

MARCH 23-24
2026

Virtual Event

6th International Conference on

**FUTURE OF
PREVENTIVE MEDICINE
AND PUBLIC HEALTH**

SCIENTIFIC PROGRAM

DAY 01

MONDAY

MARCH 23, 2026

GMT (Greenwich Mean Time)

06:25-06:30

Opening Ceremony

Topics: Preventive Medicine | Public Health and Healthcare | Midwifery | Healthcare Innovations | Patient Safety | Digital Health | Primary Care | Occupational Health and Safety | COVID 19 | Nursing | Internal Medicine | Family Medicine | Women's Health Psychology and Psychiatric Disorders | Chronic Disease | Telemedicine | Artificial Intelligence in Healthcare

Distinguished Speaker Talks

06:30-06:50

Title: Data and AI Practices Within Healthcare

Keith Sherringham, *ADT-Partners, Australia*

06:50-07:10

Title: Natural Progress History of Asymptomatic Bacterial Vaginosis in Chinese Han Women and Associated Risk Factors

Rui Zhang, *Peking University First Hospital, China*

07:10-07:30

Title: Assessing Fire-Induced Tree Cover Loss and its Contribution to Carbon Emission in BRICS + Nations

Dharmeswar Das, *Assam down town University, India*

07:30-07:50

Title: Addressing Rural Elderly Issues

Vinod Shah, *Janaseva Foundation, Pune, India*

07:50-08:10

Title: Creating a Livable Planet by Direct Carbon Capture at Negative Cost

Shri Pal, *HIMUDA Industrial Area Phase IV, India*

08:10-08:30

Title: Emotional Lifelog using Combination of Environmental and Physiological Indicators

Ichi Kanaya, *Nagasaki University, Japan*

08:30-08:50

Title: Health Service Programme for the Taxi Industry in the City of Tshwane (CoT) South Africa: A Need or a Want "Sharing Perceptions of Stakeholders

Makwena Suzan Mathikhi, *Tshwane University of Technology, South Africa*

08:50-09:10

Title: Causes, Drivers, and Health Implications of Biodiversity Loss

James Osabuohien Odia, *University of Benin, Nigeria*

09:10-09:30 Title: Rockfall hazards in Türkiye based on data up to 2020s

Tayfun Kurt, *Independent Researcher, Turkey*

REFRESHMENT BREAK 09:30-09:40

09:40-10:00 Title: Optimizing Radiotherapy in Left-Sided Breast Cancer: Comparative Evaluation of 3DCRT, VMAT, and Fractionation Regimens Under DIBH

Wassila El Kanawati, *Beirut Arab University (BAU), Lebanon*

10:00-10:20 Title: Low-FODMAP Diet Intervention: A Promising Approach for Managing Irritable Bowel Syndrome

Amani Alawi Alrasheedi, *King Abdulaziz University, Saudi Arabia*

10:20-10:40 Title: Seaweeds in Preventive Medicine: Nutritional and Therapeutic Potentials of Caulerpa and other Marine Algae Against Metabolic Disorders

Gioconda Millotti, *Juraj Dobrila University of Pula, Croatia*

10:40-11:00 Title: Neuroroads VR Rehabilitation Enhances Road-Crossing Skills in Children with Autism, Down's Syndrome, and Healthy Peers

Husam Abuzina, *Palestine Polytechnic University, Palestine*

11:00-11:20 Title: Reproductive and Oncologic Safety of Fertility-Sparing Surgery in Early-Stage Ovarian Cancer: Insights from a Systematic Literature Review

Stylianos Sergios Chatziioannou, *European University of Cyprus, Cyprus*

11:20-11:40 Title: Brain Tumor Diagnosis Through Transfer Learning with CNNs: A Comparative Evaluation of Xception, InceptionV3, MobileNetV2, ResNet50, VGG19 and VGG16 Models on MRI Images

Muhammad Khan, *University of the West of England, UK*

11:40-12:00 Title: Metalinguistic Awareness in Clinical Conditions: Challenges and Potentialities

Maria Antonietta Pinto, *University of Rome "La Sapienza", Italy*

12:00-12:20 Title: Uniform and up to Date Care Worldwide: The Accredited Duchenne Centers Program

Imelda JM de Groot, *World Duchenne Organization, Netherlands*

12:20-12:40 Title: The HPC-AI Low-Code Integration Stack: A Scalable Architecture for Real-Time Governed Intelligence in Healthcare Systems

Harikrishnan Muthukrishnan, *BCBS-Florida, USA*

12:40-13:00	Title: Cervical Cancer Screening After Menopause Nenrot Sandra Gopep , <i>Georgia Southern University, USA</i>
LUNCH BREAK 13:00-13:30	
13:30-13:50	Title: Behavior-in-the-Loop: Validating LLM Agentic Systems for Preventive & Public Health Anand S. Rao , <i>Carnegie Mellon University, USA</i>
13:50-14:10	Title: The Mollie Woods Hare Global Center of Excellence: Advancing Research, Training and Inclusive Care for Individuals with Autism and Intellectual Disabilities Tine Hansen-Turton & Sailaja Musunuri , <i>Woods System of Care, USA</i>
14:10-14:30	Title: Empowering Faculty in Socially Accountable Medical Schools Nicholas Torres , <i>The Network: Towards Unity for Health, USA</i>
14:30-14:50	Title: Sustainable Consumption of Food during Covid 19: A Conceptual Framework through Literature Review with Focus on Awe Soma Sur , <i>St. Xavier's University, Kolkata, India</i>
14:50-15:10	Title: Comprehensive Care for People with Behavioral Addictions and Co-Occurring Disorders Mary E. McCloskey , <i>Celtic Counseling Inc., USA</i>
15:10-15:30	Title: Integration of Model-Based Systems Engineering, Risk Management, and Finite Element Simulation in the Design and Development of Biomaterial-Based Medical Devices Irina Esmeralda Lauritto , <i>National University of Entre Ríos, Argentina</i>
15:30-15:50	Title: Efficacy and Safety of Superior Laryngeal Nerve Block in the Management of Neuropathic Cough: A Systematic Review Vinicius Nickel , <i>State University of Rio de Janeiro, Brazil</i>
15:50-16:10	Title: AI Hallucination Risks and Mitigation Strategies Lucas Domingues dos Santos , <i>University of São Paulo (USP), Brazil</i>
16:10-16:30	Title: Integration of Model-Based Systems Engineering, Risk Management, and Finite Element Simulation in the Design and Development of Biomaterial-Based Medical Devices Sebastian Guzman Alfaro , <i>Universidad Autonoma De Zacatecas, Mexico</i>
16:30-16:50	Title: Efficacy of 20-Minute Yoga vs Walking in Alleviating Burnout Among Healthcare Workers: A Randomized Controlled Trial Vartika Saxena , <i>AIIMS, Rishikesh, India</i>

16:50-17:10 Title: Assessment of Compliance to Tobacco Control Legislation under National Tobacco Control Program in Uttarakhand State of India - A Cross-Sectional Study

Mahendra Singh, *AIIMS, Rishikesh, India*

17:10-17:30 Title: Barriers to HIV Testing Among Partners and Families of PLHIV at ART Centers

Meenakshi Khapre, *AIIMS, Rishikesh, India*

17:30-17:50 Title: Nutritional Status and Dietary Adequacy in People Living with HIV Attending the Selected Antiretroviral Therapy Centres in Uttarakhand: A Cross-Sectional Study

Pragya Yadav, *AIIMS, Rishikesh, India*

NETWORKING

END OF DAY 1

MARCH 24, 2026

Greenwich Mean Time (GMT)

06:25-06:30

Introduction

Topics: Preventive Medicine | Public Health and Healthcare | Midwifery | Healthcare Innovations | Patient Safety | Digital Health | Primary Care | Occupational Health and Safety | COVID 19 | Nursing | Internal Medicine | Family Medicine | Women's Health Psychology and Psychiatric Disorders | Chronic Disease | Telemedicine | Artificial Intelligence in Healthcare

Distinguished Speaker Talks

06:30-06:50

Title: Causal Links Between Diet and Neurodegenerative Diseases: Evidence from Mendelian Randomization

Sen Hu, *Zhengzhou University People's Hospital, China*

06:50-07:10

Title: The Influence of Preoperative Treatment on Preoperative and Postoperative Total Knee & Hip Arthroplasty Outcomes: A Systematic Review

Tachelle Ting, *Flinders University, Australia*

07:10-07:30

Title: Legal and Regulatory Learnings from the European Health Data Space (EHDS)

Nimrod Mike, *Corvinus University of Budapest, Hungary*

07:30-07:50

Title: Quiet Malignancy, Loud Decisions: Low Grade Serous Ovarian Carcinomas in Women Yet to Conceive

Madhumitha J, *Apollo Hospitals, India*

07:50-08:10

Title: Tribals are in Dilemma: Indigenous Health Practices and Modern Health Care Practices- A Case study of the Lodhas, a Criminal Tribe of West Bengal, India

Samita Manna, *University of Kalyani, India*

08:10-08:30

Title: Beyond Economic Metrics: Understanding Wellbeing through Social-Ecological Lenses in Traditional Industries

Ankur Shukla, *Amity University Rajasthan, India*

08:30-08:50	Title: Knee Osteoarthritis Detection and Categorization with Deep Learning Models Gourab Roy , <i>Indian Institute of Technology (ISM) Dhanbad, India</i>
08:50-09:10	Title: Religious Practices and Quality of Life in Palliative Care: Insights from Tanzania Sonia Nada Edward Sokoine , <i>Kairuki University, Tanzania</i>
09:10-09:30	Title: A Fast and Easy To Perform Noninvasive Muller's Muscle Sublimation Technique using Plasma Technology for Treatment of Mild To Moderate Ptosis: A Case Nasrin Raffati , <i>Negah Eye Hospital, Iran</i>
REFRESHMENT BREAK 09:30-09:40	
09:40-10:00	Title: Influential Plant in Medicinal Science and Clove: Tiny Buds with Global Fame Royanama Rahimi , <i>Mashhad University of Medical Sciences, Iran</i>
10:00-10:20	Title: Designing a Self-Reliance Model for Households with Food Insecurity in Iran Masoomeh Gholami , <i>Tehran University of Medical Sciences, Iran</i>
10:20-10:40	Title: Probiotic-Derived Bacteriocins for Veterinary Biofilm Control: Mechanisms, Evidence and One Health Translation Farwa Farooq , <i>Government College University Faisalabad, Pakistan</i>
10:40-11:00	Title: Oral Hygiene Practices of Students Studying Abroad & the Potentiality of Inexpensive Dental Care in South Asia Umana Anjalín , <i>University of Liberal Arts Bangladesh (ULAB), Bangladesh</i>
11:00-11:20	Title: Primary Healthcare Integration Practices in Turkey Sema Safir Sumer , <i>The World Bank, Turkey</i>
11:20-11:40	Title: Digitalization and Decision Support Systems in Healthcare Services: Operationalizing Nutrigenetic Analysis with AI Emin TARAKCI , <i>Turk Telekom, Turkey</i>
11:40-12:00	Title: The Role of Circular Rnas (Circrnas) as A Prognostic Factor in Lung Cancer: A Meta Analysis Sanabil Ahsan , <i>University of Warwick, UK</i>
12:00-12:20	Title: Artificial Intelligence in the Workplace Insights from the Perspective of Disability Management with a Focus on Early Intervention and Occupational Rehabilitation Anne Rosken , <i>ANED – HSG - PCU, Germany</i>

12:20-12:40	Title: Missing the Message to Brain Tumor Patients: A 2023 Twitter Analysis Among Patients, Informal Caregivers, and Healthcare Professionals in Glioblastoma Multiforme Jay Ashesh Jani , <i>Emory School of Medicine, USA</i>
12:40-13:00	Title: The Contribution of Artificial Intelligence to CPET Interpretation Amir Weiss , <i>Medibyt Ltd., Israel Bar-Ilan University, Israel</i>
LUNCH BREAK 13:00-13:30	
13:30-13:50	Title: Enhancing Play Skills in Children with Autism: A Systematic Review of Behavioral Interventions Involving Peers and Adults Goodson Chaidamoyo Dzenga , <i>University of Montana Western, USA</i>
13:50-14:10	Title: Epigenetic Sperm Quality Testing for Predicting Fertility Treatment Success: A Real-World and Multi-Site Analysis Carrie Bedient , <i>The Fertility Center of Las Vegas, USA</i>
14:10-14:30	Title: Integrating Behavioral Health into Primary Care Produces Cost Savings with Refugees: Insights for Preventative Medicine Maria Vukovich , <i>University of Denver, USA</i>
14:30-14:50	Title: A New Approach to Artificial Intelligence and Its Application to Medicine Vladimir Proseanic , <i>Progress, Inc. ; Omega Server Inc., USA</i>
14:50-15:10	Title: Sex Differences in the Association of Liver Fibrosis Severity and Cardiometabolic Profiles Jennifer L. Dodge , <i>University of Southern California, USA</i>
15:10-15:30	Title: Achieving and Maintaining Homeostasis with Molecular Computers Roger Jones , <i>University of North Carolina at Chapel Hill, USA</i>
15:30-15:50	Title: Health Literacy and Digital Health Literacy: Addressing Disparities Among African American/Black Men Evelina Weidman Sterling , <i>Chan Zuckerberg Biohub San Francisco, USA</i>
15:50-16:10	Title: Applications in Public Health: Experience Report on the Development of the VigSaúde® Application Joaquim Teixeira Netto , <i>Ensp/Fiocruz, Brazil</i>
16:10-16:30	Title: Application of a Degenerate RLS Algorithm for Epileptic Seizure Detection Kauã Lima de Queiroz , <i>Institute Federal of Ceará, Pecém, Brazil</i>

16:30-16:50 Title: Multicenter Clinical Trial for the Treatment of Obstructive Sleep Apnea with a Non-Permanent Orthodontic Intraoral Device in Children

Tammarie Heit, *The University of Alberta, Canada*

16:50-17:10 Title: Robotic Assisted Kidney Transplantation and its Nuances: Experience of a High Volume Tertiary Care Centre

Mohan Keshavamurthy, *Fortis Hospital, India*

NETWORKING

END OF DAY 2

BOOKMARK YOUR DATES

7TH INTERNATIONAL CONFERENCE ON
FUTURE OF PREVENTIVE MEDICINE AND PUBLIC HEALTH
March 2027 | Vienna, Austria

DAY 01



VIRTUAL EVENT

6TH INTERNATIONAL CONFERENCE ON

FUTURE OF PREVENTIVE MEDICINE AND PUBLIC HEALTH

MARCH 23-24, 2026

SPEAKER TALKS



Data and AI Practices within Healthcare

Keith Sherringham

ADT-Partners, Australia

The data needs of the healthcare sector span paper records and archives, across digital imaging and real time monitoring, through transactions and databases, which requires digital conversions, legacy systems and cloud-based services working on multiple device and environments. As the on-going application of artificial intelligence (AI) continues across the healthcare sector, the impacts of lengthened logistics chains and integrated value stacks across a diversity of stakeholders in overlapping regulatory and compliance regimes occurs. The automation of operations (especially those of knowledge workers) drives the need for the integration of AI types (whether Generative AI and Agentic AI, or Robotics, or IVR and Chat Bots, or Imaging AI and Facial Recognition) and a premium on the development of supporting regimes for data and metadata (including roles, access and permissions). Healthcare will need its own specific AI sovereign capacities and capabilities, particular for data and the evolving algorithms and models. The sector is innovating existing approaches to AI and will bring additional needs around safety, security, protections, assurance, legal and governance. Using extensive industry experience and sector specific expertise, with worked examples, this session considers aspects of AI and data regimes, and emerging areas of AI and data within the healthcare sector.

Presenter:

Keith Sherringham

ADT-Partners, Australia



Natural Progress History of Asymptomatic Bacterial Vaginosis in Chinese Han Women and Associated Risk Factors

Rui Zhang¹, Zhaohui Liu², Yan Zhang¹, Dai Zhang¹ and Qinqing Liao³

¹Peking University First Hospital, China

²Beijing Obstetrics and Gynecology Hospital, China

³Beijing Tsinghua Changgung Hospital, China

Objective: Asymptomatic bacterial vaginosis (aBV) is prevalent in the general population, while a previous study only investigated the natural history of aBV in women at high-risk. This stage study was to investigate the natural history of aBV in Chinese Han women at general risk and examine risk factors associated with different outcomes.

Methods: Women of reproductive age with aBV were enrolled and prospectively followed up with for four months. Participants were classified into one of three outcomes: progress, self-cure, or no-change. Univariate and multivariate analyses were used to determine the association between potential risk factors and outcomes.

Results: A total of 3420 subjects were screened and 1014 women with aBV were enrolled. Eventually, 984 participants completed the study, with 30 patients dropped out. Among the 984 cases, 42 cases self-cured spontaneously, while 433 cases progressed and 509 cases did not change significantly. Of the 433 cases that progressed, several types of mixed infections were observed in addition to 196 symptomatic bacterial vaginosis. According to univariate analysis, frequent travel (OR, 95% CI, 2.73 [2.09 ~ 3.55]) and history of bacterial vaginosis (BV) (5.47, [4.15 ~ 7.21]) exhibited significant associations with aBV progression, while condom contraception (0.46 [0.36 ~ 0.61]) and lower Nugent score (0.49, [0.37 ~ 0.64]) demonstrated protective effects for self-cure. According to multivariate regression analysis, the risk factors for aBV progression were history of BV (6.67, [4.86 ~ 9.15]) and frequent travel (3.57, 2.59 ~ 4.92). Condom contraception (0.36, 0.26 ~ 0.49) exhibited a protective effect against aBV progression.

