PEERS ALLEY
M E D I A

mathbiology
Silver Sponsor

6th

International Conference on

FUTURE OF PREVENTIVE MEDICINE AND PUBLIC HEALTH

MARCH 23-24

2026

ROME, ITALY

08:00-08:30	**Registrations**

08:30-08:40	**Inaugural Ceremony**

Moderator	**Giovanna Capilli,** *San Raffaele University of Rome, Italy*

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

Session Chair	**António Rui Marcelino Leal,** *SANITUS Foundation-Porto, Portugal*
Session Chair	**Khawer Naveed Siddiqui,** *Head, Preventive Cardiology, B M Birla Heart Research Centre, India* *President, Heart Friends Around The World, Indian Affiliated Chapter*

08:40-09:00	Title: Community Impacts of Aviation Noise and Implications for Policy
	Jamie L. Banks, *Quiet Communities Inc., USA*

09:00-09:20	Title: Cybersecurity, Medical Device and Product Liability
	Giovanna Capilli, *San Raffaele University of Rome, Italy*

09:20-09:40	Title: Heat and Diabetes: Clinical Perspectives on the Implications of Rising Temperatures for Diabetes Care and Prevention
	Benedict Lacner, *Praxis Dr. Lacner, Germany*

09:40-10:00	Title: Artificial Intelligence (AI) in Healthcare – Path for Accessibility, Affordability & Accountability for Emerging Countries
	Faisal M. Rahman, *Saint Xavier University, USA*

10:00-10:20	Title: Efficacy of 20-Minute Yoga vs Walking in Alleviating Burnout Among Healthcare Workers: A Randomized Controlled Trial
	Vartika Saxena, *AIIMS, Rishikesh, India*

10:20-10:40	Title: The Role of MDCT Coronary Angiography in the Detection of Benign Varieties and Anomalies of Coronary Blood Vessels
	Ana Mladenovic Markovic, *University Clinical Centre of Serbia School of Medicine University of Belgrade, Serbia*

GROUP PHOTO 10:40-10:50
REFRESHMENT BREAK 10:50-11:10

11:10-11:30	Title: Anesthetic Management of Mechanical Thrombectomy and Its Implication for Neuroprotection and Outcomes
	Ana Costa, *Stony Brook University Hospital, USA*
11:30-11:50	Title: The Importance of "Efficient Crew Resource Management" for High Risk Working Environments in the Healthcare Sector
	Marc ANT, *Competence Centers for the Luxembourg Crafts Sector, Luxembourg*
11:50-12:10	Title: A Personalized Longevity Approach to Reverse Biological Aging
	Gulsen Meral, *Epigenetic Coaching, UK Istanbul Nisantasi University, Turkey*
12:10-12:30	Title: Reinforcement Learning for Intelligent Distribution of Oncology Care Pathway Milestones
	Aleš Tichopád, *Czech Technical University in Prague, Czech Republic*
12:30-12:50	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*

GROUP PHOTO 12:50-13:00
LUNCH BREAK 13:00-13:40

Session Chair	**António Rui Marcelino Leal,** *SANITUS Foundation-Porto, Portugal*
Session Chair	**Khawer Naveed Siddiqui,** *Head, Preventive Cardiology, B M Birla Heart Research Centre, India President, Heart Friends Around The World, Indian Affiliated Chapter*
13:40-14:00	Title: Joint Efforts: A Review of Large Joint and Bursa Steroid Injections and Aspirations in Primary Care
	Sudipta Mohanty & Aditya Mohanty, *Beth Israel Deaconess Medical Center, Harvard Medical School, USA*

14:00-14:20	Title: Non-Invasive Bioelectrical Profiling of Systemic Metabolic Dysregulation in Oncology using DMA®
	Francesca Antonella Aiello, *Math Biology SRL-Human Biology Institute, Italy*
14:20-14:40	Title: Preventive Psychiatry in Transplant Medicine: Reimagining Models of Care to Optimize Transplant Outcomes
	Kinza Tareen, *University of Michigan, USA*
14:40-15:00	Title: Sustainable Consumption of Food during Covid 19: A Conceptual Framework through Literature Review with Focus on Awe
	Soma Sur, *St. Xavier's University, Kolkata, India*
15:00-15:20	Title: Genetic Signatures: Predictive Analysis of Immunological Cancer Treatments
	Carolina Castaño Portilla, *EIA University, Colombia*
15:20-15:35	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*
15:35-15:50	Title: Development of Pulse Arrival Time Based System to Derive Beat-to-Beat Blood Pressure Variability
	Chaitali Aditya Deshmukh, *University of Mumbai, India*
Posters 15:50-16:20	Title: Barriers to HIV Testing Among Partners and Families of PLHIV at ART Centers
	Meenakshi Khapre, *AIIMS, Rishikesh, India*
	Title: In Precision Medicine Consideration Must Be Given To, Among Other Things, Aging, Genetics and Global Diversity
	Maria Edvardsson, *Primary Health Care Center, Sweden	Linköping University, Sweden* **Menikae K Hennkenda**, *Linköping University, Sweden*
	Title: Evaluation of DMA® Measurements as Specific Detector of Metabolic Patterns: Placebo Stability and State-Dependent Responses to Vitamin D3
	Luca Evangelisti & Francesca Antonella Aiello, *Math Biology SRL-Human Biology Institute, Italy*

REFRESHMENT BREAK 16:20-16:40

16:40-17:00	Title: The VITABalance-Med & IIIES Project for the CVD Primary Prevention
	António Rui Marcelino Leal, *SANITUS Foundation-Porto, Portugal*
17:00-17:20	Title: From Primordial Cardiovascular Prevention to Primary Prevention: The Role of Schools
	Elio Venturini, *Civil Hospital Cecina (LI), Italy*
17:20-17:40	Title: Sleep Health: One of the Inclusive "VitaBalance Med" Pillars for Primary CVD Prevention
	Carlos Rivas Echeverria, *SLEEPCARE Clinics and DESPIERTA Ltd., UK*
17:40-18:00	Title: Erectile Dysfunction (ED) as a Predictor of Cardiovascular Events
	Esteban Garcia Porrero, *Hospital of León, Spain*
18:00-18:20	Title: Prevention First: Redefining Cardiovascular Care for the 21st Century
	Khawer Naveed Siddiqui, *Head, Preventive Cardiology, B M Birla Heart Research Centre, India* *President, Heart Friends Around The World, Indian Affiliated Chapter*
NETWORKING	
END OF DAY 1	

SCIENTIFIC PROGRAM | DAY 02

TUESDAY

MARCH 24, 2026

HALL-01

08:30-08:40	**Introduction**
Moderator	**Giovanna Capilli,** *San Raffaele University of Rome, Italy*

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

Session Chair	**Hans J Meij,** *Yong Loo Lin Medical School, National University of Singapore, Singapore* *Amsterdam University Medical Center, The Netherlands*
Session Chair	**Faisal M. Rahman,** *Saint Xavier University, USA*
08:40-09:00	Title: The Effects of Blood Flow Restriction on Individuals with Ehlers Danlos Syndromes **Justin Z. Laferrier,** *Johnson & Wales University, USA*
09:00-09:20	Title: Healthy Longevity Medicine: Is Singapore Ready? **Hans J Meij,** *Yong Loo Lin Medical School, National University of Singapore, Singapore* *Amsterdam University Medical Center, The Netherlands*
09:20-09:40	Title: After Covid-19 Pandemic: Lessons from Italy's Inner Areas **Giovanni De Santis & Annamaria Bartolini,** *University of Perugia, Italy*
09:40-10:00	Title: 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*
10:00-10:20	Title: Lagrangian Symmetries and Noether Invariants Unifying Epistemic, Utilitarian, and Normative AI **Edouard Siregar,** *Seji Labs, Spain	New York Academy of Sciences, USA*

10:20-10:40	Title: Transmission Dynamics of Dengue in Taiwan
	Hiroshi Nishiura, *Kyoto University, Japan*

GROUP PHOTO 10:40-10:50
REFRESHMENT BREAK 10:50-11:10

11:10-11:30	Title: Evaluating a Near-Infrared Intraoral Scanner for Proximal Caries Detection in Primary Posterior Teeth
	Hanin E. Yeslam, *King Abdulaziz University, Saudi Arabia*
11:30-11:50	Title: Incidence and Risk Factors for Falls Among Nursing Home Residents in Italy: A Retrospective Cohort Study
	Chiara Carla Monti, *Kos Care SRL, Italy*
11:50-12:10	Title: Accurate Identification of Glycogen Storage Disease Ia Patients using Machine Learning on Acylcarnitine Profiles
	Joost Groen, *University Medical Center Groningen, The Netherlands*
12:10-12:30	Title: Emotional Lifelog using Combination of Environmental and Physiological Indicators
	Ichi Kanaya, *Nagasaki University, Japan*
12:30-12:50	Title: The Contribution of Artificial Intelligence to CPET Interpretation
	Amir Weiss, *Medibyt Ltd., Israel	Bar-Ilan University, Israel*

GROUP PHOTO 12:50-13:00
LUNCH BREAK 13:00-13:40

Session Chair	**Hans J Meij,** *Yong Loo Lin Medical School, National University of Singapore, Singapore* *Amsterdam University Medical Center, The Netherlands*
Session Chair	**Faisal M. Rahman,** *Saint Xavier University, USA*
13:40-14:00	Title: Low-FODMAP Diet Intervention: A Promising Approach for Managing Irritable Bowel Syndrome
	Amani Alawi Alrasheedi, *King Abdulaziz University, Saudi Arabia*
14:00-14:20	Title: Embolization of Bronchial Arteries – Single Center Experience
	Igor Sekulic, *Military Medical Academy, Serbia*
14:20-14:40	Title: Quality of Reports on Drug Toxicity in Eudravigilance: A Safety Physician's Perspective
	Jana Brajdih Čendak, *Billev Pharma East Ltd., Slovenia*

14:40-15:00	Title: The Role of Implant-Acupuncture in the Treatment of Dementia
	Stefan Lobner, *Implant-Acupuncture Clinic, Germany*
15:00-15:20	Title: Using Ultrasound to Assess Connective Tissue Quality in Spine Surgery: Cutoffs and Predictive Value for Adjacent Segment Disease
	Erika Adriana Chiapparelli Harb, *Hospital for Special Surgery, Weill Cornell Medicine, USA*
15:20-15:40	Title: Gaps in Clinical and Ethical Guidance During Health Crises: Lessons from the COVID-19 Pandemic in México
	Fernanda De Blas López, *National Autonomous University of Mexico, Mexico*
Posters 15:40-16:10	Title: Evaluating and Enhancing the Ward Staff's Understanding of Hearing Aids in Geriatric Patients
	Kaniz Fatimah, *Lewisham and Greenwich NHS Trust, UK*
	Title: "We have Doctors, we have Nurses, but also those things from God": Faith, Religion, and the Involvement of Faith-Based Organisations in HIV-Related Service-Provision in Cape Town, South Africa
	Shehani Perera, *South African Medical Research Council, South Africa*
	Title: Chuspi: A Design of a Smart Device for Monitoring Aedes Aegypti Mosquito Populations in Response to Dengue Outbreaks in Peru
	Aniela Joaquina Ubillús Peña, *Pontificia Universidad Catolica del Peru, Peru*
	Title: THEO: A Monitoring Device for Milk Consumption in Infants with Cleft Lip or Cleft Palate
	Eliane Anel Loza Elguera, *Pontificia Universidad Catolica del Peru, Peru*
	Title: Experiences of Patients with Cervical Cancer Undergoing Concurrent Chemo-Radiation Therapy at the Korle Bu Teaching Hospital in Ghana: An Explorative Qualitative Study
	Enam Adzo Setsoafia, *Korle-Bu Teaching Hospital, Ghana*
REFRESHMENT BREAK 16:10-16:30	
16:30-16:50	Title: Pandemic-Induced Social Isolation on Youth Social Skills and Mental Health
	Khandker Ahmedul Haque, *York University, Canada*

16:50-17:10	Title: Right and Access to Primary Care for People Experiencing Homelessness in Rome (Italy). A Qualitative Survey to Assess Potential Organizational Proposals for the Application of Law No.176/2024 in the Period of Implementation of Ministerial Decree No. 77 7/2022
	Serafina Torchiaro, *Sapienza University of Rome, Italy*
17:10-17:30	Title: Mental Health During Medical Training: An Analysis of Associated Factors in Mexican Medical Students
	Karina Robles Rivera, *National Autonomous University of Mexico, Mexico*
17:30-17:45	Title: Biomechanical Analysis of the Influence of Contralateral Leg Balance on the Effectiveness of the Bandal Chagi Kick in Taekwondo
	Eliane Anel Loza Elguera, *Pontificia Universidad Catolica del Peru, Peru*
17:45-18:00	Title: Towards African-Centered Psychosocial Interventions: Engaging with African Indigenous Communities through African Indigenous Knowledge systems
	Nokukhanya Zondi, *University of KwaZulu-Natal, South Africa*
NETWORKING	
END OF DAY 2	

HALL-02
Introduction

Session Chair	**Marc ANT,** *Competence Centers for the Luxembourg Crafts Sector, Luxembourg*
Session Chair	**Mohamad Hamoud,** *Holy Family Hospital-Nazareth, Israel*
Session Chair	**Gulsen Meral,** *Epigenetic Coaching, UK* *Istanbul Nisantasi University, Turkey*
10:00-10:20	Title: Detection of Putative Loci Affecting Milk Yield in Turkish Awassi Sheep using Microsatellite Markers
	Hasan Koyun, *Van Yüzüncü Yıl University, Turkey*
10:20-10:40	Title: Minimally Invasive Surgery: A Strategic Tool in Preventive Medicine & Public Health
	Mohamad Hamoud, *Holy Family Hospital-Nazareth, Israel*
GROUP PHOTO 10:40-10:50	
REFRESHMENT BREAK 10:50-11:10	
11:10-11:30	Title: Robotic Assisted Kidney Transplantation and its Nuances: Experience of a High Volume Tertiary Care Centre
	Mohan Keshavamurthy, *Fortis Hospital, India*
11:30-11:50	Title: Navigating Healthcare Futures: Emerging Trends Driving Preventive Medicine and Public Health Transformation
	Suryanarayana Alamuri, *Osmania University, India*
11:50-12:10	Title: Innovation in Prevention Begins with Education: Patient Safety as a Pedagogical Framework for Public Policy
	Thamyres Zanirati dos Santos, *Federal University of the State of Rio Grande do Sul, Brazil*
12:10-12:30	Title: Agile Technologies for Business Resilience: Issues and Recommendations — A Systematic Review
	Sriram Ananthan, *Yorkville University, Canada*
12:30-12:50	Title: Cervical Tuberculosis Mimicking Cervical Cancer in a Postmenopausal Woman: A Case Report
	Francisco do Vale, *Hospital Garcia de Orta, Portugal*
GROUP PHOTO 12:50-13:00	

LUNCH BREAK 13:00-13:40	
Session Chair	**Marc ANT,** *Competence Centers for the Luxembourg Crafts Sector, Luxembourg*
Session Chair	**Mohamad Hamoud,** *Holy Family Hospital-Nazareth, Israel*
Session Chair	**Gulsen Meral,** *Epigenetic Coaching, UK* *Istanbul Nisantasi University, Turkey*
13:40-14:00	Title: Exploring Stakeholders' Experiences on Implementing Family Medicine in Urban South Africa-Implications for Universal Health Coverage
	John Mukuka Musonda, *University of the Witwatersrand, South Africa*
14:00-14:20	Title: Comparative Outcomes of Thulium Laser Enucleation by Prostate Volume: A Three-Group Analysis from A Single-Center Study in Vietnam
	Van Hinh Tran, *Vietnam Military Medical University, Vietnam*
14:20-14:40	Title: Occupational Exposure to Airborne Aldehydes: Health Risks Among Traffic Police Officers in Lebanon
	Zeina Dagher, *Lebanese University, Lebanon*
14:40-15:00	Title: When Left Is Right: Adapting Laparoscopic Skills to Mirror-Image Anatomy in Low-Resource Settings
	Iqra Khanzada, *Indus Medical College & Hospital, Pakistan*
15:00-15:20	Title: Translational Development of NCE 14a: From Predictive Pharmacokinetics to Colon-Targeted Nanoparticles for Colorectal Cancer Therapy
	V V Siva Krishna Pushadapu, *Vignan Pharmacy College, India*
15:20-15:35	Title: AI, Mental and Physical Labor, and a Just Policy Framework
	Yotam Harel, *University of Oxford, UK*
15:35-15:50	Title: The Effect of Shoulder Massage on Shoulder Pain and Sleep Quality in Patients after Laparoscopic Cholecystectomy: A Randomized Controlled Trial
	Melis Kübra Duran, *NP İstanbul Brain Hospital, Turkey*

15:50-16:05	Title: Sustainable Electronic Waste Management through Efficient Power Management for a Greener Future
	Khushi Mukeshsingh Bhadouriya, *Vishwakarma Government Engineering College, India*
16:05-16:20	Title: Population Changes and Primary Healthcare Delivery in Ebonyi State, Nigeria
	Agatha Arochukwu, *National Population Commission, Nigeria*

| REFRESHMENT BREAK 16:20-16:30 |

| 16:30-16:50 | Title: Neuro-Metabolic Synchrony in Preventive Medicine: A Brain-Body Systems Framework for Early Detection and Reversal of Cardiometabolic Risk |
| | **Simona Carniciu,** *Carol Davila University of Medicine and Pharmacy, Romania*
Soumanar Functional Medicine Institute, Romania |

VIDEO PRESENTATIONS

V001	Title: Behavior-in-the-Loop: Validating LLM Agentic systems for Preventive & Public Health
	Anand Srinivasa Rao, *Carnegie Mellon University, USA*
V002	Title: Efficacy and Safety of Superior Laryngeal Nerve Block in the Management of Neuropathic Cough: A Systematic Review
	Vinicius Nickel, *State Unversity of Rio de Janeiro, Brazil*
V003	Title: Quiet Malignancy, Loud Decisions: Low Grade Serous Ovarian Carcinomas in Women Yet to Conceive
	Madhumitha J, *Panimalar Medical College, India*
V004	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 Report
	Nasrin Raffati, *Negah Eye Hospital, Iran*
V005	Title: Religious Practices and Quality of Life in Palliative Care: Insights from Tanzania
	Sonia Nada Edward Sokoine, *Kairuki University, Tanzania*

NETWORKING

END OF DAY 2

7TH INTERNATIONAL CONFERENCE ON

FUTURE OF PREVENTIVE MEDICINE AND PUBLIC HEALTH

March 2027 | Vienna, Austria

DAY 01

6TH INTERNATIONAL CONFERENCE ON

FUTURE OF PREVENTIVE MEDICINE AND PUBLIC HEALTH

MARCH 23-24, 2026 | ROME, ITALY

SPEAKER TALKS

Community Impacts of Aviation Noise and Implications for Policy

Jamie L. Banks
Quiet Communities Inc., USA

Introduction: Noise, defined as unwanted and/or harmful sound, is a serious but underrecognized environmental health threat. Too often dismissed as mere "annoyance," chronic environmental noise is known to cause or contribute to cardiovascular disease, cardiometabolic disease, sleep impairment, anxiety, depression, neurological conditions, and cognitive impairments. Policies often depend on metrics that fail to reflect the real-life experiences of affected communities, putting public health in jeopardy.

