



PHAM 2025
ROTTERDAM

URGENCY AND AGENCY FOR SYSTEMS CHANGE

ABSTRACT BOOK

Topic : Climate Change and Health

Abstract code : PO001

Abstract title:

Understanding the Potential Role of Climate Emotions as a Driver of Climate Action in LMIC: A Scoping Review

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AbstractBackground:

Climate change significantly impacts mental health, particularly among youth in low- and middle-income countries (LMICs), where socio-economic vulnerabilities exacerbate climate emotions like anxiety, fear, and anger. These emotions influence pro-environmental behaviors (PEBs) and climate action. Despite growing global recognition of climate emotions, there is limited research exploring their role in motivating climate action among LMIC youth.

Methods:

This scoping review synthesized literature on climate emotions and action among youth in LMICs. Peer-reviewed papers and reports published between 2018 and 2024 were retrieved through systematic searches in PubMed and Google Scholar. Screening involved title, abstract, and full-text reviews, leading to the inclusion of 14 studies.

Findings:

Climate emotions act as dual-edged drivers: they inspire advocacy and local initiatives when paired with hope and efficacy but may lead to eco-paralysis without coping mechanisms. Socio-economic inequalities, including income disparities and limited access to education, shape emotional responses and capacity for action. Urban youth are more likely to engage in activism than rural counterparts due to greater access to resources. Education, collective action, and mental health support emerged as critical enablers for youth empowerment.

Interpretation:

Addressing socio-economic disparities and integrating emotional resilience training with culturally relevant education can transform climate emotions into action. Empowering youth in LMICs as agents of change is vital for achieving effective climate adaptation and mitigation.

Topic : Health System Greening and Strengthening

Abstract code : PP001

Abstract title:

The Need for Prescriber and Pharmaceutical Awareness of the Environmental Impacts of Plastic Accumulation Secondary to Injectable GLP1 Use for Obesity Management

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Project Concept:

The purpose of this project is to quantify and evaluate the environmental impact of plastic waste accumulation secondary to injectable GLP1 agonist treatments for weight loss, specifically in the United States.

Target Audience:

Physicians and other medical practitioners who prescribe injectable GLP1 agonists.

Secondary Target Audiences:

Industries related to production of injectable GLP1 agonists.

Plastic recycling initiatives.

Goals:

The pen-syringe delivery system is convenient and easy, making it preferred by many patients as a medical adjunct to weight loss. However, the widespread use of these devices results in a significant accumulation of plastics in the environment. Most of these pen-syringes will reside in landfills for years. This endeavor estimates the environmental burden of these devices.

Results:

Calculations were based on information available in published medical, financial and market sources. Initial calculations quantified the number of prescriptions and the amount of plastics generated by these prescriptions. Subsequent calculations estimated that in the US in 2023, the plastics from pen-syringes used for GLP-1 injections for weight loss equaled (or exceeded) the amount of carbon emissions generated by 6,248 passenger cars in one year. As prescribers of these medications, it is critical for us to be knowledgeable of these ramifications. We must prescribe with awareness, educate patients about negative ecological and health concerns and ways to minimize these impacts, and encourage drug manufacturers to pursue the next generation of medications and delivery systems with these concerns in mind.

Topic : Infectious Diseases and Environmental Change

Abstract code : PO003

Abstract title:

CLIMAR - Climate Change Impacts on AMR Using a Planetary Health Framework

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Project/Initiative/Concept:

[CLIMAR](#) – Climate Change Impacts on Antimicrobial Resistance Using a Planetary Health Framework – is funded by a UK Biotechnology and Biological Sciences Research Council (BBSRC) programme to create transdisciplinary networks to address Antimicrobial Resistance (AMR). The core leadership team – Professor Will Gaze (University of Exeter), Dr Jennifer Cole (Royal Holloway University of London), Professor Rebecca King (Leeds University), Dr Paul Kadetz (Queen Margaret University, Edinburgh), Professor Lea Berrang Ford (UK Health Security Agency/Leeds), and Network Manager Emma Lamb (Exeter) coordinate a wider network of more than 200 researchers and practitioners across 24 countries.

Target Audience:

All researchers and practitioners working at the intersection of climate change and health. We are especially keen to recruit more climate change experts and environmental scientists to the Network who may not previously have worked on AMR.

Goals:

CLIMAR applies Planetary Health frameworks – including the Planetary Boundaries and Educational Pillars – to the wicked challenge of AMR. By mapping the current state of knowledge and the existing research landscape, we will identify gaps that will be addressed in Phase II of the project. We are thus developing a methodology for mapping and addressing the interlinked challenges of AMR and climate change that will be applicable to other complex Planetary Health challenges, particularly those so large they are difficult to address within a single project.

Results:

CLIMAR was launched in August 2024. This presentation will report on the Network's first year of operation, achievements, and results so far.

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Topic : Climate Change and Health

Abstract code : PP004

Abstract title:

Developing a Climate-Health Education Program for Nursing: Bridging Theory and Practice

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Project Concept and Details Climate change poses increasing risks to public health, yet continuing education for healthcare professionals lacks structured content to address climate-related health challenges. To bridge this gap, a **20 ECTS climate-health curriculum** was developed for healthcare professionals, integrating theoretical knowledge with practical applications in clinical and organizational settings.