Conclusion: Without intervention, a large proportion of aBV would progress, compared to the very few patients whose aBV self-cured spontaneously. It is necessary to clinically intervene aBV patients. Condom utilization can be used as an effective method to improve the outcome of aBV.

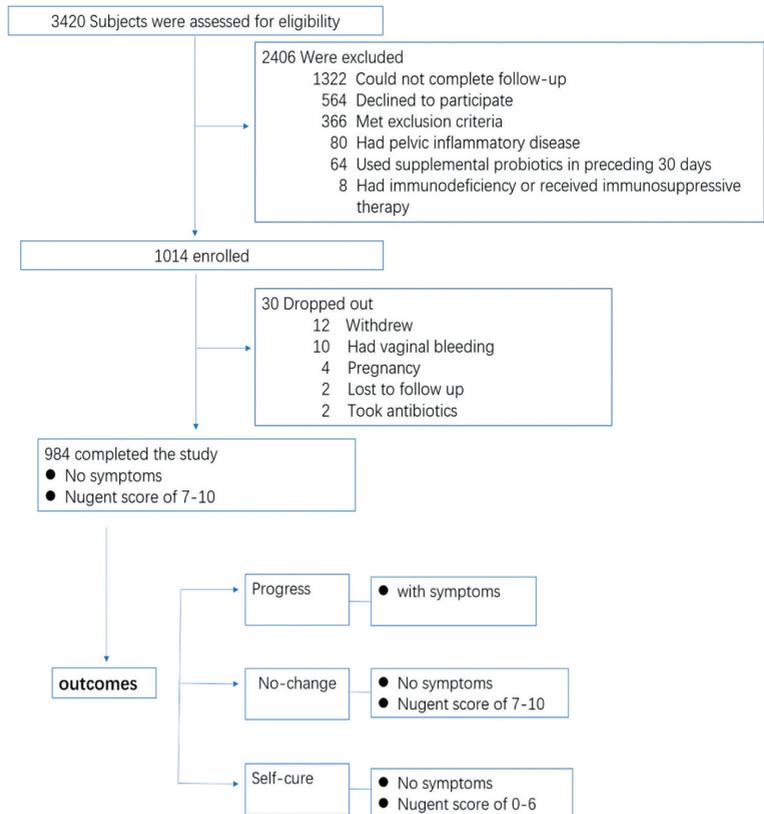


Figure 1. Overview of screening process and progress results.

Table 1. Cumulative number and rate of different outcomes in 4 months.

	1 month			2 months			3 months			4 months		
	N ^a	% ^a	P value	N ^b	% ^b	P value	N ^c	% ^c	P value	N ^d	% ^d	P value
Progress	121	12.3	0.04*	249	25.3	0.00*	340	34.6	0.00*	433	44.0	0.00*
No-change	853	86.7	0.00*	712	72.3	0.00*	614	62.4	0.00*	509	51.7	0.00*
Self-cure	10	1.0	-	23	2.4	-	30	3.0	-	42	4.3	-

a,b,c,d: Cumulative number and rate of patients * Difference between progress and self-cure, difference between No-change and self-cure were analyzed, and most P values were lower than 0.05/3 (adjusted by Bonferroni method). The rate of progress in each month were 12.3%, 15.0%, 12.8% and 15.1% respectively. The rate of self-cure in each month were 1.0%, 1.5%, 1.0% and 2.0% respectively.

Presenter:

Rui Zhang

Peking University First Hospital, China



Assessing Fire-Induced Tree Cover Loss and its Contribution to Carbon Emission in BRICS + Nations

Dharmeswar Das², Dhruva Sharma¹, Manash Patim Kashyap¹, Biswaprasun Chatterji¹, M. K. Modi¹ and N. C. Talukdar¹

¹Faculty of Science, Assam down town University, India

²Directorate of Research, Assam down town University, India

Global loss of forest and tree cover has been mounting over the past few years, from 13.4 million hectares (Mha) in 2001 to 28.3 Mha in 2023, resulting in the loss of 59.33 billion tonnes of carbon dioxide (CO₂). BRICS+ nations contributed 12.9 percent of the global CO₂ emissions from forest and tree cover loss. Analysis of data on carbon emission due to forest fires from 2001 to 2022 revealed that tree cover loss due to fire in these nations is becoming severe, affecting climate, biodiversity, and ecosystems, causing the release of large amounts of atmospheric carbon dioxide. These nations account for approximately 40% of global forest and tree cover loss and represent major contributors to global CO₂ emissions. Time-series analysis predicted that, if significant preventive actions are not undertaken at the regional and global levels, CO₂ emissions from forest fires, especially in these nations, will rise significantly in the next few years. Therefore, understanding the causal role of forest fires in global tree cover loss is crucial for managing emissions from forest degradation and land-use change, and for controlling the global carbon cycle. This review synthesizes knowledge on tree cover loss and carbon emissions from forest fires to enhance our understanding of their impacts on tree cover loss and carbon emissions in BRICS + nations.

Forest fires also contribute to climate change, intensifying global warming, pollution, and water quality deterioration. Wild animals, facing the dangers of forest fires, may also cross into human-populated areas and spread diseases. Understanding and addressing the health effects of forest fires is a vital issue. Protecting wildlife health helps preserve biodiversity and promotes a healthier, more sustainable future. Since forest fires pose significant public health challenges worldwide, expanding research is essential to develop effective policies and interventions that manage the health risks they create.

Presenter:

Dharmeswar Das

Assam down town University, India



Addressing Rural Elderly Issues

Vinod Shah

Janaseva Foundation, Pune, India

India is undergoing rapid demographic ageing, with its elderly population projected to reach nearly 320 million (20%) by 2050, reflecting a global demographic transition recognized by the World Health Organization (WHO). Rural elderly populations face unique challenges due to poverty, migration of younger populations, limited access to healthcare, and weakening traditional family-based caregiving systems. These factors contribute to increased vulnerability, including chronic diseases, disability, malnutrition, mental health disorders, and social isolation.

Community-based research conducted by Janaseva Foundation across 40 villages in rural Maharashtra involving over 1,200 elderly individuals revealed a high prevalence of anaemia (71%), arthritis (68%), hypertension (43%), hearing impairment (54%), visual impairment, and diabetes (29%), with only 30% having access to regular medical care. A multidimensional research study titled “Fifteen Dimensions of Health and their Associations with Quality of Life among Elderly in Rural Villages in Maharashtra,” conducted in collaboration with Duke University, USA, evaluated physical, mental, functional, nutritional, and social dimensions of health and demonstrated that impairments in nutrition, mental health, functional ability, chronic pain, and social participation significantly affect quality of life.

International collaborative research published in the Asia Pacific Journal of Public Health further demonstrated that education, income security, co-residence, and social participation significantly improve generativity and quality of life among elderly populations. The World Health Organization’s Integrated Care for Older People (ICOPE) framework emphasizes strengthening primary healthcare systems, early identification of functional decline, and integrated, community-based geriatric care to improve elderly health outcomes.

The findings underscore the critical importance of decentralized geriatric healthcare, strengthening primary healthcare systems, promoting caregiver support, expanding community-based interventions, and improving awareness of elderly welfare services. Janaseva Foundation, Pune, has been ac-

tively implementing these approaches through integrated rural healthcare delivery, mobile medical units, long-term care services, caregiver training programmes, and community-based elderly support initiatives across multiple rural villages. The Foundation's work demonstrates the effectiveness of strengthening partnerships between non-governmental organizations, government systems, and international institutions, while fostering intergenerational solidarity and person-centred care. These ongoing efforts provide a scalable and sustainable model to ensure healthy, dignified, and productive ageing for rural populations in India and offer valuable insights for similar low- and middle-income settings globally.

Presenter:

Vinod Shah

Janaseva Foundation, Pune, India



Creating a Livable Planet by Direct Carbon Capture at Negative Cost

Shri Pal

HIMUDA Industrial Area Phase IV, India

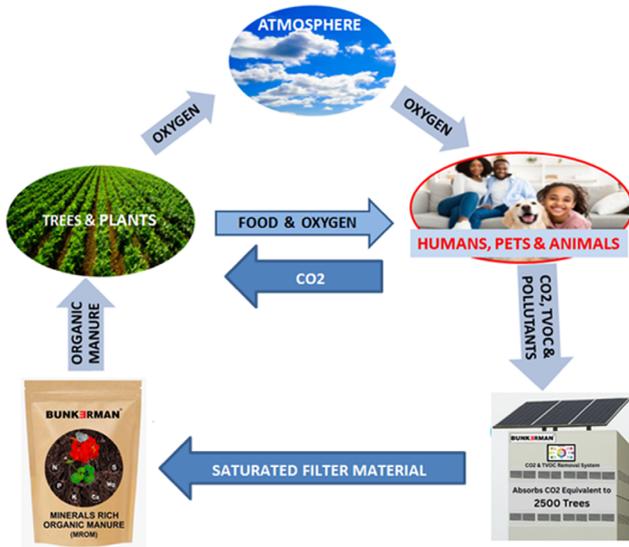
This paper presents a sustainable and eco-friendly system developed by BUNKERMAN that enables Direct Carbon Capture (DCC) at negative cost through an integrated air purification and resource recovery process. The system effectively removes carbon dioxide (CO₂), Total Volatile Organic Compounds (TVOCs), toxic gases, and other airborne pollutants using specially designed chemical filter materials. Once saturated, these filters are not discarded as waste but are instead processed to produce Minerals Rich Organic Manure (MROM), a nutrient-rich organic fertilizer that enhances soil fertility and supports plant growth.

This innovative cycle forms a closed-loop sustainable ecosystem in which pollutants emitted by human activity are captured, converted, and returned to nature in a beneficial form. Trees and plants, nourished by MROM, reciprocate by generating food and oxygen, thereby creating a self-sustaining balance between humans and the natural environment.

In addition to its ecological benefits, the system revolutionizes HVAC (Heating, Ventilation, and Air Conditioning) design by integrating DCC within building ventilation networks. This approach eliminates the need for multiple Air Changes per Hour (ACH)—a major source of energy loss in conventional air conditioning systems. Instead of 4–12 ACH typically required, the new system operates efficiently with just one air change per 24 hours, achieving substantial energy savings.

Field implementations across various projects in India have demonstrated 25–30% reductions in peak cooling load and an additional 25–30% reduction in operational power consumption, resulting in overall carbon capture and energy savings at negative operational cost. Furthermore, buildings equipped with this system can serve as “Emergency Homes or Shelters” during biological, chemical, or pandemic emergencies by maintaining clean and safe indoor air.

This indigenous and scalable technology, rooted in the spirit of “Vasudhaiva Kutumbakam” (The World is One Family), offers a practical and holistic pathway to mitigate global warming and climate change worldwide.



SUSTAINABLE ECO-FRIENDLY SYSTEM BY BUNKERMAN

Presenter:

Shri Pal

HIMUDA Industrial Area Phase IV, India



Emotional Lifelog using Combination of Environmental and Physiological Indicators

Ichi Kanaya¹, Meina Tawaki¹, Munenori Koyasu² and Keiko Yamamoto²

¹Graduate School of Integrated Science and Technology, Nagasaki University, Japan

²School of System Design and Technology, Tokyo Denki University, Japan

In the era of ubiquitous digital recording, lifelogging—continuous documentation of daily experiences—has gained traction. However, the sheer volume of data complicates the retrieval of significant personal moments. This study proposes a lifelog tagging system that uses physiological signals, specifically heart rate data, to detect emotional fluctuations and annotate lifelogs accordingly. By leveraging wearable technology with minimal user burden, the system aims to enable emotionally meaningful indexing of daily experiences.

We implemented this system using an Apple Watch SE to collect heart rate data while a participant viewed emotionally provocative horror films. The synchronized setup allowed for precise alignment between heart rate variations and specific movie scenes. Data points outside one standard deviation from the mean heart rate were flagged as indicators of emotional arousal. These physiological anomalies were cross-referenced with corresponding video scenes to identify emotionally impactful moments.

Case studies involving two films—**Child’s Play (2019)** and **Howling Village (2020)**—demonstrated that scenes associated with significant heart rate fluctuations often matched moments subjectively perceived as emotionally intense, such as fear or surprise. However, the system also highlighted limitations, including inconsistent heart rate sampling intervals and the need to incorporate more nuanced emotional indicators and environmental variables.

This research presents a foundation for emotion-driven lifelog tagging with potential applications in personal memory retrieval, mental health monitoring, and human-computer interaction. Future work will extend the system to natural daily life settings and explore multimodal sensing to refine emotional inference. Ultimately, the system aspires to offer users—and possibly AI agents—a meaningful way to revisit and search emotionally significant episodes in their lives.

Presenter:

Ichi Kanaya

Nagasaki University, Japan



Health Service Programme for the Taxi Industry in the City of Tshwane (CoT) South Africa: a need or a want “Sharing Perceptions of stakeholders”

Mathikhi, Ramukumba and Mabusela

Tshwane University of Technology, South Africa

Objective: The study aimed to explore the perceptions of taxi industry stakeholders regarding the development of a health service program.

Scope: The taxi industry is an occupation that stakeholders have established to cater to the public transportation needs of many South African (SA) commuters in the City of Tshwane (CoT). Taxis form the backbone of public transportation, valuable to many communities, both in rural, suburban, and urban areas. They transport people to and from various destinations, characterized by the presence of health-related challenges and precarious working conditions. The South African Constitution states that all citizens have a right to health; therefore, health services provision for the taxi sector is mandatory, which will be in line with SDG 3 & 6 for the 2030 Agenda. This presentation will focus on stakeholder perceptions regarding the development of a health service program for the taxi industry in the City of Tshwane.

Methods: A qualitative exploratory design using the Community-Based Participatory Research (CBPR) approach was used. The approach promotes co-learning and capacity building among all partners. Data was collected from taxi drivers, rank Marshals, taxi owners, and taxi associations. An engaging fieldworker who assisted in community entry interviews and focus group discussions was employed.

Results: Thematic analysis was conducted to generate results. Four themes emanated, namely, Need for health care services, Environmental challenges, Economic factors related to the provision of health services, and Suggested beneficiaries.

Conclusion: Taxis are the backbone of public transportation in South Africa. Stakeholders indicate a need for a health service targeted at the industry. There is evidence that there are health challenges related to the job, to ensure the well-being and fitness of all stakeholders in the city's transportation system.

Presenter:

Makwena Suzan Mathikhi

Tshwane University of Technology, South Africa



Causes, Drivers, and Health Implications of Biodiversity Loss

James Osabuohien Odia

Department of Accounting, University of Benin, Nigeria

Objective: This study investigates the complex interplay of the causes, drivers, and health implications biodiversity loss, aiming to identify the key factors contributing to biodiversity decline and the impacts on human health. Biodiversity loss represents one of biggest and current global challenges, due to the high depletion and irreversible loss of plants, important crops, animals, and ecosystems.

Scope: The study encompasses a comprehensive review of existing literature on biodiversity loss, its causes, drivers, and the consequences on human health, with a global focus. It also examines the effects of the interactions and interlinkages of the direct and indirect drivers on development, business, climate change, and the United Nations' 2030 Agenda for sustainable development.

Methodology: A systematic review of peer-reviewed articles and reports from reputable organizations including BCG, OECD, World Bank, United Nations, CBD, and IPBES was conducted on the causes, drivers, and their impacts on human health.

Results: The study reveals that biodiversity loss is driven by a complex interplay of direct causes (change in land and sea use, over-exploitation of land and marine resources, climate change, pollution, and invasive species), and underlying drivers (demographic pressures, unsustainable economic models, weak governance, and global trade patterns).The health implications are significant and far-reaching, including increased risk of zoonotic disease emergence, reduced food security by compromising crop genetic diversity, limited access to medicinal resources, and exacerbated mental-health issues.

Conclusion: The study highlights the urgent need for integrated, interdisciplinary strategies to curtail biodiversity loss, promote sustainable consumption, conservation, and strengthen environmental governance in order to promote human health, enhance resilience to climate-related disasters, and ensure long-term sustainability of essential ecosystem services. The findings

underscore the importance to urgent implementation of global efforts, initiatives, and response options such as green growth policy, nature-based solutions (NbS), circular economy practices, natural capital accounting, Kunming-Montreal(K-M) Global Biodiversity Framework, and adopt corporate sustainability standards like CSRD (ESRS-E4), GRI-101, and SBTi for nature or UNEP-FI, in order to halt and reverse biodiversity loss, and restore biodiversity by 2030.

Presenter:

James Osabuohien Odia

University of Benin, Nigeria



Rockfall Hazards in Türkiye Based on data up to 2020s

Tayfun Kurt

Independent Researcher, Turkey

Rockfalls pose a serious threat to human life and infrastructure in Türkiye, especially in mountainous areas. This study presents a comprehensive spatiotemporal analysis of fatal rockfall incidents occurring over the last fifty years. The research identifies a widespread distribution of rockfalls throughout the country, with natural factors such as heavy rainfall, earthquakes, and erosion acting as primary triggers. In addition, anthropogenic activities including uncontrolled construction and mining have significantly increased rockfall risks.

The study highlights the urgent need for improved risk assessment methods, implementation of early warning systems, and strategic land-use planning to mitigate the adverse effects of rockfalls. These findings offer crucial information for policymakers and researchers aiming to enhance community resilience and reduce vulnerability to rockfall hazards in Türkiye.

Presenter:

Tayfun Kurt

Independent Researcher, Turkey



Optimizing Radiotherapy in Left-Sided Breast Cancer: Comparative Evaluation of 3DCRT, VMAT, and Fractionation Regimens under DIBH

Wassila El Kanawati and **Nourhane Moussawi**

Department of Physics, Faculty of Sciences, Beirut Arab University, Lebanon

Two complementary dosimetric studies are presented in this study to optimize radiotherapy for patients with left-sided breast cancer. Quality metrics of treatment plans between three-dimensional conformal radiation therapy (3DCRT) and volumetric modulated arc therapy (VMAT) after mastectomy were compared in the first part. Then conventional and hypofractionated VMAT treatment plans, both implemented using deep inspiration breath-hold (DIBH) following breast-conserving surgery were compared, to find the optimal approach balancing target coverage with Organ at Risk (OAR) protection.