Objective: Use aviation noise as an example to illustrate the harms of noise and the shortcomings of existing policies in the United States.

Methods: Online 10-question survey and policy analysis.

Results: Results from 1,452 survey respondents show that communities are experiencing loud, repetitive, low altitude aircraft noise - day and night - causing stress and negative effects on mental and physical health. For many, "annoyance" did not adequately describe their experience. Strong, consistent exposure-response patterns for weekly flight frequency (<100 to >1000 flights) were found for most health impacts, perceptions, and concerns. The likelihood of adverse impacts and heightened perceptions and concerns was greatest in respondents exposed mainly to military aircraft.

Discussion: Noise policy has long relied on annoyance as a central outcome and has employed metrics that disregard aspects that may have serious impacts on health and quality of life. Aviation noise policy in the United States is illustrative of this history. Efforts to amend the policy must be informed by the scientific evidence on the adverse effects of noise and health and by metrics that properly represent the lived experiences of communities. The results of this pilot survey highlight the importance of incorporating these aspects into policy for preventing and mitigating harms caused by aviation noise, especially as the industry grows.

Presenter:
Jamie L. Banks
Quiet Communities Inc., USA

Cybersecurity, Medical Device and Product Liability

Giovanna Capilli

San Raffaele University of Rome, Italy

This paper examines the integration of digital technologies in the healthcare sector, with a specific focus on Medical Devices.

From a methodological perspective, the study conducts a comparative analysis of the main existing regulatory frameworks, particularly the General Product Safety Regolation (EU) 2023/988, General Data Protection Regulation (GDPR), the EU Medical Device Regulation (MDR) 2017/745, the Cyber Resilience Act, and the newly adopted Directive (EU) 2024/2853 on liability for defective products. These instruments are evaluated for their effectiveness in governing digital and AI-driven technologies in healthcare, with particular attention to accountability and liability issues.

Notably, Directive 2024/2853 introduces cybersecurity as a critical criterion for assessing product defectiveness. It establishes specific obligations for manufacturers concerning cybersecurity throughout the entire product lifecycle, including post-market phases, thereby strengthening the liability regime in cases of cybersecurity-related defects.

This development raises the question of whether the European regulatory framework—aimed at harmonizing the legal systems of Member States—is sufficient on its own, or whether it should be complemented by a dedicated legal instrument specifically addressing liability for damages caused by artificial intelligence.

Presenter:
Giovanna Capilli
San Raffaele University of Rome, Italy

Heat and Diabetes: Clinical Perspectives on the Implications of Rising Temperatures for Diabetes Care and Prevention

Benedict Lacner

Praxis Dr. Lacner, Germany

Objective and Scope: As global temperatures rise and heatwaves become increasingly common, individuals with diabetes mellitus face heightened health risks. This presentation explores the physiological, pharmacological, and systemic challenges posed by heat exposure in diabetes care, with the objective of identifying and promoting effective strategies for clinical and public health adaptation.

Methods: This work draws on a systematic review of clinical studies and epidemiological data assessing the effects of heat on insulin pharmacokinetics, insulin sensitivity, and glucose metabolism. Reports from diverse geographic regions were analysed to evaluate the broader public health impact. Emphasis was placed on identifying vulnerable subpopulations and clinical markers that could inform risk mitigation strategies.

Key Findings: Exposure to elevated temperatures disrupts glycaemic control by altering insulin absorption and sensitivity. Increased insulin sensitivity in heat conditions elevates the risk of hypoglycaemia, while dehydration and impaired thermoregulation may trigger hyperglycaemic episodes. Older adults and individuals with cardiovascular or renal comorbidities are especially vulnerable. The findings underscore a need for personalized therapeutic adjustments and increased clinical vigilance during periods of extreme heat.

Conclusion: To mitigate the growing impact of climate-related temperature extremes on people with diabetes, healthcare systems must adopt a more anticipatory approach. This includes patient education, dynamic treatment protocols, and the integration of climate-responsive strategies in routine care. By combining individual-level adaptations with systemic support structures, we can build greater resilience and reduce avoidable morbidity in a warming world.

Presenter:
Benedict Lacner
Praxis Dr. Lacner, Germany

Artificial Intelligence (AI) in Healthcare – Path for Accessibility, Affordability & Accountability for Emerging Countries

Faisal M. Rahman

Professor and Founding Dean, The Graham School of Management, Saint Xavier University, USA

The presentation/paper will discuss in detail with examples and data how Artificial Intelligence(AI) is being increasingly used in healthcare settings in the United States. While use of AI began years ago but scope and magnitude of its use has exponentially increased recently. In broad terms the high cost of healthcare acted as an incentive to embrace AI in the United States. However, the impact is far more than financial considerations. AI is making it possible to provide better patient care in terms of accurate diagnosis, improved treatment plan, and aftercare. Use of AI has become the norm for reducing paperwork, admissions, billing, and prescribing. The most important aspect of AI driven healthcare is the opportunity and the possibility to provide quality healthcare across the globe at a fraction of the current costs. The presentation will provide examples and guidance on how AI could be used by lower income countries to provide their citizens with affordable, quality healthcare. The author draws on his 30+ years of experience of owning and operating outpatient surgery centers in the United States and working with the governments of less development countries.

Presenter:
Faisal M. Rahman
Saint Xavier University, USA

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

The Role of MDCT Coronary Angiography in the Detection of Benign Varieties and Anomalies of Coronary Blood Vessels

Ana Mladenovic Markovic[1,2], Ana Tomic[1] and Sandra Grujicic[2,3]

[1]Centre for Radiology, University Clinical Centre of Serbia, Serbia
[2]Faculty of Medicine, University of Belgrade, Serbia
[3]Faculty of Medicine, Institute of Epidemiology, University of Belgrade, Serbia

Coronary arteries may vary in quantity, point of origin, or course. Diffrent variations represent congenital abnormalities of the coronary vascular system. Origin varieties of coronary arteries include: the absence of /LMA), aberrant origin of the right coronary arterie (RCA), left main artery, or its branches, acute takeoff of the coronary arteries, coronary arteries high takeoff, and a single coronary artery/ostia. Number variations include : LMA trifurcation and quadfurcation, double RCA, hypoplastic coronary arteries. Aberrant coronary artery pathwayinclude : coronary vessel coiling, tortuosity of coronary blood vessels and corkscrew appearance and myocardial bridge.

Generally, theyare benign, asymptomatic, but in some cases, the anomaly's characteristics or ts interaction with surrounding structures may cause hemodynamic disturbances. Given the potential for life-threatening complications in certain cases, the early and accurate diagnosis of coronary artery anomalies is of first-class significance.

Certain anomalies in the position and orientation can cause significant circulatory disorders, increased risk of myocardial ischemia, typically during physical exertion, due to diminished blood flow. Also they represent a significant challenge for cardiologists during catheterization, MDCT is considered the optimal method for conducting a comprehensive three-dimensional assessment of the coronary tree. MDCT, volume rendering (VR), and maximum intensity projection techniques are valuable diagnostic tools for assessing coronary artery anomalies' number, origin, and pathway. This is important, as the interpretations are essential for patients and physicians when considering further procedures and treatment plans. Furthermore, it allows the evaluation of the absence or presence of concomitant coronary artery diseases. This is particularly important for middle-aged populations.

Presenter:
Ana Mladenovic Markovic
University Clinical Centre of Serbia | School of Medicine University of Belgrade, Serbia

Anesthetic Management of Mechanical Thrombectomy and Its Implication for Neuroprotection and Outcomes

Ana Costa

Stony Brook University Hospital, USA

The anesthetic management for endovascular thrombectomy in acute ischemic stroke caused by large-vessel occlusion is critical to maximize perfusion to the brain to prevent further ischemic injury. Hemodynamic management and the type of anesthesia may impact the functional outcome of these patients. There continues to be much debate on the advantages and disadvantages of general anesthesia versus conscious sedation. Conscious sedation allows for the assessment of neurological status throughout the mechanical thrombectomy and presents less risks to hemodynamic stability. However, sedation involves an unprotected airway posing a risk for pulmonary aspiration and hypoventilation, sometimes requiring the conversion to general anesthesia mid-procedure. General anesthesia, on the other hand, offers a protected airway and prevents patient movement, facilitating puncture to clot evacuation time. The negative aspects of general anesthesia include a greater risk for hemodynamic instability both at induction and emergence, potential for prolonged mechanical ventilation, and a potential delay in the start time of the mechanical thrombectomy. Recent clinical trials have not shown a true benefit in functional outcomes of either anesthetic management modality for patients undergoing mechanical thrombectomy for large-vessel occlusion in acute ischemic stroke. The 2019 guidelines from the American Heart Association/American Stroke Association (AHA/ASA) recommend that patient risk factors and clinical presentation be considered on an individual basis to select the anesthetic technique for mechanical thrombectomy. This review aims to present the advantages and disadvantages of conscious sedation and general anesthesia for patients undergoing mechanical thrombectomy for large vessel occlusion in acute ischemic stroke, the clinical trials that examined the benefits and pitfalls of each of these anesthetic techniques, the implications of anesthetic management to functional outcomes as well as blood pressure management in the perioperative setting with a focus on set parameters and blood pressure variability.

Presenter:
Ana Costa
Stony Brook University Hospital, USA

The Importance of "Efficient Crew Resource Management" for High Risk Working Environments in the Healthcare Sector

Marc ANT

Competence Centers for the Luxembourg Crafts Sector, Luxembourg

Originally developed by NASA in 1979 for the aviation industry, Crew Resource Management (CRM) is a training methodology designed to minimize human error in high-risk operational settings. Over time, CRM has demonstrated its effectiveness in reducing accidents and enhancing team efficiency. However, despite its proven benefits, the practical deployment of CRM has encountered several critical challenges. This presentation highlights key limitations in current CRM practices, including a lack of a clearly articulated epistemological foundation, insufficient consideration of the complexities of human behavior, and arbitrary content selection in training curricula that leads to fragmented knowledge transfer. To overcome these shortcomings, the concept of "Efficient Crew Resource Management" (ECRM) is introduced as an evolution of traditional CRM. ECRM broadens the scope of behavioral training by incorporating 33 distinct behavioral dimensions, aiming to deliver a more holistic and nuanced understanding of human interaction in high-risk environments. ECRM is grounded in the epistemological framework of social constructivism and organizational behavior theory, providing a stronger theoretical basis for training and education. This refined approach enhances both the coherence and applicability of training content, ensuring more effective knowledge transmission and operational relevance. The proposed framework will be particularly contextualized within the health sector, demonstrating how social constructivist principles can be used to support practical learning and behavioral change. By doing so, ECRM reinforces its continued importance in improving safety and performance across diverse high-risk domains, with a special focus on healthcare settings.

Presenter:

Marc Ant
Competence Centers for the Luxembourg Crafts Sector, Luxembourg

A Personalized Longevity Approach to Reverse Biological Aging

Gulsen Meral

Epigenetic Coaching, London, UK
Istanbul Nisantasi University, Turkey

Aging is a complex biological process influenced not only by chronological time but also by dynamic epigenetic modifications that regulate gene expression throughout life. Emerging evidence suggests that epigenetic mechanisms, particularly DNA methylation patterns, function as biomarkers of biological aging and are measurable through epigenetic clocks. These molecular markers provide insight into the divergence between chronological age and biological age and open new opportunities for personalized longevity strategies.

Epigenetic drift, characterized by global hypomethylation and localized promoter hypermethylation across CpG sites, progressively alters the epigenomic landscape during aging. Studies indicate that approximately 60% of CpG regions lose methylation while 40% gain methylation with advancing age, contributing to age-related functional decline. However, environmental exposures, diet, lifestyle factors, and metabolic pathways can significantly modulate these epigenetic trajectories.

Nutrigenetics and nutrigenomics play a central role in shaping epigenetic regulation, particularly through one-carbon metabolism pathways that influence methylation capacity. Genetic polymorphisms in key metabolic genes, including MTHFR, BCMO1, and MTNR1B, can affect nutrient metabolism and individual responses to dietary interventions and supplementation. Personalized nutritional strategies incorporating micronutrients such as folate, B-vitamins, vitamin D, and bioactive compounds such as curcumin, resveratrol, quercetin, and green tea polyphenols may influence epigenetic regulation and potentially slow biological aging.

In addition to dietary approaches, metabolic pathways including mTOR signaling, NAD+ metabolism, and autophagy regulation have emerged as critical targets in longevity science. Interventions such as caloric restriction, methionine-restricted diets, Mediterranean dietary patterns, and selected longevity-related compounds may modulate these pathways and influence epigenetic aging processes.

The concept of Epigenetic Coaching integrates genomic information, nutri-genetic analysis, lifestyle medicine, and digital health platforms to develop individualized longevity strategies. This approach aims to translate epigenetic science into practical, personalized interventions that optimize metabolic health, delay age-related disease, and promote healthy lifespan.

Ultimately, while chronological age cannot be reversed, advances in epigenetics suggest that biological aging is modifiable, and precision lifestyle interventions may offer powerful tools to reshape the aging trajectory.

Presenter:
Gulsen Meral
Epigenetic Coaching, London, UK
Istanbul Nisantasi University, Turkey

Reinforcement Learning for Intelligent Distribution of Oncology Care Pathway Milestones

Aleš Tichopád, Ondřej Klempíř, Zuzana Bielčiková and **Gleb Donin**

Department of Biomedical Technology, Faculty of Biomedical Engineering, Czech Technical University in Prague, Czech Republic

Designing optimal oncology patient pathways is a persistent challenge in health systems with limited access to highly specialized care. While specialized centers deliver superior outcomes for selected diagnostics and therapies, their restricted capacity and geographic accessibility often create bottlenecks. Regional centers, in contrast, can provide timely services but may lack the same level of expertise. The central methodological question is therefore: which milestones of the oncology journey should be managed at highly specialized centers, and which can be effectively delivered in regional care without compromising patient outcomes or preferences?

We introduce a reinforcement learning–based framework to tackle this problem. Patient pathways are conceptualized as sequential decision processes, where each milestone (e.g., diagnostic imaging, histological confirmation, systemic therapy initiation, surgery, follow-up) represents a state transition with associated clinical and organizational outcomes. A reinforcement learning agent is trained to optimize a composite reward function that simultaneously reflects patient outcomes, system capacity utilization, and patient preferences for accessibility and continuity of care.

Through repeated simulation of alternative care pathways under realistic capacity constraints, the algorithm learns adaptive policies that allocate milestones either to specialized or regional centers. This allows identification of scenarios where specialized interventions provide substantial patient benefit, and conversely, where care can remain safely at the regional level. The framework integrates administrative claims data, guideline-based milestones, and patient-reported inputs, ensuring that recommendations remain data-driven, clinically interpretable, and aligned with patient-centered values.

We demonstrate this methodology in oncology, a field where capacity bottlenecks are frequent and specialized expertise is unevenly distributed. The reinforcement learning approach yields a generalizable decision-support

tool for pathway optimization, helping policymakers balance excellence, equity, and efficiency in cancer care delivery.

Presenter:
Aleš Tichopád
Czech Technical University in Prague, Czech Republic

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

Mahendra Singh[1], Pradeep Aggarwal[1] and **Yogesh Bahurupi[2]**

[1]All India Institute of Medical Sciences, Rishikesh, India
[2]All 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 Sections	Mean Compliance level (%) towards various section of COTPA 2003 in different districts of Uttarakhand state of India					
	Dehradun	Tehri	Haridwar	Almora	Nanitaal	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

Joint Efforts: A Review of Large Joint and Bursa Steroid Injections and Aspirations in Primary Care

**Sudipta Mohanty[1], Aditya Mohanty[1], Brandon Fainstad[2], Ted Parks[2]** and **Irene W. Y. Ma[3]**

[1]Beth Israel Deaconess Medical Center, Harvard Medical School, USA
[2]University of Colorado School of Medicine, USA
[3]Univesity of Calgary Cumming School of Medicine, Canada

Large joint and bursa steroid injections and aspirations are useful for many musculoskeletal pathologies commonly seen in primary care. However, there is lack of clarity on whether primary care physicians should perform these procedures themselves or refer to specialists. This study reviews the existing literature to explore the impact of primary care physicians performing these procedures. We performed a PubMed search using two search protocols to identify relevant articles. Two investigators independently screened articles for relevance via specific inclusion and exclusion criteria. Two additional investigators resolved disagreements. We also hand-searched references in all articles. The search methods identified 257 articles, of which 132 met inclusion criteria. Agreement was almost perfect for results from Protocol 1 (kappa = 0.96, 95% CI 0.91-0.99) and substantial for Protocol 2 (kappa = 0.77, 95% CI 0.60-0.94). The results reveal data on primary care physicians performing large joint and bursa steroid injections and aspirations including current trends, management and procedural techniques, outcomes, safety and complication rates, patients' access to treatments, cost differences between primary care versus subspecialty performed procedures, feasibility concerns, training, and patients' perspectives. We conclude there is a benefit to primary care physicians performing these procedures with regards to cost, access, and patient satisfaction with no compromise to outcomes, safety, and complication rates. This presentation will also feature results from successful education and implementation of joint injection skills for internal medicine trainees, including a discussion on real-world application and overcoming barriers.

