development are also key components of the national RDI agenda.

South Africa's approach emphasizes end-to-end vaccine innovation—from discovery and preclinical development to clinical evaluation, manufacturing, and distribution— supported by enabling policy frameworks and strategic partnerships across Africa and globally. By aligning scientific excellence with health system needs and industrial development goals, these initiatives aim to reduce dependence on external supply chains while positioning the country as a regional hub for vaccine innovation and production. This highlights the strategic priorities, collaborative frameworks, and policy mechanisms shaping South Africa's vaccine RDI landscape and reflects on opportunities to strengthen continental vaccine sovereignty, preparedness for future pandemics, and equitable access to vaccines in low- and middle-income settings.

Biography: Dr. Makobetsa Khati, [MScMed, DIC (Imperial College London), DPhil (Oxon), MPH (UCT), Pr. Sci.Nat (SA), MInstD (SA)], is the Executive Head of Strategic Investments, Innovation and Impact (SIII) at the National Research Foundation (NRF) of South Africa. He also currently serves as the Acting Executive Manager for International Grants and Partnerships. He previously held executive and senior leadership roles at the NRF, including Executive Director of Research Chairs and Centers of Excellence for nearly a decade, and Acting Executive Director for Reviews and Evaluations. Makobetsa has held academic and research positions at the University of Cape Town (UCT), Groote Schuur Hospital, the Council for Scientific and Industrial Research, and the University of Oxford, and was a Visiting Scientist at the Scripps Research Institute, USA. He serves on several national and international boards and committees and holds a Doctorate from the University of Oxford, along with postgraduate degrees from Imperial College London and UCT.

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Abstract

Establishing local and regional R&D&I and production capacity and the importance of academic-industrial partnerships in vaccine development

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Abstract

The COVID-19 pandemic exposed critical gaps in global vaccine equity, underscoring the urgent need to strengthen local and regional research, development, innovation (R&D&I), and manufacturing capacities. Establishing decentralized vaccine ecosystems is essential to ensure timely access, reduce dependency on external supply chains, and enhance preparedness for future health emergencies. This approach not only accelerates response times during outbreaks but also promotes sustainable health security and economic resilience in low- and middle-income regions.

Central to this transformation is the integration of academic expertise with industrial capabilities through robust academic–industrial partnerships. Academic institutions contribute foundational research, novel antigen discovery, and early-stage innovation, while industry provides scalable manufacturing, regulatory expertise, and commercialization pathways. Such collaborations enable efficient translation of scientific discoveries into safe, effective, and accessible vaccines.

Furthermore, strengthening regional capacity requires investment in skilled workforce development, technology transfer mechanisms, regulatory harmonization, and infrastructure. Public–private partnerships, supportive policy frameworks, and international collaboration play a pivotal role in fostering innovation ecosystems and facilitating knowledge sharing across borders.

This abstract highlights the strategic importance of building localized vaccine R&D&I hubs supported by strong academic–industrial alliances. By bridging the gap between discovery and deployment, these integrated models can drive equitable access to vaccines, enhance global health security, and ensure a more resilient and self-reliant future in combating infectious diseases.

Biography: Dr. Sotiris Missailidis is Head of Vaccine Innovation Development at the Institute Pasteur, leading vaccine projects from research to clinical development and industrial partnerships. He joined in 2024 after seven years directing R&D&I at Bio-Manguinhos/Fiocruz, Brazil. With 30 years of experience, his work spans vaccines, biologics, and diagnostics. He holds an MSc and DPhil in Chemistry from the University of York, with postdoctoral training in Pharmaceutical Sciences and Molecular Biology in the UK. Dr. Missailidis has held academic roles internationally and founded biotech ventures in the UK and Brazil, contributing significantly to translational vaccine innovation.

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Abstract

Influenza vaccination of patients with autoimmune rheumatic disease

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Abstract

Objectives: Compared to the healthy population, patients suffering from autoimmune rheumatic diseases have a significantly increased risk of various infections. The issue of vaccinating against the seasonal flu in these patients is still surrounded by numerous dilemmas about its efficiency and the possible harmful effects of exacerbation of the underlying disease. We aim to assess the protective role of the influenza vaccine by analyzing the association between respiratory infections occurrence and humoral response to influenza A (H1N1) infection in patients with autoimmune rheumatic diseases.

Methods: Our study includes three groups of patients (99 in total) with stable underlying diseases status, suffering from: 30 patients with systemic lupus erythematosus (SLE), 37 with rheumatoid arthritis (RA) and 32 with Sjögren's Syndrome (SjS). In November 2011. 46 patients were immunized with an inactivated trivalent split vaccine (15 μg HA A/California/7/2009 (H1N1), 15 μg HA A/Pert/16/2009 (H3N2) and 15 μg / HA B Brisbane / 60/2008) whereas 52 patients did not accept the proposed vaccination.These three groups of patients were divided into two subgroups depending on vaccination: vaccinated - SLE_1 (19), RA_1 (15) and SjS_1 (14), and unvaccinated - SLE_2 (11), RA_2 (22), SjS_2 (18). During the following year disease activity parameters (SLEDAI for SLE), presence of viral and bacterial infections and concentration of A H1N1 antibodies were monitored in vaccinated and unvaccinated patients. Previous respiratory infections from 2006-2011 were regarded as a potentially significant predictor of a more frequent future onset of influenza and secondary bacterial complications.