First, a prescription dose of 50 Gy/25 fractions was administered, and plan quality metrics, encompassing target coverage, homogeneity index (HI), conformity indices (CI, CN), uniformity index (UI), dose spillage index, and OAR dosimetry, were evaluated. Paired t-tests were employed to compare 3DCRT and VMAT plans.

Then, two VMAT regimens were evaluated: one delivering 50 Gy in 25 fractions (conventional) and the other 40 Gy in 15 fractions (hypofractionated) during DIBH. The dosimetric parameters comprised CTV coverage, HI, CI, monitor units (MUs), and OAR doses, where a statistical significance level of $p < 0.05$ was established.

The modality comparison revealed that VMAT enhanced target coverage, conformity, and HI in comparison to 3DCRT. Nevertheless, VMAT increased low-dose radiation exposure to the heart and ipsilateral lung (V5Gy, V10Gy), whereas it decreased high-dose parameters (V25Gy, Dmax, lung V20) in comparison to 3DCRT. While hypofractionated VMAT with DIBH offered the same CTV coverage and conformity as conventional VMAT, with better homogeneity and significantly lower heart and lung doses ($p < 0.001$).

These results collectively show that VMAT has dosimetric benefits over 3DCRT for left-sided breast cancer, and support the safety and effectiveness of hypofractionated VMAT with DIBH as an alternative to conventional fractionation. This integrated analysis emphasizes the significance of both

modality choice and fractionation approach in attaining the best possible treatment results while reducing cardiac and pulmonary toxicity.

Presenter:

Wassila El Kanawati

Beirut Arab University, Lebanon



Low-FODMAP Diet Intervention: A Promising Approach for Managing Irritable Bowel Syndrome

Amani A. Alrasheedi¹, Esra A. Jahlan¹ and Marwan A. Bakarman²

¹Department of Food and Nutrition, Faculty of Human Sciences and Design, King Abdulaziz University, Saudi Arabia

²Department of Family and Community Medicine, Faculty of Medicine, King Abdulaziz University, Saudi Arabia

Irritable Bowel Syndrome (IBS) is a prevalent and chronic functional gastrointestinal disorder that significantly impacts patients' quality of life and imposes a considerable burden on healthcare systems worldwide. Characterized by abdominal pain, bloating, and altered bowel habits, IBS lacks a universally effective treatment. Recent dietary strategies, particularly the Low Fermentable Oligosaccharides, Disaccharides, Monosaccharides, and Polyols (FODMAP) diet, have shown promise in symptom management, yet remain underutilized in many clinical settings, including the Middle East. This study aimed to assess the efficacy of a low-FODMAP diet intervention among adult patients with varying severities of IBS in Jeddah, Saudi Arabia—a region with limited data on dietary-based interventions for IBS.

The study implemented a structured low-FODMAP dietary program, incorporating anthropometric assessments (height and weight). A total of 45 randomly selected adult IBS patients were recruited from the family medicine department at King Abdulaziz Hospital and primary healthcare centres at King Fahd Hospital in Jeddah, Saudi Arabia. The severity of IBS symptoms was assessed using the validated IBS-SSS questionnaire developed by the Rome Foundation. Additionally, dietary data were gathered through a validated semi-quantitative food frequency questionnaire (FFQ). Study participants included 68.9% females and 31.1% males, with the age group 18–30 years (66.7% of the total sample), followed by 31–45 years (33.3%). 62.2% were married and 37.8% were single. The mean BMI of the participants was 23.18 ± 2.348 kg/m², 77.8% were classified as normal weight, 17.8%, overweight, and 4.4% underweight. IBS symptoms before the FODMAP intervention program were: 82.2% moderate symptoms and 17.8% severe symptoms. After the program, 86% had moderate symptoms and 14% had mild symptoms. The findings demonstrate that a low-FODMAP diet can significantly reduce IBS symptom severity and promote healthier eating behaviors among adults. However, the restrictive nature of the diet may inadvertently affect nutritional balance and body weight. However, due to the restrictive na-

ture of the diet, it may have contributed to changes in weight and potential nutrient deficiencies. These findings emphasize the importance of implementing such interventions under professional guidance. Further long-term studies are recommended to explore sustainability, patient adherence, and nutritional outcomes.

Presenter:

Amani Alawi Alrasheedi

King Abdulaziz University, Saudi Arabia



Seaweeds in Preventive Medicine: Nutritional and Therapeutic Potentials of *Caulerpa* and other Marine Algae Against Metabolic Disorders

Gioconda Millotti

Juraj Dobrila University of Pula, Croatia

Seaweeds have long been a part of coastal diets around the world, valued for their flavor, texture, and rich nutrient content. In recent decades, scientific research has revealed that these marine vegetables offer far more than simple nutrition—they are emerging as valuable components of preventive medicine. Among them, species belonging to the genus *Caulerpa*, commonly known as sea grapes or green caviar, have attracted significant attention for their diverse bioactive compounds and functional health benefits.

Studies have shown that *Caulerpa* and other edible seaweeds are rich in polysaccharides, polyphenols, carotenoids, vitamins, and essential minerals that play vital roles in metabolic regulation. These compounds have demonstrated anti-diabetic, anti-lipidemic, and antioxidant activities in various experimental and clinical studies. They can help lower blood glucose levels by inhibiting carbohydrate-digesting enzymes, improve lipid metabolism by reducing cholesterol absorption, and protect cells from oxidative stress.

This presentation brings together evidence from recent research highlighting how seaweeds, particularly *Caulerpa* species, can act as functional foods that contribute to the prevention and management of metabolic disorders such as diabetes and dyslipidemia. Beyond their health-promoting effects, seaweeds also represent a sustainable and eco-friendly food resource, supporting both human well-being and environmental balance.

By exploring the nutritional composition, bioactive mechanisms, and therapeutic potential of *Caulerpa* and related seaweeds, this talk emphasizes their role in bridging marine biodiversity with modern preventive nutrition—demonstrating how a traditional food from the sea can become a modern tool for maintaining metabolic health and preventing chronic disease.

Presenter:

Gioconda Millotti

Juraj Dobrila University of Pula, Croatia



Neuroroads VR Rehabilitation Enhances Road-Crossing Skills in Children with Autism, Down's Syndrome, and Healthy Peers

**Husam Abuzina, Mousa Al-Refayah, Ahmad Sultan
and Amjad Khamayseh**

Palestine Polytechnic University, Palestine

NeuroRoads is a virtual reality (VR)–based therapeutic training system developed to improve road-crossing safety skills in children with disabilities, including Autism Spectrum Disorder, Down Syndrome, and other developmental disorders, as well as typically developing children.

The objective of this work is to provide a safe, controlled, and engaging alternative to real-world road-crossing training while reducing associated risks.

The scope focuses on children's motor coordination, attention, and safety awareness within simulated urban traffic environments of increasing complexity.

The methods involve the design and implementation of an adaptive VR game that simulates real-world streets, traffic signals, and vehicle behaviors, with difficulty levels dynamically adjusted based on user performance and therapist-defined parameters.

The results indicate improved engagement, increased task completion accuracy, and enhanced safety awareness during simulated road-crossing scenarios, as observed through in-game performance metrics and therapist feedback. A summary of performance progression is presented in one table, while one figure illustrates the system workflow and adaptive training structure.

The conclusion is that NeuroRoads demonstrates strong potential as an effective and safer complementary tool for therapeutic road-safety training, supporting healthcare professionals in delivering personalized and risk-free interventions.

Presenter:

Husam Abuzina

Palestine Polytechnic University, Palestine



Reproductive and Oncologic Safety of Fertility-Sparing Surgery in Early-Stage Ovarian Cancer: Insights from a Systematic Literature Review

Stylianos Sergios Chatziioannou¹, Varvara Papisideri² and Sofoudis Chrisostomos³

¹School of Medicine, European University of Cyprus, Nicosia, Cyprus

²School of Humanities, Social and Educational Sciences, European University of Cyprus, Nicosia, Cyprus

³Department of Obstetrics and Gynecology, Maternity Hospital, Elena Venizelou, Elena Venizelou

Background: The challenge of balancing future fertility and oncologic safety is a critical concern for young women diagnosed with early-stage ovarian cancer. Fertility-sparing surgery (FSS), which aims to preserve reproductive potential while achieving adequate cancer control, is increasingly being considered in carefully selected cases. However, comprehensive data evaluating both reproductive outcomes and long-term survival remain limited.

Objective and Methods: This systematic review consolidates and critically examines recent studies addressing FSS in FIGO stage I ovarian cancer. We searched major medical databases for articles published in the last two decades, including both retrospective and prospective studies. Key inclusion criteria encompassed women aged 18-45 with stage I disease who underwent FSS, with reported data on reproductive and oncologic endpoints.

Results: Analysis across multiple cohorts reveals that, for appropriately staged and selected patients, FSS is associated with favorable oncologic outcomes. Recurrence rates remain low and are generally comparable to those observed following more radical surgery, particularly in stage IA and IB tumors with low-risk histology. Furthermore, a substantial proportion of women successfully achieved pregnancy post-treatment, highlighting the reproductive potential retained after FSS. Nevertheless, careful patient selection and thorough surgical staging are paramount to minimizing the risk of relapse, especially in cases involving higher-risk histological subtypes.

Conclusion: Fertility-sparing surgery represents a viable option for select women with early-stage ovarian cancer, balancing the possibility of future childbearing with the imperative of oncologic safety. Ongoing follow-up and interdisciplinary management are essential, and further research is needed to optimize criteria for patient selection and to refine follow-up strategies.

Presenter:

Stylianos Sergios Chatziioannou

European University of Cyprus, Nicosia, Cyprus



Brian Tumor Diagnosis Through Transfer Learning with CNNs: A Comparative Evaluation of Xception, InceptionV3, MobileNetV2, ResNet50, VGG19 and VGG16 Models on MRI Images

Muhammad Khan², Ahmeed Suliman Farhan¹ and Muhammad Khalid¹

¹University of Hull, UK

²University of the West of England, UK

Early and accurate brain tumor detection is essential for improving patient outcomes, and MRI is a widely used imaging modality for this purpose. However, manual interpretation of MRI scans is time-consuming, error-prone, and dependent on radiologist expertise. Automated computational methods can therefore support clinicians by improving efficiency and consistency. Convolutional neural networks (CNNs) have shown strong performance in medical image classification, but they typically require large volumes of annotated training data. In medical imaging, obtaining labelled datasets is difficult due to privacy constraints and the need for expert annotation. To address this limitation, transfer learning can be applied, enabling models pre-trained on large datasets to be adapted to brain tumor classification, reducing data demands and accelerating training convergence.

This study compared VGG16, VGG19, ResNet50, MobileNetV2, InceptionV3, and Xception for brain tumor diagnosis from MRI images. Two training strategies were evaluated: training from scratch without transfer learning and training using ImageNet-based transfer learning. Model performance was tested on two datasets (A and B). Without transfer learning, results varied considerably, with VGG16, VGG19, and MobileNetV2 performing poorly, while ResNet50, InceptionV3, and Xception showed stronger adaptability to dataset complexity. Under transfer learning, VGG16, VGG19, MobileNetV2, and ResNet50 improved substantially, with ResNet50 achieving the highest accuracy of 96.95% on dataset B. In contrast, InceptionV3 and Xception did not benefit similarly, as their classification performance was negatively affected when transfer learning was applied.

Presenter:

Muhammad Khan

University of the West of England, UK



Metalinguistic Awareness in Clinical Conditions: Challenges and Potentialities

Maria Antonietta Pinto

Department of Developmental and Social Psychology
University of Rome "La Sapienza", Italy

Metalinguistic awareness (MLA), broadly defined as the product of a meta-cognitive activity focused on the structural aspects of language, has captured the attention of several disciplines, from theoretical and applied linguistics, developmental and educational psycholinguistics, which all underline the involvement of higher-order processes than basic comprehension and production abilities. Recently, Melogno and Pinto (2026) proposed an integrated view of MLA that interconnects three perspectives: developmental, methodological, and clinical. On the clinical side, the authors considered eight conditions among the most investigated from the cognitive and psycholinguistic point of view: Developmental Language Disorder (DLD), Attention Deficit Hyperactivity Disorder (ADHD), Developmental Dyslexia (DD), Autism Spectrum Disorder, (ASD), Williams Syndrome (WS), Down Syndrome (DS), Klinefelter Syndrome (KS), Agenesis of the Corpus Callosum (ACC). After an overview of the cognitive and linguistic profiles of each condition, the authors reviewed the main findings of the intervention programs devised to overcome the most typical weaknesses. In this presentation, we will focus on the type of training that addresses language abilities in such a way as to stimulate reflection, and thereby transform basic usages into metalinguistic abilities. We will thus show that it is possible to strengthen a variety of basic language skills, phonological, morphological, grammatical, lexical-semantic, pragmatic, narrative, and literacy skills, paving the way for building up a meta-level. We will consider, in particular, the major outcomes of training programs for DLD, WS, ASD, and ACC in light of the potentialities these outcomes reveal to enable individuals in those clinical conditions to evolve toward significant forms of MLA. We believe that, although limited in number and costly in organizational terms, these interventions open up new theoretical horizons to the researchers concerning the presumed linguistic processing limitations of certain clinical populations, and new hopes of improving the quality of their lives.

Presenter:

Maria Antonietta Pinto

University of Rome "La Sapienza" Italy



Community Impacts of Aviation Noise and Implications for Policy

Imelda de Groot¹, Karolina Podolská¹, Nathalie Goemans² and Elizabeth Vroom¹

¹World Duchenne Organization, The Netherlands

²Chair Advisory Board Accredited Duchenne Centers Program, Belgium

Duchenne muscular dystrophy (DMD) is a rare genetic muscle disorder located on the X-chromosome and becoming manifest in childhood. Next to skeletal muscles also the heart, the respiratory muscles and the brain are involved. The disorder has a specific pattern in the developing symptoms that makes it possible to discern phases and to develop standards of care for each phase.

The World Duchenne Organization (WDO) is a worldwide consortium of patient organizations, and expressed the wish to have worldwide uniform and up to date care. For this reason the Accredited Duchenne Centers (ADC) Program was set up. Based on the standards of care and consensus guidelines criteria were formulated, that were discussed with experts from around the world. The first step in the accreditation process is a pre-visitation questionnaire, and if a center fulfills the pre-visitation criteria, a visitation is planned. A center must have a support letter of the local patient organization, and via this patient organization questionnaires are sent out to patients and parents with questions concerning their experience with this center. Then a live visitation takes place, with interviews of all team members and patients. A final report with recommendations to improve care is made. If a center fulfills all the visitation criteria it gets the accredited status. As yet 10 centers are accredited around the world.

In this presentation we want to elucidate how we developed the program, the experiences the visitation teams had, and the experiences of the visited centers. The status of an accredited center is not the only thing that they achieved, but also guidance to improve, support to the management, and develop networks. We do believe that the whole process and results are also applicable for other disorders.

Presenter:

Imelda de Groot

World Duchenne Organization, The Netherlands



The HPC–AI Low-Code Integration Stack: A Scalable Architecture for Real-Time, Governed Intelligence in Healthcare Systems

Harikrishnan Muthukrishnan

BCBS-Florida, USA

Healthcare systems generate massive amounts of data continuously and demand real-time application intelligence across clinical, operational, and administrative workflows. While high-performance computing (HPC) and artificial intelligence (AI) provide unprecedented computational capability, their direct adoption remains constrained by system complexity, workforce specialization, and governance requirements. In parallel, low-code platforms have matured into enterprise-grade orchestration layers but lack native access to large-scale computational power.

This paper introduces an innovative HPC–AI Low-Code Integration Stack. This multi-layered architectural model unifies low-code application development, governed API orchestration, AI services, and HPC infrastructure into a single operational framework. By abstracting away, the complexity of parallel computing and AI behind secure, policy-aware services, the architecture enables real-time, compliant intelligence to be embedded directly into healthcare workflows. The paper presents the architectural pattern, design principles, and representative healthcare use cases, demonstrating how the proposed stack accelerates innovation while preserving trust, scalability, and regulatory compliance.

Presenter:

Harikrishnan Muthukrishnan

BCBS-Florida, USA



Cervical Cancer Screening After Menopause

Nenrot Gopep¹, Ho-Jui Tung¹, Gila Schwarzschild² and Ming-Chin Yeh²

¹Georgia Southern University, USA

²Hunter College, USA

Background: About 14,000 women develop cervical cancer each year in the United States. Human Papillomavirus (HPV) vaccination is an effective primary prevention measure for HPV infections and cervical cancer among adolescents and young adults. For middle-aged and older women, they rely on secondary prevention (i.e., cancer screening) for early detection of cervical cancer. The average age at which women receive a cervical cancer diagnosis is around 50, when most women are in the middle of perimenopause. In this study, we use data from a longitudinal survey to examine whether going through menopause is associated with cervical cancer screening behavior four or eight years later.

Methods: Data were taken from 2012, 2016, and 2020 waves of the Health and Retirement Study (HRS), a longitudinal survey of middle-aged and older adults in America. Using the 2012 and 2016 waves as baselines, two four-year ($n = 1011$ and $n = 1263$) and one eight-year ($n = 823$) longitudinal analyses were conducted. The lost follow-ups and those who have had a hysterectomy were excluded. Hierarchical logistic regression models were used to compare women who had gone through menopause to those who were premenopausal or perimenopausal at each of the baselines in terms of their likelihood of having a pap smear test four or eight years later.