Table 1: Methodology for Literature Review
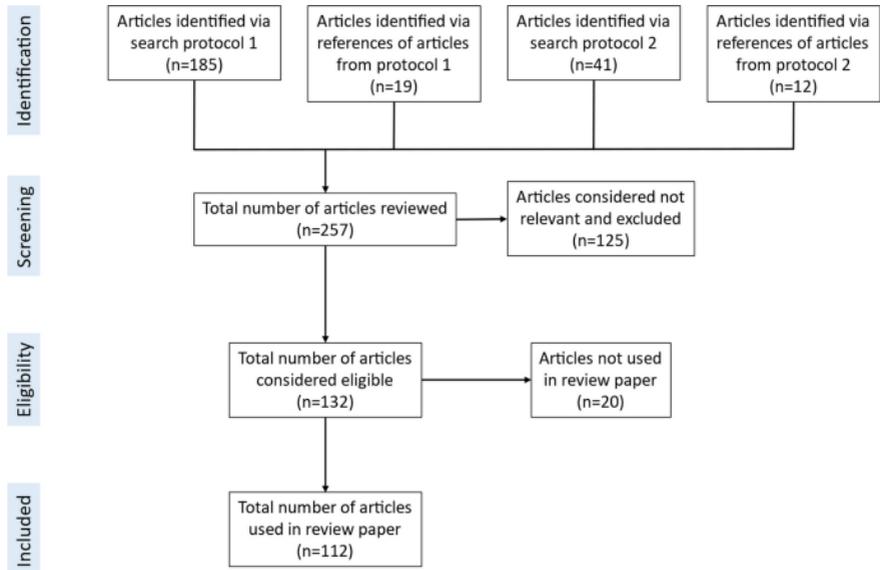
Presenter:
Sudipta Mohanty & Aditya Mohanty
Harvard Medical School, USA

Non-Invasive Bioelectrical Profiling of Systemic Metabolic Dysregulation in Oncology using DMA®

Francesca Antonella Aiello[1], Giuseppe Sgro[1] and **Ida Pavese[2]**

[1]Math Biology SRL-Human Biology Institute, Italy
[2]Ancienne chef du pôle de cancérologie, France

Cancer is increasingly recognized as a disease characterized by altered cellular metabolism, in which dysregulated biochemical activity sustains abnormal proliferation. Because cellular metabolism directly generates bioelectrical currents through ionic gradients, membrane potentials, and metabolic fluxes, pathological metabolic states are reflected in measurable electrical variations. In cancer, proliferative and dysregulated cellular states have been consistently associated with altered bioelectrical properties.

Based on this rationale, in this exploratory observational study, we investigated whether a proprietary non-invasive technology, Deep Metabolic Assessment (DMA®), is capable of detecting bioelectrical signatures associated with systemic metabolic dysregulation in oncology. DMA® measures superficial bioelectrical signals using a standardized total-body acquisition protocol, without diagnostic or therapeutic intent.

Measurements were performed in a limited exploratory cohort, comprising healthy controls and patients with oncological disease, with a subset of patients evaluated during ongoing systemic treatment. Data were collected within a defined observational timeframe. For each participant, an individual basal bioelectrical profile was acquired under standardized conditions. Bioelectrical signal variations were then assessed across multiple predefined acquisition sites, allowing comparison of systemic response patterns between groups.

Healthy subjects exhibited bioelectrical profiles largely confined within physiological variability, consistent with regulated metabolic homeostasis. In contrast, oncological patients showed distinct and reproducible deviations in bioelectrical patterns, suggesting altered systemic metabolic regulation. Patients undergoing systemic treatment displayed more heterogeneous profiles, compatible with partial modulation rather than normalization of metabolic activity.

In an exploratory analytical step, bioelectrical signals were further processed using proprietary mathematical algorithms to derive a Bioelectrical Marker

Response index (BMRi), aimed at enhancing signal interpretability in heterogeneous metabolic conditions. No diagnostic thresholds or clinical decision rules were applied.

Overall, these preliminary findings support the feasibility of non-invasive bioelectrical profiling as a research tool for investigating systemic metabolic dysregulation in oncology.

Further studies with larger cohorts and predefined clinical endpoints are warranted to better characterize the biological meaning and potential applications of this approach.

Presenter:
Francesca Antonella Aiello
Math Biology SRL-Human Biology Institute, Italy

Preventive Psychiatry in Transplant Medicine: Reimagining Models of Care to Optimize Transplant Outcomes

Kinza Tareen

Department of Psychiatry, University of Michigan, USA
Department of Internal Medicine, Division of Gastroenterology, University of Michigan, USA

Psychosocial factors are increasingly recognized as a vital determinants of transplant outcomes, influencing adherence to medical regimens, quality of life, and long-term survival post transplant. Yet the role of psychiatry in transplant medicine is often confined candidacy evaluation or reactive consultation once challenges impacting transplant care emerge.

Reframing psychiatric engagement in the peri-transplant course through a preventive medicine lens expands its capacity to support patients, families, and multidiciplinary teams in both attaining transplant goals and supporting longitudinal success (Figure 1). For instance, early screening for depression, anxiety, substance use, or social stressors allows clinicians to identify modifiable risks before they compromise eligibility or recovery. Interventions such as resilience training, adherence support, and caregiver engagement can reduce preventable readmissions, graft loss, and diminished quality of life. By anticipating psychosocial challenges, preventive psychiatry aligns with core principles of preventive medicine: risk identification, early intervention, and long-term health promotion.

This review aims to highlight the value and perspectives of psychiatry through the transplant continuum, develop an understanding of challenges in the standard models of transplant psychiatry care, and detail the utility of innovating practice with integration of proactive consultation, collaborative care, and integrated multidisciplnary care.

Figure 1. Review of the scope and utility of preventative psychiatric engagment throughout the transplant course. Adapted from *Tareen, K. Advancing Models of Care in Transplant Psychiatry: A Review and Considerations for Enhancing the Multi-disciplinary Approach. Curr Psychiatry Rep 26, 626–634 (2024).* https://doi.org/10.1007/s11920-024-01535-y

Presenter:
Kinza Tareen
University of Michigan, USA

Sustainable Consumption of Food during Covid 19: A Conceptual Framework 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 deteriorating 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

Genetic Signatures: Predictive Analysis of Immunological Cancer Treatments

Carolina Castaño[1], Isis Bonet[1], Joseph Pinto[2] and Jhajaira Araujo[2]

[1]EIA University, Colombia
[2]AUNA Ideas, Perú

Cancer remains one of the leading causes of premature mortality worldwide, with an estimated 28.4 million new cases projected by 2040. Immune checkpoint inhibitors (ICIs), particularly those targeting PD-1/PD-L1, have revolutionized the treatment of solid tumors. However, variability in patient response continues to pose a major challenge, underscoring the need for predictive biomarkers that are both accurate and clinically applicable.

The primary objective of this study is to compare the gene sets identified by the authors using machine learning models with previously published transcriptomic signatures for predicting immunotherapy response. In addition, the predictive performance of the developed models is evaluated against other AI-based approaches reported in the literature to contextualize their strengths, limitations, and clinical applicability.

The authors developed two predictive models: a Gradient Boosting classifier and a Logistic Regression model. Both models were trained using RNA sequencing data from 614 patients with advanced solid tumors, collected from eleven public cohorts.

The Gradient Boosting model was trained on batch-corrected and variance-stabilized data and was built using 40 transcripts with the highest predictive contribution. It achieved AUC values of 0.89, 0.80, and 0.87 for cross-validation, test, and validation sets, respectively.

To enhance clinical applicability, a Logistic Regression model was trained using 51 genes and log2(CPM + 1) normalization, reaching AUCs of 0.86, 0.82, and 0.85 across the same sets, while offering improved interpretability.

The gene signatures from both models were compared with those from other immunotherapy studies. Additionally, the overall performance of the models was contrasted with previously published predictive models. These comparisons highlighted overlaps, inconsistencies, and context-specific limitations.

This analysis demonstrates the feasibility of AI-informed transcriptomic models for predicting immunotherapy response and underscores the importance of cross-model comparisons to identify robust, clinically relevant biomarkers that support personalized treatment strategies in oncology.

Presenter:
Carolina Castaño Portilla
EIA University, Colombia

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

Pragya Yadav[1], Meenakshi Khapre[2], Ranjeeta Kumari[3] and Mukesh Bairwa[4]

[1]Junior Resident, Department of Community Medicine, All India Institute of Medical Sciences, Rishikesh, India
[2]Additional Professor, Department of Community Medicine, All India Institute of Medical Sciences, Rishikesh, India
[3]Professor, Department of Community Medicine, All India Institute of Medical Sciences, Rishikesh, India
[4]Additional 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

Development of Pulse Arrival Time Based System to Derive Beat-to-Beat Blood Pressure Variability

Chaitali Aditya Deshmukh[1], G. D. Nagare[2] and G. D. Jindal[1]

[1]Department of Biomedical Engineering, MGM's College of Engineering and Technology, University of Mumbai, India
[2]Department of Biomedical Engineering, Vidyalankar Institute of Technology, University of Mumbai, India

The objective of this study is to develop a non-invasive, cost-effective, and user-friendly system to monitor beat-to-beat blood pressure variability (BPV) using Pulse Arrival Time (PAT). Blood pressure variability is a significant indicator of autonomic cardiovascular control, and conventional non-invasive techniques like Finapres are limited by high cost and calibration interruptions. In this research, a PAT-based system was developed using ECG (AD8232) and PPG (MAX30102) sensors interfaced with Arduino Due at a sampling rate of 1000 samples per second. RR intervals and PAT signals were acquired from 60 subjects (18–75 years, both normotensive and hypertensive) and processed using LabWindows software. Fourier transformation and cross-spectral analysis were performed to derive Heart Rate Variability (HRV) and PAT Variability (PATV) spectra. Results demonstrated that in control subjects, HRV and PATV spectra showed peaks in very low (VLF), low (LF), and high (HF) frequency bands, whereas in hypertensive subjects, LF and HF components were diminished. The coherence and cross-correlation analyses revealed that baroreflex sensitivity was reduced in hypertensive subjects, indicating compensatory activation of the Renin-Angiotensin-Aldosterone System (RAAS). Comparison with Finapres-based measurements validated the developed system's accuracy. The proposed system provides a reliable, cost-effective wearable solution for real-time cardiovascular monitoring and may serve as a valuable tool in hypertension management and autonomic dysfunction assessment.

Parameters of interest are as follows:

Cross Power Spectrum (Control)			Cross Power Spectrum (Hypertensive)		
VLF	LF	HF	VLF	LF	HF
22.4187	36.5363	30.8353	57.0497	26.3801	10.7143
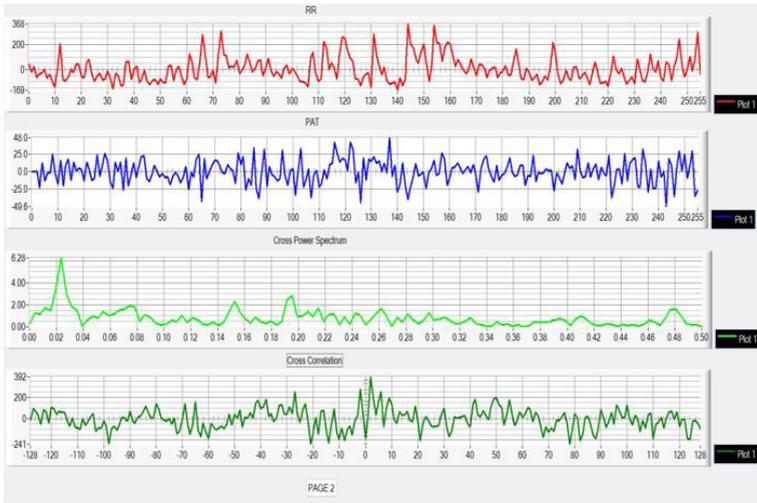
(a)
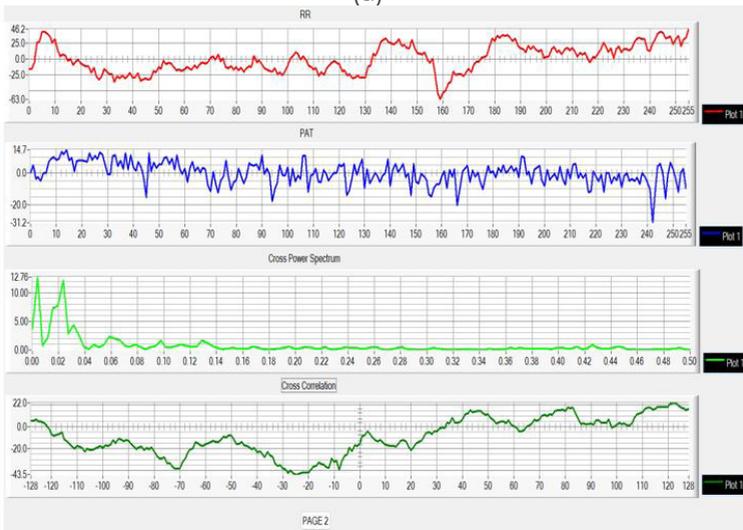
(b)

Figure 1: Typical Cross Power Spectrum and Correlation obtained in (a) control subject and (b) hypertensive subject

Presenter:
Chaitali Aditya Deshmukh
University of Mumbai, India

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

Meenakshi Khapre[1], Vartika Saxena[1] and **Amit Shukla[2]**

[1]Department of Community Medicine, AIIMS, Rishikesh, India
[2]Project 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.

Presenter:
Meenakshi Khapre
AIIMS, Rishikesh, India

In Precision Medicine Consideration Must Be Given To, Among Other Things, Aging, Genetics and Global Diversity

Maria Edvardsson[1,2] and **Menikae K Heenkenda**[2]

[1]Primary Health Care Center, Sweden
[2]Department of Biomedical and Clinical Sciences, Division of Clinical Chemistry and Pharmacology, Linköping University, Sweden

Precision medicine is transforming healthcare by tailoring prevention, diagnosis, and treatment to the unique characteristics of each individual, including genetics, molecular profiles, environment, and lifestyle. This approach has already shown promise in improving treatment outcomes, reducing side effects, and enhancing disease prevention across many conditions, including age-related illnesses, cancer, type 2 diabetes, cardiovascular disease, and rare genetic disorders.

Despite these advances, major challenges remain. One limitation is the underrepresentation of diverse populations in genetic research, which contributes to disparities in treatment outcomes and increases the risk of misinterpreting genetic risks. Another challenge is that current clinical reference intervals often fail to reflect the biological changes of aging. This gap leaves older adults more vulnerable to misdiagnosis and inappropriate treatment.

We suggest a broader and more inclusive vision of precision medicine that considers both individual variability and population-level factors such as aging and genetic diversity. Advances in digital health and multi-omics can help make this possible. Precision medicine must include underrepresented populations in research, establish age-specific clinical guidelines, and address socioeconomic barriers in order to evolve into a global approach that respects diversity, promotes equity, and improves health outcomes for all.

Presenter:
Maria Edvardsson
Primary Health Care Center, Sweden
Linköping University, Sweden

Menikae K Hennkenda
Linköping University, Sweden

Evaluation of DMA® Measurements as Specific Detector of Metabolic Patterns: Placebo Stability and State-Dependent Responses to Vitamin D3

Luca Evangelisti, Francesca Antonella Aiello and **Giuseppe Sgro**

Math Biology SRL-Human Biology Institute, Italy

Deep Metabolic-processes Assessment (DMA®) technology is used to measure changes in superficial bioelectrical currents, in the nanoampere (nA) range, recorded across 61 standardized reference points and their variation as a function of metabolic homeostasis.

The methodology includes an initial acquisition that defines the individual "baseline" profile, against which deviations induced by the electromagnetic information of the biological molecule under investigation are quantified. Within a framework of methodological validation of response specificity, this work investigates whether physiologically inert substances produce (or not) a specific changes relative to baseline, and whether a biological marker (vitamin D3) can elicit a state-dependent response (i.e., a deviation from cellular homeostasis) in the analyzed subjects. In the first phase, two placebos (0.9% saline solution and ultrapure water) were tested as inert controls: variations observed across the 61 points, expressed as percentage differences from baseline, showed low variability, defined as baseline. Subsequently, the response to a non-inert marker (vitamin D3) was assessed. The protocol follows the same principle of comparison against baseline. In this context, vitamin D3 is used as a model to verify a marker-specific response: the expected outcome is the absence of significant deviations in non-deficient subjects and, conversely, significant variations at specific reference points in deficient subjects. Overall, this work represents a foundational study supporting the hypothesis that DMA® records marker-specific currents consistent with standard clinical analyses reported by the volunteer, distinguishing inert conditions (placebo) from biologically relevant conditions that depend on the subject's physiological status.

Presenter:
Luca Evangelisti & **Francesca Antonella Aiello**
Math Biology SRL-Human Biology Institute, Italy

The VITABalance-Med & IIIES Project for the CVD Primary Prevention

António Rui Leal[1], Álvaro Ribeiro[1], David Moreira[2] and Patrícia Poeta[3]

[1]SANITUS Foundation-Porto, Portugal
[2]Public Health Unit -ULS-Barcelos/Esposende, Portugal
[3]Veterinary and Animal Research Centre (CECAV), University of Trás-os-Montes and Alto Douro (UTAD), Portugal

This study investigates a novel health education model grounded in meaningful learning theories, emphasising visual methodologies for promoting students' healthier behaviours. It features a poster with five complementary pyramids addressing cardiovascular prevention, sustainable nutrition, adequate physical activity, ethical behaviour, and eco-social awareness. By integrating epistemological visual symbols, the model aims to enhance health education knowledge retention, fostering engagement among educators, students, and their families (in the extensive sense). The objective of this study was to assess the model's effectiveness in improving primary school teachers' declarative knowledge and their didactic ability to transfer it to students. A randomised controlled trial was conducted in nine schools with 642 students. Teachers participated in either 25 hours of certified training or 3 hours of informal training. Quantitative and qualitative data were collected through pre-post-intervention assessments. Results showed significant improvements in students' health education knowledge, particularly in nutrition, behaviour, and eco-social awareness. The certified training group exhibited improved knowledge retention compared to the informal training group, demonstrating the impact of intensive teacher involvement on knowledge transfer. Teacher engagement emerged as critical for the success of the intervention, aligning with principles of instructional design adapted to the learner, active learning, and creative and reflective practice. The visual model enhanced health literacy, with students showing increased understanding of core health concepts. This suggests the model's potential to promote lasting behavioural change in students aged 8-10. The next phase of the project includes the development of a comprehensive b-learning course, including a "Pyramidal Manual" and an educational software game. A version of the model was presented at the "Handi-Capacités, Sport & Travail" Congress (UNESCO, 2024). In 2026, international research will expand the model through controlled studies. *The International Institute for Inclusive Health Education* will lead a global b-learning dissemination. Its official launch is scheduled for 2026 in Rome.