In the following six months parameters of disease activity (from the date of vaccination until April 2013) and the titer of antibodies against influenza A H1N1 were monitored. We used hemagglutination inhibition test (according to the method of the Center for Disease Control and Prevention (CDC) with antigen A/California/7/2009 influenza virus (H1N1), and turkey erythrocytes for the detection of antibodies against the A H1N1. Value of seroprotective titer (ST) was defined as ≥ 32. Importance of predisposing factors for influenza occurrence (i.e. previous respiratory infections and vaccinations in last five years) was also analyzed.

Results: The incidence of viral and bacterial infections among vaccinated patients (primarily influenza) was significantly lower, compared to the non-vaccinated group. Influenza occurrence was significantly associated with previous respiratory infections (p=0.001). The mean titer of antibodies was highest in SLE patients and significantly higher in all vaccinated patients (p=0.018). Mid-level antibody titer was significantly related to last vaccination in all patients (p= 0.001) and has not been proven after removal of last vaccination effects (p=0.227). Similar results were obtained for patients with SLE, while in RA and SjS these correlations were not significant. ST levels for all vaccinated patients (84.17) were significantly higher than in non-vaccinated patients (8.80) (p=0.008) and were associated with last vaccination in all patients and in SLE group (p=0.012, p=0.039 respectively). Highest levels were observed in vaccinated SLE patients (141.05) and were significantly higher than in non-vaccinated patients (p=0.002). Seroprotective rate for all vaccinated patients was 48% compared to 15% in unvaccinated (p=0.014) and it was highest among SLE patients (53%) (p= 0.049). In RA and SjS groups, these differences were not statistically significant. There was no significant

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difference between three diseases regarding the mean ranks of antibody titer (p=0.418). Previous bronchitis and pneumonia increased influenza risk significantly.

Conclusions: Based on results to date, it is our opinion that overall, influenza vaccination for patients suffering from SLE, RA and Sjögren's Syndrome is safe, efficient and sufficiently immunogenic. Based on several years of monitoring respiratory infections in our patients, it is clear that a high risk of exacerbation of the underlying disease is linked to viral or bacterial infection, and is practically never linked to vaccination itself.

Biography: Prof. Dr. Ljudmila Stojanovich, MD, PhD, FRCP, is a prominent specialist in autoimmune rheumatic diseases, with a focus on Systemic Lupus Erythematosus (SLE), Antiphospholipid Syndrome (APS), and vaccination in autoimmune patients. She earned her Ph.D. in 1999 with a thesis on neuropsychiatric manifestations in SLE. Prof. Stojanovich has published over 250 scientific papers and three monographs, contributing extensively to autoimmune disease research. She serves on the editorial boards of leading journals, including Lupus (London) and The Journal of Rheumatology, and is Associate Editor for Frontiers in Medicine and Frontiers in Immunology. She is involved in international research collaborations, such as EULAR initiatives on vaccination and APS management. Prof. Stojanovich has been a speaker, chair, and organizer at numerous international conferences, including the 12th European Forum on Antiphospholipid Antibodies. Her work has earned her an h-index of 36 and over 5,000 citations, reflecting her global impact in rheumatology.

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Table 1: Correlation of respiratory infections with vaccination and other predictors.

		2011					2007-2011		
N (99) 2010-2011		**Vaccination**	**Gender**	**Age**	**Duration**	**Smoke**	**Viral infections**	**Bronchitis**	**Pneumonia**
Influenza	P.C.	-.400 (**)	-.167	-.097	-.236 (*)	.131	.134	.497 (**)	.502 (**)
	Sig.	.000	.113	.361	.024	.213	.202	.000	.000
Severe influenza	P.C.	-.217 (*)	-.074	-.081	-.135	.064	.093	.432 (**)	.633 (**)
	Sig.	.037	.482	.446	.201	.545	.379	.000	.000
Viral infections	P.C..	-.673 (**)	-.052	-.157	-.122	.198	.214 (*)	.423 (**)	.252 (*)
	Sig.	.000	.624	.138	.248	.058	.041	.000	.015
Bronchitis	P.C..	-.301 (**)	-.085	-.065	-.215 (*)	.256 (*)	.097	.464 (**)	.707 (**)
	Sig.	.004	.421	.543	.040	.014	.356	.000	.000
Pneumonia	P.C.	-.060	.011	-.103	-.038	-.057	.063	.200	.209 (*)
	Sig.	.572	.920	.332	.720	.592	.549	.056	.045
** Correlation is significant at the 0.01 level (2-tailed). PC- person correlation									
* Correlation is significant at the 0.05 level (2-tailed). Sig.- significant									

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Abstract

Video-based medical evaluation and AI as emerging public health instruments

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Abstract

Background: Video-based medical evaluation is increasingly recognized as a telemedicine modality with substantial public health potential. Traditional follow-up care, however, remains episodic, subjective, and heavily reliant on in-person visits. Functional deterioration between scheduled appointments often goes undetected, while patients and families face burdens such as travel, waiting times, and missed work or school. Healthcare systems are further challenged by resource constraints, cost pressures, and unequal access to specialized expertise.

Objective / Perspective: This talk argues that AI-supported video evaluation should be understood not merely as a technological innovation, but as an emerging public health instrument for secondary prevention, early risk detection, and equitable follow-up care. The first part presents a conceptual overview of opportunities, limitations, and system-level implications, including efficiency gains, prevention of avoidable complications, and strategies to enhance health equity.

Illustrative Example: The second part highlights KinetiCare AI as a practical example of how these concepts can be translated into continuous, prevention-oriented pediatric follow-up. This example demonstrates scalable, data-driven monitoring, deviation-based clinician triage, and support for home-based rehabilitation, illustrating the potential population-level impact of AI-enhanced follow-up pathways.

Conclusion: When responsibly implemented, AI-supported video evaluation can transform follow-up care from episodic encounters into continuous, prevention-focused, and population-level Interventions, aligning with modern public health objectives of safety, equity, and resource efficiency.