Results: Women who had gone through menopause were less likely to have a pap smear test four or eight years later when compared to those who were still premenopausal or perimenopausal at baseline. Women who had gone through menopause in 2016 were less likely to have a pap smear test by 2020 (Odds Ratio = 0.76, $p < 0.05$). A similar association was found among women who had gone through menopause at the baseline of 2012 after controlling for their previous pap smear behavior and other covariates.

Conclusions: The American Cancer Society recommends cervical cancer screening until age 65. Our findings suggest decreased screening after menopause. More research is needed to understand factors influencing screening in this population.

Presenter:

Sandra Gopep

Georgia Southern University, USA



Behavior-in-the-Loop: Validating LLM Agentic Systems for Preventive & Public Health

Anand Srinivasa Rao

Distinguished Service Professor of Applied Data Science and AI, Carnegie Mellon University, USA

Large language model (LLM)–based agents are moving beyond chatbots to become active participants in healthcare—offering coaching, referrals, decision support, and longitudinal follow-up. Yet their real-world impact depends not just on accuracy, but on how well they understand and respond to human behavior under uncertainty. Most current evaluations fall short—focused on static benchmarks, not on the behavioral dynamics that define preventive and public health success.

This talk introduces **Behavior-in-the-Loop (BitL)**: a simulation-based validation framework for LLM agents that embeds them in behaviorally rich, system-level models before deployment.

BitL draws from three lines of work. First, we present a behavior modeling framework that captures individual (adherence, fatigue), social (caregiver influence, misinformation), and institutional (workflow, incentives) factors. Second, we show how agent-based simulation—originally used for epidemic response—can connect behavioral dynamics to outcomes like access, equity, and cost. Third, we highlight a multi-agent Sleep Disorder system, combining clinical SME agents with 24-month synthetic care journeys and a validation pipeline measuring safety, guideline fidelity, and factual consistency.

BitL validation proceeds in five steps: simulate diverse personas; model behavior change over time; embed the LLM agent into care pathways; track key outcomes (e.g., safety, adherence, caregiver burden); and iterate across scenarios until performance stabilizes within credible bounds.

We illustrate the approach through sleep-health use cases and discuss potential extensions to other areas like vaccination, metabolic risk, and preventive screening.

Key message: To make LLM agents trustworthy in preventive health, we must treat them as behavioral participants, not just tools. BitL offers a reproducible, behavior-aware method to test, compare, and improve agentic systems—ensuring alignment with real-world goals before clinical integration.

Presenter:

Anand Srinivasa Rao

Carnegie Mellon University, USA



**The Mollie Woods Hare Global
Center of Excellence: Advancing
Research, Training, and Inclusive
Care for Individuals with Autism and
Intellectual Disabilities**



Tine Hansen-Turton and Sailaja Musunuri

Woods System of Care, USA

The Woods System of Care (WSOC), in partnership with The Network: Towards Unity for Health (TUFH), established the Mollie Woods Hare Global Center of Excellence in Intellectual Disability, Autism, and Mental Health, a global hub for research, training, and international collaboration to improve care for individuals with IDD, autism, and related mental health conditions. In the U.S., about 1 in 31 children is diagnosed with autism, while globally, the WHO estimates 1 in 100 children are affected. Data from 2009–2017 show that 1 in 6 children aged 3–17 has a developmental disability, underscoring the urgent need for equitable care.

To address these challenges, the Center advances research, develops a clearinghouse for evidence-based clinical guidelines, strengthens healthcare workforce capacity, and influences policy to reduce disparities. Central to these efforts is the Community of Practice, a global network of experts who collaborate to identify challenges, share best practices, and improve care for neurodivergent populations.

Building on this collaborative approach, the Center co-created the paper, *Advancing Care for Individuals with Autism and IDD: A Review of Global Guidelines and Practices, Gap Analysis, and Recommendations for Improvement*, which undertakes a comprehensive review of global clinical guidelines, workforce competencies, and culturally sensitive practices for autism and IDD care. Using systematic literature searches and consultative meetings with global experts, the study identified gaps in existing frameworks, particularly in trauma-informed care, sexual health, caregiver support, lifespan transitions, and equitable access. The paper proposes practical, context-sensitive strategies for inclusive, person-centered care, emphasizing long-term support, dignity, and active involvement of individuals with autism and IDD.

The Center has also co-created training programs for U.S. healthcare providers to enhance IDD care, now being adapted globally with specialized autism modules. By integrating research, education, and practice, the Center aims to build a global ecosystem improving outcomes for neurodivergent individuals.

Presenters:

Tine Hansen-Turton & Sailaja Musunuri

Woods System of Care, USA



Empowering Faculty in Socially Accountable Medical Schools

Nicholas Torres

The Network: Towards Unity for Health, USA

Social Accountability is a principle and value that inspires health actors to better respond to people and society's priority health needs today and in the future. Across the globe, too many people die from preventable causes and struggle with ill health because of inadequate access to appropriate care. The lack and maldistribution of the health workforce, as well as discrepancy between the needs of people and the competencies and experiences that health professionals possess, are both barriers to achieving Universal Access and Universal Health Coverage for all. Evidence is emerging that who gets educated, what topics they study, where and how their learning takes place, each influence career choices and future practice locations. Increasing the social accountability of health workforce education institutions and their graduates is now recognized as an effective mechanism for maximizing their positive impacts on health and health systems.

In response, global frameworks and policies are embracing social accountability strategies to improve the quantity, quality, and relevance of health workforce education, all to ensure that countries have well-trained interprofessional teams who are ready and willing to work with and in communities to address their unique and self-identified health needs, wherever they live.

The application of the principles of social accountability is realized through The Indicators for Social Accountability Tool (ISAT) which assists health training institutions in their journey to become more socially accountable to the public, the community and the people they serve. It addresses student recruitment, selection and support, faculty recruitment and development; what how, and where students learn, research activities; governance and community engagement; school outcomes; and societal impact.

Objectives:

- 1) Participants will understand the institutional standards to becoming a socially accountable medical and allied health faculty.
- 2) Participants will identify the essential key stakeholders (policy makers, health administrator, communities, academic institutions, and health professionals) to engage in the institutional social accountability self-assessment process.

Presenter:

Nicholas Torres

The Network: Towards Unity for Health, USA



Sustainable Consumption of Food during Covid 19: A Conceptual Frame work through Literature Review with Focus on Awe

Soma Sur and Arundhati Das Chatterjee

St. Xavier's University, Kolkata, India

Ongoing environmental degradation and continuous research on its impact on human lives have made it clear that one of the ill-effects of ecological imbalance is the emergence of life-threatening diseases that can create devastation. Even before mankind fathomed its true implication the world witnessed Covid 19 that wreaked havoc globally. Among the different areas of life which were affected in the pandemic, it is noted that consumers' choice behaviors about consumption of food during Covid 19 has been influenced by awe, both by its positive and negative dimensions and has started shifting towards sustainable consumption. It therefore becomes pertinent to study whether pandemic experience has brought this change.

The objective of this study was to develop a model of sustainable consumption of food during Covid 19. It also aims at identifying the key constructs including awe that played an influencing role on sustainable consumption of food.

The research design used in this study to gain an insight on the factors that motivated consumers towards sustainable food consumption during the Covid 19 period is conceptual. The study used a structured literature review with bibliometric analysis to develop the conceptual model. The first step includes understanding the concept of "awe" which is which has a special focus in this study. For the purpose relevant publications were selected from databases like Scopus, Dimensions.AI, and Semantic Scholar.

The study identified five major constructs, Attitude, Health Concern, Perceptions, Awareness and Awe which played an important role in influencing sustainable consumption of food during Covid 19. The study revealed that awe can impact consumer behaviour through re-examining attitude towards consumption and correct unhealthy lifestyle and move towards pro-social and green behaviour thereby motivating sustainable consumption.

The relevance of the study is highlighted by the importance of the looming threats of more pandemics and it's impact during the continuous deterio-

rating ecological balance. The study developed a framework that is not only relevant for Covid 19 but leaves a scope for application and research in years to come, in similar crises.

Presenter:

Soma Sur

St. Xavier's University, Kolkata, India



Comprehensive Care for People with Behavioral Addictions and Co-Occurring Disorders

Mary E. McCloskey¹, Carrie VanMeter² and Clarissa Mulligan-Attara³

¹University of the Cumberland, USA

²Capella University, USA

³Yorkville University, Canada

The proposed presentation examines the application of a collaborative approach to treating individuals diagnosed with co-occurring disorders (COD) and behavioural addictions (BA). Authored by recognized experts in addiction-related disorders, this conceptual work constitutes Chapter 12, “Comprehensive Care for People with Behavioural Addictions and Co-Occurring Disorders,” from the academic volume edited by Angela L. Colistra, *Equipping the Interdisciplinary Workforce to Treat Substance Use Disorders and Behavioural Health*. The chapter is intended to provide foundational knowledge through a transformative educational lens, contributing to a comprehensive and collaborative academic resource.

Chapter 12 outlines contemporary conceptual definitions and diagnostic criteria for BA and COD, including substance use disorders (SUD), as defined by the American Psychiatric Association. It addresses the current classification of BA in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) and the International Classification of Diseases (ICD-11) and offers recommendations for potential reclassification. The exclusion of multiple behavioural addictions from current frameworks poses significant barriers to provider education, patient care, and future research. Evidence-based practices (EBPs), encompassing both abstinence-based and harm reduction approaches, are discussed within the context of the brain disease model and the biopsychosocial-spiritual (BPS) model, emphasizing the importance of culturally sensitive treatment modalities.

The primary objective of this work is to highlight the necessity for providers to competently identify and address behavioural addictions—both as isolated concerns and in conjunction with comorbidities—to enhance the provision of comprehensive care. By fostering agreed-upon nomenclature and clear classification systems, this knowledge aims to advance prevention efforts and improve treatment outcomes at every level for individuals affected by behavioural addictions and co-occurring disorders.

Terms: Behavioral addictions, Co-occurring disorders, Behavioral process addictions, Treatments for Behavioral Addictions.

Presenter:

Mary E. McCloskey

University of the Cumberlands, USA



Integration of Model-Based Systems Engineering, Risk Management, and Finite Element Simulation in the Design and Development of Biomaterial-Based Medical Devices

Irina E. Lauritto¹, Pablo M. Madrid¹, Angela V. Gabirondo Sigura¹, Lucas D. Fernández Gimenez¹, José T. Molas Giménez² and José O. Angelini²

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In this work, Model-Based Systems Engineering (MBSE) was applied to the development of biomaterial-based biomedical devices. This methodology relies on models to represent and design complex systems, providing a clearer understanding of device–host interactions and system behavior. MBSE supports the specification of functional and regulatory requirements, system interactions, simulation, and verification processes for biomaterial-based devices. Furthermore, Risk Management (RM) can be seamlessly integrated within this framework. While RM follows the guidelines of the ISO 31000 standard, MBSE provides the structure to determine where, when, and how to apply RM effectively throughout the product lifecycle. The system was modeled using the System Modeling Language (SysML), and Finite Element Analysis (FEA) was incorporated for validation purposes within a unified modeling environment. The proposed approach is based on the Integrated Systems Engineering and Pipelines of Processes in Object-Oriented Architectures (ISE&PPOOA) methodology, which enhances requirement traceability and interdisciplinary communication across all development stages.

A hip prosthesis serves as a case study to demonstrate the methodology. System-level models define functional and physical requirements, which are linked to 3D geometric representations and FEA simulations. This integration enables early evaluation of structural performance, identification of potential failure modes, and validation of design decisions before physical prototyping.

Risk management is incorporated as a continuous process, allowing early detection, assessment, and mitigation of design and manufacturing risks.

The combination of MBSE, simulation, and risk analysis improves design robustness, shortens development cycles, and supports compliance with regulatory standards.

The results highlight the potential of an integrated MBSE approach to create biomaterial-based medical devices. This framework provides a practical path toward more reliable and efficient development of next-generation biomaterial systems and implants.

Presenter:

Irina E. Lauritto

National University of Entre Ríos, Argentina



Efficacy and Safety of Superior Laryngeal Nerve Block in the Management of Neuropathic Cough: A Systematic Review

Vinicius Nickel¹, Andrea Campagnolo¹ and Michael S. Benninger²

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Objectives: To systematically review the efficacy and safety, both short and long-term, of superior laryngeal nerve block (SLNB) for managing neuropathic cough.

Methods: A literature search was conducted using the keywords "Superior laryngeal nerve block," "Neurogenic Cough," "Neuropathic Cough," and "Refractory Chronic Cough." The primary outcome was cough-specific quality of life (QoL), evaluated with validated patient-reported outcome measures (PROMs) such as the Leicester Cough Questionnaire (LCQ), Cough Severity Index (CSI), and Hull Airway Reflux Questionnaire (HARQ). Additional data included SLNB technique, cough duration, use of neuromodulators and Behavioral Cough Suppression Therapy (BCST), injection frequency, vocal fold dysfunction (VFD), and adverse events. Quality assessments used the Methodological Index for Non-Randomized Studies (MINORS) criteria.

Results: Ten studies comprising 625 patients were included. The average cough duration prior to intervention was 78 months, with a mean follow-up of 5,01 months. Patients received an average of 2.5 injections. Short-term outcomes showed consistent improvements in PROMs and cough perception. Long-term outcomes (beyond three months) were reported in four studies, with minimal variations but no statistical comparisons to baseline scores. Significant heterogeneity was noted across studies, including differences in assessment protocols and adjunctive therapies. No significant adverse events were reported.

Conclusion: SLNB is a safe and effective treatment for refractory chronic cough, either alone or with systemic medications. However, the variability

among studies highlights the need for standardized protocols and further research with long-term follow-up to confirm its efficacy.

Presenter:

Vinicius Nickel

State University of Rio de Janeiro, Brazil.



AI Hallucination Risks and Mitigation Strategies

L. Domingues-dos-Santos, T. F. H. Maltarollo, M. C. Skelton-Macedo

Faculty of Dentistry, University of São Paulo (USP), São Paulo, Brazil

Large Language Models (LLMs) are increasingly adopted to support evidence-based clinical practice by accelerating access to scientific literature, summarising findings, and assisting clinical communication. However, a critical limitation persists: LLMs can generate outputs that are fluent and persuasive yet factually incorrect (“hallucinations”). As highlighted in my recent publication (AI hallucination risks and mitigation strategies, *British Dental Journal*, *Nature Portfolio*), this behaviour should not be treated as an occasional anomaly; it is structural. In many common training and evaluation settings, producing an answer is implicitly rewarded more than acknowledging uncertainty, making it statistically more likely for the model to provide a plausible response than to say “I don’t know” when confidence is low. In healthcare, where decisions can directly affect patient outcomes, accepting such outputs as truth without iterative verification introduces significant risk.

This presentation synthesises hallucination-related threats to evidence-based workflows (including dentistry) and proposes a practical mitigation protocol focused on safety, auditability, and responsible use. The proposed approach combines: (1) prompt engineering that enforces explicit assumptions, calibrated uncertainty, and verification checkpoints; (2) context engineering with qualified, curated inputs, designed to minimise ambiguity and reduce the model’s incentive to “fill gaps”; (3) retrieval of verifiable sources to ensure full traceability of claims, enabling clinicians to audit how conclusions were derived; and (4) mandatory Human-in-the-Loop (HITL) validation, where a clinician or trained reviewer confirms source relevance, checks citation integrity, and approves the final output before any clinical, educational, or policy use.

The expected outcome is a shift from “plausible” AI assistance to “defensible” AI support: faster knowledge access while preserving accountability, transparency, and evidence integrity. The central message is that effective clinical adoption of LLMs is less about model fluency and more about robust processes that constrain uncertainty and require human verification.

Presenter:

Lucas Domingues dos Santos

University of São Paulo (USP), Brazil



Analysis of the Correct Execution of Free Squats for Injury Prevention: A Genetic Algorithm Approach

Sebastian Guzman Alfaro, Jose I. Rios Rios, Co. Jose M. Celaya Padilla, Carlos E. Galvan Tejada, Angeles O. FelixCastañeda, Manuel A. Soto Murillo, Eduardo de Avila Armenta, Pedro E. Mayorga Ruiz and Andrea Acuña Correa

Unidad Academica de Ingenieria Electrica, Universidad Autonoma de Zacatecas, Mexico

The lack of training to maximize the patient's physical performance, especially in weightlifting, can cause various types of musculoskeletal injuries. The biomechanical analysis through motion sensors and machine learning algorithms of an exercise as widely used in any sports discipline as the free squat can be a very helpful tool for both beginners and high-performance athletes. This methodology, using Xsens DOT©motionsensors which internally contain a gyroscope, records the exercise. With the necessary knowledge, the data is processed using feature extraction with statistical moments, allowing for the classification of the exercise execution with prior knowledge in sports and basic anatomy. Additionally, genetic algorithms are used to select the best variables to create a logistic classification model, achieving good performance. The proposed model obtained an accuracy of 0.7885 in a blind evaluation and an area under the receiver operating characteristic curve (AUC) of 0.74.

Presenter:

Sebastian Guzman Alfaro

Universidad Autonoma de Zacatecas, Mexico



Efficacy of 20-Minute Yoga vs Walking in Alleviating Burnout Among Healthcare Workers: A Randomized Controlled Trial

Vartika Saxena, Vikas Upadhyay and Anita Verma

Department of Community Medicine, AIIMS, Rishikesh, India

Objective: To compare the effects of a 20-minute yoga module and a 20-minute medium-paced walking session on burnout dimensions among healthcare workers.