Developed through participatory workshops with public health, climate science, and healthcare experts, the curriculum consists of three modules:

Climate Change in Healthcare (10 ECTS):Health impacts, risk mitigation, and supporting vulnerable populations.

Sustainable Healthcare and Adaptation (5 ECTS):Climate-friendly healthcare practices and organizational adaptation strategies.

Healthcare Leadership in Climate Action (5 ECTS):The role of healthcare professionals in policy, advocacy, and system-wide sustainability planning.

The program incorporates **case-based learning, development plans, and scenario-based exercises** to ensure practical applicability.

Target Audience This curriculum is designed for **practicing healthcare professionals** who require climate-health competencies to implement sustainability in healthcare organizations.

Goals and Expected Outcomes The initiative aims to enhance **climate-health literacy** and equip healthcare professionals with tools for sustainable and adaptive practices. Expected outcomes include:

Increased awareness of climate-related health risks.

Improved ability to integrate sustainable practices into healthcare organizations.

Strengthened leadership and collaboration in climate-health initiatives.

Implementation and Evaluation The curriculum is in development, with **pilot implementation starting in March 2025**. Initial evaluations will assess participant engagement, knowledge application, and confidence in leading climate-health initiatives.

Conclusion Integrating climate-health education into nursing education is critical for **enhancing healthcare resilience and sustainability** in response to climate challenges.

Topic : Climate Change and Health

Abstract code : PO006

Abstract title:

Health and Climate in Costa Rica: Results from the Application of the T-CHANT Tool.

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Background: The current global situation necessitates preparedness for the public health emergencies arising from climate change. Understanding the knowledge, attitudes, and behaviors of healthcare professionals regarding climate change is a crucial first step. This study was conducted with the objective of identifying attitudes and behaviors toward planetary health and climate change among healthcare professionals.

Methods: A cross-sectional observational study was conducted during the first semester of 2024. The T-CHANT questionnaire was administered to a snowball sample of 274 healthcare professionals in Costa Rica. The study assessed awareness, motivation, concern, and behaviors at home and in the workplace. Data was analyzed using R and Jamovi with descriptive and analytical measures.

Findings: The sample mainly consisted of women with a bachelor's degree in fields such as nursing, medicine, and dentistry, predominantly from the central region of the country. Low awareness was identified regarding the healthcare sector's responsibility for climate change, although general concern was high regarding planetary changes, impacts on future generations, and health effects. Participants showed strong motivation to prepare for health impacts, reduce the carbon footprint of healthcare, and educate patients. Regarding behaviors, improvements are needed in sustainable food choices and the use of non-fossil energy sources at home. In the workplace, areas for improvement include transportation, waste reduction, and leadership promotion.

Interpretation: While most professionals exhibited positive environmental attitudes, these did not fully translate into corresponding behaviors. This highlights the need to enhance professional training to foster sustainability and resilience in the healthcare sector.

Topic : Health System Greening and Strengthening

Abstract code : PP006

Abstract title:

Sustainability on the Menu: Assessing the Role of Hospital Cafeteria Composting in Advancing Planetary Health Initiatives

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Background:

U.S. hospitals generate significant food waste, creating environmental and economic challenges. A 2020 EPA report estimated annual hospital food waste at 288,410 tons, likely an underestimate given broader U.S. food waste estimates of 73–152 million metric tons per year. This waste contributes to climate change via methane emissions, a greenhouse gas 28 times more potent than CO₂. One study found composting could reduce a hospital's landfill waste by over 50% and cut greenhouse gas emissions by 64%.

Methods:

This cross-sectional study assessed a composting program at Rhode Island Hospital (RIH) over three months starting November 2024. Compost bins were placed in the cafeteria with instructional signage, and surveys were distributed to staff, patients, and administrators to assess roles, knowledge, and attitudes. Collected waste was sent to Bootstraps Compost, which provided daily weight reports. Data analysis included carbon emissions reductions, cost comparisons, and projected annual benefits. Attitudinal analysis employed thematic coding and Likert scale assessments.

Findings:

Preliminary survey results (n=35) showed most respondents (n=29, 83%) were healthcare workers, with 66% unfamiliar with hospital food waste but 80% supporting composting. During the first month, 249 pounds of compost were collected, reducing emissions equivalent to a vehicle traveling 247 miles.

Interpretation:

This study integrates waste metrics with participant insights to evaluate hospital composting's feasibility, cost-effectiveness, and scalability, contributing to broader sustainability and planetary health efforts.

Topic : Food Systems and Nutrition

Abstract code : PO007

Abstract title:

Adherence to the Planetary Health Diet decreased the risk of mortality: a prospective cohort

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Background The EAT–*Lancet* Commission proposed the Planetary Health Diet to promote human and environmental health; however, little is known about how adherence to this diet (measured by the Planetary Health Diet Index) affects all-cause mortality and the mediating role of multimorbidity in this association.