Biography of Jan Gödeke: Prof. Gödeke founded Germany's first pediatric telemedicine platform (MATS, Mainz Tele-Surgery) in 2014 and established the country's first pediatric robotic surgery center in 2022. His work also encompasses the strategic advancement of hospital processes and the digital transformation of pediatric healthcare.

Biography of Meenakshi Koul: Ms. Meenakshi Koul is a Scientific Researcher at the LMU University Hospital Munich, working in the Department of Pediatric Surgery on the digitalization of rehabilitation pathways and the promotion of equitable access to care. With over 18 years of clinical experience in cardiopulmonary, orthopedic, neurological, and pediatric rehabilitation across India and Germany, she brings a global, patient-centred public health perspective to digital health innovation.

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Abstract

Self-assembling protein nanocages for advanced vaccine and RNAi therapeutics

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Abstract

Self-assembling protein nanocages (SAPNs) represent a highly adaptable platform for advancing vaccine technologies and RNA interference (RNAi) therapeutics. Formed through the ordered assembly of protein subunits, these nanostructures enable precise multivalent antigen presentation alongside efficient encapsulation of nucleic acids and bioactive cargo. Their architecture supports enhanced stability, targeted delivery, and controlled release, resulting in improved immune activation and therapeutic efficacy. SAPNs are applicable across protein subunit, mRNA, and DNA vaccine platforms, enhancing antigen stability, prolonging immune exposure, increasing cellular uptake, and reducing dosage requirements. In RNAi applications, SAPNs protect siRNA from degradation, facilitate intracellular delivery, and improve endosomal escape. Functionalization with adjuvants or targeting ligands further refines specificity and immunogenicity. Their structural versatility supports the development of effective vaccines against diverse animal and zoonotic viruses, with demonstrated potential in both experimental and clinical settings. In addition to enabling DIVA-compatible and scalable responses, their stability provides a foundation for mass administration through oral delivery. Despite existing challenges, we are currently leveraging this potential to advance the development of veterinary vaccines and therapeutics using this approach.

Biography: Dr. Sohrab Ahmadvand is a scientist at the Faculty of Veterinary Medicine, Ludwig-Maximilians-University of Munich, with over ten years of experience in academic, clinical, and industrial settings, specializing in infectious viral diseases and vaccine development. He has contributed to numerous research and industrial vaccine projects across bacterial and viral pathogens, from surveillance and sample collection to vaccine testing and commercialization. He also has several years of experience as a Vaccine Project Manager in the pharmaceutical industry, bridging research and applied vaccine development. A former Alexander Humboldt Fellow, Dr. Ahmadvand has published and patented multiple findings, received awards and grants for academic excellence and innovation, and is currently developing cutting-edge veterinary vaccines and adjuvants using self-assembling protein nanocage (SAPN) platforms through international collaborations.

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Abstract

Vaccine market, market shaping and regional initiatives for vaccine production

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Abstract

What does the global vaccine market landscape look like? Who buys, who sells, and through which procurement channels? Does demand meet supply — and is this sufficient to secure access? Is the global vaccine ecosystem truly a “market”, and should we want it to be?

Drawing on a dataset covering 115 vaccine products across 207 countries and procurement channels, supplied by 137 manufacturers, this session will present key trends and insights across four thematic areas:

- (i) volume and financial value of vaccines
- (ii) manufacturing capacity and supply
- (iii) vaccine-specific supply dynamics and supply security
- (iv) procurement mechanisms and pricing

Participants will be invited to identify persistent barriers and emerging opportunities in vaccine access, and to critically assess existing approaches in order to act on new solutions that can accelerate equitable access to vaccines worldwide.

Biography: Dr. Georgios Stathopoulos is a Technical Officer in the Department for Immunization, Vaccines and Biologicals at the World Health Organization (WHO), where he focuses on improving access to vaccines. He also serves as the Department’s focal point for the adoption of Artificial Intelligence in immunization. In 2022, Georgios co-led the operational taskforce for the allocation of COVID-19 vaccines under the COVAX mechanism. Prior to joining WHO, he worked as a management consultant at McKinsey & Company, supporting strategy development with a focus on global public health and the energy sector. He has also undertaken independent consultancy roles as a data scientist, working on projects related to internal displacement and education. Georgios holds a Ph.D. in Operations Research and Engineering from École Polytechnique Fédérale de Lausanne (EPFL), an MSc in Systems and Control from Delft University of Technology, and a Diploma in Electrical Engineering from the University of Patras, Greece.

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Abstract

Randomized controlled, clinical blinded study to evaluate the main cause of periodontal disease, the predominant presence of bacteria in percentage, and the total bacterial load before and after non-surgical therapy

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Abstract

Goals: To evaluate the root causes of periodontal disease, with particular emphasis on bacterial predominance and total bacterial load before and after treatment.

Materials and Methods:

Microbiological Tests: Crevicular fluid, colonized by bacteria and containing epithelial cells, was collected from each subject using sterile paper cones (size 60/80). The cones were inserted into the periodontal or peri-implant pocket for at least 30 seconds to ensure adequate absorption of crevicular fluid, avoiding blood contamination where possible. The samples were then placed into test tubes. This procedure was repeated to collect a minimum of two and a maximum of four samples per patient.

The study included 420 patients aged 30–60 years (236 women and 184 men) presenting with moderate to severe chronic periodontitis, characterized by pocket depths of 4–11 mm. A total of 498 samples were collected. In 78 patients, a second sampling was performed following treatment.