Methods: A single-center, two-arm randomized controlled trial was conducted at a tertiary hospital in Uttarakhand, enrolling 108 healthcare workers (mean age: 25.86 ± 4.35 years) randomized to either a yoga group (20-minute yoga module) or control group (20-minute moderate-paced walking). Interventions were delivered offline, five days per week for four weeks. Primary outcomes included burnout domains—emotional exhaustion, depersonalization, and personal accomplishment—measured by the Maslach Burnout Inventory at baseline and post-intervention. State anxiety, assessed using the State Trait Anxiety Inventory (STAI), and selective attention, measured through the Six Letter Cancellation Test (SLCT), were evaluated immediately before and after intervention on Day 1 and Day 28. Parametric or non-parametric tests were applied as appropriate using SPSS 26.0.

Results: The yoga group demonstrated a significantly greater reduction in emotional exhaustion delta scores compared to walking ($p < 0.001$), with a pronounced effect in females ($p < 0.001$). Depersonalization improved within the yoga group but was not significantly different between groups ($p = 0.189$). Improvements in personal accomplishment significantly favored yoga ($p = 0.031$). Reductions in state anxiety showed no significant between-group differences at Day 1 and Day 28 ($p > 0.05$). Selective attention improved significantly more in the yoga group at Day 1 ($p = 0.004$), with a trend favoring yoga at Day 28 ($p = 0.011$).

Conclusion: A 20-minute daily yoga practice is more effective than medium-paced walking of equal duration for reducing emotional exhaustion, improving personal accomplishment, and enhancing selective attention among healthcare workers. Yoga provides an accessible, time-efficient strategy to promote occupational wellness and psychological resilience in high-stress healthcare environments.

Presenter:

Vartika Saxena

AIIMS, Rishikesh, India



Assessment of Compliance to Tobacco Control legislation under National Tobacco Control Program in Uttarakhand State of India - A Cross-Sectional Study

Mahendra Singh¹, Pradeep Aggarwal² and Yogesh Bahurupi²

¹All India Institute of Medical Sciences, Rishikesh, India

²All India Institute of Medical Sciences, Nagpur, India

Scope: The Government of India, enacted the “Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply, and Distribution) Act, 2003” (hereafter referred to as COTPA) on May 18, 2003, to regulate the sale and use of tobacco and tobacco products in India. Among its many provisions, COTPA includes three major sections which address: smoke-free environments; tobacco advertising, promotion and sponsorship; and sales of tobacco products to/ and by minors.

Objective: To assess the status of compliance level of various sections of COTPA 2003 act in the 6 districts of Uttarakhand state of India.

Methods: Study was conducted in 6 districts (Raipur, Doiwala, and Sahaspur) of Uttarakhand in year 2023 & 2024. As per standard compliance study protocol, in each district 240 public places and 210 points of sales (PoS) were covered to access compliance towards section 4,5,6,7,8,9 of COTPA act 2003. The data was collected by EpiCollect5, exported, and analyzed in SPSS version 21.

Results: Results were expressed in proportion and percentage for each indicator of the respective section of COTPA-2003

COTPA	Mean Compliance level (%) towards various section of COTPA 2003 in different districts of Uttarakhand state of India					
Sections	Dehradun	Tehri	Haridwar	Almora	Nanital	Bageshwar
Section 4	85.5	94	93.4	82.1	66	82.6
Section 5	98.6	99.5	96.9	93.5	81.6	99.5
Section 6 (a)	3.3	7.1	95.2	36.3	12.7	25
Section 6 (b)	66.6	67.3	95	75.3	71	40
Section 7, 8 and 9	80.2	77.7	51.4	75.6	77.3	87.98

Conclusion: In this study, variation in compliance of different sections of COTPA was found in Uttarakhand state. Strict compliance of COTPA Act is very important step to reduce tobacco use in society.

Presenter:

Mahendra Singh

AIIMS, Rishikesh, India



Barriers to HIV Testing Among Partners and Families of PLHIV at ART Centers

Meenakshi Khapre¹, Vartika Saxena¹ and Amit Shukla²

¹Dept of Community Medicine, AIIMS Rishikesh, India

²Project Director, Uttarakhand State AIDS Control Society, India

Despite India's progress in expanding access to antiretroviral therapy (ART), HIV testing uptake among spouses, partners, and children of people living with HIV (PLHIV) remains suboptimal, particularly in Uttarakhand. This cross-sectional study assessed barriers among contacts of PLHIV registered at an ART Centre. Structured questionnaires, using a validated barrier scale (Karolinska-Hindi version), were administered to 200 participants aged 19–64 years. Quantitative and qualitative data were analyzed using descriptive statistics and content analysis. Of 200 contacts, only 97 had undergone HIV testing, with 70 testing HIV positive at first test. Median interval from awareness to testing was 7–30 days; 42 tested within 7 days. Key barriers included personal consequences (mean normalized score 0.49) such as fear of illness labelling, stigma, and impact on social/sexual life. Confidentiality concerns (0.32), structural barriers (0.28), and socioeconomic concerns (0.18) were also significant. Not-tested contacts had higher overall barrier scores than those tested (56.7 vs. 40.2, $p=0.02$). Lower education was significantly associated with higher barrier scores. The findings underscore the need for interventions addressing emotional, social, and privacy concerns, as well as logistical improvements, to enhance partner and family testing uptake in ART settings.

Funding: Supported by Uttarakhand State AIDS control society, Uttarakhand, India

Presenter:

Meenakshi Khapre

AIIMS Rishikesh, India



Nutritional Status and Dietary Adequacy in People Living with HIV Attending the Selected Antiretroviral Therapy Centres in Uttarakhand: A Cross-Sectional Study

Pragya Yadav¹, Meenakshi Khapre², Ranjeeta Kumari³ and Mukesh Bairwa⁴

¹Junior Resident, Department of Community Medicine, All India Institute of Medical Sciences, Rishikesh, India

²Additional Professor, Department of Community Medicine, All India Institute of Medical Sciences, Rishikesh, India

³Professor, Department of Community Medicine, All India Institute of Medical Sciences, Rishikesh, India

⁴Additional Professor, Department of Medicine, All India Institute of Medical Sciences, Rishikesh, India

Background: HIV targets CD4 cells, thereby compromising the immune system and increasing vulnerability to opportunistic infections. The nutritional intake of individuals living with PLHIV is frequently neglected, resulting in poor nutritional status, weight loss, and an elevated risk of infections.

Objectives: To evaluate the dietary adequacy and nutritional status of PLHIV attending selected ART centres, this study aims to estimate the proportion of PLHIV cases with adequate diets, assess their clinical nutritional status, calculate the dietary diversity score, and examine the association between clinical and socio-demographic characteristics and dietary adequacy.

Methods: A cross-sectional study was conducted among PLHIV receiving treatment at ART centres. Nutritional assessment was conducted by calculating NAR using the 24-hour dietary recall method, evaluating dietary diversity through the Dietary Diversity Score (DDS), and determining nutritional status via clinical examination, anthropometric measurements, and review of medical records.

Results: Only 41.1% of participants achieved adequate energy intake, while 46.3% were in deficit and 12.6% consumed excess energy. Macronutrient inadequacies were prevalent, with deficits observed in carbohydrates (34.7%), protein (39.5%), and fat (56.8%). Dietary diversity assessment revealed that 57.9% of participants had moderate DDS, 41.6% had good DDS, and only 0.5% had low DDS. Significant associations were identified between energy adequacy and anthropometric indicators, including waist circumference, waist to hip ratio, and BMI ($p < 0.05$)

Conclusions: This study shows that a significant proportion of PLHIV had inadequate dietary intake, particularly for energy, protein and fat, reflecting poor nutritional adequacy. Despite generally moderate to good dietary diversity, macronutrient deficits were common. Energy adequacy was significantly associated with anthropometric indicators, underscoring the need for targeted nutritional interventions to improve nutrient adequacy in vulnerable populations.

Presenter:

Pragya Yadav

AIIMS, Rishikesh, India

DAY 02



VIRTUAL EVENT

6TH INTERNATIONAL CONFERENCE ON

FUTURE OF PREVENTIVE MEDICINE AND PUBLIC HEALTH

MARCH 23-24, 2026

SPEAKER TALKS



Causal Links Between Diet and Neurodegenerative Diseases: Evidence from Mendelian Randomization

Sen Hu¹, Qiang Luo²

¹Henan Provincial People's Hospital, Zhengzhou University People's Hospital, China

²Chongqing Medical University Children's Hospital, China

Background: Neurodegenerative diseases (NDs), including Alzheimer's disease (AD), Parkinson's disease (PD), and amyotrophic lateral sclerosis (ALS), are complex disorders influenced by genetic and environmental factors, including diet. While observational studies suggest associations between dietary patterns and NDs, confounding and reverse causation limit causal inference. This study employs Mendelian randomization (MR) to systematically evaluate dietary influences on ND risk and identify potential biological mediators.

Methods: MR analysis used genetic instruments from genome-wide association studies (GWAS) of 240 dietary habits and publicly available ND datasets. Causal estimates were computed using inverse-variance weighted (IVW), MR-Egger, and weighted median methods. Secondary MR analyses explored mediating effects of gut microbiota, inflammatory markers, metabolites, and immune cells. Multiple testing correction was applied to ensure robustness.

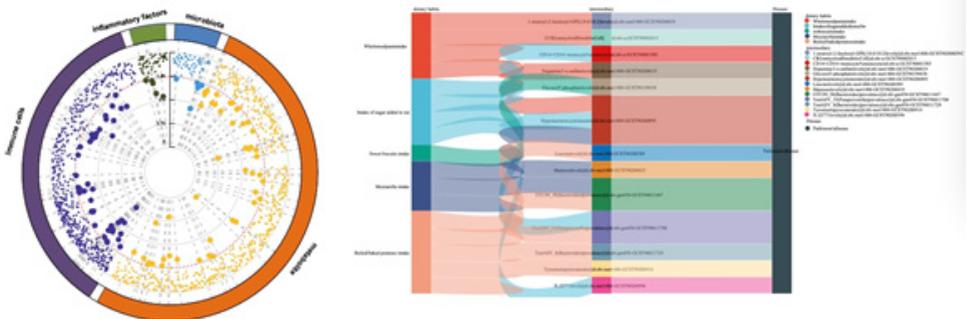


Figure 1. Mendelian randomization results for 240 dietary habits and 208 gut microbiota, 364 inflammatory factors, 1282 metabolites, and 624 immune cells □ Mendelian randomization results of 208 gut microbiota, 364 inflammatory factors, 1282 metabolites, 624 immune cells, and Parkinson's disease.

Results: MR analysis identified significant causal links between dietary habits and ND risk. For PD, increased consumption of wholemeal pasta (OR=0.213, p=0.037) and mozzarella cheese (OR=0.137, p=0.022) was protective, while higher intake of sweet biscuits (OR=1.355, p=0.036) and sugar in tea (OR=1.745, p=0.033) increased risk. For AD, protective associations were observed with tofu (OR=0.273, p=0.042), mango (OR=0.422, p=0.043), and dairy smoothies (OR=0.522, p=0.020), while cheese intake (OR=1.326, p=0.004) was associated with increased risk. ALS risk was inversely linked to red wine (OR=0.721, p=0.004) and cabbage/kale intake (OR=0.707, p=0.014). Mechanistic MR analysis suggested that gut microbiota (Bacteroides, Faecalibacterium), metabolic markers (mannose, glycerol-3-phosphate), and inflammatory cells may mediate some dietary effects. No significant reverse causation was detected.

Conclusion: This study provides robust genetic evidence supporting the causal roles of dietary habits in ND risk modulation through gut microbiota, metabolism, and inflammation. These findings highlight modifiable dietary factors that could inform precision nutrition strategies for ND prevention. Further studies are needed to validate these associations and assess clinical applicability.

Presenter:

Sen Hu

Henan Provincial People's Hospital, Zhengzhou University People's Hospital, China



The Influence of Preoperative Treatment on Preoperative and Postoperative Total Knee & Hip Arthroplasty Outcomes: A Systematic Review

Tachelle Ting¹, Cameron Vernem¹ and Margot Aalders²

¹Flinders University, Australia

²Department of Orthopedic Surgery, University Medical Centre Amsterdam – location AMC, The Netherlands

Background: Total knee and hip arthroplasty (TKA and THA) are commonly performed procedures for severe symptomatic osteoarthritis. Although revision rates are low, dissatisfaction remains relatively high due to persisting pain and patient-reported malfunction. Preoperative mental state has repeatedly shown to be an important contributing factor. Research on preoperative interventions addressing the mental state and improving arthroplasty outcomes is sparse. Therefore, this study aims to systematically review the literature on the influence of preoperative mental health-related interventions on TKA & THA outcomes, and compare these to conventional preoperative preparation.

Materials and Methods: Records identified from database search on November 30th, 2024 (Medline, Embase, Psycinfo, Cochrane CENTRAL) yielded 1940 results after duplicate-removal. All were screened by title and abstract, then 61 eligible studies for full-text, based on inclusion and exclusion criteria.

Inclusion criteria, based on the PICO, included: 1) patients undergoing TKA/THA surgery, 2) any form of pre-op, non-pharmacological, psychological therapy, 3) compared with conventional preoperative TKA/THA surgery preparation, and 4) outcome being either preoperative pain catastrophizing, anxiety, depression, kinesiophobia, pain/function, and/or postoperative pain/function, length of stay, complication rate, revision rate.

After full-text screening is completed, an estimated number of 50 studies will be included for critical appraisal and data-extraction. We anticipate organizing data based on type of intervention and the outcome used in the study.

Results: Results will review the use of psychological preoperative interventions and their effect on postoperative THA and TKA patients and provide insight into postoperative THA and TKA management. Results will be discussed and compared with prior studies on this topic.

Conclusion: This study provides an updated systematic review of the current literature and detailed insights into the effect of preoperative psychological interventions on THA/TKA outcomes. The aim was to provide a comprehensive overview of the current research and assist in directing future research and perioperative management in THA/TKA surgery.

Our service provides a human-voiced audio file for academic sources such as textbooks, syllabi, and journal articles.

Presenter:

Tachelle Ting

Flinders University, Australia



Legal and Regulatory Learnings from the European Health Data Space (EHDS)

Nimród Mike

Corvinus University of Budapest, Hungary

The European Health Data Space (EHDS), adopted in 2025, represents a foundational shift in how health data is accessed, shared, and governed within the European Union. As the EU's first sector-specific data space under the broader European Data Strategy, the EHDS aims to facilitate both individual empowerment over personal health records and the secure reuse of data for research, innovation, policy-making, and regulatory activities. This paper examines the EHDS as a transformative legal and infrastructural framework, focusing on its implications for the development, deployment, and oversight of AI-driven technologies in the healthcare domain.

Unlike previous fragmented or nationally siloed data governance approaches, the EHDS establishes a harmonized European mechanism for the primary and secondary use of electronic health data. For citizens, it introduces stronger digital rights—including the ability to access, control, and transfer personal health data across borders. For healthcare AI developers, it provides a legal gateway to rich, diverse, and high-quality datasets, subject to compliance with a clearly defined framework centered on fairness, privacy, and trust.

A central pillar of the EHDS is its support for secondary data use, a critical enabler for training, testing, and validating AI models. Through the establishment of Health Data Access Bodies (HDABs), the EHDS provides a structured and transparent process for researchers and developers to request and access pseudonymized health data. These bodies act as intermediaries, ensuring that data requests align with public interest purposes, including scientific research, policy development, and regulatory innovation. Notably, this mechanism is designed to strike a balance between enabling innovation and upholding the fundamental rights of individuals—particularly the right to data protection as enshrined in the GDPR.

This paper explores how the EHDS fosters an environment conducive to responsible AI innovation by establishing strict safeguards for data security, purpose limitation, and transparency. It examines the legal mechanisms introduced to ensure data minimization, non-commercial reuse, and preven-

tion of re-identification, particularly in cases where data is used to develop AI solutions for diagnostics, personalized treatment, or hospital optimization. It also reflects on the emerging concept of data altruism within the EHDS—where individuals and institutions can voluntarily share data for collective benefit—and its potential to democratize access to training data for AI beyond large corporate actors.

Importantly, the paper analyzes how the EHDS complements and supports the implementation of the EU AI Act, particularly in areas such as data governance, risk management, and algorithmic transparency. While the AI Act focuses on classifying AI systems by risk level and imposing obligations on high-risk applications, it implicitly relies on the existence of high-quality, representative, and legally accessible datasets—gaps that the EHDS is explicitly designed to fill. For example, bias mitigation (a key requirement under the AI Act) can only be effectively implemented when AI developers have access to diverse datasets reflective of different populations and care settings—a goal facilitated by the cross-border interoperability built into the EHDS framework.

From a compliance perspective, this study identifies key areas where healthcare AI developers and data controllers must align their practices with EHDS obligations. These include conducting data protection impact assessments, demonstrating lawful grounds for data access, and maintaining robust technical and organizational safeguards when processing health data under secondary-use conditions. Special attention is given to the complex interplay between anonymization standards in the EHDS and the traceability requirements under AI-related regulation.

In conclusion, the EHDS emerges not only as a technical infrastructure but as a normative framework for responsible innovation. It enables a data-driven healthcare ecosystem that aligns with European values of privacy, equity, and transparency. For AI developers, researchers, healthcare providers, and regulators, understanding the opportunities and constraints introduced by the EHDS is critical to navigating the next generation of health technologies in the EU. This paper argues that the EHDS, if implemented effectively, has the potential to become the backbone of trustworthy and inclusive AI innovation in European healthcare—moving beyond compliance toward a genuinely citizen-centered model of digital health transformation.

Presenter:

Nimród Mike

Corvinus University of Budapest, Hungary



Quiet Malignancy, Loud Decisions: Low Grade Serous Ovarian Carcinomas in Women Yet to Conceive

Madhumitha J

Apollo Hospitals, India

Aim & Objective: To raise awareness on the treatment and fertility preservation options for young women with ovarian cancer.