Presenter:
António Rui Marcelino Leal
SANITUS Foundation-Porto, Portugal

From Primordial Cardiovascular Prevention to Primary Prevention: The Role of Schools

Elio Venturini

Head of Unit of Cardiac Rehabilitation, Civil Hospital Cecina (LI), Italy

Risk factors and bad behaviours can affect children with more negative effects the earlier they start. Therefore, stimulating cardiovascular health promotion and risk reduction beginning early in life is the cornerstone of primordial prevention. Early childhood interventions, such as promoting healthy diets and physical activity, instituting educational programs, and promoting environmental changes where possible, have demonstrated their effectiveness in reducing or delaying the onset of ASCVD (atherosclerotic cardiovascular disease) or slowing its progression. In children, especially those from disadvantaged communities, every effort must be made to prevent the onset of risk factors such as smoking, obesity, hypertension, and unhealthy diets.

The school can be the ideal place to promote knowledge of risk factors and ASCVD. It may also be the ideal time to evaluate the penetration of risk factors and bad habits in this age group, reducing the attraction of smoking, alcohol and drugs. Educational and recreational activities in the classroom (fairy tales, cartoons, games, videos, short PPT presentations) with educational messages but also simple notions about CVD can have a positive impact on children's lifestyle, diet and physical activity. It is also plausible to think of a domino effect as a second tier on parents. Of course, teachers will also have to be involved.

Furthermore, it could be an opportunity to foster closer ties between the Scientific Societies for Cardiovascular Prevention (SIPREreCA, EAPC) and the Ministries of Education at the European level or in any case of nations willing to collaborate on the Cardiovascular Prevention in Schools project. Therefore, the talk will address the following objectives:

- To emphasize the need to start prevention early in life;

- To provide policymakers, as well as teachers, with the understanding that risk factors for ASCVD and healthy practices can be taught to school-age children;

- Finally, to provide an evidence-based basis for how primary prevention should become a "teachable subject" in schools.

Presenter:
Elio Venturini
Civil Hospital Cecina (LI), Italy

Sleep Health: One of the Inclusive "VitaBalance Med" Pillars for Primary CVD Prevention

Carlos Rivas Echeverria
SLEEPCARE Clinics and DESPIERTA Ltd, UK

Cardiovascular disease (CVD) remains the leading global cause of morbidity and mortality, with prevention strategies increasingly focusing on multidimensional lifestyle interventions. The "VitaBalance Med" framework integrates nutrition, physical activity, emotional wellbeing, and sleep as inclusive pillars of primary prevention. Among these, sleep health has historically received limited attention despite growing evidence linking poor sleep with hypertension, arrhythmia, diabetes, depression, and metabolic dysfunction. This work aims to position sleep health as an equal pillar within primary CVD prevention, highlighting its measurable impact and practical implementation within primary care. Evidence demonstrates that inadequate sleep duration and untreated sleep disorders, such as insomnia and obstructive sleep apnoea, significantly increase CVD risk. Interventions improving sleep quality have shown reductions in blood pressure, improvements in glycaemic control, and enhanced adherence to lifestyle modifications. Our methodology involved a mixed approach: (1) a narrative synthesis of meta-analyses from 2010–2024; (2) data from SLEEPCARE Clinics (UK, Spain, Venezuela), where sleep interventions were integrated into primary care consultations; and (3) community engagement through World Sleep Day initiatives. Results indicate a consistent association between improved sleep hygiene, screening for sleep disorders, and reduction of primary cardiovascular risk factors in at-risk populations. We conclude that incorporating structured sleep assessments and interventions into primary care is both feasible and impactful. Recognising sleep as one of the VitaBalance Med pillars strengthens preventive cardiology and advances equitable, holistic healthcare.

Presenter:
Carlos Rivas Echeverria
SLEEPCARE Clinics and DESPIERTA Ltd., UK

Erectile Dysfunction (ED) as a Predictor of Cardiovascular Events

Esteban Porrero

Consulting Cardiologist, Hospital of León, Spain

Background & concept: Erectile dysfunction (ED), particularly vascular ED, and cardiovascular disease (CVD) share common atherosclerotic and endothelial mechanisms and many traditional risk factors (smoking, diabetes, hypertension, dyslipidaemia, obesity). Because penile arteries are smaller than coronary arteries, symptomatic ED can appear earlier and therefore act as a clinical "sentinel" or early marker of systemic vascular disease.

Strength of association (epidemiology / prognostic data): Multiple cohort studies and meta-analyses show that men with ED have a higher incidence of future CV events (including coronary heart disease, stroke) and increased CV and all-cause mortality compared with men without ED. Meta-analytic estimates vary by study but indicate a clear, independent association — for example, pooled analyses report roughly a 40–50% increased risk of major CV events and elevated risks for myocardial infarction and stroke after adjustment for conventional risk factors. Severe ED confers higher risk than mild ED.

Mechanisms linking ED and CV events: Key mechanisms include endothelial dysfunction (reduced nitric oxide bioavailability), systemic atherosclerosis, inflammation, and shared metabolic risk (insulin resistance/metabolic syndrome). These pathophysiologic links explain why ED may precede (and predict) symptomatic coronary or cerebrovascular disease.

Clinical implications / risk stratification: Major urology and cardiology guidelines and expert statements recommend treating ED as a cardiovascular risk marker. Men presenting with new-onset ED (especially <60 years or with severe ED) should undergo a cardiovascular risk assessment rather than assuming the problem is purely psychogenic. Some authorities now consider ED a "risk-enhancing" factor that may influence the intensity of primary prevention (e.g., lipid lowering, lifestyle intervention) and consideration of additional testing (for example, coronary artery calcium scoring) in patients with otherwise uncertain 10-year risk.

Practical recommendations (summary):

- Take a focused cardiovascular history and calculate a standard CV risk score (e.g., pooled cohort/QRISK/ SCORE depending on local practice). Consider ED a red flag prompting earlier or more detailed evaluation.

- Address modifiable risk factors aggressively: smoking cessation, weight loss, exercise, blood pressure and lipid control, glycaemic control when appropriate. Lifestyle modification may improve both CV risk and erectile function.

- In men with low–intermediate calculated risk but new ED, consider additional testing (e.g., coronary artery calcium as suggested by some cardiology guidance) to refine risk and guide preventive therapy.

Limitations and uncertainties:

- Although the association is consistent, heterogeneity exists between studies (differences in ED ascertainment, population age, follow-up length). ED is a marker of increased risk, not a deterministic predictor — it raises likelihood but does not guarantee an event. Clinical judgement is needed to integrate ED with global risk and patient preferences.

Presenter:
Esteban Garcia Porrero
Hospital of León, Spain

Prevention First: Redefining Cardiovascular Care for the 21st Century

Khawer Naveed Siddiqui

Head, Preventive Cardiology, B M Birla Heart Research Centre, India
President, Heart Friends Around The World, Indian Affiliated Chapter

The 21st century demands a paradigm shift in cardiovascular care—from reactive treatment to proactive prevention. Cardiovascular diseases (CVDs) remain the leading global cause of death, yet most cases are preventable through early intervention, lifestyle modification, and digital health innovation. "Prevention first" redefines cardiac care by integrating predictive diagnostics, personalized medicine, and population-wide education to address risk factors before disease onset. Advances in genomics, wearable technology, and artificial intelligence enable continuous monitoring and early detection, empowering individuals to take charge of their heart health. Moreover, a holistic approach that combines physical, mental, and social well-being can significantly reduce cardiovascular morbidity. This preventive model not only enhances patient outcomes but also alleviates the economic burden on healthcare systems. In reimagining cardiovascular care for the modern era, prevention is not merely a strategy—it is the foundation of sustainable, equitable, and future-ready heart health.

Presenter:
Khawer Naveed Siddiqui
Head, Preventive Cardiology, B M Birla Heart Research Centre, India
President, Heart Friends Around The World, Indian Affiliated Chapter

7TH INTERNATIONAL CONFERENCE ON

FUTURE OF PREVENTIVE MEDICINE AND PUBLIC HEALTH

March 2027 | Vienna, Austria

DAY 02

6TH INTERNATIONAL CONFERENCE ON

FUTURE OF PREVENTIVE MEDICINE AND PUBLIC HEALTH

MARCH 23-24, 2026 | ROME, ITALY

SPEAKER TALKS

The Effects of Blood Flow Restriction on Individuals with Ehlers Danlos Syndromes

Justin Z. Laferrier

Johnson & Wales University, USA

Purpose: To evaluate the effectiveness of combining blood flow restriction (BFR) with standard physical therapy (PT) exercises, compared to PT exercises alone, in individuals with Ehlers-Danlos Syndrome (EDS).

Methods: Participants were randomly allocated into two equal groups. The control group (PT) consisted of nine participants who completed standard lower extremity strengthening physical therapy exercises seen in PT. The treatment group (BFR-PT) followed the same program, but with the inclusion of a blood flow restriction tourniquet set at 50-80% occlusion of the proximal lower extremity. The participants underwent 2-3, 45-min. treatment sessions weekly for 9 months, with evaluations at 3-,6-,9-, and 12-months.

Results: The study found significant improvements in pain, muscle strength, muscle volume, depression scores, and quality of life over time and between groups.

Conclusion: In conclusion, this study represents a first step in the potential for stimulating research to advance the management of EDS. This study offers insight into a promising alternative to traditional rehabilitation approaches. The improvements observed in muscle strength, volume, outcomes, and overall well-being in the PT-BFR group underscore the transformative potential of this innovative intervention.

Clinical Relevance: The results of this study could lead to future research and may guide clinician decision-making regarding the utilizing BFR training to treat the EDS population.

Presenter:
Justin Z. Laferrier
Johnson & Wales University, USA

Healthy Longevity Medicine: Is Singapore Ready?

Hans J Meij

Yong Loo Lin Medical School, National University of Singapore, Singapore
Amsterdam University Medical Center, The Netherlands

Singapore has an increasing life expectancy and a reducing birth rate. Hence, the population as a whole is rapidly ageing. We analyzed which changes in healthcare and behavior are required to make Singapore ready for the future. We looked at the structure of healthcare, the workforce and the medical condition of the population.

Presenter:
Hans J Meij
Yong Loo Lin Medical School, National University of Singapore, Singapore
Amsterdam University Medical Center, The Netherlands

After Covid-19 Pandemic: Lessons from Italy's Inner Areas

Giovanni De Santis and Annamaria Bartolini

University of Perugia, Italy

In Italy, the Covid-19 pandemic caught the National Healthcare System unprepared (De Santis, Bartolini, 2025).

Cuts in public spending have led to staff reductions, the dismantling of health districts and the corporatisation of local health units, promoting the privatisation of medical services and undermining the principles of equality, accessibility and globality on which the Italian health system is based.

Among the most affected areas are those classified as "inner" by the National Strategy for Inner Areas (SNAI) (DPCoe, 2021). These territories are characterised by limited access to healthcare facilities and a general ageing population.

Most of these areas were already severely affected by the 2016 earthquake (Mw 6.61; Rovida et al., 2022) and have therefore had to face a double emergency.

The earthquake damaged housing and healthcare facilities, disrupting communities, while the pandemic exacerbated social and economic fragility.

This has compromised the overall health of communities, as defined by the WHO as a state of complete physical, mental and social well-being.

Adopting a methodology that combines a systematic review of scientific literature with a quantitative analysis of institutional data (ISTAT, ISS, WHO), the study highlights how inner areas, despite benefiting from a geographical marginality that has slowed the spread of the virus, are nevertheless more exposed to health risks.

The results suggest that strengthening territoriality and local care can be a crucial factor in increasing the resilience of the healthcare system and improving people's health, not only in inner areas, but also in larger centres that are under high health pressure due to the flow of patients from surrounding areas.

The implications of this study suggest that decentralised and locally rooted healthcare systems can be an effective strategy for dealing with multiple disaster scenarios, combining prevention, access to services and territorial resilience.

Presenter:
Giovanni De Santis & Annamaria Bartolini
University of Perugia, Italy

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

Lagrangian Symmetries and Noether Invariants Unifying Epistemic, Utilitarian, and Normative AI

Ed Siregar

Seji Labs, Spain
New York Academy of Sciences, USA

We present a foundational framework for mental health AI grounded in first-principles design, combining Symbolic Functional Consciousness–Theory of Mind (SFC/TM) architecture with the Shannon–Neumann Least Action Principle (SN–LAP). SFC models the mind as a hierarchical, goal-driven, recursive process, connecting third- person observable capacities (L1) to first-person experiences (L2–L4). Within this architecture, the AI's Theory of Mind (ToM) enables precise empathy, translating persistent observations into ranked interventions that maximize the person's wellbeing while ensuring safety.SN–LAP provides a physics-inspired variational principle, defined by the Shannon–Neumann Lagrangian L, and its corresponding Action S. The Lagrangian contains the information-theoretic epistemic gain associated with a precision improvement in the AI's Theory-of-Mind distribution over the person, a utility measure of the expected practical relevance of interventions, the resulting changes in wellbeing.

Minimization of the Shannon-Neumann action S induces three structural properties embedded directly in the variational principle: (i) epistemic optimality, by maximizing meaningful entropy reduction; (ii) utilitarian effectiveness, by favoring interventions only where U(e) is high; and (iii) normative safety, by ensuring that epistemic and utilitarian gains are never achieved at the expense of wellbeing. As a result, admissible trajectories are simultaneously information-efficient, effective, and compassionate, while remaining interpretable and scalable across hierarchical cognitive levels.

We illustrate the architecture with a hierarchical diagram highlighting recursive feedback between global wellbeing and persistent observations, and the mapping of ToM levels to AI decision-making. Our theoretical results demonstrate that safety, utility, interpretability, explainability, and empathy emerge naturally from the SN–LAP dynamics. The SN–LAP framework provides a principled foundation for developing safe, effective, and compassionate mental health AI systems, bridging formal theory with actionable interventions.

Presenter:
Edouard Siregar
Seji Labs, Spain
New York Academy of Sciences, USA

Transmission Dynamics of Dengue in Taiwan

Hiroshi Nishiura and **Ruoshan Quan**

Kyoto University, Japan

Scope/Objectives: Dengue fever is a growing concern to Taiwan, with pronounced spatiotemporal heterogeneities. To understand the transmission dynamics, the present study aimed to estimate the effective reproduction number (R) over time and across regions.

Methods: We arranged cases as monthly data from 1998 to 2024. R was estimated using a maximum likelihood method. Geographic areas included southern Taiwan (Kaohsiung, Tainan, Pingtung), northern Taiwan, and central/eastern regions.

Results: Southern Taiwan regularly had a time period with R > 1, while R was mostly below 1 in northern Taiwan. Time-series analysis revealed that R was associated with temperature and precipitation. Kendall trend test indicated a slow increase in R from 1998–2014 across Taiwan, followed by the absence of trend from 2015–2024.

Conclusion: A distinct geographic pattern was observed between north and south, though seasonal patterns were shared between two regions. Southern Taiwan had higher risk, with R more often exceeding 1. Across Taiwan, R tended to be below 1 from January–June.

Presenter:
Hiroshi Nishiura
Kyoto University, Japan

Evaluating a Near-Infrared Intraoral Scanner for Proximal Caries Detection in Primary Posterior Teeth

Hanin E. Yeslam[1], Abeer K. Tashkandi[1], Sultan O. Jiffri[2], Rahaf Z. Albalawi[2], Sara M. Albukhari[2] and **Sulafa A Mugharbil[2]**

[1]Department of Restorative Dentistry, Faculty of Dentistry, King Abdulaziz University, Saudi Arabia
[2]Faculty of Dentistry, King Abdulaziz University, Saudi Arabia

Early caries detection is fundamental to effective dental care. New diagnostic technologies, such as intraoral scanners (IOSs) utilizing near-infrared irradiation (NIRI), offer a radiation-free alternative for monitoring early lesions. This study aimed to assess the performance of a NIRI-assisted IOS in detecting proximal caries in primary posterior teeth, comparing it to established conventional methods. This in-vitro study evaluated 15 tooth surfaces, creating 60 total scores. Surfaces were categorized as caries-free or carious. Artificial lesions were created on specified surfaces and mounted on typodonts for evaluation by a restorative dentistry consultant (RDC) and recent dental graduates (RDGs). Diagnostic methods included loupes-assisted visual examination, bitewing (BW) radiography, the DIAGNOcam device, and a NIRI-assisted IOS. Inter-examiner agreement, agreement with a reference standard, sensitivity, and specificity were calculated. Analysis revealed varying sensitivity and specificity across the diagnostic tests. The highest agreement with the reference standard was observed for BW radiography (κ = 1.00) and the DIAGNOcam device (κ = 0.87). Visual examination by both the RDC and RDGs also showed high agreement ($\kappa \approx$ 0.85), as did the NIRI-assisted IOS examination (κ = 0.87). However, the NIRI-assisted IOS demonstrated lower individual sensitivity and specificity compared to the other modalities. In conclusion, while the NIRI-assisted IOS technology shows promise as a radiation-free tool for caries detection in primary teeth, its potential as a complete substitute for BW radiography or visual examination requires further investigation before routine clinical adoption can be recommended.

Presenter:
Hanin E. Yeslam
King Abdulaziz University, Saudi Arabia

Incidence and Risk Factors for Falls Among Nursing Home Residents in Italy: A Retrospective Cohort Study

Chiara Carla Monti[1], Pietro Ferrara[2] and **Giampiero Mazzaglia[2]**

[1]Kos Care SRL, Italy
[2]Center for Public Health Research, University of Milan–Bicocca, Italy

Background: Falls are a public health concern among older adults, particularly in nursing home (NH) residents, but in Italy data on fall incidence and risk factors remain limited.

Aims: To estimate the incidence of falls, identify associated risk factors, and evaluate the predictive value of the Tinetti Performance-Oriented Mobility Assessment (T-POMA) in a large cohort of NH residents.

Methods: We conducted a retrospective cohort study using electronic health records from 32 NHs managed by Kos Care Group across Italy. Residents aged ≥ 65 years with at least one functional assessment were included. Fall incidence was calculated per 100 person-years. Cox proportional hazards regression models were used to identify predictors of time to first fall.

Results: Overall, 754 residents (19.2%) experienced a fall. A T-POMA score ≤ 18 was a strong predictor of falls (HR 2.13; 95% CI: 1.61–2.81), along with age ≥ 85 years (HR 1.39; 1.02–1.90), male sex (HR 1.47; 1.27–1.71), cognitive impairment (HR 1.30; 1.10–1.53), hearing impairment (HR 1.26; 1.01–1.58), mood and behavioural disorders (HR 1.29; 1.09–1.54), and therapies known to increase fall risk (HR 1.29; 1.09–1.52). Poor general health (HR 0.63; 0.52–0.77) and frequent physical restraint (HR 0.70; 0.58–0.86) use were associated with lower fall risk. Severe fall consequences occurred in 15.9% of fallers and were significantly associated with low T-POMA scores and restraint use.

Discussion and Conclusion: Falls are highly prevalent among Italian NH residents and influenced by multiple clinical and functional factors. These findings support the implementation of multifactorial fall prevention strategies and real-time risk monitoring in NH settings.