Results: The study highlighted that the main contributing factors to periodontal disease include parafunctional habits (such as bruxism, clenching, and atypical swallowing), mouth breathing, dental misalignment, occlusal pre-contacts, and poorly fitting prosthetic restorations. These factors act as primary contributors to disease onset and progression, influencing both bacterial colonization and the overall microbial load.

Biography: Dr. Giuseppe Grech has 35 years of experience, holds 10 master's degrees, and published the book Fluoride No Thank along with two research articles. He has spoken at La Sapienza University, the 3rd International Hybrid Conference on Dentistry and Oral Health in Tokyo, Japan, and the 3rd International Scientx Conferences in Dubai. He serves as the contact person in Italy for the PinHole Technique and is an active speaker.

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Abstract

MenB-containing vaccines: A regulatory journey through innovation, real-world evidence, and future directions

Stefania Bambini*

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Abstract

The development of multicomponent meningococcal serogroup B (MenB) vaccines, together with the evaluation frameworks that supported their licensure and post-licensure use, represents a paradigmatic example of a multifaceted scientific and regulatory approach. This journey progressed from antigen discovery through reverse vaccinology to vaccine licensure and implementation in national immunization programs, enabling the generation of robust real-world evidence and demonstrated impact. From the outset, predicting protection against highly diverse circulating strains posed significant scientific and regulatory challenges. In response, regulatory authorities, researchers, and developers adopted the serum bactericidal assay with human complement (hSBA) as a surrogate correlate of protection, allowing immunogenicity-based evaluation in the absence of feasible efficacy trials. Complementary tools such as MATS and gMATS were developed to estimate vaccine strain coverage, while the endogenous-complement hSBA (enc-hSBA) was introduced to better reflect real-world immune dynamics within clinical trial settings. Extensive post-licensure data have validated the assumptions underpinning licensure, demonstrating vaccine effectiveness across diverse populations and settings. More recently, regulatory approval and recommendation of a pentavalent MenABCWY vaccine in the United States illustrate how combination vaccines can streamline immunization strategies while maintaining high standards of immunogenicity and safety. Given evolving epidemiology and the emergence of new clones, sustained vaccination efforts and vigilant surveillance remain essential for meningococcal disease control. Future directions include optimizing immunization schedules, ensuring equitable access, strengthening genomic surveillance, and advancing next-generation multivalent vaccines to support the global meningitis elimination goals outlined in the WHO 2030 roadmap.

Keywords: Multicomponent MenB vaccines, Regulatory pathways, Reverse vaccinology, hSBA, MATS/gMATS, enc-hSBA, Real-world evidence, Vaccine strain coverage, WHO 2030 roadmap

Biography: Dr. Stefania Bambini is a Global Regulatory Affairs Associate Director at GSK Vaccines with more than 25 years' experience in the vaccines industry, specializing in preclinical investigation and regulatory strategy. She earned a degree in Chemistry and Pharmaceutical Technologies from the University of Siena, Italy, and a PhD in Industrial Biotechnologies from the University of Milano-Bicocca. Stefania began her career in preclinical research at Novartis (formerly Chiron), where she played a pivotal role in the development of a meningococcal B vaccine. After joining Global Regulatory Affairs at GSK in 2013, she focused on the meningitis vaccine franchise and led efforts to advance a pentavalent meningococcal vaccine from early development through regulatory approval in the United States. She recently expanded her interest to monoclonal and bispecific antibodies and investigational vaccines targeting key priority human pathogens, with particular focus on antimicrobial resistance. She has published more than 30 papers in peer-reviewed journals.

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Abstract

Combatting emerging arboviruses: Integrating computational dynamics and QbD in novel API production

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Horto TH, France

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Abstract

Small molecules (<900 Da) are cornerstones of modern drug development for parenteral or oral formulations, particularly nature-derived compounds that offer high structural diversity. However, transitioning a “hit” from small-scale laboratory discovery to large-scale production of clinical excipients or Active Pharmaceutical Ingredients (APIs) requires rigorous process development. Classical molecular dynamics (MM/PBSA) and statistical thermodynamics are applied across various stages to ensure optimal target interaction and bioavailability.

The transition from laboratory to industrial scale demands formulation excellence, necessitating the evaluation of solubility and stability within complex matrices. Crucially, all development must adhere to Quality-by-Design (QbD) principles and ICH/FDA standards to ensure safety and consistency. By integrating automation and high-throughput screening, the path from hit-to-lead is streamlined, ensuring that small molecules targeting zoonotic and emerging viruses are viable for large-scale manufacturing.

This presentation focuses on the Oropouche virus (OROV), an emerging arbovirus within the *Orthobunyavirus* genus (family *Peribunyaviridae*, order *Bunyavirales*) that causes significant outbreaks in Latin America and the Caribbean. Since its first isolation in 1955, more than 30 epidemics have occurred. Symptoms range from high fever and vomiting to, in rare cases, aseptic meningitis. Clinical diagnosis remains challenging due to symptomatic similarities with Dengue, Zika, and Chikungunya viruses.

I will detail the analytical and engineering workflows required to bridge the gap between benchtop research and industrial production. Discussion will include the validation of discovery screening methods and quantitative requirements for targeted assays, ensuring that nature-derived molecules meet stringent regulatory frameworks within a “One Health” approach.

Biography: Dr. Tsvetelina Mandova Demetrio is a pharmacist by training who earned her PhD from the Paris Descartes Faculty of Pharmacy, France, followed by postdoctoral studies at the University of São Paulo, Brazil. She specializes in the hit-to-lead value chain for small molecules, with a dual focus on excipients andActive Pharmaceutical Ingredients (APIs).