Scope: A case series of low grade serous ovarian carcinomas of women in reproductive age group with different social situations with history, clinical work up, investigations and NCCN guided treatment provided along with their fertility preserving interventions taken.

Results: With the correct multidisciplinary approach, there is hope for fertility in these women.

Conclusion: Low grade Serous carcinomas of ovary are a group of cancers which are chemoresistant, leaving surgery as their primary treatment option. With careful balancing of adequate oncologic treatment and collaborations with Multidisciplinary team, preservation of fertility in these young women is possible.

Presenter:

Madhumitha J

Apollo Hospitals, India



Tribals are in Dilemma: Indigenous Health Practices and Modern Health Care Practices- A Case study of the Lodhas, a Criminal Tribe of West Bengal, India

Samita Manna

Former Vice-Chancellor, SKBU, India & Professor of Sociology, University of Kalyani, India

Tribal communities in India comprise more than 600 ethnic groups, of which some have been categorized as Particularly Vulnerable Tribal Groups (PVTGs). In West Bengal, three groups are recognized as PVTGs, among them the Lodhas, historically stigmatized as a “criminal tribe” under the Criminal Tribes Act of 1871. Traditionally, the Lodhas followed a hunting–gathering economy and relied heavily on indigenous health practices rooted in their forest environment. They use locally available herbs, roots, and leaves to treat fever, wounds, digestive problems, and even snake bites. Illness is often attributed to supernatural causes, and ojhas or gunins (shamans) play a central role in healing practices.

With time, the Lodhas have come into contact with modern healthcare through government health centers, hospitals, and tribal welfare schemes. Services such as immunization, maternal care, and treatment for infectious diseases like tuberculosis and malaria have become accessible, along with scientific diagnosis for chronic illnesses. Major objectives of the study are to find out how the Lodha tribes are facing the challenges between the traditional and modern health care practices and to find out the nature of dilemma arising out due to various issues like Trust vs. Distrust, Accessibility Issues and Cultural Conflict.

Based on a field study of 100 Lodha respondents from two blocks of Paschim Midnapore, using interviews, observation, focus group discussions, and case studies, it was found that modern health systems often neglect or disregard traditional knowledge, creating a sense of alienation. While indigenous practices remain low-cost and culturally embedded, modern healthcare involves expenses and accessibility challenges. Yet, most Lodhas continue to practice their traditional healing methods alongside adopting modern medical services.

This dilemma is not merely about medical choices but also about identity, culture, and trust. A balanced, integrative approach that respects traditional knowledge while ensuring effective modern treatment can provide better health outcomes for the Lodhas without undermining their cultural heritage.

Presenter:

Samita Manna

University of Kalyani, India



Beyond Economic Metrics: Understanding Wellbeing through Social-Ecological Lenses in Traditional Industries

Ankur Shukla

Amity University Rajasthan, India

Despite increasing pressures from globalisation, environmental degradation, and regulatory issues, traditional industries in developing economies continue to provide a living for millions of people. The results of two extensive mixed-methods studies that looked at the wellbeing of workers in India's small-scale fisheries (Sundarbans) and leather cluster (Kanpur) are synthesised in this presentation, offering essential insights that cut across sectoral boundaries. Based on a stakeholder-centric approach involving more than 150 workers, factory and business owners, government representatives, and community leaders, the present research illustrates how wellbeing extends far beyond traditional economic measures.

Key findings highlight persistent gender disparities rooted in patriarchal structures, widespread regulatory non-compliance despite existing labour protections, and the central role of community cohesion in sustaining vulnerable livelihoods. With pollution in leather clusters and ecosystem degradation in fisheries having a direct impact on health outcomes and livelihood security, environmental factors emerge as critical determinants of wellbeing. Despite facing environmental degradation, economic uncertainty, and gaps in policy implementation, workers in both sectors exhibit remarkable resilience through strong social networks and value systems. The research introduces a multidimensional wellbeing framework that integrates material, relational, workplace, and subjective dimensions, offering a more nuanced understanding of worker experiences.

In order to recognise the embedded nature of work within social-ecological systems, the present study makes the case for a paradigm shift towards comprehensive, participatory approaches to labour policy and industrial development. With special attention to gender-differentiated impacts and the necessity of inclusive policy frameworks, it demonstrates how values, beliefs, and cultural practices both constrain and facilitate sustainable development. With evidence-based routes to more equitable and ecologically

sustainable livelihoods, these insights have significant ramifications for public health, wellbeing, and sustainable development strategies in traditional sectors throughout the Global South.

Presenter:

Ankur Shukla

Amity University Rajasthan, India



Knee Osteoarthritis Detection and Categorization with Deep Learning Models

Gourab Roy¹, Arup Kumar Pal¹, Manish Raj² and Jitesh Pradhan³

¹Indian Institute of Technology (ISM) Dhanbad, India

²All India Institute of Medical Sciences (AIIMS) Deoghar, India

³National Institute of Technology Jamshedpur, India

Objectives: The study aims to develop a robust deep learning model to automate the detection and categorization of knee osteoarthritis (OA) severity according to the Kellgren-Lawrence (KL) grading system, thereby reducing human error and expediting diagnosis.

Methods: The researchers proposed a novel hybrid architecture integrating a modified Double U-Net (using ResNet34 as the encoder to efficiently capture features) with a Spatial Attention Module from the Convolutional Block Attention Module (CBAM). The model was trained on 9,786 images from the Osteoarthritis Initiative (OAI) dataset, which were restructured into three classes: benign (Grades 0-1), moderate (Grades 2-3), and severe (Grade 4).

Results: The proposed model achieved a training accuracy of 98.25% and a validation accuracy of 80.46% by the 14th epoch. Performance metrics included a Precision of 0.77, Recall of 0.77, F1-score of 0.77, and a Quadratic Weighted Kappa (QWK) of 0.62.

Conclusion: The hybrid model demonstrates superior predictive performance compared to several contemporary models in the recent literature. Future work will focus on utilizing more balanced datasets to address overfitting caused by the current dearth of "severe" class data.

Presenter:

Gourab Roy

Indian Institute of Technology (ISM) Dhanbad, India



Religious Practices and Quality of Life in Palliative Care: Insights from Tanzania

Sonia Nada Edward Sokoine¹, Gad Kilonzo², Nadia Ahmed² and Kelvin Furanaeli Sawe²

¹Department of Community Medicine, Kairuki University, Tanzania

²Department of Psychiatry, Kairuki University, Tanzania

Introduction: Palliative care improves quality of life (QOL) for patients with life-limiting illnesses by addressing physical, emotional, and spiritual needs. Religious practices play a critical role in coping mechanisms, yet their impact remains underexplored in specific cultural contexts.

Objectives: This study examines the influence of religious practices on quality of life among palliative inpatients in Tanzania focusing on spiritual support, psychological well-being, and symptom management.

1. Determine the need for religious practices among patients.
2. Assess the frequency and type of religious practices.
3. Evaluate the overall QoL of inpatients.
4. Explore the relationship between religious practices and QoL.

Research Questions

1. Which services are patients aware that are offered at the institute?
2. What are the most frequently used palliative care services among patients?
3. What is the quality of life of inpatients receiving care at ORCI?

Methods: A cross-sectional study was conducted at Ocean Road Cancer Institute (ORCI) involving 150 palliative inpatients. Data was collected using the WHOQOL-BREF tool and questionnaire on religious practice use.

Key Variables: Outcome: WHOQOL-BREF

Exposure: Utilisation of religious practices (eg, prayer, counselling).

Predictors: Demographic factors (age, sex, education) and ECOG performance status.

Results: 90% expressed a need for religious practices, with prayer (63.3%) being the most common practice followed by repentance (15.5%), Gospel (4.7%), Preachings/Teachings (2%) and other forms of spiritual support. Those who

used religious practices frequently (27.8%) had better QoL scores.

Despite this, 84.7% reported poor quality of life.

Conclusion: Despite poor physical quality of life, patients reported strong spiritual well-being, reflecting a culturally rooted resilience fostered through religious practices and spiritual support. This underscores the need to integrate faith-based, culturally sensitive care in Tanzanian palliative settings. Also, as ORCI serves a broad region, further research is needed to explore culturally tailored interventions for optimizing spiritual care in low-resource environments.

Presenter:

Sonia Nada Edward Sokoine

Kairuki University, Tanzania



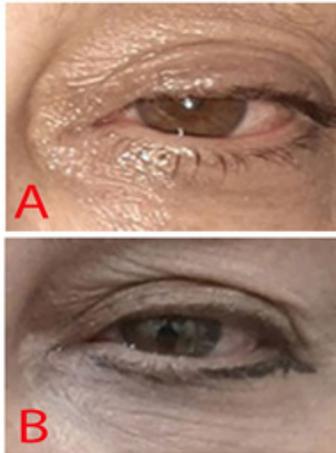
A Fast and Easy To Perform Noninvasive Muller's Muscle Sublimation Technique using Plasma Technology for Treatment of Mild To Moderate Ptosis: A Case Report

Nasrin Raffati

Negah Aref Ophthalmic Research Center, Negah Eye Hospital, Iran

Background: Currently, most surgeons favor Muller's muscle conjunctival resection as a treatment for mild-to-moderate ptosis, as this method is associated with fewer post-surgical complications.

Case presentation: This case series of six Iranian women aged between 15 and 65 (mean 43) years with mild-to-moderate ptosis treated at Negah Eye Hospital used a plasma scalpel (PLEXR™) for conjunctivo-Muller sublimation. A 1–4 area management strategy was applied, and margin reflex distance 1 measurements showed improvement from 1.58 mm pre-treatment to 3.66 mm after 6 months.



Conclusion: Seemingly, applying plasma technology to treat mild-to-moderate ptosis via conjunctivo-Muller muscle sublimation might be a promising alternative to more invasive surgical methods.

Presenter:

Dr. Nasrin Raffati

Negah Aref Ophthalmic Research Center, Negah Eye Hospital, Iran



Influential Plant in Medicinal Science and Clove: Tiny Buds with Global Fame

Royanama Rahimi, Leila Mohtashami and Seyed Ahmad Emami

Mashhad University of Medical Sciences, Iran

In the sixteenth century medicinal plants, which until then had been the monopoly of apothecaries, became a major topic of investigation in the medical faculties universities, where they were observed, transplanted, and grown by learned physicians both in the wild and in the newly founded botanical gardens. Tuscany was one of the main European centres in this new field of inquiry, thanks largely to the Medici Grand Dukes, who patronised and sustained research and teaching, whilst also taking a significant personal interest in plants and medicine. Now, in this poster, we want to focus on the clove plant (primary and secondary metabolites) and its effect in botanical science and pharmacology. *Syzygium aromaticum* (L.) Merr. & L.M.Perry (Myrtaceae), commonly known as clove, is a median sized tree indigenous to the Maluku Islands in Indonesia but has been cultivated in different countries around the world. Clove is famous as an ancient spice and a culinary plant and its essential oil is widely used as a food preservative, fragrance in perfumes, and anti-inflammatory agent in cosmetics industry. In the Islamic Traditional Medicine (ITM), clove has the potential to treat brain, gastrointestinal, urogenital, ocular, and dental diseases. The pharmacological activities of the essential oils and extracts of clove buds and leaves have been investigated in different in vitro, in vivo, and clinical studies. The results have presented its anti-oxidant, anti-inflammatory, neuroprotective, anti-metabolic syndrome, anti-cancer, and anti-microbial properties, which not only support the application of clove in traditional medicine but also suggest new therapeutic aspects as well. In this chapter, we have summarized general information regarding ethnobotany, traditional uses, and the chemical profile of cloves and discussed its therapeutic applications that have been studied until today.

Numerous studies regarding the chemical profile of clove have revealed the presence of phenylpropanoids, monoterpenoids, sesquiterpenoids, chromones, flavonoids, phenolic acids, tannins, and fatty acids. Most of the investigations were performed on the essential oil of buds among which the phenylpropanoid compound, eugenol, was the most dominant. The other dominating components were eugenol acetate and the sesquiterpenoid

compound, β -caryophyllene. The essential oil can be extracted from other clove parts like the leaves or stems, but these oils have a different chemical profile in comparison to the essential oil obtained from lower buds.

Presenter:

Royanama Rahimi

Mashhad University of Medical Sciences, Iran



Designing a self-reliance model for households with food insecurity in Iran

Masoomeh Gholami² and Mohammad Reza Honarvar¹

¹Golestan University of Medical sciences, school of Public Health, Nutrition Department, Health Management & Social Development Research Center, Iran

²Tehran University of Medical Sciences, School of Public Health, Iran

Food insecurity refers to the inadequate access to sufficient, nutritious food necessary for proper growth, development, and overall well-being. This study aimed to develop a self-reliance model for food-insecure households through a mixed-methods approach. The research examined the feasibility of an empowerment and self-reliance framework at the district and provincial levels, ensuring its adaptation to local infrastructure and regional characteristics. A comprehensive review of published studies and practical experiences addressing food insecurity in Iran and globally was conducted. Additionally, interviews were held with key experts in the field to explore challenges, barriers to implementation, effective intervention strategies, and optimal execution methods. The findings were then analyzed thematically, resulting in the formulation of a proposed model. We outline a structured seven-step process to promote household self-reliance and empowerment in the context of food insecurity. The key steps include: (1) policy-making and legislation, (2) infrastructure preparation, (3) identification of affected households and available resources, (4) assessment of current conditions for implementation, (5) execution of targeted interventions and educational programs, (6) monitoring, assessment, and sustainability planning, and (7) evaluation and program refinement. Addressing poverty and food insecurity necessitates a coordinated, systematic, and enduring approach to self-reliance and empowerment initiatives, backed by robust legislative support. These programs must be tailored to local capacities, regional conditions, and actively involve community members in decision-making, implementation, monitoring, and refinement to ensure long-term success.

Presenter:

Masoomeh Gholami

Tehran University of Medical Sciences, Iran



Probiotic-Derived Bacteriocins for Veterinary Biofilm Control: Mechanisms, Evidence, and One Health Translation

Farwa Farooq¹, Muhammad Hassan Khalid¹, Bilal Aslam² and Muhammad Saria¹

¹Institute of Microbiology, Faculty of Life Sciences, Government College University Faisalabad, Pakistan

²Department of Veterinary Preventive Medicine, College of Veterinary Medicine, Qassim University, Saudia Arabia

Biofilm-related infections pose a critical challenge in veterinary medicine, driving antimicrobial resistance (AMR) and undermining livestock, poultry, and aquaculture productivity. Conventional antibiotics are often ineffective against biofilms, highlighting the need for novel alternatives. Bacteriocins, ribosomally synthesized antimicrobial peptides produced mainly by lactic acid bacteria, offer broad-spectrum activity, stability, and minimal cytotoxicity. This review outlines their multifaceted mechanisms, ranging from inhibition of microbial adhesion and quorum sensing to disruption of membranes and extracellular matrices, which make them promising tools against biofilm-forming pathogens. Evidence across veterinary sectors demonstrates their potential to mitigate mastitis, swine enteric diseases, poultry colibacillosis, and aquaculture infections. Synergistic applications with antibiotics, nanoparticles, and other antimicrobials further enhance efficacy and reduce antibiotic dependence. This article critically synthesizes cross-sector evidence from livestock, poultry, and aquaculture while also introducing a unique mechanistic classification of bacteriocin action against biofilms. By integrating veterinary and One Health perspectives, it highlights translational gaps and practical pathways that have not been systematically addressed before. However, translation into practice remains limited by the absence of standardized biofilm models, insufficient *in vivo* validation, gaps in pharmacokinetics, and scarce farm-level trials. A structured pipeline from discovery to commercialization, embedded within the One Health framework, will be essential to advance bacteriocins as sustainable biotherapeutics for veterinary and public health.

Presenter:

Farwa Farooq

Government College University Faisalabad, Pakistan



Oral Hygiene Practices of Students Studying Abroad & the Potentiality of Inexpensive Dental Care in South Asia

Umana Anjalin

University of Liberal Arts Dhaka, Bangladesh

It is a matter of great concern that oral health is often ignored by so many for strange, unknown reasons! Let alone regular people, dental experts mention, many people, including some health care professionals, do not realize how closely the oral cavity is connected to the rest of the body. Strangely enough, people would never ignore any infection in any other part of the body, yet they often close their eyes to oral cavity infection! Research clearly demonstrates a close relationship between medical and dental conditions. One of the dental specialists also opines that it is risky to overlook oral health, as it affects one's overall health. Similar evidence suggests that one must be very vigilant about maintaining oral health. At some point in life, delinquency sets in when it comes to taking proactive oral care. None is actually immune to dental problems. Likewise, the international students who visit abroad for study purposes find themselves in a dilemma when faced with dental issues. This study examines the oral habits of international students while studying abroad. Despite believing dental care was critical to their overall health and feeling that dental insurance was a must, most South Asian students could not afford dental care maintenance while studying abroad. Their distress stems from the exorbitant cost of dental care compared to the costs in their home country.

Presenter:

Umana Anjalin

University of Liberal Arts Dhaka, Bangladesh



Primary Healthcare Integration Practices in Turkey

Sema Safir SUMER¹ and Ahmet Levent YENER²

¹The World Bank, Turkey

²The World Bank, Georgia

This presentation examines the integration of primary healthcare practices in Turkiye, while also referring to the health system transformation program implemented between 2003 and 2013, to enhance and restructure primary healthcare through the adoption of the family medicine (FM) model and the establishment of universal health coverage. Initially, integration was a novel concept, but its scope broadened, especially after 2013, to address non-communicable diseases (NCDs).

Qualitative methods included key informant interviews and quantitative methods included descriptive statistics using administrative data for this research.