Methods This study included 131,130 adults aged 40–69 years from the US National Health and Nutrition Examination Survey (NHANES) and the UK Biobank. The Planetary Health Diet Index was calculated using at least two 24-h dietary assessments. Mortality data for the NHANES and the UK Biobank were documented until December 31, 2019 and December 31, 2022, respectively. Cox proportional hazards models were used to estimate hazard ratios (HRs) and 95% confidence intervals (CIs) for the association of quartiles of the Planetary Health Diet Index with mortality. Mediation analysis was then conducted to explore the mediating role of multimorbidity in this relationship.

Findings During 127 months of follow-up, participants in higher adherence groups (Quartile 2: HR = 0.89, 95% CI = 0.83–0.96; Quartile 3: 0.89, 0.83–0.95; Quartile 4: 0.72, 0.54–0.95) had a lower risk of mortality, compared to the lowest adherence group (Quartile 1). The relationship between the Planetary Health Diet Index and mortality risk was nonlinear ($p = 0.0002$) and multimorbidity mediated 2.35% of this association.

Interpretation Our findings highlight that high compliance with the Planetary Health Diet reduces mortality risk and multimorbidity plays a mediating role in this relationship.

Topic : Climate Change and Health

Abstract code : PP150

Abstract title:

Flooding Risks on All-Cause Mortality in Europe: A Population-Based Study

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Background

Floods are natural disasters that can result in serious economic and health consequences. There is a need to understand associations between all-cause mortality and flood events in Europe. Furthermore, we assess whether air temperatures are an important effect modifier in the relationship between mortality and floods.

Methods

We conducted a population-based study using EUROSTAT data for monthly region-specific all-cause deaths amongst all ages in European nations (n=28) from January 1996 to December 2020. Historical analysis of Natural Hazards (HANZE) provided the number of monthly floods and ERA5 provided the maximum air temperature. Covariate data of body-mass index (≥ 30 kg/m²) and diabetes were obtained from NCD Risk Factor Collaboration (NCD-RisC) and economic measures were obtained from World Bank. Adjusted associations between mortality and number of floods was conducted using negative binomial regression, and model estimated parameters were interpreted as a rate ratio (RR).

Findings

A total of 127,644,046 deaths were included from 1996-2020, with an average monthly mortality rate of 8.7 per 10,000 persons in Europe. Associations between all-cause mortality and number of floods were found to be significant. Air temperature had a significant interaction term ($P < 0.001$) with floods. Each flood event was significantly associated with mortality (adjusted RR 1.55, 95% confidence interval: 1.46–1.66), with the impact on mortality largest during cold temperature (average $< 13^{\circ}\text{C}$) months (aRR 1.64, 95% CI 1.47–1.83).

Interpretation

Flooding, especially during colder months, is a risk factor for all-cause mortality across Europe. These findings have important implications for policy as climate change increases flooding events.

Topic : Health System Greening and Strengthening

Abstract code : PP012

Abstract title:

The interplay of factors influencing the carbon footprint of hospital care – a causal mapping analysis of scientific reports

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Background

Climate change threatens human well-being and planetary health, necessitating sector-wide transitions. Recent research has highlighted the carbon footprint of hospital care by identifying hotspots and mitigation areas, but key factors influencing these outcomes remain underexplored.

Methods

This study used causal mapping of textual data to systematically evaluate scientific reports on the carbon footprint of hospital services and care pathways. The sample was drawn from a State-of-the-science literature review, focusing on quantitative reports on hospital services' carbon footprint. Text fragments discussing factors influencing the carbon footprint were recorded, and variables and relationships were identified and visually mapped through iterative open, axial, and selective coding.

Findings

Twelve main factors influence four major domains of the carbon footprint of hospital services and care pathways. These factors are related to the volume of travel, facilities and equipment, consumables, waste disposal, and pharmaceuticals, and their carbon intensity. Over eighty subfactors were identified, including ten cross-cutting factors that affect multiple domains of the hospital care footprint.

Interpretation

The carbon footprint of hospital care is a multifaceted and complex issue driven by multiple factors. Insight into these factors can inform targeted actions to reduce emissions. This study also improves the understanding of the causes of variability in carbon footprint outcomes of hospital care, which is important for the interpretation and transferability of results and conclusions in this rapidly growing field of research.

Topic : Health System Greening and Strengthening

Abstract code : LT002

Abstract title:

Environmental Impact of Minimally Invasive Procedures in Gynecology: Life Cycle Assessment of Two Care Pathways

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Background

If the healthcare sector were a country, it would rank as the fifth-largest environmental polluter globally. Within this sector, minimally invasive procedures are particularly resource- and energy-intensive, highlighting the importance of assessing their environmental impact alongside their clinical benefits. This study conducted at a Dutch tertiary hospital quantified the environmental impacts of two minimally invasive, clinically equivalent treatments for uterine fibroids: uterine artery embolization (non-surgical) and total laparoscopic hysterectomy (surgical).

Methods

Utilizing life cycle assessment, the study evaluated the care pathway from initial outpatient appointments to follow-up care, incorporating data from 40 waste audits and considering various factors, including material production and manufacturing, energy use, waste disposal, and travel.

Findings

The embolization procedure generated a median of 3.9 kg waste and 39 kg CO₂-equivalents (CO₂-eq) compared to 7.9 kg waste and 120 kg CO₂-eq for the hysterectomy procedure. When accounting for both hospitalization and outpatient visits, waste and environmental impact amounted to 9 kg and 6 kg, along with 214 kg CO₂-eq and 186 kg CO₂-eq for the embolization and hysterectomy pathways, respectively. Key environmental hotspots included energy consumption of heating, ventilation, and air conditioning, single-use medical items, and travel by both staff and patients.