Her research centers on the therapeutic potential of nature-derived products for infectious diseases and antivirals, as well as excipients for parenteral vaccine formulations. With over a decade of experience leading industrial R&D at the Gilson Group in France, she possesses deep expertise in process scale-up, automation, and computational analysis. By utilizing Quality-by-Design (QbD) frameworks and adhering to FDA and ICH standards, she manages the entire continuum from early discovery to industrialization. Ultimately, her career is dedicated to translating natural sources into viable, scalable, and clinical-grade therapeutics.

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Abstract

The unique determinants of vaccine technology value, levels of investment, and the future of the vaccine market

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Abstract

The prophylactic vaccine market is unique in three key attributes. First, outside of clean drinking water, no scientific advancement has ever had a higher impact on global health. Second, unlike other technologies, vaccine technology advancement does not automatically replace what is already there with enhanced technology buttends to expand the coverage of vaccines into new infectious diseases. Lastly, while the impact of vaccines on healthcare costs is high, vaccines are still largely only treated as commodities when it comes to pricing, making funding innovation in vaccines tougher to navigate then most biotech innovation. Despite a surge in investment during the COVID-19 pandemic, annual levels of current investment only represent 10% of the levels seen during the pandemic, returning to their pre-pandemic norm. In this talk, we will discuss the current level of investment in vaccine innovation, why it matters for the future of vaccine development and why a different approach could lessen the impact of the commoditized pricing controls to drive more investment and innovation in the space.

Biography: Dr. Danna Hargett is a recognized expert in infectious disease and immunology with an award-winning academic career as a Leukemia & Lymphoma Society Fellow at Princeton University and member of the American Society of Virology. For the past 10 years, she has worked as a subject matter expert for Alcimed, an international consulting firm focused on innovation and new business. In this role, she has advised more than 100 companies, from disruptive startups to major pharma and biotech players on the business strategy required to fund, develop, and commercialize novel vaccine and immunology-based therapeutics spanning autoimmune, oncology, rare, neurology, cardiometabolic, and infectious disease. She has a proven track record of developing the bespoke new product strategies necessary for expanding the breadth of vaccine technologies available and their use cases. Most recently, she has worked on strategies for strengthening the causative linkage between infectious diseases and the development of non-communicable chronic conditions through public-private partnerships and fortifying the mRNA therapeutics ecosystem to provide vaccines and immune-based therapeutics with shorter research and development timelines and higher-quality lower-cost manufacturing.

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Abstract

Invisible strain in plain sight

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Abstract

Background: The global burden of mental health conditions among children and adolescents is increasing at a rate that far exceeds the capacity of health systems to respond. While clinical services remain essential, current global mental health approaches largely emphasize individual diagnosis and treatment, often overlooking the broader social and environmental conditions that influence psychological well-being long before symptoms emerge. Across diverse countries and cultures, children's mental health is strongly shaped by the stability, safety, and predictability of the environments in which they live, learn, and develop. These contextual factors—driven by social policy, economic conditions, and environmental exposures—represent powerful yet underutilized opportunities for prevention.

Objective: This presentation proposes a prevention-oriented framework that positions living environments as fundamental determinants of mental health among children and adolescents globally. It aims to demonstrate how integrating social and environmental contexts into public health strategies can strengthen early intervention, reduce long-term burden, and promote equitable mental health outcomes across diverse settings.

Methods: An interdisciplinary synthesis of evidence from public health, global mental health, social epidemiology, and implementation science was conducted. This approach examines how environmental stressors, social instability, and access to resources influence mental health risk and resilience throughout childhood and adolescence. Comparative examples from high-, middle-, and low-resource settings—including urban, rural, and displaced populations—are used to illustrate common pathways through which structural conditions affect mental well-being across geographic and cultural contexts.

Results: The analysis demonstrates consistent associations between adverse living conditions—such as housing insecurity, chronic environmental stress, social fragmentation, and limited access to supportive spaces—and an increased risk of anxiety, depression, emotional dysregulation, and behavioral challenges among young people. Conversely, environments characterized by stability, social cohesion, safety, and access to developmentally supportive resources are linked to enhanced emotional resilience, adaptive coping, and overall psychological well-being, even in settings where formal mental health services are limited.

Conclusion: Addressing the global mental health crisis among youth requires a fundamental shift from reactive, treatment-centered models toward prevention strategies grounded in social and environmental contexts. By recognizing living environments as active determinants of mental health, public health systems can adopt more upstream approaches—intervening earlier, more equitably, and more sustainably. This framework offers a scalable and culturally adaptable pathway for strengthening mental health promotion and reducing long-term psychological burden among children and adolescents worldwide.

Biography: Dr. Paris Johnson is a public health practitioner and scholar whose work operates at the intersection of epidemiology, spatial analysis, and public health systems design. Trained in both health informatics and population health, Dr. Johnson's work examines how surveillance systems, analytic infrastructure, and policy environments shape real-world health outcomes. Her research and applied practice span infectious disease surveillance, overdose

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epidemiology, and spatial health inequities, with a particular focus on how geography, data systems, and institutional decision-making influence who receives care—and who is overlooked.

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Abstract

Women's lived experiences of female genital mutilation (FGM) and breast ironing (BI): An interpretative phenomenological analysis (IPA)

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Abstract

What does the global vaccine market landscape look like? Who buys, who sells, and through which procurement channels? Does demand meet supply — and is this sufficient to secure access? Is the global vaccine ecosystem truly a "market", and should we want it to be?