The analysis centers on four key components: the FM model's impact on primary care access, the creation of Healthy Living Centres (HLCs) to expand preventive services, the deployment of e-Nabiz—a cloud-based electronic patient record system—and the strengthening of Health Information Systems (HIS) for operational and policy support. The analysis also considers contextual factors such as demographic changes, urbanization, and the epidemiological shift from communicable diseases to NCDs, which drove the need for integration.

Results demonstrate notable advancements in care integration at the primary level. The FM model covers the entire country, HLCs are scaled up nationwide with multidisciplinary services, and e-Nabiz usage increased among both citizens and healthcare providers, improving data accessibility and patient engagement. Early outcomes include increased patient satisfaction with HLCs and a trend toward greater use of primary care.

In conclusion, strong integration features have been introduced in Turkish health system, including advanced IT infrastructure and local coordination efforts. The targeted approach to disease management, such as obesity care pathways, offers a model for future integration, highlighting the importance of interdepartmental communication and phased implementation of new initiatives.

Presenter:

Sema Safir SUMER

The World Bank, Turkiye



Digitalization and Decision Support Systems in Healthcare Services: Operationalizing Nutrigenetic Analysis with AI

Emin TARAKCI¹ and **Gulsen MERAL²**

¹Turk Telekom, Turkey

²Epigenetic Coaching Company, UK

The integration of digital technologies and AI in healthcare settings yields improvements in diagnostics, operations, and patient outcomes across various medical contexts. Additionally, these technologies influence healthcare in telemedicine platforms, hospitals, and outpatient clinics.

Background: Nutrigenetic analysis is progressively utilized in preventative and clinical care to predict individual health concerns. An AI-driven decision support system that evaluates nutrigenetic outcomes in conjunction with standard clinical and laboratory data can deliver uniform risk categorization and comprehensible, individualized recommendations for patients. This offers individualized plans for treatment, nutrition, exercise, and lifestyle management.

Objective: In the current research work, a Deep Learning-Based Decision Support System is designed for analyzing nutrigenetic test results. The aim of the proposed model is to provide a personalized health and lifestyle plan by using potential health risks, nutritional requirements, exercise suitability and other factors by analyzing nutrigenetic test data with artificial intelligence.

Approach: To offer individualized care, nutrition, and lifestyle **using a Nutrigenetics-based Epigenetic** approach. The decision support system for data processing and analysis employs the Pythagorean Fuzzy-VIKOR methodology. Nutrigenetic test result data are harmonized for classification and analysis. A risk engine combining Pythagorean fuzzy and VIKOR performs risk classification, prioritizes differential diagnoses, recommends targeted confirmatory tests, and recommends evidence-based treatments and personalized nutrition programs. Explanations, confidence and data array are shown to clinicians; a patient module communicates individual risk and lifestyle outcomes.

Contribution: Experts and doctors can only make consistent and optimistic decisions if they handle information appropriately. This system provides information, models, and data processing tools to help experts/doctors make

better decisions in each case.

Conclusion: Digitalization coupled with risk-aware AI-DSS operationalizes nutrigenetic testing end-to-end—identifying risks and delivering personalized diagnosis, treatment, nutrition guidance, and lifestyle supporting faster, safer, and more consistent care.

Presenter:

Emin TARAKCI

Turk Telekom, Turkey



Role of Circular RNAs (Circrnas) as a Prognostic Factor in Lung Cancer: A Meta-Analysis

Sanabil Ahsan¹, Thin Thin Win², Saint Nway Aye² and Nan Nitra Than³

¹University of Warwick, United Kingdom

²International Medical University, Malaysia

³Manipal University College, Malaysia

Background: Lung cancer remains the leading cause of cancer-related mortality worldwide, with non-small cell lung cancer (NSCLC) accounting for over 80% of cases. Circular RNAs (circRNAs), a class of non-coding RNAs, are increasingly recognised for their roles in tumorigenesis and cancer progression across various malignancies, including lung cancer. This meta-analysis aimed to systematically evaluate the prognostic significance of circRNAs in lung cancer.

Methods: A systematic search was conducted in PubMed, Embase, and MEDLINE databases to identify studies reporting the association between circRNA expression and overall survival (OS) or disease-free survival (DFS) in histologically confirmed lung cancer patients. Pooled hazard ratios (HRs) and 95% confidence intervals (CIs) were calculated to assess prognostic impact.

Results: A total of 43 studies were included in the meta-analysis, encompassing 39 distinct circRNAs. Of these, 28 circRNAs were upregulated and 11 were downregulated in lung cancer. High expression of upregulated circRNAs was significantly associated with poorer OS (HR 1.93; 95% CI 1.61–2.33; $p < 0.00001$). In contrast, high expression of downregulated circRNAs correlated with improved OS (HR 0.73; 95% CI 0.58–0.94; $p = 0.01$). No statistically significant association was found between circRNA expression and DFS (HR 1.44; 95% CI 0.92–2.24; $p = 0.11$).

Conclusions: This meta-analysis highlights the pivotal role of circRNAs as prognostic biomarkers in lung cancer, particularly NSCLC. Elevated expression of upregulated circRNAs is linked to worse prognosis, whereas increased expression of downregulated circRNAs predicts favourable outcomes. Targeting circRNAs with downregulatory actions may represent a promising therapeutic strategy in the management of lung cancer.

Presenter:

Sanabil Ahsan

University of Warwick, UK



Artificial Intelligence in the Workplace. Insights from the Perspective of Disability Management with a Focus on Early Intervention and Occupational Rehabilitation

Anne Rosken

ANED – HSG - PCU, Germany

Objectives and Focus of the Study: The objectives are to gain a clearer understanding of capabilities and options on the effectiveness of AI in Disability Management for disabled workers with a focus on early intervention and occupational rehabilitation.

Methodology: The starting point for the study comprised one overarching question about the dimensions of AI in the workplace. A structured document analyze and semi-structured expert interviews were used. The analyze strategy follows the principles of the method by Mayring.

Results of the Study: The results from the document analyze show a lot of difficulties and heterogeneous approaches by discussing and talking about AI solutions in the field of Disability Management in the workplace. There is no clear and homogen understanding what is best and what can/should be achieved in this context in present and in future. In this presentation the most important findings, the four main areas, will be presented and how to use AI in the workplace in a respectful way for people with and without disability.

Summary and Conclusion: In summary, it can be said that it is important to have intensive conversations and to carry out education across the entire area. In concrete terms, this means more exchange in each of the different areas and between them. A much more interdisciplinary approach is recommended so that the individual areas learn more from each other. Clear legal regulations with a flexible approach are crucial. This is immanent because AI and humans learn in an ongoing process. These developments should be incorporated into the design process. Legal regulations must respect this phenomenon and offer good opportunities to rework the paragraphs in line with the running learning approaches from theory and practice. In consequence, regulations must be flexibly adapted to these solutions.

Presenter:

Anne Rosken

ANED – HSG - PCU, Germany



Missing the Message to Brain Tumor Patients: A 2023 Twitter Analysis Among Patients, Informal Caregivers, and Healthcare Professionals in Glioblastoma Multiforme

Jay A. Jani¹, David Cowan¹, Lionel Ouonkap¹, Daniel Adesina¹, Tianwen Ma², Shumeng Chen², Salman Aldakhil¹ and Kimberly B. Hoang¹

¹Department of Neurosurgery, Emory School of Medicine, USA

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Purpose/Objective

Social media platforms, particularly Twitter (X), play an important role in healthcare communication by sharing information and personal disease experiences. We investigated glioblastoma multiforme (GBM) posting behaviors on Twitter by comparing patient and informal caregiver tweets to healthcare professional tweets.

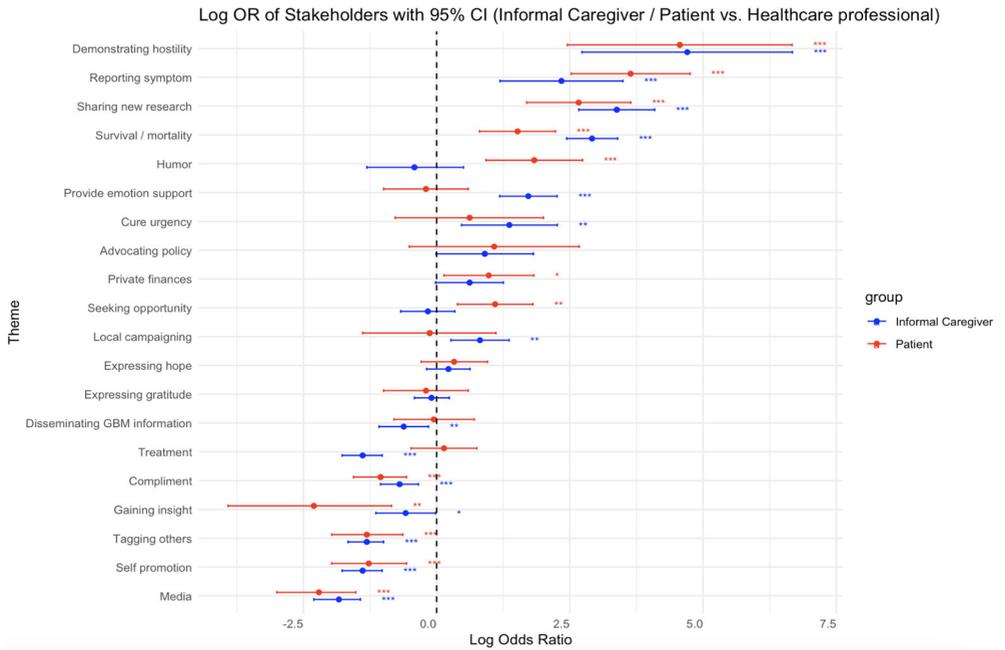
Methods

Using Keyhole, a third-party analytics tool, we analyzed 1,639 tweets containing the keyword “#glioblastoma” from January 1 to December 31, 2023. Users were categorized as patients, informal caregivers, or healthcare professionals. We employed Generalized Estimating Equation models and multinomial distributions to compare sentiment, thematic, and frequency engagement patterns across stakeholder groups.

Results

Informal caregivers produced the slight majority of tweets (51.6%), followed by healthcare professionals (39.0%). Informal caregivers expressed significantly more negative sentiments (relative to neutral ones) than healthcare professionals ($p < 0.001$). Thematic analysis revealed that patients ($p < 0.001$) and informal caregivers ($p < 0.001$) engaged in more emotional support than healthcare professionals. Healthcare professionals were more likely than patients ($p < 0.001$) and informal caregivers ($p < 0.001$) to self-promote. Patients ($p < 0.001$) and informal caregivers ($p < 0.001$) tweeted more on survival/mortality than healthcare professionals. Additionally, patients ($p < 0.001$) and informal caregivers ($p < 0.001$) had a higher average posting frequency per user than healthcare professionals.

Fig. 1 Stakeholders Thematic Analysis (Patient/Informal Caregiver vs Healthcare Professionals)



Discussion

Our findings indicate that GBM patients and informal caregivers were more likely to discuss emotional aspects of GBM care, while healthcare professionals had more informational and professional motives. Healthcare professionals who address these emotional, social, and financial communication disconnects can make their social media engagement more meaningful to patients who are often at least one of the primary targets of these accounts.

Presenter:

Jay A. Jani

Emory School of Medicine, USA



The Contribution of Artificial Intelligence to CPET Interpretation

Amir Weiss^{2,3}, Omri Inbar¹, Or Inbar² and Richard Casaburi⁴

¹School of Public Health, Tel Aviv University (Retired), Israel

²Medibyt Ltd., Israel

³Faculty of Engineering, Bar-Ilan University, Israel

⁴Harbors UCLA Medical Center, USA

Cardiopulmonary exercise testing (CPET) measures the ability of the heart, lungs' and muscles' to function during exercise, particularly at peak physiological effort. While CPET provides rich diagnostic information, interpreting its results remains complex and challenging. Emerging technologies in artificial intelligence (AI) and machine learning (ML) offer new opportunities to assist physicians and scientists to better understand CPET data, and in turn, extract meaningful insights. Indeed, various AI algorithms such as random forest, support vector machines (SVM), and deep neural networks (NNs) for time-series models like long short-term memory (LSTM), have proven highly effective in analysing large and complex datasets similar (in structure) to CPET output. Thus, CPET interpretation can be enhanced by leveraging these technologies, which enable automatic pattern recognition and improve the accuracy of patient condition prediction. Moreover, these models provide a more objective interpretation, based solely on measurements rather than personal opinions (i.e., "human biases"), in a consistent manner. Several case studies demonstrate the promising potential of AI in this domain, with models such as SVM and convolutional NNs achieving >90% accuracy, and in particular, outperforming state of the art- conventional manual methods, in classifying the patient's medical condition (e.g. heart failure, metabolic syndrome, etc.).

Despite its many benefits, including higher diagnostic accuracy, early pathology detection, and personalized insights, AI-based CPET interpretation faces critical challenges. These challenges reflect broader issues in applying ML to healthcare. Examples, among others, are the requirement for large, well-annotated CPET datasets, as well as concerns about algorithmic fairness and reliability. Specifically, tailored AI-based CPET interpretation has the potential to revolutionize healthcare by providing personalized and efficient care. This highlights the need for further research and the establishment of guidelines to facilitate and improve its practical use.

Presenter:

Amir Weiss

Medibyt Ltd., Israel | Bar-Ilan University, Israel



Enhancing Play Skills in Children with Autism: A Systematic Review of Behavioral Interventions Involving Peers and Adults

Goodson C Dzenga and **Nyasha Dzenga**

The University of Montana Western, USA

This review examines a range of behavioral interventions designed to enhance play skills in children with autism spectrum disorder (ASD), placing particular emphasis on the use of typically developing peers and adult involvement as key facilitators. Drawing on 20 empirical studies conducted between 2000 and 2024, the review includes both single-case designs and group-based research methodologies to provide a comprehensive overview of intervention outcomes. The studies collectively emphasize the importance of aligning play activities with the individual child's strengths and interests, which serves as a foundation for engagement and learning. Commonly employed strategies included prompting, live modeling by peers or adults, and the use of video modeling to demonstrate desired play behaviors. These techniques were often embedded in naturalistic play settings, enabling children to generalize learned skills across contexts. In addition to these core strategies, a smaller number of studies incorporated less common but promising approaches such as priming and social stories, which aim to prepare children for social interaction through previewing or narrative formats. The evidence suggests that interventions integrating multiple components—such as modeling, reinforcement, and structured peer interactions are particularly effective in promoting both functional play and social communication. These multi-element interventions not only foster meaningful engagement in play but also contribute to broader developmental outcomes, including improved peer relationships and increased participation in inclusive settings. Despite these positive trends, gaps remain in the literature, particularly regarding the reporting of intervention dosage, social validity, and fidelity of implementation. Future research should prioritize standardized reporting practices and explore culturally responsive adaptations of these interventions to ensure equitable access and relevance across diverse populations of children with ASD.

Presenter:

Goodson Chaidamoyo Dzenga

The University of Montana Western, USA



Epigenetic Sperm Quality Testing for Predicting Fertility Treatment Success: A Real-World and Multi-Site Analysis

K. Brogaard¹, S. Hudson², C. Bedient³, A. Eblen⁴, K. Van Heertum⁴, E. Giuliani⁵, M. Smith⁴, M. Kaye², A. Schutt², L. Hansard², V. Shavell⁵, K. Silverberg², M. Thakur⁵, A. Olson¹, R. Miller⁶, L. Schneider¹, D. Petersen¹, B. Daines¹, L. Robinson⁷, A. Reynolds⁷, N. Singh⁷, K. Kaskar⁷, J. Kassab⁸, L. Lipshultz⁸, M. VerMilyea^{7,9}

¹Path Fertility, USA

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⁸Department of Urology, Baylor College of Medicine, USA

⁹US Fertility, USA

Purpose: Infertility affects 1 in 6 couples, yet male fertility assessments often rely on semen analysis alone, which has limited predictive value for treatment success. This study evaluates an epigenetic tool for assessing sperm quality, aiming to provide a more comprehensive view of male fertility and improve personalized treatment strategies.

Methods: De-identified pregnancy outcomes from 537 couples treated at 10 US fertility clinics were analyzed. Partner ages, total motile sperm count, treatment type, and sperm epigenetic quality were considered to assess associations with fertility treatment outcomes.

Results: Men with abnormal sperm epigenetic profiles had significantly lower pregnancy success rates with intrauterine insemination (IUI) compared to those with normal profiles, despite similar sperm motility and concentration. In contrast, pregnancy rates did not differ between abnormal and normal profiles among couples undergoing *in vitro* fertilization (IVF) with intracytoplasmic sperm injection (ICSI), suggesting that ICSI may overcome sperm epigenetic quality issues.

Conclusion: This real-world analysis was limited by the availability of detailed clinical and phenotypic data, which may introduce potential confounders. Nevertheless, the findings highlight the clinical value of epigenetic sperm assessment as part of male fertility evaluation and support its potential to guide more effective, personalized fertility treatment pathways.

Presenter:

Carrie Bedient

The Fertility Center of Las Vegas, USA



Integrating Behavioral Health into Primary Care Produces Cost Savings with Refugees: Insights for Preventative Medicine

Maria Vukovich

University of Denver, USA

Many refugees experience extreme adversity and chronic stressors that can lead to complex health care needs. The integration of behavioral health into primary care is a promising approach for addressing complex health needs; however, it has been understudied with refugee populations. Using a pragmatic randomized control trial design, this study examined inpatient and outpatient health service utilization and associated costs of a primary care-based intensive psychotherapy and case management intervention for 214 Karen refugees with major depression compared to care as usual over time. Results indicated the addition of the behavioral health intervention was associated with reduced inpatient healthcare costs vs. care as usual, shorter hospital stays, and improved patient status at discharge. The average inpatient cost saving exceeded \$8,000 per patient among the intervention group. After controlling for key patient characteristics, patients who received the intervention accrued lower outpatient costs as compared to care as usual over 18 months. Findings suggested the integrated behavioral health intervention resulted in lower healthcare costs and greater service utilization among refugees with complex health needs engaged in primary health care. Results are consistent with a growing body of evidence suggesting preventative healthcare contributes to overall healthcare cost-savings. Future research is needed to better understand long-term effects and further optimize care for refugees. Implications for preventative medicine and community health with refugee populations will be shared.