Presenter:
Chiara Carla Monti
Kos Care SRL, Italy

Accurate Identification of Glycogen Storage Disease Ia Patients using Machine Learning on Acylcarnitine Profiles

Joost Groen[1], Bas M de Haan[2], Ruben J Overduin[3], Andrea B Scheuder[3], Terry GJ Derks[3] and **M Rebecca Heiner-Fokkema[1]**

[1]Laboratory of Metabolic Diseases, Department of Laboratory Medicine, University Medical Center Groningen, University of Groningen, The Netherlands
[2]Laboratory of Special Chemistry, Department of Laboratory Medicine, University Medical Center Groningen, University of Groningen, The Netherlands
[3]Division of Metabolic Diseases, Beatrix Children's Hospital, University Medical Center Groningen, University of Groningen, The Netherlands

Glycogen storage disease (GSD) Ia is an inherited disorders of carbohydrate metabolism with a prevalence of 1 in 100.000 births. Patients present in the first months of life with hypoglycemia and/or hepatomegaly. Diagnosis relies on a combination of different biomarkers and DNA analysis, as the clinical presentation is suspect for a variety of other disorders. Good biomarkers for GSD Ia are warranted. Because acylcarnitine profiles of GSD Ia patients show subtle but specific patterns, we aimed to build a machine learning (ML) model to identify GSD Ia patients based on their acylcarnitine profile.

We collected 3958 plasma acylcarnitine profiles performed in daily practice of a clinical laboratory specialized in inborn errors of metabolism, containing profiles of 31 GSD Ia patients. We built several ML models for binary classification. We performed hyperparameter tuning, feature selection and evaluated the models using nested cross-validation and checked model performance using a held-out test set.

The classifier was able to correctly classify the majority of GSD I patients without generating significant amounts of false positives. Our model showed excellent performance, with a mean received operator curve (ROC) AUC of 0.94 (95% CI 0.86, 1.00) and precision-recall (PR) curve AUC of 0.63 (95% CI 0.40, 0.82) in nested cross validation. In the held-out test set, we see a similar performance with a ROC AUC of 0.98 (95% CI 0.96, 1.00) and PR AUC of 0.63 (95% CI 0.36, 0.85). F4 scores were 0.66 and 0.76 respectively.

GSD Ia patients can be identified using an ML model based on plasma acylcarnitine profiles. These patients have specific subtle acylcarnitine features

that were identified in previous studies and can be leveraged by an ML model to perform accurate classification. This is an example of the use of machine learning in the detection of ultra-rare diseases such as GSD Ia.

Presenter:
Joost Groen
University Medical Center Groningen, The Netherlands

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

The Contribution of Artificial Intelligence to CPET Interpretation

Amir Weiss[2,3], Omri Inbar[1], Or Inbar[2] and **Richard Casaburi[4]**

[1]School of Public Health, Tel Aviv University (Retired), Israel
[2]Medibyt Ltd., Israel
[3]Faculty of Engineering, Bar-Ilan University, Israel
[4]Harbors 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

Omri Inbar
Tel Aviv University (Retired), Israel

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

Amani A. Alrasheedi[1], Esra A. Jahlan[1] and **Marwan A. Bakarman[2]**

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

Embolization of Bronchial Arteries – Single Center Experience

Igor Sekulić[1,2], Nemanja Rančić[1,2], Uroš Miladinović[1], Aleksandar Jovanovski[1], Miroslav Mišović[1,2], Jelena Bošković Sekulić[3] and **Dejan Kostić[1,2]**

[1]Institute of Radiology, Military Medical Academy, Serbia
[2]Medical Faculty of the Military Medical Academy, University of Defence in Belgrade, Serbia
[3]University Clinical Center Kragujevac, Serbia

Indications for BAs embolization (BAE) are massive hemoptysis, as bleeding from BAs is the cause of massive hemoptysis in about 90% of cases. Non-treatment of massive and recurrent hemoptysis is associated with a mortality rate between 9% and 38%. Our single center experience includes 192 patients that were treated by BAE. In ratio 6:4 (respectively), we performed bronchial-artery embolisation in men and women. The average age was 59 years. Based on bronchoscopy, multidetector computed tomography findings or selective angiography, it was determined that the cause of hemoptysis in 65.1% patients was on the right, in 31.8% on the left, and in 3.1% the cause of hemoptysis was bilateral. Bronchial arteries dilatation (diameter above 2 mm) existed in 52.6% patients. Pathological network of blood vessels was verified in 27.6% patients. Mainly BAE was performed unilaterally, by embolization of one blood vessel (81.8%). In 6.3% of patient two blood vessels were embolized on the right side, in 5.2% one blood vessel bilaterally, and in 4.7% two blood vessels were embolized on the left. In approximately three quarters of the patients (76.6%), we used coils as an embolizing agent, to avoid the possibility of embolization of the systemic circulation due to frequent existence of pathological arteriovenous communication, so we had no complications. The average number of coils consumed per patient was two. Embolizing beads were used in 23.4% of patients. In 87.0% patients we performed single intervention, while 13.0% needed reintervention, due to recurrent bleeding.

Conclusions: The bronchial-artery embolisation is an effective endovascular method for the care of patients with hemoptysis, comfortable for the patient, with minimal risk.

Presenter:
Igor SEKULIC
Military Medical Academy, Serbia

Quality of Reports on Drug Toxicity in Eudravigilance: A Safety Physician's Perspective

Jana Brajdih Čendak

Billev Pharma East Ltd., Slovenia

Background: European legislation requires Marketing Authorization Holders (MAHs) to continuously monitor Eudravigilance (EV) data and inform the European Medicines Agency (EMA) and national competent authorities of validated safety signals. The process follows the Good Pharmacovigilance Practice (GVP) Module IX and is based on the review of individual case safety reports (ICSR) both from the MAH's internal database and from EV. The data is reviewed and evaluated by a medically trained person, who should, based on the information provided in the case, determine the causal relationship between the suspect drug and the reported event.

Methods: For this purpose, we performed an evaluation of data quality of ICSRs within the Eudravigilance database, focusing on drug toxicity cases for five commonly implicated substances. A medically driven review was conducted on 500 randomly selected ICSRs from 2015 through 2024. A detailed quality assessment framework was developed and applied, scoring cases across several, resulting in a maximum quality score of 25.

Results: Main study findings revealed a generally low data quality, with an average score of 11.57 out of 25. Key quality deficiencies included improper classification of drugs as suspects (e.g., reporting concomitant medications or treatments as suspects), reporting of underlying diseases and indications as adverse events, lack of information on patients' medical history and missing time-to-event information.

The analysis highlights a very important gap in pharmacovigilance signal detection and evaluation processes, underscoring risks for misleading results, increased workload, and potential misinterpretation of product safety profiles. The results highlight the need for enhanced case reporting trainings, improved quality control, better follow-up processes, and a collective mindset shift across stakeholders to prioritize data quality.

Conclusion: In conclusion, significant improvements in the completeness, accuracy, and clinical relevance of ICSRs are essential to support effective safety signal detection and benefit-risk assessment in the post-marketing surveillance of medicinal products.

Presenter:
Jana Brajdih Čendak
Billev Pharma East Ltd., Slovenia

The Role of Implant-Acupuncture in the Treatment of Dementia

Stefan Lobner

Implant-Acupuncture Clinic, Germany

Background: Implant-Acupuncture has been applied in neurological disorders such as Parkinson's disease, restless legs syndrome (RLS), and multiple sclerosis (MS). Small titanium implants are placed subcutaneously in the auricle at specific zones to provide continuous neurostimulation and modulate central neurotransmitter release. Dementia affects more than 57 million people worldwide, and numbers are rising due to demographic changes. As no causal pharmacological treatment is available, non-pharmacological approaches such as Implant-Acupuncture are of increasing interest. This study evaluated whether Implant-Acupuncture is able to stabilize cognitive performance and slow disease progression in early dementia.

Methods: In this prospective observational study, 33 patients with early dementia (MMSE >20) were examined between 2015 and 2017. Antidementia medication was an exclusion criterion. On average, 20 titanium implants (IMPLAX®) were placed per patient, mainly in the basal ganglia zone of the auricle. Patients underwent follow-up every six months for 36 months, including Mini-Mental State Examination (MMSE), Shulman clock-drawing test, and mood assessment.

Results: Thirty-two patients (17 female, 15 male; mean age 54 years) completed the 36-month follow-up. The mean MMSE score declined slightly from 25 to 24, which was not statistically significant. Also the clock-drawing test showed no significant change, both indicating stabilization of cognitive function. Moreover, 75% of participants (24/32) reported improved mood at 36 months. No side effects or complications were observed.

Conclusion: Implant-Acupuncture proved to be a safe, well-tolerated method for stabilizing cognitive function in early dementia. Over 36 months, disease progression remained largely stable, as indicated by MMSE and clock-drawing test results, while mood improved in the majority of patients. These findings highlight the potential of Implant-Acupuncture as a neurostimulatory, non-pharmacological adjunct therapy to support quality of life and possibly delay cognitive decline in dementia.

Presenter:
Stefan Lobner
Implant-Acupuncture Clinic, Germany

Using Ultrasound to Assess Connective Tissue Quality in Spine Surgery: Cutoffs and Predictive Value for Adjacent Segment Disease

Erika Chiapparelli, Ali E. Guven, Jiaqi Zhu, Marco D. Burkhard, Krizia Amoroso, Bruno Verna, Anna-Maria Mielke, Jennifer Shue, Frank P. Cammisa, Federico P.Girardi, Andrew A. Sama and **Alexander P. Hughes**

Department of Orthopaedic Surgery, Hospital for Special Surgery, Weill Cornell Medicine, USA

Purpose: Collagen integrity is essential for connective tissue maintenance, and its deterioration may contribute to postoperative complications. Dermal ultrasound (US) echogenicity has been associated with collagen quality, with changes in echogenicity reflecting alterations in collagen composition. These changes may indicate increased susceptibility to revision surgery in lumbar fusion patients, particularly due to adjacent segment disease (ASD). However, no study has established a specific cutoff value for skin US echogenicity to predict the need for ASD-related revision surgery. This single-center prospective cohort study aimed to evaluate the association between dermal echogenicity and ASD revision, and to determine echogenicity cutoff values that could help identify patients at higher risk of requiring revision surgery.

Methods: Patients undergoing posterior lumbar fusion from 2014 to 2023 were included. US measurements were conducted at two standardized locations on the lumbar back. Echogenicity values for the average dermal (AD), upper dermal (UD), and lower dermal (LD) layers were calculated using our institution's PACS imaging software. Statistical significance set at $p<0.05$.

Results: Among 383 patients (51% female, median age 63), those undergoing ASD revision were significantly older (median age 66.8 vs. 62 years, $p = 0.012$). Higher echogenicity in the LD (OR = 1.03, $p = 0.008$), UD (OR = 1.03, $p = 0.027$), and AD (OR = 1.03, $p = 0.005$) layers was associated with increased ASD risk. The optimal LD echogenicity cutoff was 124.3 (AUC = 0.654, sensitivity = 0.6, specificity = 0.69).

Conclusion: We identify echogenicity cutoff values that correlate with an increased risk of revision surgery for ASD. Higher dermal US echogenicity may reflect alterations in collagen, contributing to poorer tissue quality.

Presenter:
Erika Adriana Chiapparelli Harb
Hospital for Special Surgery, Weill Cornell Medicine, USA

Gaps in Clinical and Ethical Guidance During Health Crises: Lessons from the COVID-19 Pandemic in México

Fernanda De Blas López, Hincapie Sanchez and **Jennifer**

National Autonomous University of Mexico, Mexico

The COVID-19 pandemic exposed significant gaps in the clinical, ethical, and legal frameworks guiding healthcare professionals during epidemiological crises. In Mexico, while numerous guidelines and protocols were rapidly issued, ranging from clinical treatment recommendations to bioethical frameworks for resource allocation, these documents often lacked integration, consistency, and practical applicability for frontline healthcare workers. This fragmentation hindered decision-making processes, exacerbated moral distress, and left professionals without sufficient legal and ethical safeguards.

To address this issue, we conducted a systematic bibliographic review of national and international documents on clinical care in health emergencies. A total of 645 documents were retrieved, of which 165 were selected for in-depth analysis, including 81 in English and 84 in Spanish. Using ATLAS ti, we identified recurrent gaps: insufficient consideration of ethical dilemmas in resource allocation, lack of interdisciplinary integration, limited adaptability to local contexts, and the absence of legal clarity in the responsibilities and protections of healthcare workers.

Our findings underscore the urgent need for a comprehensive framework that integrates clinical, scientific, ethical, and legal dimensions. Such an instrument would not only guide prioritization of care and allocation of scarce resources, but also provide moral and legal support to professionals working under extreme conditions.

In discussion, this analysis reveals that while global and national institutions attempted to respond quickly, most guidelines remained fragmented or narrowly focused. Lessons from COVID-19, combined with historical experiences of H1N1, HIV, and other crises, highlight the necessity of a unified, adaptable, and context-sensitive guidance model. The proposed outcome of this project is the development of an integrated guidance tool tailored to the Mexican healthcare system but with global relevance. This work seeks to strengthen preparedness, equity in clinical care, and systemic resilience for future health emergencies.

Presenter:
Fernanda De Blas López
National Autonomous University of Mexico, Mexico

Evaluating and Enhancing the Ward Staff's Understanding of Hearing Aids in Geriatric Patients

Kaniz Fatimah
Lewisham and Greenwich NHS Trust, UK

Background: Hearing loss is highly prevalent among geriatric inpatients and can significantly affect communication, safety, and quality of care. Effective hearing aid management is essential for maintaining patient engagement and reducing preventable complications. Preliminary observations identified that ward staff had limited knowledge and confidence in handling hearing aids, prompting the development of a Quality Improvement Project (QIP) on Ward 14.

Methods: A baseline cross-sectional survey of 35 healthcare professionals (nurses and healthcare assistants) was conducted using a structured questionnaire assessing confidence, knowledge, and practical handling of hearing aids. Root cause analysis using the Fishbone Model identified training gaps, lack of standardized procedures, and insufficient educational resources as key contributors. A targeted PDSA (Plan–Do–Study–Act) cycle was implemented, including an audiology-led teaching session with hands-on demonstrations, educational leaflets, and practical troubleshooting guidance.

Results: Following the intervention, staff confidence in managing hearing aids improved markedly: 61.1% reported feeling very confident, and 38.9% reported feeling confident in handling and troubleshooting hearing aids post-session. Qualitative feedback highlighted increased awareness of maintenance, storage, and communication strategies with hearing-impaired patients.

Conclusion: A focused, multidisciplinary teaching intervention significantly improved staff confidence and understanding of hearing aid care in elderly patients. Integrating regular audiology-led refresher sessions and clear ward-level protocols into induction training can sustain improvement and enhance patient communication outcomes.

Presenter:
Kaniz Fatimah
Lewisham and Greenwich NHS Trust, UK

"We have Doctors, we have Nurses, but also those things from God": Faith, Religion, and the Involvement of Faith-Based Organisations in HIV-Related Service-Provision in Cape Town, South Africa

Shehani Perera[1], Jennifer Nyawira Githaiga[2], Alison Swartz[3] and **Jane Kelly[4]**

[1]Health Systems Research Unit, South African Medical Research Council, South Africa
[2]Division of Social and Behavioural Sciences, School of Public Health, University of Cape Town, South Africa
[3]St George's School of Health and Medical Sciences, University of London, UK
[4]Centre for Social Science, University of Cape Town, South Africa

Background: Faith-based organizations (FBOs) play a critical role in HIV healthcare delivery across southern Africa, particularly in South Africa where 85.3% of the population identifies as Christian. However, the complex relationships between faith, religion, and HIV care remain underexplored, particularly regarding HIV testing and counselling (HTC) services and assisted partner notification processes.

Methods: This qualitative descriptive study employed in-depth interviews and diary methodology across five primary healthcare clinics, a Muslim AIDS program, and an NGO in Cape Town, South Africa. Participants included 10 healthcare providers (5 from Christian FBOs), 12 female patients, and 12 key informants from various sectors. Data were collected between March 2021 and February 2022, with thematic analysis conducted using NVivo 12.

Results: Four key themes emerged illustrating the complex intersection of faith and HIV care. First, HIV care exists within a normalized plural medical system where patients and providers seamlessly integrate biomedical and faith-based approaches as complementary rather than competing systems. Second, religious frameworks significantly influence HIV testing and partner notification decisions through moral reasoning. Third, faith-based care manifests through "spiritual counselling" and "umbrella care" extending beyond traditional biomedical interventions. Fourth, significant tensions exist between patients' desire for faith-based support and concerns about stigma, judgment, and misinformation from religious communities, creating a "privacy-support paradox."

Conclusions: Rather than attempting to separate religious and secular elements of healthcare, we advocate for developing "faith-sensitive" approaches to HIV service delivery that acknowledge and work constructively with medical pluralism while addressing tensions around stigma and misinformation. This requires maintaining professional boundaries while respecting diverse religious beliefs and creating partnerships with religious institutions to support treatment adherence.

Presenter:
Shehani Perera

South African Medical Research Council, South Africa

Chuspi: A Design of a Smart Device for Monitoring Aedes Aegypti Mosquito Populations in Response to Dengue Outbreaks in Peru

Aniela Ubillus[1], Daniel Rodriguez[2], Eliane Loza[1] and **Aurelio Toscano[2]**

[1]Pontificia Universidad Catolica del Peru, Peru
[2]Universidad Peruana Cayetano Heredia, Peru

In 2023, Peru faced one of its most severe dengue outbreaks, exacerbated by extreme weather conditions associated with the "Niño" phenomenon and Cyclone Yaku. The Aedes aegypti mosquito, the primary vector responsible for transmitting dengue, continues to spread the disease. To address this public health crisis, more advanced and science-based methods—such as male sterilization or the release of Wolbachia-infected mosquitoes—were introduced, but their success relies on continuous human intervention and meticulous laboratory control. To address this challenge, the present project developed an automated instrument for real-time monitoring of mosquito populations, with a focus on female Aedes aegypti mosquitoes, the primary vector of dengue.

This innovative solution focuses on two main stages: attraction and detection. During the attraction phase, it uses ultraviolet (UV) light, chemical lures like octenol, and humid enclosed surfaces that simulate ideal breeding conditions for females. Bacillus thuringiensis, a bacterium that inhibits larval development, is also employed. In the detection stage, the device uses an electrified mesh that produces a small voltage change each time a mosquito makes contact, which is then processed by a logic circuit to count the number of mosquitoes. Environmental sensors track temperature, humidity, air pressure, and seasonal variables, facilitating comprehensive data collection over time.