Drawing on a dataset covering 115 vaccine products across 207 countries and procurement channels, supplied by 137 manufacturers, this session will present key trends and insights across four thematic areas:

- (i) volume and financial value of vaccines
- (ii) manufacturing capacity and supply
- (iii) vaccine-specific supply dynamics and supply security
- (iv) procurement mechanisms and pricing

Participants will be invited to identify persistent barriers and emerging opportunities in vaccine access, and to critically assess existing approaches in order to act on new solutions that can accelerate equitable access to vaccines worldwide.

Biography: Dr. Ify Nwiwu is a muti award-winning dual qualified nurse academic, lecturer, and international conference speaker with expertise in women's health, advocacy, safeguarding, and culturally sensitive care. Her research focuses on FGM and Breast Ironing, contributing to global discussions on health, policy, and advocacy.

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Abstract

Assessing conditional cash transfers for tuberculosis patients in India: An extended cost-effectiveness analysis

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Abstract

Background: Tuberculosis (TB) patients in India face high out-of-pocket (OOP) costs, particularly when seeking care from private providers. This study evaluates the health and financial protection benefits of increasing conditional cash transfers (CCTs) for private care-seeking TB patients by modeling four alternative CCT scenarios.

Methods: We selected four diverse Indian states—Uttar Pradesh, Bihar, Tamil Nadu, and Maharashtra—representing different TB burdens and socioeconomic contexts. Using R, we modeled CCT scenarios stratified by care-seeking behavior (public vs. private). Outcomes included TB treatment adherence, deaths averted, OOP costs before and after the most generous scenario (Scenario 4), and the number of households experiencing catastrophic (CHE; >20% of annual income) or impoverishing health expenditures (IHE; below the national poverty line of $0.53/day). We also assessed equity using concentration curves and indices.

Results: Greater CCT amounts led to higher adherence and more TB deaths averted in both public and private sectors, though gains plateaued after Scenario 3. For example, in Bihar and Maharashtra, deaths averted increased from 22% and 51% under Scenario 1 to 32% and 62% under Scenario 3, with no further improvement in Scenario 4. Scenario 4 produced the greatest reductions in CHE, especially among public care-seekers in Uttar Pradesh and Bihar. IHE cases fell to zero under Scenario 4 in all but Bihar's public sector. In contrast, gains for private care-seekers were more modest in Tamil Nadu and Maharashtra, likely due to higher baseline costs and more equitable income distributions.

Conclusions: Improving TB-related CCT programs in India requires tailoring interventions by state and care sector. Prioritizing high-burden areas, increasing support for private care, and addressing cost disparities can enhance equity, reduce financial hardship, and improve TB outcomes.

Biography: Michaela is a second-year master's student in the Global Health and Population Department at the Harvard T.H. Chan School of Public Health, concentrating in Nutrition and Public Health Leadership. She graduated summa cum laude from New York University in 2024 with a bachelor's degree in Global Public Health.

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Abstract

Identifying reasons and strategies to reduce missed opportunities for vaccination: A mixed-methods study in the Mifi Health District, Cameroon

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Abstract

Background: Children are vaccinated more than ever, yet millions of children still miss out on routine vaccinations. National immunization programs continue to seek evidence-based strategies to understand the underlying reasons and to design tailored approaches to address them. We wish to identify gaps and more concrete actions for reducing missed opportunities for vaccination (MOV).

Methods: Using a participatory mixed-methods approach, semi-structured questionnaires and focus group discussions were conducted with caregivers and health workers across 17 health facilities in 8 health areas of the Mifi Health District (MHD). Caregivers of children under 24 months who visited health facilities on the assessment day were invited to participate in the study. Health workers were purposively sampled. Both groups were assessed on their knowledge of MOV, their attitude and perceptions towards vaccination. Quantitative data were analysed simultaneously with qualitative data to highlight most relevant results.

Results: A total of 327 caregivers and 260 health workers participated in the study, respectively. Four out of ten caregivers were unaware of the vaccination schedule. The percentage (95% confidence interval) of MOV knowledge was 21.71% (17%; 26%), and 43.5% (35%; 50%) among caregivers and health workers, respectively. Issues related to the low level of knowledge of MOV, vaccine stock-out, health personnel attitude, absence of training of MOV identification, low human resources were expressed as contributors of MOV. Area of change included parents' awareness on MOV and staff, vaccination integration point, and training of staff.

Conclusion: Engaging all stakeholders is essential for reducing missed opportunities for vaccination (MOV). Implementing the identified solutions can help improve vaccination coverage, equity, and the timeliness of immunization. To strengthen these interventions and recommendations, it's important to cross-reference additional data sources and enhance MOV awareness among facility staff and caregivers. Developing locally tailored strategies to address and reduce MOV is also necessary.

Biography: Dr. Solange Whegang Youdom is a Cameroonian statistician and Senior Lecturer at the Faculty of Medicine and Pharmaceutical Sciences, University of Dschang. She holds a PhD in Epidemiology and has recognized expertise in data analysis and statistics, with a specialization in public health and scientific research. Her work focuses on developing statistical methods for analyzing health data, with a strong interest in vaccination, particularly through the secondary analysis of survey databases. She has made significant contributions to scientific research and has authored several publications aimed at advancing knowledge in the field. Passionate about capacity building, she is also actively involved in training initiatives designed to increase the number of women in Francophone Africa who are proficient in statistical tools.

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Abstract

Knowledge, attitudes, practices and implementation barriers in vaccination in hematology: A national survey in Spain

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***Corresponding author**: Juan R. Garcia and Maria A. Doronzo

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Abstract

Introduction: Patients with hematological diseases are at increased risk of preventable infections; however, vaccination coverage in this group remains suboptimal. Vaccine hesitancy affects both the general population and healthcare professionals. As key decision-makers, hematologists influence vaccine uptake; yet structural and organizational barriers may also limit implementation. Expanding the Knowledge–Attitudes–Practices framework to include barriers (KAP-B) may provide a more comprehensive understanding of vaccination gaps.