Presenter:

Maria Vukovich

University of Denver, USA



A New Approach to Artificial Intelligence and Its Application to Medicine

Vladimir Proseanic¹, Boris Zlotin¹, Vladimir Matsenko² and Anatol Guin³

¹Progress, Inc., Omega Server Inc., USA

²Lead Programmer Progress, Inc., Russia

³Consultant, Regia Company, Kazakhstan

This paper describes the Progress Associative Neuromorphic Comparator (PANC), a new technology for Artificial Intelligence (AI) developed by the authors. PANC is based on a comparative approach to recognition, suggesting that information of any type (visual, auditory, olfactory, etc.) perceived and converted into electrical signals by computer sensors or sensory organs is recognized by comparing it with models stored in memory (a library). Based on comparison, other intellectual operations are also carried out, including the selection and ranking of analogues, coding and decoding, clustering and classification, generalization and abstraction, pattern identification, approximation, interpolation and extrapolation of data, optimization, transfer of information and its understanding between analogues, etc.

The comparison is performed by an analog or digital comparator in batch mode; the process is very fast, and its time is practically independent of the library size. Unlike traditional artificial neural networks (ANNs), the comparative approach does not require prior network training. This radically reduces computational complexity, time, hardware costs, labor, and energy use, while providing full transparency and interpretability of results.

The paper presents several tested medical applications of PANC, including diagnostic analysis of lung radiographs and electrocardiograms, real-time detection of heart failure risk using patient weight measurements, analysis of the dynamics of DNA cell duplication in preparation for division, rapid analysis of body fluids, etc.

The prospects for the development of medical systems based on PANC are also considered, including for logging the activity of the body with a constant analysis of health risks, the formation of biofeedback systems, the construction of a personalized system of medical support for the body based on AI and with the participation of doctors, the formation of knowledge banks about medical analogues and their use, the identification of mass medical hazards such as epidemics, poisoning, etc.

Presenter:

Vladimir Proseanic

Progress, Inc., Omega Server Inc., USA



Sex Differences in the Association of Liver Fibrosis Severity and Cardiometabolic Profiles

Jennifer L. Dodge, Somaya Albhaisi, Steve Kim and Norah A. Terrault

Keck School of Medicine, University of Southern California, USA

Background: Global liver disease burden is high with cardiometabolic risk factors (CMRFs) linked to more severe disease. Women represent an at-risk group with faster disease progression than men, yet differences in the effect of risk factors by sex are understudied.

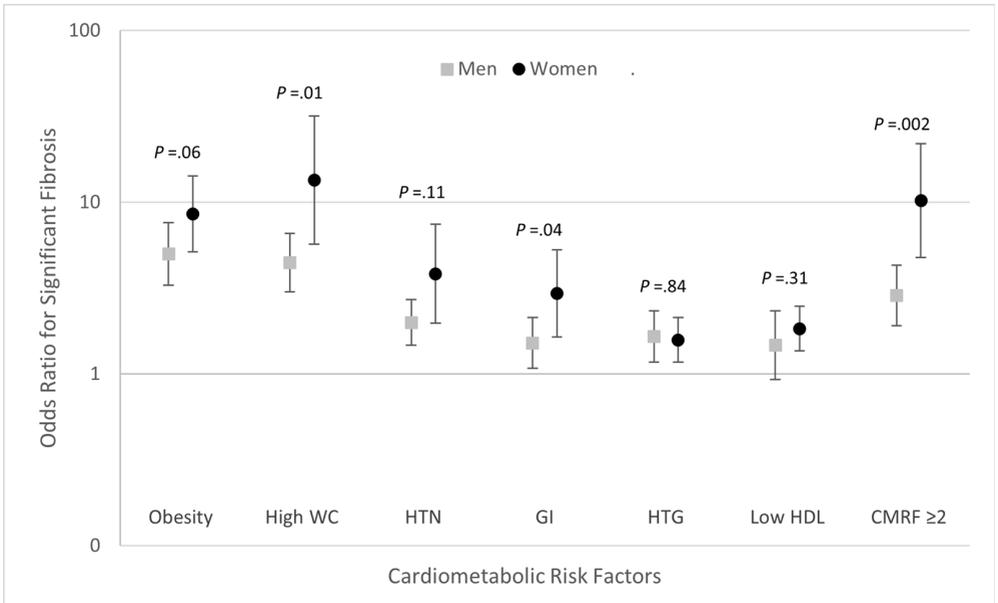
Objective: To evaluate for sex differences in the association of significant liver fibrosis with CMRFs.

Methods: This cross-sectional study included adults (≥ 20 years of age) from the 2017-2020 National Health and Nutrition Examination Survey. Participants with hepatitis B or C or missing liver imaging, CMRF, or alcohol use data were excluded. CMRF exposures included high waist circumference (WC), glucose intolerance, hypertension, hypertriglyceridemia, low HDL cholesterol, and presence of ≥ 2 CMRFs. Multivariable logistic regression evaluated the associations between significant liver fibrosis (liver stiffness ≥ 8.0 kPa from transient elastography imaging) and CMRFs, testing CMRF by sex interactions.

Results: The study included 5981 participants, 2992 women and 2989 men (non-Hispanic White 65.0% vs 64.6%; Hispanic 14.7% vs 16.4%; mean age 49 vs 47 years). Women had higher prevalence of high WC (69.0% vs 48.6%) and lower prevalence of hypertension (41.0% vs 44.9%), glucose intolerance (31.1% vs 41.7%) and hypertriglyceridemia (36.6% vs 48.4%) compared to men. Significant liver fibrosis prevalence was 6.9% (95%CI 5.4-8.8) in women and 10.7% (95%CI 8.8-12.9) in men. The association of significant liver fibrosis was stronger in women versus men for high WC (aOR 13.45 [95%CI 5.70-31.78] vs 4.44 [95%CI 3.00-6.57]; interaction $P=.01$), glucose intolerance (2.94 [1.64-5.28] vs 1.51 [1.08-2.13]; $P=.04$), and presence of ≥ 2 CMRFs (10.22 [4.76-21.95] vs 2.87 [1.91-4.31]; $P=.002$; Figure 1).

Conclusions: The markedly higher association of liver fibrosis with presence of ≥ 2 CMRFs, high WC, and glucose intolerance for women versus men highlights the need to increase patient and provider awareness of the unique risk profiles to liver disease progression.

Figure 1. Adjusted odds ratios of significant liver fibrosis by CMRF and sex.

**Presenter:****Jennifer L. Dodge**

University of Southern California, USA



Achieving and Maintaining Homeostasis with Molecular Computers

Roger D. Jones

European Centre for Living Technology, Ca' Foscari University of Venice, Italy
Department of Biology, University of North Carolina at Chapel Hill, USA

Life depends on a continuous flow of energy and entropy, which sustains biological order far from equilibrium. For natural selection to operate, organisms must remain adaptable to changing environments, and this adaptability requires the ability to process and transmit information. At the molecular level, such information processing is achieved through biochemical switches, mechanisms that toggle between states to regulate cellular function. Among the most important of these are phosphorylation/dephosphorylation cycles and similar molecular modifications. A major site for such switching activity is on the intracellular surfaces of G-protein coupled receptor (GPCR) complexes, which integrate extracellular signals to maintain homeostasis. Recent theoretical and experimental findings suggest that biological switches do not operate purely in binary on/off modes but can also exist in active and inactive states. This dual-level behavior implies that each molecular switch encodes two bits of information, rather than the single bit typical of electronic switches. The state of these biological switches depends on both the energy flow through the system and the binding energy of the molecular components. Understanding these dynamics provides new insight into how molecular switches govern cellular regulation and homeostasis. These findings contribute to a broader understanding of how energy flow and information processing underpin life and adaptability. By clarifying the energetic and informational basis of molecular switching, this research may inform new strategies in preventive medicine aimed at preserving cellular balance and preventing the onset of disease.

Presenter:

Roger D. Jones

Ca'Foscari University of Venice, Italy
University of North Carolina at Chapel Hill, USA



Health Literacy and Digital Health Literacy: Addressing Disparities Among African American/ Black Men

**Evelina W. Sterling¹, Vanessa Robinson-Dooley² and
Tyler Collette¹**

¹Kennesaw State University, USA

²Simmons University, USA

Health literacy is a fundamental determinant of health equity, shaping health behaviors, healthcare access, and long-term outcomes. Defined as the ability to obtain, process, and use health information to make informed decisions, health literacy goes beyond reading and writing to include interpreting instructions, navigating healthcare systems, and applying health knowledge in daily life. Despite its importance, disparities remain profound. Nearly 87 million adults in the United States have low health literacy, a condition linked to poorer health outcomes such as increased hospitalization, limited preventive service use, higher complication rates, and greater mortality. Low literacy also drives excess healthcare spending by increasing avoidable utilization of emergency and inpatient care.

African American/Black men experience disproportionately low health literacy due to structural inequities including systemic racism, underfunded schools, reduced access to preventive services, and provider bias. Evidence shows that Black men are more likely than White and Asian populations to report inadequate health literacy, which contributes to later-stage cancer diagnoses, poor control of chronic diseases such as hypertension and diabetes, lower rates of colorectal cancer screening, and higher all-cause mortality. These disparities are compounded by reduced trust in healthcare providers, underestimation of literacy challenges by clinicians, and social determinants of health such as income inequality and geographic segregation. Together, these factors reinforce cycles of morbidity and premature mortality in this population.

The growing role of technology in healthcare introduces both opportunities and barriers. Digital health literacy, or eHealth literacy, is now essential for engaging with telehealth platforms, mobile health applications, and online information sources. Yet African American/Black men with low digital literacy risk misinterpreting digital content, experiencing difficulty navigating patient portals, and underutilizing telehealth services. To reduce disparities, culturally responsive interventions must strengthen both traditional and

digital health literacy, empower informed decision-making, and build trust. Addressing these literacy gaps holds the potential to improve prevention, enhance chronic disease management, reduce healthcare costs, and advance health equity among African American/Black men.

Presenter:

Evelina Weidman Sterling

Kennesaw State University, USA



Applications in Public Health: Experience Report on the Development of the VigSaúde® Application

Joaquim Teixeira Netto

Ensp/Fiocruz, Brazil

At the beginning of the COVID-19 pandemic, Fiocruz's Inova program was created to fund projects across various Fiocruz institutes and units. Development of the VigSaúde® app (Patent BR512023000950-4) began with funding from Fiocruz's Inova program for efficient management of COVID-19 cases in primary care settings. Subsequently, new needs arose for the app related to health surveillance in Health Surveillance Centers (CIEVs) and, ultimately, tuberculosis patient care.

The app was developed by a multidisciplinary team comprised of systems analysts, IT technicians, physicians, nurses, and health surveillance professionals. These professionals had varying degrees of ties to Fiocruz. Initially, the tasks and care flows of the healthcare professionals responsible for first aid provided in the tents located outside the CSEGSF, known as the rapid response team (ERR), were obtained.

After the development of the VigSaúde® app for COVID-19, a new funding opportunity arose with Fiocruz's INOVA program, this time for health surveillance. The app project was awarded funding for the development of a solution for the Health Surveillance Center (CIEV) in Corumbá, a municipality on the border of the state of Mato Grosso do Sul.

Ultimately, new features were developed to combat tuberculosis, with the primary goal of monitoring patient medication and preventing treatment abandonment. Forms were developed for each group involved: Surveillance, Pharmacy, and Care. The forms were created by synthesizing data from the spreadsheets. Simulations and tests were conducted with "fictional" data, enabling a simulation of how patients would understand the application. During validation meetings, improvements in the consolidation of tuberculosis data were observed.

Presenter:

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Application of a Degenerate RLS Algorithm for Epileptic Seizure Detection

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Epileptic seizure detection from electroencephalogram (EEG) signals is a critical task for clinical diagnosis and continuous patient monitoring, particularly in pediatric cases. This work investigates the application of a simplified variant of the Recursive Least Squares (RLS) adaptive filter, referred to as degenerate RLS, for automatic seizure detection in multichannel EEG recordings. The proposed approach aims to evaluate whether extreme algorithmic simplification can preserve high detection performance while significantly reducing computational complexity.

The method was validated using real EEG data from the publicly available CHB-MIT Scalp EEG Database, which contains long-term recordings of pediatric patients with drug-resistant epilepsy. Three left fronto-temporal channels (FP1-F7, F7-T7, and T7-P7) were selected based on their clinical relevance. The degenerate RLS was implemented with unconventional configurations, including a zero-order filter and modified forgetting factor values. Seizure detection was performed by analyzing the adaptive filter error energy and applying statistically defined thresholds combined with multi-channel temporal validation.

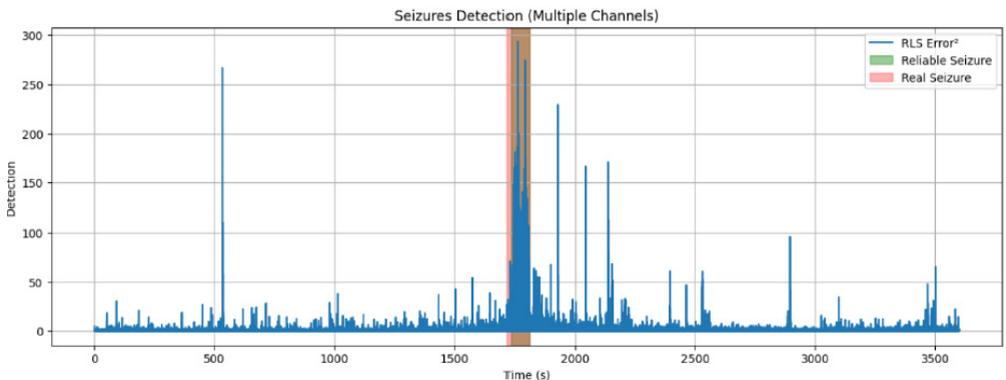


Fig. 1. Example of seizure detection using the degenerate RLS algorithm, showing the EEG signal, error energy, ground-truth seizure interval, and detected events.

Performance was assessed using standard classification metrics, including precision, recall, F1-score, accuracy, and confusion matrices, by comparing detected events with expert-annotated seizure intervals. Experimental results obtained from multiple patients demonstrated high average performance, with F1-scores around 0.96 and accuracy values exceeding 96% in most cases. Despite its simplicity and absence of supervised learning, the proposed method achieved results comparable to more complex approaches reported in the literature.

Table 1. Algorithm performance per patient.

Name	True (s)	Detect (s)	Precision	Recall	F1-Score
chb01_18	1720 – 1810	1732 – 1809	1,00	0,93	0,96
chb02_09	None	None	1,00	1,00	1,00
chb03_05	None	None	1,00	1,00	1,00
chb04_04	None	5029–5042 / 13029–13044	1,00	0,99	0,99
chb05_06	417 – 532	432 – 531	1,00	0,93	0,96
chb06_17	None	None	1,00	1,00	1,00
chb07_13	3285 – 3381	3312 – 3376	1,00	0,83	0,89
chb08_03	None	None	1,00	1,00	1,00
chb09_19	5299 – 5361	5299 – 5355	0,69	0,94	0,77
chb10_12	6313 – 6348	6313 – 6346	0,99	0,97	0,98
Average	-	-	0,97	0,96	0,96

The findings indicate that degenerate RLS constitutes a promising low-complexity and interpretable solution for real-time epileptic seizure detection, particularly suitable for embedded systems and resource-constrained environments. This work highlights that effective seizure detection can be achieved without heavy preprocessing or deep learning models, paving the way for lightweight and scalable clinical monitoring applications.

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Robotic Assisted Kidney Transplantation and its Nuances: Experience of a High Volume Tertiary Care Centre

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To evaluate the surgical outcomes, technical nuances, perioperative complication management, mid- to long-term follow-up outcomes in terms of graft function and patient survival of robot-assisted kidney transplantation (RAKT), including experiences with deceased donor and paediatric transplants. This single-centre study prospectively and retrospectively analyzed 92 patients undergoing RAKT between August 2021 and December 2024. The cohort includes adult and paediatric recipients, with both living and deceased donors. One among them is a paediatric cadaveric en-bloc dual kidney donor transplant. Patients with high anaesthetic risk, significant atherosclerotic iliac vessels, and a past history of multiple abdominal surgeries were excluded from the study. Data on ischaemia times, anastomosis durations, operative time, haemoglobin drop, serum creatinine, estimated GFR, delayed graft function, and complications were collected. Median follow-up duration was 21 months. The mean warm ischaemia time was 3.6 ± 1.8 min, cold ischaemia time 48.4 ± 12.4 min, and total operative time 258.6 ± 46.4 min. Prompt diuresis occurred in 88 patients; three had delayed graft function (one live donor and two deceased donors), and one graft loss was noted. Perioperative complications included graft bleeding, paralytic ileus, lymphoceles and graft vascular kinking, with all managed successfully. Paediatric and deceased donor RAKTs demonstrated favourable outcomes. Serum creatinine at 1 year averaged 1.2 ± 0.8 mg/dL for adult live donor transplants; graft survival at 2 years was 98.9%. RAKT is a safe and effective alternative to open kidney transplantation when performed by experienced surgeons. The study extends RAKT indications to deceased donor, paediatric, and complex cases, emphasizing management of uncommon complications, learning curve considerations, and cost analysis. RAKT represents a promising minimally invasive kidney transplant option.

Presenter:

Mohan Keshavamurthy

Fortis Hospital, India



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