The device is connected to an IoT-supported platform that visualizes real-time mosquito counts, helping health authorities monitor performance, track analyzed areas, and assess mosquito density across regions. This platform enables early warning for potential outbreaks.

The device is strategically positioned on light poles in urban areas, forming a network of real-time data collection points, which enhances dengue prevention by enabling data-driven interventions. Currently in the design and

prototyping phase, the device shows great potential for scalability and offers an effective tool for preventing dengue outbreaks, contributing to more sustainable control strategies, particularly in regions with diverse infrastructures.

Presenter:
Aniela Joaquina Ubillús Peña

Pontificia Universidad Catolica del Peru, Peru

THEO: A Monitoring Device for Milk Consumption in Infants with Cleft Lip or Cleft Palate

Eliane Loza[2], Sthefany Macedo[1], Naomi Leiva[2], Astrid Fuentes[1], Carlos Lembcke[1] and **Luis Galvan[2]**

[1]Universidad Peruana Cayetano Heredia, Peru
[2]Pontificia Universidad Catolica del Peru, Peru

Cleft lip and cleft palate (CL/P) are among the most common congenital craniofacial anomalies, significantly affecting neonatal health. In regions such as Peru, where malnutrition rates are high, infants with CL/P face feeding difficulties that compromise their nutritional intake and delay critical surgical interventions. This study presents THEO, a real-time monitoring device designed to measure milk intake in infants with CL/P. Using embedded force sensors, a microcontroller, and wireless modules, THEO quantifies milk consumption during the first 5 minutes of feeding and transmits the data to a secure web platform integrated with Peru's Health Information System (HIS). This innovative system allows healthcare professionals to monitor feeding efficacy remotely, facilitating early detection of feeding difficulties and enabling timely interventions. Preliminary results demonstrate that THEO provides accurate, reproducible data with a ±3.5% margin of error and a response time of 0.5 seconds, ensuring real-time feedback for caregivers and medical staff. The device's ergonomic, modular design ensures compatibility with standard baby bottles, making it suitable for both home and clinical settings. By offering objective data on feeding, THEO supports improved nutritional outcomes, enhances surgical readiness, and addresses a critical gap in the care of infants with CL/P. This technology promises to improve early childhood nutrition monitoring and contribute to better health outcomes in resource-limited areas.

Presenter:
Eliane Anel Loza Elguera
Pontificia Universidad Catolica del Peru, Peru

Experiences of Patients with Cervical Cancer Undergoing Concurrent Chemo-Radiation Therapy at the Korle Bu Teaching Hospital in Ghana: An Explorative Qualitative Study

Enam Adzo Setsoafia[1], Gifty Sarfo-Annan[2], Joseph Daniels[1], Jackline Addae[3] and **Susanna Aba Abraham[4]**

[1]Department of Oncology and Nuclear Medicine, National Centre for Radiotherapy, Korle-Bu Teaching Hospital, Ghana
[2]Department of Oncology, Tamale Teaching Hospital, Ghana
[3]Oncology Unit, Efia Nkwanta Regional Hospital, Ghana
[4]Department of Public Health, School of Nursing and Midwifery, University of Cape Coast, Ghana

Background: Cervical cancer is one of the leading causes of morbidity and mortality in women worldwide, especially in limited-resource settings. Concurrent chemoradiation followed by brachytherapy is the standard of care for patients with locally advanced cervical cancer. Concurrent treatment with external beam radiotherapy and chemotherapy is however, associated with a considerable risk of toxicity. Patients who are treated experience emotional, psychological, social, financial and physiological consequences. The aim of the study was to describe the experiences and explore the perspectives of women with cervical cancer undergoing treatment at the Korle-Bu Teaching Hospital in Accra, Ghana.

Methods: The research was an explorative-descriptive qualitative study involving Ghanaian women with a histo-pathologically confirmed diagnosis of cervical cancer undergoing chemoradiation. Qualitative data were collected for the study via semi-structured interviews and thematically analysed.

Results: Four main themes were identified, namely: "deciding on the choice of treatment", "cruising through therapy", "losing self-image", and "evolving into a new person: from caterpillar to butterfly". Some of the patients experienced psychological effects such as fear and depression, whereas others encountered financial difficulties as well as disruption of social relations to the point of isolation.

The patients also received support from their spouses, family members, and/or caregivers.
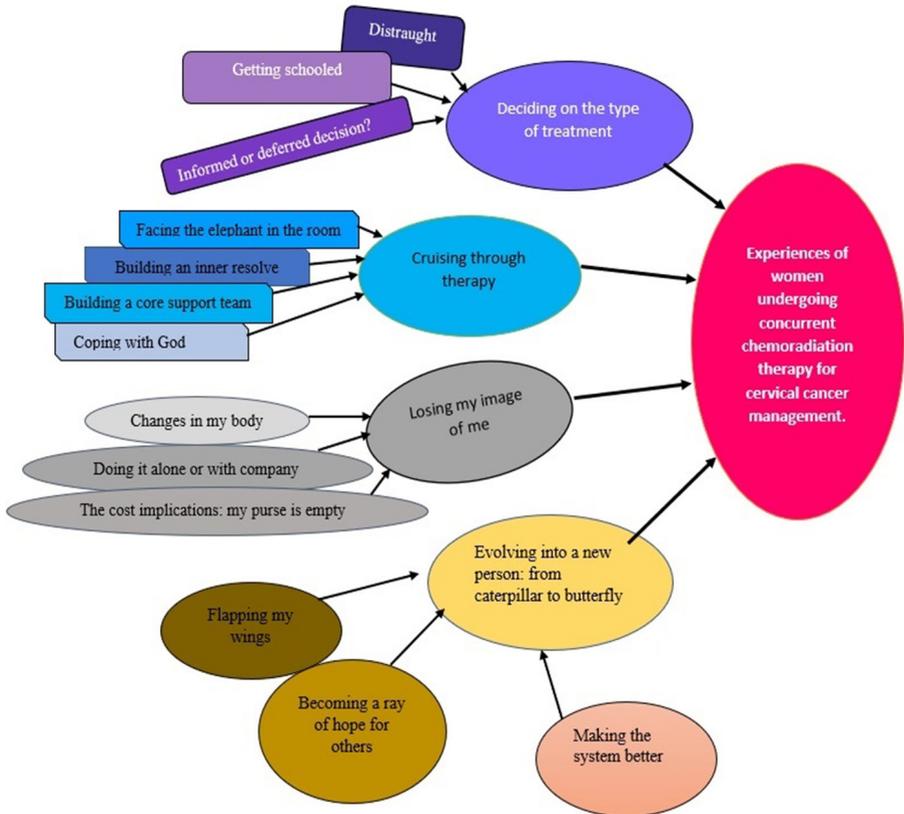
Conclusions: The study highlights significant gaps in cervical cancer awareness among patients prior to diagnosis, leading to fear and anxiety. Most patients deferred treatment decisions to healthcare providers due to their expertise. Concurrent chemotherapy profoundly affects patients' well-being, causing psychological distress, physical side effects, economic burdens, and social isolation. Patients adopt various coping strategies, including inner resolve, faith in God, and social support, which help them endure treatment.

Presenter:
Enam Adzo Setsoafia
Korle-Bu Teaching Hospital, Ghana

Pandemic-Induced Social Isolation on Youth Social Skills and Mental Health

Khandker A Haque

York University, Canada

The COVID-19 pandemic has deeply impacted youth social development, particularly by accelerating social isolation, screen dependency, and declines in key social skills. This paper examines the extent of pandemic-induced disruption on the social and emotional well-being of children and adolescents, with a focus on the long-term effects of quarantine, reduced face-to-face interaction, and overreliance on virtual communication. Drawing on 31 scholarly sources and two authoritative web-based resources, the study explores the multidimensional consequences of social isolation, including increased anxiety, diminished nonverbal communication, reduced empathy, and lowered school connectedness.

The *methodology* involved a thematic review of existing literature to identify both the harm caused and interventions proposed by social scientists. Findings highlight that boys experienced disproportionate psychological distress due to reduced real-world engagement, while excessive screen time correlated with lower physical activity and peer interaction across all genders. Evidence suggests that mental health challenges, especially social anxiety and trauma-related symptoms, intensified during lockdown and remain persistent post-pandemic.

Intervention *strategies identified* include low-pressure, interest-based activities (soft frameworks), school-based relational rebuilding, digital self-management tools, structured group exercises, and intergenerational mentorship. Recommendations emphasize gender-sensitive outreach, educator training, culturally appropriate interventions, and integration of school and community supports. Effective recovery frameworks must go beyond symbolic campaigns to create sustainable, inclusive, and trauma-informed ecosystems that foster social reconnection and emotional resilience.

Ultimately, the *paper argues* for a coordinated, evidence-based response to address the developmental debt incurred during the pandemic. Without intentional efforts to restore core social competencies, there is a risk of long-term deficits in empathy, collaboration, and emotional well-being in

the emerging generation. This work contributes to ongoing discourse by offering practical solutions rooted in data, aiming to transform post-pandemic recovery into a socially resilient future for youth.

Presenter:
Khandker Ahmedul Haque
York University, Canada

Right and Access to Primary Care for People Experiencing Homelessness in Rome (Italy). A Qualitative Survey to Assess Potential Organizational Proposals for the Application of Law No.176/2024 in the Period of Implementation of Ministerial Decree No. 77 7/2022

S. Torchiaro, B. Goletti, V. Turroni Casadei and **M. Marceca**

Department of Public Health and Infectious Diseases, Sapienza University of Rome, Italy

Introduction: A recent Italian law (No. 176/2024) has granted people experiencing homelessness (PEH) access to primary healthcare services in fifteen Italian cities, enabling them to register with a personal General Practitioner (GP). This represents an important step towards addressing inequities in healthcare. As the operational procedures have not yet been defined, this study aims to evaluate proposals for implementing the law by first exploring the Roman context from June to October 2025.

Methodology: Following a scoping review on the topic, three questionnaires were developed: one to assess perceived health needs and health literacy among PEH, and two to assess ongoing informal procedures experienced by GPs and social professionals working with PEH. The questionnaires, which were developed by the core research group, were submitted to a panel of experts working in the field who are representative of a Local Public Health Authority (LPHA) and three Civil Society Organizations (CSOs) that are involved in services dedicated to PEH. The researchers will submit the questionnaires in person. The methodology follows a participatory, multi-level approach: 1) CSOs and LPHAs co- design the questionnaires; 2) PEHs and GPs will be consulted; 3) the research group will summarize the results; 4) discussion with the CSO and LPHAs panel; 4) elaboration and presentation of a policy paper to the Regional/National Health Authorities.

Results: Three CSOs and one LHA has been involved in the first participatory step of the research (June – July 2025). During the second step (July – September 2025) we expect to interview 40 PEH, 10 GPs and 20 SPs.

Conclusions: This action-research aims to provide concrete suggestions for effectively applying of Law no. 176/2024 based on local practices and the experiences of those involved. Multi-level participation, organizational and individual health literacy, and multidisciplinary collaboration are proposed as key tools for navigating complexity and promoting health for all, without any exclusion.

Presenter:
Serafina Torchiaro
Sapienza University of Rome, Italy

Mental Health During Medical Training: An Analysis of Associated Factors in Mexican Medical Students

Karina Robles-Rivera[1], Ana Elena Limón-Rojas[2], Guillermo Hideo Wakida-Kuzunoki[1], Laura Moreno-Altamirano[3], Mirella Vázquez-Rivera[1], Enrique Romero-Romero[1], María Teresa Rojas-Hernández[1] and **Ricardo Octavio Morales-Carmona[2]**

[1]Secretary of Clinical Teaching, Medical Internship, and Social Service, School of Medicine, National Autonomous University of Mexico, Mexico
[2]Graduate Studies Division, School of Medicine, National Autonomous University of Mexico, Mexico
[3]Public Health Department, School of Medicine, National Autonomous University of Mexico, Mexico

Introduction: Medical students face a heightened vulnerability to mental health issues compared to the general population, which may compromise both their academic progress and long-term professional development.

Objective: To identify sociodemographic and behavioral factors associated with symptoms of depression, anxiety, and stress among medical students in Mexico.

Methods: A cross-sectional design was employed. Data were collected using a self-administered questionnaire that included sociodemographic characteristics, health-related behaviors, academic performance, and the Depression, Anxiety, and Stress Scale (DASS-21).

Statistical Analysis: Descriptive statistics were calculated using central tendency, dispersion, and proportion measures. Group differences by sex were evaluated using Wilcoxon rank-sum and two-proportion z-tests; chi-square and Fisher's exact tests were used for comparisons across academic years. Logistic and linear regression models were fitted to explore associations between mental health outcomes and potential explanatory variables.

Results: Almost half of the participants (49%) showed symptoms of depression, with third-year students being the most affected (60.1%). Anxiety symptoms were present in 66.1% of the sample, reaching 74.7% among those in their third year. Stress was reported by 73.2% of respondents, with higher prevalence and severity among female students.

Table 1. Prevalence of Depression, Anxiety, and Stress among medical students (n=862, 611 women, 251 men)
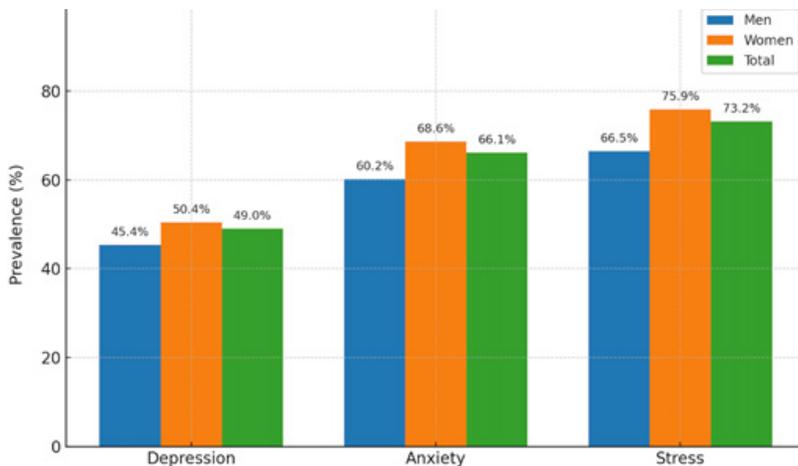
Low social support, adverse childhood experiences, and comorbidities increase the risk of depression, anxiety, and stress. Being female raises stress and depression. Physical activity, longer sleep, higher GPA, and older age are protective.

Matrix of Factors Associated with Depression, Anxiety, and Stress

Associated Factor	Depression	Anxiety	Stress
Low perceived social support	OR=6.52	OR=6.07	OR=5.73
Medium perceived social support	OR=4.56	OR=4.15	OR=5.50
Adverse childhood experiences	OR=1.64	OR=2.00	OR=1.60
Comorbidities	β=0.62	OR=1.56	β=1.63
Female sex	β=0.79	-	OR=1.56
Age	OR=0.93	-	-
Physical activity	OR=0.72	OR=0.62	OR=0.68
Sleep duration	β=−1.07	OR=0.88	OR=0.86
High GPA	-	OR=0.63	-

Note: All associations are statistically significant at $p < 0.05$.

Conclusion: The high prevalence of mental health symptoms underscores the need for targeted interventions. Programs that consider sociocultural context and promote protective behaviors may reduce emotional distress, prevent academic burnout, and improve the quality of future medical care.

Presenter:
Karina Robles Rivera
National Autonomous University of Mexico, Mexico

Biomechanical Analysis of the Influence of Contralateral Leg Balance on the Effectiveness of the Bandal Chagi Kick in Taekwondo

Eliane Loza[1], Esthefany Valverde[2], Leonardo Zuñiga[2] and **Erick Valdivia[1]**

[1]Pontificia Universidad Catolica del Peru, Peru
[2]Universidad Peruana Cayetano Heredia, Peru

This study aims to analyze the biomechanical aspects of the Bandal Chagi kick in Taekwondo, with a special focus on the role of contralateral leg balance in movement effectiveness. Two male athletes as volunteers from the Taekwondo team at Pontificia Universidad Católica del Perú (PUCP) were selected based on inclusion criteria (male, aged 20–24, with at least 2 years of Taekwondo experience) and exclusion criteria (no lower limb injuries, no significant height or weight discrepancies, and consistent training in the last 6 months). Kinematic data, including displacement, velocity, and acceleration, were captured using Kinovea software. Reflective markers were placed on the participants' joints, including the hip, knee, ankle, and foot, as well as midpoints of the thigh, leg, and foot for reference, to track their movement during video recording. Balance was assessed using an AMTI BP400600 force platform to analyze the center of pressure (COP) parameters, particularly the area of the ellipse formed by medial-lateral and anterior-posterior sway. The cameras used for motion capture were positioned 2 meters from the athletes, providing a lateral view of their movements. The kick phases—preparation, extension, and recovery—were thoroughly analyzed. The results showed consistent kinematic patterns across trials, but no significant correlation between the COP area and kick performance metrics such as foot velocity or elevation. These findings suggest that contralateral leg balance may not have a significant impact on the effectiveness of the Bandal Chagi kick under the conditions tested. This research highlights the complexity of Taekwondo movement dynamics, emphasizing the need for further studies with larger sample sizes and more varied conditions, such as different target types or additional biomechanical planes, to fully understand the role of balance in martial arts techniques.

Presenter:
Eliane Anel Loza Elguera
Pontificia Universidad Catolica del Peru, Peru

Towards African-Centered Psychosocial Interventions: Engaging with African Indigenous Communities through African Indigenous Knowledge systems

Nokukhanya Zondi

University of KwaZulu-Natal, South Africa

African Indigenous Communities (AICs) have long contributed to knowledge production through indigenous languages and knowledge systems. However, the advent of colonialism and enslavement has historically marginalized these systems—particularly within the curricula of higher education institutions across Africa, and South Africa in particular. This marginalization has led to the dominance of Western-oriented psychosocial interventions, often implemented without due consideration for the cultural complexities, languages, and epistemologies of AICs. The institutions of higher learning in Africa and South Africa have recognized the absence of African Indigenous Knowledge Systems (AIKS) in their curricula. Consequently, the ongoing discourse on AIKS and the decolonisation of curricula and professional practice has initiated a significant challenge to academics and practitioners in all fields of study: to move beyond the Eurocentric ideologies and toward the meaningful integration of AIKS into both theoretical and applied practice. Informed by African-centred worldviews, this presentation draws on data generated through collaborative autoethnography (CAE) to reflect on African-Centred Psychosocial Interventions implemented by a team of social workers and psychologists from the Ma'at Institute during the 2022 floods in KwaZulu-Natal, South Africa. The presentation addresses the following key questions: What is the methodological approach to working with African Indigenous Communities (AICs)? How can practitioners negotiate entry, establish relationships, and build rapport with AICs? What trauma debriefing and resilience-strengthening tools are culturally relevant to AICs? Contrary to Eurocentric psychosocial services, which often view selfhood as independent of cultural and linguistic contexts. This presentation advocates for holistic, context-specific, and culturally relevant interventions and that do not uproot people from their frames of reference, language, and ways of being in the world. Ultimately, the presentation addresses the importance of culturally grounded practices that affirm identity, language, and indigenous knowledge, offering a compelling case for the integration of African-centred approaches in psychosocial services and mental health care.