Objective: To assess knowledge, attitudes, practices, and perceived implementation barriers regarding vaccination among hematology specialists in Spain.

Methods: A cross-sectional survey was conducted among members of the Spanish Group of Hematopoietic Transplantation and Cellular Therapy (GETH-TC). The questionnaire, assessing KAP-B domains, was piloted by a preventive medicine specialist and a hematologist. It was distributed to the CAR-T vaccination consensus working group, including the GETH-TC Infectious Diseases Group and the Vaccines and Monoclonal Antibodies Group of the Spanish Society of Preventive Medicine, Public Health and Healthcare Management (SEMPSPGS). The study received scientific endorsement from GETH-TC, the Spanish Society of Hematology(SEHH) and SEMPSPGS. This report presents a preliminary analysis.

Results: Seventy-five professionals participated (72% male, mean age 45years, SD 1.1). Attending physicians comprised 80% of respondents (31.6% in leadership roles), nurses 9.2%, and medical residents 1.3%; 76% worked in tertiary hospitals.

Participants managed hematologic malignancies (82.7%), allogeneic transplantation (81.3%), allogeneic transplantation (72%), CAR-T therapy (68%), and non-malignant disorders(48%).

During the most recent vaccination season, influenza vaccine uptake among respondents was 81.3%, whereas COVID-19 vaccine uptake was 49.3%. All participants considered vaccination important or very important (100%); >90% supported vaccination against major respiratory pathogens and herpes zoster (HZ). Perceived relevance was lower for hepatitis B (HBV) (68%) and human papillomavirus (49.3%). Guideline awareness was heterogeneous, with 16% reporting no knowledge of national or international recommendations.

Despite high confidence in vaccine safety, knowledge gaps emerged: 16% expressed uncertainty regarding a potential association between vaccine and autism and 24% did not fully reject a link with hematologic disease reactivation. All respondents recommended vaccination to patients, and the proportion who reported “always” recommending vaccination increased from 64% pre-COVID-19 pandemic to 92% afterward. Safety concerns were mainly related to COVID-19 vaccines (28%), while effectiveness concerns affected COVID-19 vaccines (16%) and HZ vaccines (14.7%). HBV vaccination generated no safety or effectiveness concerns.

Responsibility for vaccination was primarily attributed to preventive medicine specialists (87%) and hematologists (89%), followed by patients (76%). Only 60% assigned responsibility to primary care physicians.

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Knowledge-related barriers included limited familiarity with guidelines (54.6%) and insufficient patient knowledge (50.6%). Concerns regarding evidence, confidence, safety, or effectiveness were <20%.

Structural barriers were dominated by patient hesitancy (60%) and lack of time (50.6%), while financial or accessibility issues accounted for <25%.

Responsibility-related barriers included limited leadership involvement (34.7%), shortage of specialized professionals (32%), and unclear responsibility allocation (30.7%).

Proposed improvement strategies were strongly supported, particularly electronic medical record alerts (88%), interdepartmental agreements (89.3%), greater leadership involvement (85.3%), and educational initiatives (>80%).

Conclusions: Surveyed Hematologists show strong pro-vaccination attitudes; however implementation gaps persist. Concerns were concentrated around recently introduced vaccines, whereas long-established vaccines generated virtually no doubts. The expanded KAP-B framework suggests that suboptimal uptake is driven by educational and workflow-related constraints rather than vaccine opposition. Structured implementation models integrating clear guidelines, decision-support tools, and institutional coordination are warranted. A second recruitment phase is planned to increase sample size and the participation of medical residents.

Biography Dr. Juan Rodríguez Bio: Dr. Juan Rodríguez García is Head of the Department of Preventive Medicine at Son Espases University Hospital in Palma de Mallorca, Spain. His clinical work focuses on immunizing immunocompromised patients. He combines clinical practice with teaching as an associate professor in the Chair of Preventive Medicine in the Medical Degree program at the University of the Balearic Islands. He is also involved in independent research at the Balearic Islands Health Research Institute (IdISBa) within the research group “Study of the Immune Response in Human Pathology” and participates in clinical vaccine trials. He contributes to vaccine advisory activities through the Vaccine Study Group of the Spanish Society of Preventive Medicine, Public Health and Health Management (SEMPSPGS), as well as through the Vaccine Advisory Committee and the Autonomous Commission of the Balearic Islands. His research focuses on immunization in immunocompromised patients, vaccine hesitancy, and the development of clinical guidelines for vaccination.

Biography Dr. Maria Angela Doronzo: Dr. Maria Angela Doronzo is a Resident Physician in the Department of Preventive Medicine at Son Espases University Hospital in Palma de Mallorca, Spain. She holds a degree in Medicine and Surgery from the University of Bari “Aldo Moro”, Italy, and earned a Master’s Degree in Public Health from the Carlos III Institute of Health, Madrid, Spain. She has worked in the field of occupational risk prevention in Italy and has also served as an adjunct professor at the Faculty of Medicine of the University of the Balearic Islands. Her research focuses on vaccination and other areas of public health.

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Abstract

Prevention, diagnosis, and treatment of diseases using newly developed scientific traditional Chinese medicine based on Chee theory integrated with modern medicine

Johnson J. H. Wang*

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Abstract

Traditional Chinese Medicine (TCM) has been a pseudo-evidence-based medicine practiced in China since 2700 BC based on a theory—essentially unchanged to this date—with the central theme that life and vitality of the human body is sustained by the power of qi continuously circulating and permeating throughout the body. In 2018, I coined the word Chee to replace qi and began developing the theory of Chee in scientific language and mathematical format. Beginning in late 2024, I empirically validated the electromagnetic, mechanical, and thermal components of Chee, thereby validating the 4700-year-old original TCM theory as well. The results are leading to applications in biology, physiology, pathology, psychology, and medicine for prevention, diagnosis, and therapies.