Interpretation

This study reveals a comparable overall environmental footprint of two minimally invasive treatments in gynecology and identifies critical areas for mitigation strategies within each care pathway. These findings underscore the significance of comprehensive environmental impact assessments and offer valuable insights for healthcare systems that increasingly aim to balance clinical effectiveness with environmental sustainability.

Topic : Climate Change and Health

Abstract code : PP016

Abstract title:

Adoption of Anticipatory Action for Weather Emergencies in the Caribbean: Barriers and Facilitators

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Background: The Caribbean region is highly vulnerable to weather emergencies due to its geographical and climate variability, which poses significant threats to its communities, economies, and ecosystems. Despite the increasing frequency and intensity of such weather-related disasters due to climate change, the adoption of anticipatory action remains inconsistent across the region.

Methods: This qualitative study aimed to identify the factors that either facilitate or hinder the implementation of these strategies in the Caribbean Small Island Developing States (SIDS). Using a purposive sampling strategy, 16 participants (representing 8 Caribbean SIDS and one regional coordinating entity, these individuals held leadership positions in government, non-governmental organizations, and academia in disaster risk reduction, disaster management and response, built environment, and meteorology, participated in semi-structured interviews between October and September 2024.

Findings: The key factors promoting the adoption of anticipatory action included: (1) multi-sectoral coordination and partnerships; (2) pre-disaster communication and notification systems, training, drills, and exercises; (3) pre-disaster planning for shelter management systems, and (4) individuals' perceptions of risks and vulnerabilities to climate-related disasters. The barriers included (1) lack of resources, staffing, and equipment; (2) lack of internal capacity; and (3) lack of governance and financial support.

Conclusions: Further considerations to facilitate the uptake of anticipatory action, comprised establishing mechanisms to maintain consistency in resources, staffing, and equipment, enhance internal capacities for pre-positioning of commodities, and strengthening enforcement on built environment regulation.

Topic : Urban Health and Sustainability

Abstract code : PO015

Abstract title:

Urban Health and Sustainability Strategy for Limburg Centraal

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In November 2024, it was agreed that the national and regional governments would develop an integrated urbanization strategy for Limburg Central. The goal of this urbanization strategy is to establish an adaptive development strategy for urbanization in the six cities of Limburg, supported by all parties involved. The strategy clarifies the main challenges and the choices needed for balanced, sustainable urbanization. The first step was to create a fact base, in which figures on the current situation and autonomous developments were examined. One of the biggest challenges that emerged for all of Limburg was health. This prompted us, in the second step of the urbanization strategy, to pay more attention to vulnerable neighborhoods, where various health aspects are (far) below the national average. That is why we are currently developing a health indicator for the Urbanization Dashboard (UD) to integrate into the project. The UD is a calculation tool to investigate the added value of an urbanization perspective on socioeconomical developments. By exploring different urbanization perspectives using the UD, lessons can be learned about which urbanization strategy contributes to creating healthier, more pleasant, and more sustainable living environments. We are currently working on the urbanization perspectives and calculations in the UD. During PHAM, we want to present the first lessons. Our project is interesting for anyone who wants to delve into how regional development strategies can contribute to improving the health of the regional population. This development strategy is particularly relevant for municipal or national government officials and health institutions.

Topic : Planetary Health Education or Curriculum

Abstract code : LT003

Abstract title:

Seeds of Change: A Longitudinal Evaluation of the Planetary Health Report Card's Impact on Institutional Action

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Background

The Planetary Health Report Card (PHRC) is an institutional advocacy tool designed to encourage medical schools to integrate planetary health into their curricula, research, and operations. The primary objective of this study is to assess the three-year impact of the PHRC on promoting institutional changes at the Faculty of Medicine, University of Ottawa. The secondary objective is to identify facilitators and barriers to planetary health work.

Methods

A retrospective design was used to collect quantitative data from the PHRC's published in 2022, 2023, and 2024. We examined outcomes in five domains: *Curriculum*, *Interdisciplinary Research*, *Community Research and Advocacy*, *Support for Student-Led Initiatives*, and *Campus Sustainability*.

Findings

Over three years, there was a 13.9% increase in overall PHRC score. In the *Curriculum* domain, there has been a sustained effort to implement a longitudinal planetary health program. Progress in *Interdisciplinary Research* has occurred by establishing the Planetary Health Research Lab. *Community Outreach and Advocacy* has improved through new community partnerships. *Support for Student-Led Initiatives* has declined due to lack of student engagement. The *Campus Sustainability* domain has remained consistent.

Interpretation

By comparing three years of PHRC implementation and institutional changes, areas of progress and opportunities for further development were identified. Increased student-faculty collaboration through the Planetary Health Director role has facilitated institutional improvements, while a lack of faculty awareness of planetary health is a barrier. This analysis highlights the effectiveness of the PHRC in driving change and informs future efforts to enhance institutional engagement with planetary health.