Presenter:
Nokukhanya Zondi
University of KwaZulu-Natal, South Africa

PEERS ALLEY
M E D I A

DAY 02

6TH INTERNATIONAL CONFERENCE ON

FUTURE OF PREVENTIVE MEDICINE AND PUBLIC HEALTH

MARCH 23-24, 2026 | ROME, ITALY

HALL-02

Detection of Putative Loci Affecting Milk Yield in Turkish Awassi Sheep using Microsatellite Markers

Hasan KOYUN[3], Seyrani KONCAGÜL[1] and **Selahaddin KİRAZ[2]**

[1]Department of Animal Science, Faculty of Agriculture, Ankara University, Turkey
[2]Department of Animal Science, Faculty of Agriculture, Harran University, Turkey
[3]Department of Animal Science, Faculty of Agriculture, Van Yüzüncü Yıl University, Turkey

On the basis of comparisons between bovine and ovine genome mapping information, the aim of the study was to analyze the genetic diversity of selected DNA microsatellites from the bovine genome and to investigate their correlation with the average daily milk yield in Awassi sheep.18 informative microsatellite markers were selected from the significant QTL regions affecting milk yield identified in the bovine genome in previous studies. The selected microsatellite markers were then amplified by PCR as reciprocal amplifications on the genomic DNA of Awassi sheep, with standard daily milk yield records. Thus, in this study, 18 microsatellite markers associated with milk yield in the bovine genome were examined for both determination of genetic polymorphism within the flock and the effects of marker loci on average daily milk yield in Awassi sheep. Allele frequencies of markers were determined based on the results of fragment analysis. The analysis of variance showed that the 123 bp allele at the marker locus BMS1341 on BTA2 significantly influenced the average daily milk yield of Ivesi sheep ($p < 0.01$). On the other hand, the BMS381 locus with a 115 bp allele on BTA2, the MCM140 locus with a 185 bp allele on BTA6, the BMS2721 locus with a 155 bp allele, the BM1237 locus with 174 and 180 bp alleles on BTA7, and finally, the BMS1967 locus with a 117 bp allele, the BM4208 locus with 176 and 182 bp alleles, and the INRA locus with a185 bp allele on BTA8 showed moderately significant effects on the average daily milk yield of Ivesi ewes ($P < 0.05$).

Presenter:
Hasan Koyun
Van Yüzüncü Yıl University, Turkey

Minimally Invasive Surgery: A Strategic Tool in Preventive Medicine & Public Health

Mohamad Hamoud

Holy Family Hospital -Nazareth, Israel

Background: Minimally invasive surgery (MIS) has transformed modern surgical care by reducing operative trauma and accelerating recovery. Beyond individual clinical outcomes, MIS has growing relevance in preventive medicine and public health through its ability to minimize postoperative morbidity, reduce healthcare resource utilization, and support sustainable, equitable health systems.

Objective: To highlight the preventive and public health benefits of MIS, emphasizing its contribution to reduced complications, faster rehabilitation, infection control, and healthcare sustainability.

Methods: A narrative synthesis of current literature and institutional experiences was conducted, examining the population-level impact of MIS compared to conventional open procedures. Parameters analyzed included postoperative morbidity, hospitalization duration, infection rates, return-to-function timelines, and system-level outcomes such as cost and antimicrobial use.

Results: Evidence consistently demonstrates that MIS lowers rates of wound infection, hernia formation, and adhesion-related complications. Patients recover faster and return to normal activity sooner, decreasing lost productivity and long-term disability. Shorter hospital stays and reduced antibiotic consumption contribute to lower healthcare costs and decreased antimicrobial resistance. Additionally, MIS facilitates early diagnosis and treatment of disease through endoscopic and laparoscopic access, bridging curative and preventive care. In global contexts, the adoption of portable MIS systems expands access to safe surgical treatment in resource-limited settings.

Conclusion: Minimally invasive surgery extends far beyond technical refinement—it is a preventive strategy that protects patients, optimizes health-system efficiency, and supports sustainable medical practice. By minimizing harm, preventing complications, and promoting rapid recovery, MIS serves as a vital link between surgery and public health, aligning clinical excellence with preventive medicine principles.

The lecture will include my experience in laparoscopic surgery; I will present videos of several surgeries.**1-Laparoscopic Takedown of Failed Fundoplication and conversion to ROUX-EN-Y and interesting video summaries of my laparoscopic surgeries**.

Presenter:

Mohamad Hamoud

Holy Family Hospital-Nazareth, Israel

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

Mohan Keshavamurthy, Karthik Rao B and Karibasavaraja Neelagar

Fortis Hospital, India

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

Navigating Healthcare Futures: Emerging Trends Driving Preventive Medicine and Public Health Transformation

Suryanarayana Alamuri

Osmania University, India

This conceptual and exploratory paper analyzes the rapidly evolving landscape of healthcare management, driven by the emergence of sophisticated digital technologies, such as Artificial Intelligence (AI), remote patient monitoring tools, and integrated telemedicine platforms, alongside novel organizational models, and a heightened emphasis on preventive care strategies and wellness. The primary objective is to develop a comprehensive framework that elucidates the complex interplay between modern management practices and technological integration in health service provision. The research methodology involves a rigorous conceptual synthesis of existing literature, specifically reviewing over twenty-five empirical studies published within the last decade. This systematic process converges diverse academic findings, focusing on management shifts and technological impact, to distill key emerging themes, systemic challenges, and strategic opportunities pertinent to contemporary health management. The anticipated outcome is the articulation of a robust construct that maps the stages of transformation in health service delivery. This construct specifically highlights digital health as a core transformative force, emphasizing the critical role of data for decision-making and a reinforced patient-centric approach across all levels of care. The study's unique contribution lies in offering a systematic, evidence-informed framework designed for healthcare leaders, policymakers, and researchers. This strategic model aims to guide innovation in preventive medicine and public health by detailing how to transition to new operational paradigms, offering practical lessons on adaptive management, essential workforce skill development, and fostering the policy coherence necessary for large-scale, sustainable system change. Implications discussed underscore the relevance of these adaptive strategies to bolster sustainable health system evolution. However, the model is inherently based on secondary data, and the continuous, rapid evolution of both technology and organizational models suggests its practical utility will require ongoing adaptation. Ultimately, this manuscript integrates empirical insights with forward-looking management theory, providing a holistic conceptual perspective for future research and practice.

Presenter:
Suryanarayana Alamuri
Osmania University, India

Innovation in Prevention Begins with Education: Patient Safety as a Pedagogical Framework for Public Policy

Zanirati. Thamyres and Kuchenbecker. Ricardo

Federal University of the State of Rio Grande do Sul, Brazil

Background: Patient safety policies increasingly recognize that adverse healthcare events result primarily from systemic failures rather than isolated individual errors. However, professional training environments are rarely examined as upstream determinants of downstream clinical harm. In Brazil, despite progressive national curricular guidelines and a universal public health system, medical education remains marked by hierarchical cultures and structural tensions that may influence professional identity and safety culture.

Objective: To propose the concept of pedagogical adverse events as an analytical category and explore its relevance as a public policy strategy for preventing adverse healthcare events.

Methods: This proposal builds upon findings from a professional master's research in Health Education conducted at the Federal University of Rio Grande do Sul (UFRGS). The study employed qualitative methodology, including narrative-based analysis of training experiences and a literature review on violence and mistreatment in medical education, interpreted through systems theory and patient safety frameworks. From this analysis, pedagogical adverse events are conceptualized as institutional practices or structural conditions within training environments that produce harm, ethical distortion, or professional impairment with long-term implications for healthcare delivery.

Conclusion: Training environments characterized by silencing, normalized humiliation, and lack of psychological safety may compromise competencies essential for safe practice, including teamwork and communication. Incorporating pedagogical adverse events into educational assessment and health policy discussions may expand prevention beyond clinical settings and contribute to safer and more equitable health systems.

Presenter:
Thamyres Zanirati dos Santos
Federal University of the State of Rio Grande do Sul, Brazil

Agile Technologies for Business Resilience: Issues and Recommendations — A Systematic Review

Sriram Ananthan

Yorkville University, Canada

Business resilience refers to the ability to respond to and withstand disruptions. Disruptions include global pandemics, climate-related shocks, digital transformation, and other disruptions. For most businesses, the ability to navigate such disruptions is an essential function. Technologies and processes that promote agility provide the foundation to build resilience by improving adaptable, responsive, and sound decision-making under uncertainty. This review studies the available literature and analyzes the role and impact the agile technologies to promote the resilience of Business and the challenges and strategic implication of such technologies.

Using the Systematic Review approach, the author analyzes Literature published in the last decade across the major Academic Databases that include peer-reviewed articles and books and conference papers. The Review discusses the major agile technologies such as digital platforms, Artificial Intelligence (AI), data analytics, and cloud computing, as well as agile project management (APM) frameworks. The author finds that despite the substantial positive impact on the flexibility, rapidity, and optimal utilization of organizational resources, the impact of agile technologies is limited to other organizational factors of leadership, digital proficiency, culture, and governance.

The review outlines the barriers to the successful implementation of agile technologies, including the reluctance to change, fragmented digital approach, potential cybersecurity issues, ethical concerns, and the disparity between the adoption of the technology and the goals of the organization. From the synthesis, the study outlines practical guidelines for managers and policymakers and focuses on integrated digital frameworks, continuous learning ecosystems, responsible tech cross-pilot frameworks, cross-functional collaboration, and tech governance.

This review outlines and contributes to the discourse on resilience, providing a consolidated articulation of how agile technologies can be leveraged to create robust, flexible, and sustainable organizations. The articulation serves business leaders, researchers, and policymakers, underscoring the need to bolster organizational resilience in times of disruption and uncertainty.

Presenter:
Sriram Ananthan
Yorkville University, Canada

Cervical Tuberculosis Mimicking Cervical Cancer in a Postmenopausal Woman: A Case Report

Francisco do Vale[2], Leda Viegas de Carvalho[1], Filipe Soares Nogueira[3], Patricia Nazare[4], Elisa Pereira[4], Barbara Gaspar[5] and **Daniel Gomes Pinto[3]**

[1]Champalimaud Foundation – Lisbon, Portugal
[2]Infectious Diseases Department, Unidade local de Saude Almada/Seixal E.P.E., Hospital Garcia de Orta, Portugal
[3]Pathology Department, Unidade local de saude Almada/Seixal E.P.E., Hospital Garcia de Orta, Portugal
[4]Gynecology Department, Unidade local de saude Almada/Seixal E.P.E., Hospital Garcia de Orta, Portugal
[5]Radiology Department, Unidade local de Saude Almada/Seixal E.P.E., Hospital Garcia de Orta, Portugal

Background: Tuberculosis (TB) remains one of the world's leading causes of death from a single infectious agent. According to the World Health Organization (WHO), there were 7.5 million new TB cases worldwide in 2022, leading to 1.3 million deaths. Cervical tuberculosis is a rare form of genital tuberculosis.

Case Report: A 73-year-old woman who presented with cervical wall thickening on magnetic resonance imaging, suggesting an invasive malignant neoplasm. Cervical cone excision was performed for pathological study. Microscopy showed epithelioid granulomas, with no appreciable caseous necrosis, in the wall of the uterine cervix, associated with erosion of the overlying cervical mucosa. Histochemical stains for microorganisms (Ziehl–Neelsen, Grocott, and Warthin–Starry) were all negative. Immunohistochemistry for *Treponema pallidum* revealed scarce, stained spiral-shaped bacilli, raising the diagnostic possibility of secondary syphilis. However, the serological study for syphilis was negative. Polymerase chain reaction (PCR) tests for *Mycobacterium tuberculosis and Treponema pallidum* were performed in the formaldehyde-fixed, paraffin embedded tissue and resulted positive for *Mycobacterium tuberculosis* and negative for *Treponema pallidum*. Additionally, it was decided to collect fresh material for the microbiological culture of *Mycobacterium tuberculosis* in parallel. The final diagnosis of cervical TB was confirmed by PCR testing and microbiological culture.

Objectives: To report a rare case of cervical tuberculosis, discuss the differential diagnosis, and analyze the advantages and limitations of complementary techniques used in the pathological diagnosis of infectious agents while highlighting diagnostic pitfalls.

Conclusion: Accurate microbiological diagnosis requires the implementation of integrated workflows employing complementary techniques in a multidisciplinary setting, in order to improve the reliability of pathological examination in infectious diseases.

Presenter:
Francisco do Vale
Hospital Garcia de Orta, Portugal

Leda Viegas de Carvalho
Champalimaud Foundation – Lisbon, Portugal

Exploring Stakeholders' Experiences on Implementing Family Medicine in Urban South Africa-Implications for Universal Health Coverage

Musonda John.M and **Moosa Shabir**

Department of Family Medicine and Primary Care, Faculty of Health Sciences, University of the Witwatersrand, South Africa

Background: South Africa recognised family medicine as a medical specialty in 2007. The discipline plays a crucial role in strengthening primary healthcare. However, the experiences of family physicians, private general practitioners, and other stakeholders on implementing family medicine in urban South Africa remain unexplored. The study aimed to explore stakeholders' experiences with implementing family medicine in urban South Africa.

Methods: We evaluated the lived experiences of implementing family medicine as a clinical discipline. A descriptive, explorative qualitative study was undertaken using semi-structured, in-depth interviews with 25 purposively selected individuals from October 2019 to December 2020. All participants were from Gauteng Province. Thematic analysis was conducted using MAXQDA version 2020.

Results: Four major themes emerged. Most participants perceived a disparity between private and public primary care services, with the latter holding more optimistic views. The clinical skills and competencies of private general practitioners were deemed to need strengthening. A staffing mix for primary care teams was envisioned, with additional resources needed to enhance the implementation of family medicine. Furthermore, participants had ill-defined ideas about its positioning in terms of the impact and prospects of family medicine in relation to the major clinical disciplines, such as internal medicine, general surgery, paediatrics, and obstetrics and gynaecology.

Conclusion: The study highlights the participants' firsthand involvement in implementing family medicine in an urban setting. The findings may enhance insight into primary care services, clinical skills, staff composition, and the specialty of family medicine, which preceded the introduction of Universal Health Coverage through the National Health Insurance, a financing mechanism.

Presenter:
John Mukuka Musonda
University of the Witwatersrand, South Africa

Comparative Outcomes of Thulium Laser Enucleation by Prostate Volume: A Three-Group Analysis from A Single-Center Study in Vietnam

Van Hinh Tran[1], Hoai Nam Tran[1,2] and
Viet Cuong Nguyen[2]

[1]Vietnam Military Medical University,
Vietnam
[2]Military Hospital 175, Vietnam

Purpose: To evaluate the impact of prostate volume on the safety and efficacy of Thulium Laser Enucleation of the Prostate (ThuLEP) in treating benign prostatic enlargement (BPE) across different prostate volume groups.

Materials and Methods: This prospective study included 92 BPE patients who underwent ThuLEP, stratified into three groups based on prostate volume: Group A (< 50 ml), Group B (50–80 ml), and Group C (>80 ml). Preoperative and postoperative functional outcomes, intraoperative parameters, and complications were analyzed and compared among the groups. Statistical analysis was performed using IBM SPSS Statistics 27.

Results: Operative time significantly increased with prostate size (Group C: 105 ± 32.74 min vs. Group A: 71.45 ± 33.87 min, $p < 0.001$). Enucleation time per ml of prostate tissue was most efficient in Group C (0.98 ± 0.55 min/ ml, $p < 0.001$). Postoperative improvements in IPSS, Qmax, QoL, and PVR were significant across all groups, with no notable differences among the groups at 6 months ($p > 0.05$). The overall complication rate was low (11.96%), with major complications (Clavien-Dindo grade II or higher) accounting for only 6.52%. No significant differences in complication rates were observed among the groups.

Conclusions: ThuLEP demonstrated excellent safety and efficacy in treating BPE, regardless of prostate size. Larger prostates required longer operative times but achieved comparable functional outcomes with low complication rates. These findings support ThuLEP as a reliable and versatile surgical option for a wide range of prostate volumes.

Presenter:
Van Hinh Tran
Vietnam Military Medical University, Vietnam

Phuc Hai Tran
University of Pavia (UniPV), Italy

Occupational Exposure to Airborne Aldehydes: Health Risks Among Traffic Police Officers in Lebanon

Zeina Dagher[1], Héléna Alamil[1,2], Antonio Razzouk[3], Charbel Afif[4] and Mathilde Lechevrel[2]

[1]L2GE, Microbiology-Tox/Ecotox Team, Faculty of Sciences, Lebanese University, Lebanon
[2]Normandie University, UNICAEN, France
[3]Laboratory of Chemical Analyses, Faculty of Sciences, Lebanese University, Lebanon
[4]EMMA Laboratory, Faculty of Sciences, Saint Joseph University, Lebanon

Aldehydes are environmental pollutants potentially involved in the pathogenesis of various diseases. This study aimed to evaluate the impact of occupational exposure to traffic-related aldehydes on oxidative stress and inflammatory biomarkers among traffic police officers in Beirut and its suburbs.

A total of 99 traffic officers were biomonitored through a combination of personal air sampling using diffusive samplers and biological assessments of oxidative stress and inflammation. Airborne concentrations of formaldehyde, acetaldehyde, acrolein, benzaldehyde, butanal, and hexanal were measured. Concurrently, oxidative stress was assessed via urinary and plasma malondialdehyde (MDA) levels, measured both pre- and post-exposure using HPLC-UV. Lung function tests were conducted through spirometry at both time points. Post-exposure inflammatory markers including erythrocyte sedimentation rate (ESR), white blood cell count (WBC), C-reactive protein (CRP), and urea were also evaluated.

The results revealed that individual aldehyde exposure levels ranged from 9.54 to 331 µg/m³, with formaldehyde and acrolein exceeding occupational exposure limits. These levels were found to be higher than those reported in several international urban settings, including cities in Italy, Spain, and Morocco. Notably, biomarkers of oxidative stress and inflammation increased significantly after five days of exposure. MDA levels in plasma and urine distinguished pre-exposure (day 1) from post-exposure (day 5) samples.