At this conference, I would like to present two observations significant to public health: the common, difficult-to-treat nail disorder onychomycosis and the importance of multidrug treatment for most infectious diseases. My views are based on STCM perspectives.

For fungal skin and nail infections, our diagnoses were based on symptoms, microscopic exam, and lab tests. While modern medicine treats them as chronic skin and nail diseases, STCM theory recognizes their possibility to expand along the networks of Jing Luo. Indeed, as each Jing Luo either begins or ends at the tip of a toe or finger, it provides specific fungal routes of transmission into the human body via subcutaneous infections. This perspective from STCM theory appears to be consistent with the recently discovered interconnected fascial network below the skin. The new definition of fascia has been broadened to include all collagenous-based soft tissues in the body, including certain tendons, ligaments, bursae, endomysium, perimysium, and epimysium cells that create and maintain the extracellular matrix.

The importance of multi-drug treatment on most infectious diseases has been well established in modern medicine. For example, the treatment of tuberculosis is a combination of streptomycin and PAS or isoniazid.In STCM, the first postulate of the theory of Chee is that Chee, as the canonical biomarker of TCM, is a vector power intensity containing four components: Electromagnetic (EM), Mechanic (ME), Thermal (TH), and Biochemical (BC), denoted by χEM, χME, χTH, and χBC, respectively. The seventh postulate is that each of the four components of Chee must all be adequate and continual, individually and collectively, in harmony like a symphony, for whole-body, whole-life health. Clogging and obstruction in the pathways hinder the flow of Chee, thus degrading health and can lead to diseases and even death.

Biography: Johnson Wang's experience is broad: ranging from health science and technology to business management. At Georgia Institute of Technology, Atlanta, he published many papers, including measuring the distribution of cAMP in the brain in reaction to hormones or drugs since 1976, and the computation of biological systems, such as hyperthermia treatment of cancerous tumors. In 1981 he published a textbook on the theory and computation of complex electromagnetic problems formulated with integral equations. Since 1991 he has been Chief Scientist and President of Wang Electro-Op to Corporation.In 2018 he began to develop a scientific theory for the 47-century-oldTraditional Chinese Medicine. In late 2024 he validated

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the theory empirically. Dr. Wang's formal education led to a BSEE degree from National Taiwan University, MS from Florida State University, and PhD from the Ohio State University. He has been a Life Fellow of IEEE since 2004. His learning in the field of health was self-taught and life-long, effortlessly as everyone else in the family worked in the field of health.

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Abstract

Social needs of non-English speaking pediatric patients at a large safety net hospital in Denver

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Abstract

From December 2022 to May 2024, an estimated 42,000 migrants, primarily from countries such as Venezuela and El Salvador, arrived in the Denver metro area, often with limited support systems to access housing, education, and healthcare. Immigrant families face unique social determinants of health (SDOH) challenges, including barriers to housing, food security, and healthcare access, which contribute to health disparities among children of immigrant parents (Chang, 2019). However, little is known about the specific social determinants of health affecting non-English-speaking pediatric patients in these newly arrived migrant families, limiting resources and funding directed at mitigating these injustices. Methods: This study used Health-Related Social Needs (HRSN) screeners collected at Denver Health, a large Federally Qualified Health Center (FQHC), during well-child and occasional emergency visits. We conducted a descriptive analysis of screeners completed between October 1, 2022- June 18, 2024, among pediatric patients whose preferred language was not English in an attempt to capture the recent wave of migration from Central and South America. The screener captured data on housing, food, transportation, safety, and social work needs. Responses were recorded in the electronic health record (EPIC), anonymized, and stratified by country of origin, zip code, and insurance status. Results: Analysis of this cohort of HSRN screeners revealed a high degree of social needs across this population. In particular, food insecurity was reported by 54.2% of families compared to general rates in Colorado of 10% and at Denver Health of 22%. was seen particularly among Venezuelan (61%) and Nicaraguan (62.9%) families. Housing insecurity, transportation needs, and lack of health insurance (Fig.1) were also elevated compared to the national average and the broader DH populations. Additionally, 51.6% of families requested social work outreach for resources compared to 22% within DH. Conclusion: These findings highlight the urgent need for targeted interventions, policy changes, and increased resource allocation to support our migrant families. The incidence of food and housing insecurity, lack of transportation access, and overwhelming need for social work outreach highlight the systemic barriers non-English-speaking families face in accessing essential services. While the initial analysis had limitations, including the exclusion of non-English, non-Spanish speakers, unclear data on time of immigration, and potential cultural barriers to disclosure of need, the high level of need in this community is apparent. As migrant health becomes increasingly urgent amidst recent policy shifts in 2025, expanding culturally and linguistically appropriate services, improving healthcare access, and educating providers on SODH are critical next steps. These findings underscore the importance of resource allocation strategies that meet the distinct needs of immigrant children and families.

Biography: Sophia Goldin is a fourth-year medical student at the University of Colorado School of Medicine with clinical and research interests in pediatrics, health equity, and immigrant child health. Her work focuses on the social determinants of health among newcomer migrant families in Denver, Colorado. She is passionate about advancing child health through advocacy, patient empowerment, and education. She plans to pursue a career in pediatrics and hopes to continue this work throughout her training.

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