Topic : Policy and Advocacy in Planetary Health

Abstract code : PP020

Abstract title:

Democratizing Plastic Governance through Effective Engagement of Grassroots Communities

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Grassroots communities and vulnerable populations remain the most impacted by the adverse effects of plastic pollution. In 2021, Community Action Against Plastic Waste (CAPWs) launched **#RestorationX10000** to empower **10,000** youths and women by 2025 equipping them with leadership and technical skills to lead systemic change toward effective policy shift and community projects focused on collecting, sorting, processing, repairing, repurposing, reusing, and recycling plastic waste.

The initiative aims to create decent green jobs and foster a healthy environment free from plastic pollution in disadvantaged communities. Through research and data-backed transdisciplinary approaches, the initiative is dedicated to a toxic-free circular plastic economy and environmentally sound management of chemicals and waste by advocating for solution-oriented public policies and innovative practices for just, inclusive, and sustainable development. It has built capacity for various stakeholders, including governments, civil society, and informal waste pickers. By strengthening these capacities, it addresses the impacts of our threatened natural systems on human health and all planetary life.

The effort has seen significant progress in community engagement and environmental sustainability reaching over **3,000** individuals and organization members, including young scientists, community organizers, informal waste sector, community and market associations, youth and women groups, educational institutions, and public interest groups in **71** impacted communities across **21** countries in Africa, Asia-Pacific, and Latin America. The project promotes sustainable practices and empowers communities to take charge of their environmental health with an aspiration to have a lasting impact on the lives of thousands, creating a ripple effect of positive change across the globe.

Topic : Urban Health and Sustainability

Abstract code : PO017

Abstract title:

Situated Knowledge of Planetary Health on WASH Insecurities: Community-Lived Experiences in Jakarta's Urban Kampung

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WASH (Water, Sanitation, and Hygiene) insecurities in Jakarta's urban kampung are deeply rooted in socio-environmental dynamics, particularly in the historical developments during the colonial and post-colonial periods, land subsidence, and are exacerbated by anthropogenic climate change, including urban policies that influence community behaviour. Communities face chronic water shortages, inadequate sanitation, public health risks, and persistent pollution of both soil and rivers. This study explores situated knowledge—the lived experiences and collective actions of kampung residents—through a planetary health approach, highlighting the interconnections between human well-being, environmental sustainability, and governance. Findings reveal that residents employ local coping strategies, including awareness, local capacity and knowledge, and community engagement initiatives for access to clean water and sanitation facilities. These efforts not only reflect survival mechanisms but also embody community-driven environmental governance that sustains daily life amid systemic WASH insecurities. However, as climate change, pollution, and urbanisation intensify, these grassroots strategies face increasing pressures, underscoring the urgent need to integrate community knowledge into policy frameworks. Recognising and harnessing situated knowledge through a planetary health approach constitutes one of the key coping strategies for urban kampung communities facing WASH challenges.

Keywords: Situated Knowledge, Coping Strategies, Planetary Health, WASH Insecurities, Kampung, Jakarta, Indonesia

Topic : Policy and Advocacy in Planetary Health

Abstract code : PO139

Abstract title:

Towards a Planetary Health Impact Assessment Framework: Exploring Expert Knowledge and Artificial Intelligence for a RF-EMF Exposure Case-Study

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BACKGROUND: The complexity of planetary systems and the realization that indirect ecosystem disruptions impact human health have led to the emerging field of planetary health. Planetary health can be integrated into policy through the Planetary Health Impact Assessment (PHIA), which will link human-driven environmental changes directly, and indirectly through potential ecosystem disruptions, to human health. A visual representation of these pathways aids communication and research prioritization. This study explores an approach for developing an initial PHIA framework using a knowledge graph (KG), with RF-EMF exposure as a case study.

METHODS: A KG was developed through workshops with 13 experts from various fields, who discussed and visualized hypotheses on RF-EMF exposure's direct effects on organisms and indirect effects on human health via ecological consequences. Additionally, two AI tools—one employing Natural Language Processing (NLP) and Deep Learning for literature extraction and OpenAI's ChatGPT—were tested to extract similar information and generate KGs.

FINDINGS: Experts identified pathways linking RF-EMF exposure to human health impacts both directly and indirectly. AI tools processed vast literature efficiently, generating separate KGs for direct and indirect effects due to limited integrated studies.

INTERPRETATION: The expert-based KG is a consensus-driven and adaptable approach to summarize and visualise multidisciplinary knowledge and guide future research. In this context, AI tools can be valuable as exploratory tools, since while they enhance the efficiency of literature processing, their current limitations prevent them from operating independently. While this study highlights the potential of experts-based KG, it is clearly just the first step towards PHIA framework.

Topic : Planetary Health Education or Curriculum

Abstract code : PP021

Abstract title:

Empowering Agency for Planetary Health: Ecosocially Restorative and Regenerative Learning

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Concept: Today's learners face systems burdened by complex patterns of multi-sector change. As planetary crises escalate, institutions across the world will need fully engaged people with regenerative capacity. This educational initiative challenges current pedagogical norms and supports the development of regenerative learning systems. Regenerative learning systems are designed to build capacity for adaptation, innovation, and agency for collective transformative action. It is critical for transdisciplinary learners to be immersed in active ways of knowing that restore their relationship with Earth systems.