Regression analysis identified working years and formaldehyde as significant predictors of post-exposure plasma MDA, while urinary MDA was significantly associated with formaldehyde, benzaldehyde, and butanal. In addition, ESR and WBC levels showed a negative association with post-exposure plasma MDA.

In conclusion, these findings suggest that prolonged exposure to traffic-related aldehydes is associated with increased oxidative stress and inflammatory responses in traffic police officers, highlighting the need for preventive occupational health measures in urban environments.

Presenter:
Zeina DAGHER
Lebanese University, Lebanon

When Left Is Right: Adapting Laparoscopic Skills to Mirror-Image Anatomy in Low-Resource Settings

Iqra Khanzada, Sheeren Taj and **Altaf Talpur**

Indus Medical College & Hospital, Pakistan

Background: Situs inversus totalis (SIT) is a rare congenital condition characterized by the complete mirror image transposition of thoracic and abdominal organs. This anatomical variation poses diagnostic and technical challenges during laparoscopic procedures, particularly for right-handed surgeons. These challenges are further pronounced in resource-limited settings where advanced technology and simulation facilities are not readily available.

Objective: To demonstrate safe and feasible technical adaptations for performing laparoscopic cholecystectomy in patients with mirror image anatomy using standard laparoscopic equipment.

Methods: We report a case of a 50-year-old lady with symptomatic gall stones and situs inversus totalis who underwent elective laparoscopic cholecystectomy at a tertiary care hospital in rural Sindh. A conventional four-port technique was modified by mirror-image port placement, ergonomic repositioning of the surgical team, and selective use of the surgeon's non-dominant hand for dissection. Preoperative imaging was used to confirm anatomy, and no specialized instruments were employed. Operating room setup and team position.

Results: The procedure was completed successfully within 65 minutes without intraoperative complications or biliary injury. No anatomical variations of the biliary tree were identified. The postoperative course was uneventful, and the patient was discharged within 24 hours.

Conclusion: Laparoscopic Cholecystectomy can be safely performed in patients with situs inversus totalis in resource limited settings using standard instruments. Careful preoperative planning, ergonomic adjustments, and surgeon adaptability are essential for achieving optimal outcomes.

Presenter:
Iqra Khanzada
Indus Medical College & Hospital, Pakistan

Translational Development of NCE 14a: From Predictive Pharmacokinetics to Colon-Targeted Nanoparticles for Colorectal Cancer Therapy

V V Siva Krishna Pushadapu[1, 2], Grandhi Srikar[1] and **Srinivasa Babu Puttagunta[2]**

[1]Department of Pharmaceutical Sciences, School of Biotechnology and Pharmacy, Vignan's Foundation for Science, Technology and Research, India
[2]Department of Pharmaceutics, Vignan Pharmacy College, India

Background: Compound 14a, a pyridine-based 1,2,4-triazole-tethered indole conjugate, has shown potent cytotoxicity against HT-29 colorectal cancer cells via dual inhibition of the PI3K/Akt and Wnt/β-catenin pathways. Despite this promise, its poor solubility and rapid clearance limit therapeutic translation.

Methods: An integrated approach was employed, combining in silico pharmacokinetic predictions, preclinical LD_{50} and ED_{50} studies, and nanoparticle-based formulation. ADMET modelling was used to predict pharmacokinetics. Acute toxicity and efficacy were evaluated in mice using the Miller–Tainter method and an AOM/DSS-induced colorectal cancer model. Colon-targeted nanoparticles were prepared with PLGA (50:50) and Eudragit RS, coated with Eudragit S100. A Box–Behnken design was applied for optimization, followed by physicochemical and morphological characterization.

Results: Predictive modelling indicated a short half-life (~0.39 h) and high clearance. LD_{50} was established at 19.3 mg/kg, with an ED_{50} of 2 mg/kg. Optimized nanoparticles exhibited a particle size of ~230 nm, zeta potential of +28 mV, encapsulation efficiency of 98.9 ± 1.8%. The in-vitro release followed zero-order kinetics, showing ≈ 99% drug release at 24 h (20–25% in 8 h and ≈ 95% in 22 h) under simulated gastrointestinal conditions, confirming sustained pH-responsive release. In-silico ADMET predictions indicated favorable absorption and moderate clearance, supporting oral feasibility.

Conclusion: This study demonstrates, for the first time, that colon-targeted nanoparticles of NCE 14a can overcome its pharmacokinetic limitations, prolong local drug availability, reduce systemic toxicity, and enhance its therapeutic potential in colorectal cancer therapy.

Presenter:
V V Siva Krishna Pushadapu
Vignan Pharmacy College, India

AI, Mental and Physical Labor, and a Just Policy Framework

Yotam Harel

University of Oxford, UK

The presentation will outline an artificial intelligence (AI)-mediated future by examining the influence of AI on the labor market and, consequently, on society at large, and then advocate a just policy framework for policies meant to accommodate this influence of AI. First, I shall introduce a conceptual framework distinguishing between mental labor and physical labor, a distinction that proves useful when analyzing this influence of AI. Afterward, the influence of AI on the labor market is explained. It is argued that, considering the so-called generality and the negligible marginal cost of AI, in conjunction with some other assumptions, AI is likely to cause mass technological unemployment of those who were formerly employed as mental laborers – among them, there may be a variety of medical professionals – and will not switch to physical labor. This, so I shall conclude, is likely to bring about a structural transformation of society, when these individuals are said to form a new class of those who possess ineffective labor power (contra those who possess effective labor power, who form the other class). Those individuals who possess ineffective labor power are likely to suffer, among other things, from lowered physical and mental health. Finally, I shall put forward a policy framework designed to deal with this new state of society. It is argued that to meet a minimal normative requirement for the adoption of AI, society should compensate the class of those who possess ineffective labor power so as to accommodate all the hardships common to them.

Presenter:
Yotam Harel
University of Oxford, UK

The Effect of Shoulder Massage on Shoulder Pain and Sleep Quality in Patients After Laparoscopic Cholecystectomy: A Randomized Controlled Trial

Melis Kübra Duran[1] and **Şenay Öztürk**[2]
[1]NPİstanbul Brain Hospital, Turkey
[2]Maltepe University, Turkey

Background: Laparoscopic cholecystectomy patients may suffer from sleep disturbances due to this postoperative pain. Postoperative pain and low sleep quality can lead to various unpredictable complications, including anxiety. The aim of this study is to determine the effect of shoulder massage administered to patients after laparoscopic cholecystectomy on pain and sleep quality.

Methods: The study was designed as a randomized controlled trial. This study was carried out with 60 patients who underwent surgery at the General Surgery Department of a university's Faculty of Medicine between January 2020 and March 2021. The study was completed with 60 patients (30 in the intervention group and 30 in the control group). The patients in the intervention group received shoulder massage twice at 6-hour intervals. The data for the study were collected using the "Individual Introduction Form", the "VAS", and the "Richard Campbell Sleep Scale".

Results: It was found that the pain of the patients in the intervention group significantly decreased compared to the control group 30 min after the massage ($p<0.05$). However, 6 h after the massage, the pain levels in both groups were similar. The sleep quality of the patients in the intervention group was significantly higher compared to those in the control group ($p<0.05$).

Conclusions: It was determined that the massage therapy yielded a short-term alleviation of shoulder pain among the patients while also enhancing their sleep quality. These results suggest that shoulder massage could be effectively incorporated into nursing practice as a means to ameliorate pain levels and enhance sleep quality in postoperative patients.

Presenter:
Melis Kübra DURAN
NP İstanbul Brain Hospital, Turkey

Sustainable Electronic Waste Management through Efficient Power Management for a Greener Future

Khushi Mukeshsingh Bhadouriya[1], Adityasingh Shashikantsingh Rajput[2], Dharmeshkumar Parmar[3], Prashant Dineshkumar Tiwari[4], Nirav D. Mehta[6] and **Anwarul M. Haque[7]**

Vishwakarma Government Engineering College, India

The rapid expansion of electronic device consumption has resulted in an unprecedented rise in electronic waste (e-waste), posing serious environmental and public health risks. Toxic substances such as lead, cadmium, and brominated compounds released from improper disposal contaminate soil and groundwater, directly impacting community health. Addressing this crisis requires upstream engineering interventions rather than solely relying on post-disposal recycling strategies.

This study proposes a sustainable e-waste mitigation framework centred on power electronics-driven design optimization, component standardization, and modular system architecture. Key strategies include the standardization of universal ports (e.g., USB-C), implementation of sustainability-based component certification such as the proposed Component Life-Cycle Index (CLCI), and adoption of modular PCB architectures to enhance repairability and component reuse. Special emphasis is placed on cross-compatible and firmware-upgradable power electronic systems, particularly in electric vehicle charging infrastructure, to reduce hardware redundancy and premature obsolescence.

The research further integrates reuse and remanufacturing strategies supported by AI and IoT-enabled lifecycle tracking to extend component longevity and improve traceability. By combining technical innovation, regulatory alignment, and circular economy principles, this work presents a scalable pathway for reducing electronic waste at the design stage.

The findings highlight the critical role of power electronics engineers in advancing preventive environmental health by minimizing hazardous exposure through sustainable electronic system design.

Presenter:
Khushi Mukeshsingh Bhadouriya
Vishwakarma Government Engineering College, India

Population Changes and Primary Healthcare Delivery in Ebonyi State, Nigeria

Agatha Arochukwu[1], Felix Ike[2], Adelowo Adefisayo Adewoyin[3] and **Adebayo Oluwole Eludoyin[4]**

[1]National Population Commission, Nigeria
[2]Department of Geography and Planning, Abia State University, Nigeria
[3]Institute of Ecology & Environmental Studies, Obafemi Awolowo University, Nigeria
[4]Department of Geography, Obafemi Awolowo University, Nigeria

Background: This study investigated the impact of population dynamics on primary healthcare (PHC) delivery in Ebonyi State, Nigeria, with a focus on gender disparities, spatial distribution, and healthcare accessibility. The study employed Geographic Information System (GIS) based spatial analysis to assess travel time and distance to PHC's.

Methodology: A GIS-based Network Analyst tool and Tobler's hiking function were applied to analyse accessibility to PHC under driving and walking scenarios. Primary data were collected from 170 PHC's using the National Primary Health Care Development Agency's checklist. Spatial data, including road networks and demographic statistics were obtained from the Ebonyi State Primary Health Care Development Agency and the National Population Commission.

Results: The population distribution across Ebonyi's 13 Local Government Areas (LGAs) varied significantly. The most populated LGAs were Izzi, Onicha, Ikwo, and Ohaukwu; each with approximately 300,000 people, while Ivo LGA contributed only 4.6%. Gender distribution was relatively balanced (51% female, 49% male). Although 81.1% of the population can access a PHC within a 60-min drive (≤ 30 km), 37.9% of villages required over 60-min of walking, indicating underserved areas. The minimum standard checklist for 170 Primary Health Centres (PHCs) reveals that 90% of these centres are inadequately equipped with essential health facilities and personnel. As of 2022, only one PHC in Ebonyi State served a population exceeding 10,000, highlighting significant deficiencies in service coverage.

Conclusion: The study highlights spatial and demographic disparities in PHC accessibility, resource distribution, and service readiness across Ebonyi

State, Nigeria. While most residents were within a 60-min drive of a PHC, rural areas faced significant access challenges due to poor infrastructure. The shortage of medical personnel and inadequate equipment further exacerbates healthcare inefficiencies. Addressing these gaps requires targeted resource allocation, PHC expansion, and infrastructural development to achieve Universal Health Coverage (UHC) and ensure equitable healthcare access across the state.

Presenter:
Agatha Arochukwu
National Population Commission Nigeria

Neuro-Metabolic Synchrony in Preventive Medicine: A Brain-Body Systems Framework for Early Detection and Reversal of Cardiometabolic Risk

Simona Carniciu

Carol Davila University of Medicine and Pharmacy, Romania
Soumanar Functional Medicine Institute, Romania

Background: Chronic cardiometabolic diseases, including obesity, insulin resistance, and type 2 diabetes, evolve progressively over years before clinical diagnosis. Emerging research suggests that early dysregulation of neuro-metabolic circuits—linking stress response, executive control, autonomic balance, and metabolic regulation—plays a central role in disease onset. However, current preventive medicine models remain predominantly biomarker-centric and insufficiently integrated with neurobehavioral physiology and digital health monitoring.

Objective: To introduce and clinically contextualize the concept of Neuro-Metabolic Synchrony (NMS) as an integrative preventive framework that combines brain-body diagnostics, digital biomarkers and personalized interventions to detect and reverse early cardiometabolic dysfunction.

Methods / Conceptual Model: Within an integrative preventive clinical framework developed at the SOUMANAR Functional Medicine Institute, we apply a systems-level assessment model that combines functional neurophysiological evaluation, autonomic regulation metrics (including HRV and stress-resilience indices), advanced metabolic phenotyping (body composition, indirect calorimetry, glycemic variability), and longitudinal digital biomarkers reflecting sleep, behavioral patterns, and stress load. These data streams are interpreted through a precision medicine lens to guide personalized, multimodal interventions focused on lifestyle recalibration, metabolic optimization, and targeted neuromodulatory support such as photobiomodulation. This clinically grounded approach enables early detection of subtle dysregulation within the executive–limbic–metabolic axis, facilitating the identification of neuro-metabolic desynchronization that precedes overt clinical deterioration in appetite control, energy balance, and insulin sensitivity, and allowing timely, individualized preventive interventions aimed at functional restoration rather than late-stage disease management.

Clinical and Preventive Implications: Preliminary clinical observations indicate that restoring neuro-metabolic synchrony is associated with improvements in autonomic resilience, metabolic flexibility, behavioral adherence, and early cardiometabolic risk markers—often preceding significant changes in traditional endpoints such as HbA1c or weight. This model supports a shift from reactive disease management to proactive, precision prevention and early functional reversal.

Conclusion: Neuro-Metabolic Synchrony represents a next-generation preventive medicine paradigm that integrates neuroscience, digital health, and metabolic medicine into a unified clinical framework. By addressing brain-body regulatory networks before irreversible pathology develops, this approach has the potential to enhance personalized prevention strategies, reduce chronic disease burden, and contribute to the transformation of preventive healthcare systems.

Presenter:
Simona Carniciu
Carol Davila University of Medicine and Pharmacy, Romania
Soumanar Functional Medicine Institute, Romania

Handi-Capabilities Research & Development!
(Building a new paradigm…)

International Congress SANITUS - 21 - nov - 2026
UNIVERSIDADE CATÓLICA PORTUGESA
(Centro Regional do Porto)

Project initiated by the SANITUS Foundation in 2022, presented internationally at **UNESCO House on September 9, 2024**, at the *"Handi-Capabilities, Sport & Travail"* conference, after the Paralympic Games, two opportune moments to revisit the model of disability integration. **We propose once again...**

EU-R-EKO

Ahead of Disability Awareness Day (December 3rd), a new vision of valuing abilities beyond disability...! To engage society in a new paradigm...

The **inclusive VITABalance-Med Project** is a new visual proposal for schools, workplaces and elderly, based in a **poster, pyramid manual, book-game, family game and much more!**

VITABalance-Med-inclusive (iVBM)

Fundação Sanitus

Preliminary program

<u>Round tables :</u>
"The VitaBalance-Med Project - new development and research"
"Work and Handi-Capabilities: New Ideas, New Challenges"

<u>Master Conferences :</u>
"Handi-Capabilities: What formula to calculate it?"
"VBM and Handi-Capabilities: a new global international model?"

SPECIAL MOMENTS with iVBM Family Game, Educational App, Kapidanse, The Book-Game and The PROTOCOL.

INTERNATIONAL COLABORATIVE PROJECT

INSCREVA-SE!

SPECIAL INVITED : Sílvia São Miguel, Hugo Vilela & Alessandra Pentone

Fundação Sanitus

Les Amis du Plateau

Edições Esgotadas

PANATHLON INTERNATIONAL «LUDIS IUNGIT» DISTRICT FRANCE

ULS BARCELOS ESPOSENDE

PEERS ALLEY MEDIA
A confluence of Erudite and Knowledge-Seeker

Universidade Técnica de Manabí

WMA Cooperating Centre

Ville de Créteil

SPARTED
PLAY HARD. LEARN EASY.

SIPPReReCA

Heart Friends Around The World
INDIAN AFFILIATED CHAPTER

PARTNERSHIP
OPPORTUNITIES
WITH JOURNALS AND
PUBLISHING HOUSES

Peers Alley Media is actively seeking meaningful collaborations with **publishing houses** and **individual journal owners** to support and strengthen the global scientific community. We are particularly interested in forming **partnerships** or exploring **acquisition opportunities** with journals that align with our mission to advance high-quality scientific research and promote open knowledge sharing.

Our approach is flexible and adaptable to suit your preferred terms and comfort. With a dedicated and experienced team, we are well-equipped to support and enhance journal operations through professional and collaborative engagement.

If you are open to discussing potential synergies, we would be delighted to connect at your convenience.

For further communication, please contact us at:

contact@peersalley.com

BOOKMARK YOUR DATES

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

INDEX

INDEX

Note:

✕✕ **math**biology

YOUR BODY SPEAKS,
WE KNOW HOW TO LISTEN.

Math Biology is an AI-driven medical device company developing a non-invasive metabolic intelligence platform for early detection, prevention, and personalized health management. Initially focused on cardiometabolic disease, the company plans expansion into oncology and other chronic conditions.

- 100% Non-Invasive
- Truly Personalized Healthcare
- One Visit, Full Insight
- Reduce Healthcare Costs
- Complements Existing Diagnostics
- Detects Early, Before Symptoms
- Portable & Offline-Ready

Its core technology, **DMA®** (**Deep Metabolic Assessment**), is a zero-invasive device that **captures bioelectrical signals generated by biochemical reactions** and translates them into **multi-level metabolic indicators** through mathematical modeling and explainable AI.

These insights enable organ- and system-level analysis across cardiometabolic, oncological, neurodegenerative, inflammatory, and chronic diseases, supporting functional and personalized medicine.

Through its network of **Human Biology Institutes** (HBI), **clinical-grade data laboratories** developed with research hospitals, **Math Biology accelerates validation, regulatory development, and AI model refinement**, advancing the creation of a **Digital Twin of Human Metabolism** for next-generation systems medicine.

Raffaele Maccioni
CEO, Co- Founder, R&D Executive
raffaele.maccioni@mathbiology.tech
+39 335 499619

www.mathbiology.ai