Target Audience: Learners of all ages

Goals: This project describes five methods of the *Ecosocial Partnership Framework*: 1. Awareness through holistic practices; 2. Embodied knowing as methods for learning; 3. Connection in strategies that deepen social cohesion between systems; 4. Awe through activities that elicit joy and sensed emotion, and 5. Collaborative approaches that empower. The authors provide examples for applying these methods, including outdoor learning opportunities, immersive experiences, and holistic practices that deepen a sense of awareness and agency for systems change.

Results: The *Ecosocial Partnership Framework* offers five translatable methods that facilitators, educators, and leaders can apply in their work with teams to impact participants' collaborative capacity and promote adaptation and innovation.

Topic : Arts, Narrative, and other Community Engagement in Planetary Health

Abstract code : PO019

Abstract title:

Impact of Forest Bathing on Undergraduate Student Affect

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Forest bathing, a Japanese practice, involves immersing oneself in nature to experience its healing benefits. Research indicates that spending time in natural environments can reduce stress, enhance cognitive function, improve mood, and strengthen immune systems. Moreover, forest bathing encourages mindfulness and a greater awareness of ecological systems, which may help foster sustainable behaviors and a heightened sense of environmental stewardship. Grinnell College Student Health and Wellness provides weekly forest bathing opportunities for students. Grinnell College is a highly ranked private, liberal arts, residential campus in a town of 10,000 people in the state of Iowa in the United States of America. At each session, students complete a preassessment about how they have been feeling that day. Grinnell's forest bathing experience provides transportation from our small campus to a nearby park where students can be surrounded by a more natural setting. They are provided information about forest bathing and then safety and practice instructions. Students are directed to find a secluded space where they will spend 15-25 minutes. They then complete a post assessment after the intervention about how they are "feeling now". Among participants who haven't already indicated in the preassessment that they are feeling as positive as the assessment records, 100% improve to the most positive affect. Our data suggests that forest bathing fosters positive feelings within its participants. This session will explain the program we have implemented, the place in which we implement it, and the results we have experienced as a result.

Topic : Planetary Health Education or Curriculum

Abstract code : PO021

Abstract title:

HebPlanet: Co-Creative Development of a Planetary Health Curriculum in midwifery education to strengthen planetary health literacy

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Initiative: By working in sensitive phases of life, midwives can act as change agents for planetary health and contribute to mitigation and health promotion among young families. To equip midwives with the necessary competencies for transformative action, e.g. climate-sensitive health counselling, their planetary health literacy (PHL) needs to be emphasised in their training.

Target audience: Midwives, midwifery students, researchers and educators in midwifery.

Goals: 'HebPlanet' aims to integrate planetary health education and literacy into midwifery curricula. The co-creative process of 'HebPlanet' is based on a needs-analysis and a co-design workshop. In the needs-analysis, the perspectives of midwifery students, teachers and practicing midwives are examined using a mixed-methods approach to find links to existing teaching content and identify innovative formats for planetary health education (PHE). The new curriculum of the midwifery study programme at Johannes Gutenberg-University Mainz, Germany, will then be developed in a participatory co-design workshop with students, practicing midwives and faculty staff in May 2025 to implement PHE.

Results: Preliminary results of a screening of 56 module handbooks of midwifery-specific curricula in Germany show that PHL has not yet arrived in midwifery education in Germany. Only six degree programmes offer topic-related courses. As these courses are led by people who are involved in PHE it indicates that, at present, PHE in midwifery curricula is characterised by individual efforts rather than by existing structural conditions. At PHAM we will present findings of the needs-analysis and reflect the potential and the frictions of the co-creative methodology in transformative midwifery curriculum development.

Topic : Policy and Advocacy in Planetary Health

Abstract code : PO022

Abstract title:

Health Literacy for All – A Shared Vision for Planetary and One Health Literacy

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Background & Concept: In the face of a global polycrises – where environmental degradation, geopolitical instability, and digital misinformation converge – there is an urgent need for a shared vision of health literacy that integrates human, animal, and environmental health. Planetary and One Health Literacy (POHL) addresses this by promoting knowledge and competencies that support health-promoting and ecologically sustainable behaviors, such as healthy diets, sustainable living environments, and climate-smart health policies.

Target Audience: This initiative combines expertise of the new division on POHL of the International Health Literacy Association and is relevant to health professionals, educators, policymakers, researchers, and the general public, fostering interdisciplinary collaboration across healthcare, education, governance, and civil society.

Goals & Action Priorities include: (1) Educational Implementation: Embedding POHL at all levels of education—from early childhood to professional training—to build capacity for sustainable health decision-making; (2) Research & Policy Integration: Developing scientific indicators to assess POHL's impact on health, sustainability, and equity, ensuring its inclusion in global health monitoring frameworks like the Lancet Countdown on Climate Change & Health; and (3) Systemic Integration: Aligning POHL with governance structures and policies to support a "Health in All Policies" approach, ensuring institutional commitment to sustainability and health promotion.

Results & Future Steps: By advancing POHL, we can empower individuals and institutions to navigate complex health challenges, contribute to climate resilience, and foster a healthier planet for future generations. Governments, academia, and industry must collaborate to scale this vision, ensuring POHL becomes a cornerstone of global health and sustainability efforts.

Topic : Arts, Narrative, and other Community Engagement in Planetary Health

Abstract code : PP022

Abstract title:

Integrating Nature into Public Health Practice and Community Engagement: A Qualitative Study

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Background

Humans are deeply interconnected within Nature. This relationship can drive biodiversity loss, pollution, and climate change or promote health and well-being for all life on Earth. Public health practitioners (PHPs) and their community-based organization (CBO) partners are critical in fostering healthy community relationships within Nature. Yet, little is known about how they do this. This study explores how PHPs and CBOs integrate interconnection within Nature into their practice to promote community health and well-being.

Methods

The Social Ecological Model and the Planetary Health Education Framework guided the development of semi-structured interview questions on integrating Nature into PHP and CBO practice. Participants in the United States were recruited through a screening survey, professional networks, and snowball sampling. Data were collected from October 2024 to February 2025 and analyzed thematically.

Findings

Among 30 participants across 11 states, most did not initially consider Nature's role in their work. However, once prompted, they recognized Nature's health benefits. PHPs described challenges in integrating Nature into practice due to competing community priorities, while both PHPs and CBOs emphasized the need for culturally responsive approaches to integrating Nature into community health education and health equity efforts.

Interpretation

Fostering interconnection within Nature is central to Planetary Health. These findings highlight the need for structural support to help PHPs and CBOs meaningfully incorporate Nature into public health practice and community engagement.

Topic : Communication around Planetary Health

Abstract code : PO023

Abstract title:

UBT Green Talks: An Initiative for Planetary Health Communication and Education

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Project Overview

UBT Green Talks, an initiative by the University of Bayreuth (UBT), is a video series designed to enhance planetary health literacy by translating complex scientific topics into engaging, accessible content. The project leverages expert interviews, student-led initiatives, and digital media to bridge the gap between research and public discourse on sustainability and health-related challenges. By featuring interdisciplinary perspectives, UBT Green Talks provides a holistic view of planetary health, raising awareness of the interconnectedness between the environment, climate change, and health.

Target Audience

This initiative is tailored for university students in health, environment, and sustainability programs, researchers, as well as the public, fostering dialogue across disciplines.

Goals

The project aims to:

Make planetary health education engaging and widely accessible.

Serve as an educational tool with plans to develop an open-access course for the public.

Integrate planetary health discussions into university curricula as an elective offering ECTS credits.

Strengthen international and interdisciplinary collaboration.

Results and Future Directions

UBT Green Talks has successfully been launched, with episodes covering topics such as biodiversity loss, climate change, healthcare systems, and planetary health diet. In addition to the positive feedback on the high-quality production and interactive material, the series was offered to be included in a book chapter on cultural exchange due to the input from Melbourne showcasing international collaboration. Moving forward, the initiative seeks to expand partnerships and enhance learning experiences through interactive formats and structured courses.

Topic : Policy and Advocacy in Planetary Health

Abstract code : PO024

Abstract title:

Empowering Community Service Organisations for Climate Justice

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Project/Initiative Concept: Climate change is increasingly recognised as a human rights concern with significant implications for social equity and justice. The effects of climate change are not uniformly distributed, with a disproportionate impact on populations already subject to systemic inequities, social exclusion, and prejudice. Community service organisations play a pivotal role in addressing this challenge by supporting these communities and advocating for climate justice. These organisations promote planetary health through climate advocacy, disaster resilience, and capacity building.

Target Audience: While community service organisations are the main target audience of the project, the Toolkit resulting from the project has been developed with the participation of People with Lived Experience, Aboriginal Traditional Owners, community service organisations and climate justice researchers.

Goals: This research presentation features a transdisciplinary research project from the Centre for People, Place and Planet (CPPP) at Edith Cowan University, which examines the process of developing the Climate Justice and Resilience Toolkit in Western Australia. The Toolkit provides complimentary tools and resources for community service organisations to incorporate climate justice and disaster resilience into their operations, policies, programmes and practices.

Results: The presentation covers some of the opportunities and challenges around co-designed transdisciplinary projects. It also explores the processes of working alongside People with Lived Experience, which offers valuable insights for future participatory and action-based transdisciplinary research for planetary health.

Topic : Gender, Culture & Participatory Approach in Planetary Health

Abstract code : LT005

Abstract title:

Rethinking Planetary Health Assumptions About Reality (Ontology) Through Ethnography

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Background

Planetary health seeks to promote human and ecological well-being, emphasizing the interconnectedness of “humans as part of nature” and the inclusion of Indigenous Knowledges. However, critiques highlight its reliance on the Western ontological categories of “Nature” and “Human,” and limited engagement with Indigenous worldviews. This study examines whether “Nature” and “Human” can effectively capture how Mexican grassroots land-defense organizations promote planetary health.

Methods

Through nine months of ethnographic fieldwork (Nov 2023–Aug 2024) in El Salto and Juanacatlán, Mexico—communities severely impacted by industrial pollution—I collaborated with two grassroots organizations, A Leap of Life and the Xonacatlán Indigenous Council. Using interviews, storytelling workshops, and participant observation, I examined the relationship between local practices and planetary health’s ontological assumptions (i.e., a single “Nature” and a universal “Human”) through an abductive data analysis approach. Participants were the people who joined the organizations’ activities (~30).

Findings

Two ethnographic stories illustrate these challenges. The first contrasts two ways of making pollution “real”: one based on threshold theories, the other on the disappearance of native animals. The second examines Indigenous Coca resurgence in Juanacatlán, highlighting the risks of studying it through a *mestizo* (non-Indigenous) lens.

Interpretation

The first story disrupts the assumption of a single “Nature” by revealing two ways to enact pollution. The second story questions a universal “Human” by exposing Indigenous-*mestizo* power relations in development projects that may harm planetary health. Overall, this study calls to meaningfully engage grassroots and Indigenous ontologies in planetary health.

Topic : Planetary Health Education or Curriculum

Abstract code : PO124

Abstract title:

Towards a Planetary Health Literacy for Health Professionals: Understanding Literacy Models and Concepts Linking Health and Environment

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Background: Planetary Health Literacy (PHL) is critical for driving transformations across health, education, and public sectors. Strengthening PHL among health professionals, as key multipliers and change agents, offers significant potential for advancing health promotion along with transformative action. As an emerging field, PHL incorporates insights from various disciplines such as One Health, Environmental Health, Climate Change and Health, or Ecohealth, leading to a fragmented evidence base. This scoping review provides the first comprehensive synthesis of literature on planetary, climate-, and environment-related health literacy concepts.

Methods: Following PRISMA-ScR guidelines, systematic searches were conducted across MEDLINE, CINAHL, and Web of Science, supplemented by grey literature.

Findings: Of 1,698 identified publications, 21 studies met inclusion criteria with relevant literacy concepts for health professionals, including for example eco-medical literacy, environmental health literacy, One Health literacy, and climate-specific health literacy. A critical issue was the inconsistency of terminology and definitions across most of the studies. Furthermore, many frameworks lacked robust theoretical foundations.

Interpretations: The findings underscore the need for theory-driven research to develop coherent PHL frameworks tailored to health professionals. Clearly defined, theoretically grounded concepts are essential to advance planetary health education, and strengthening interdisciplinary, action-oriented approaches is imperative to solidify the role of the health professions in the global sustainability agenda.

Topic : Environmental Pollution and Health

Abstract code : PP023

Abstract title:

Toxic Metals in Settled Dust from Sandstorms and Their Health Risks in Diego de Almagro, Chile.

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Background: Geochemical analysis is essential for detecting contamination from geological and human activities, assessing soil pollution as an indicator of environmental risk. Studying settled dust can contribute to human exposure to metals. Health risk assessments can estimate potential health impacts, including cancer, based on metal concentrations. Sandstorm events, though rare, are expected to increase due to climate change.

Methods:In 2020, a sandstorm occurred in Diego de Almagro, northern Chile. Samples of parent rock, soil, and settled dust were collected. Concentrations of As, Cu, Co, Cr, Ni, Zn, and Pb were measured using ICP-OES. Physical characterization identified sample sources and soil consistency. Enrichment factors and cancer risks were calculated.

Findings: Oral exposure presented the highest risk, followed by dermal and inhalation. For lead in settled dust, the carcinogenic risk was acceptable for adults but higher for children. . Copper posed a high carcinogenic risk for children, falling into unacceptable range. Cobalt, chromium, and zinc presented carcinogenic risks for children via oral exposure, with lower risks for adults. No carcinogenic risk was found for nickel. Arsenic posed a carcinogenic risk for children via oral exposure.

Interpretation: Children are the age group with the highest risk of oral exposure to metals and metalloids. Copper presented the highest risk through oral exposure, followed by dermal exposure. For cobalt, chromium, and zinc, children showed the highest risk via oral exposure. No carcinogenic risk was found for nickel, and arsenic.

Funding: Project 2022000466-INI (W. Espejo) of the Dirección de Investigación de la Universidad de Concepción.

Topic : Gender, Culture & Participatory Approach in Planetary Health

Abstract code : PP024

Abstract title:

Knowledge of Planetary Health and the New Ecological Paradigm in Relation to Pro-Environmental Behavior Amongst Healthcare Professionals of Twin Cities of Pakistan

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Background: Healthcare professionals are vital in addressing planetary health, yet their pro-environmental behavior remains underexplored in Pakistan. The study assessed healthcare professionals' knowledge and attitudes about planetary health and the new ecological paradigm (NEP) and determined healthcare professionals' pro-environmental behavior (PEB).

Methods: The cross-sectional study used a structured questionnaire. The relationship between knowledge of climate change and PEB was assessed using Spearman's correlation.

Findings: 307 healthcare professionals with a mean age of 40 ± 11.4 and a range of 26-72 years worked in healthcare settings in Rawalpindi and Islamabad. Among the participants 156 (50.8%) were female. Regarding knowledge, 45% of respondents related planetary health to ecosystem health and its impact on humans. Most participants were confident in their understanding of the environmental determinants of health (61.6%) and expressed significant concern about climate change. 69.3% agreed that planetary health education is essential for healthcare training. Most respondents recognized limits to Earth's resources, opposed human dominance over nature, and expressed concern about ecological crises. PEB included frequent recycling (71.7%), purchasing eco-friendly products (59.3%), and educating others on environmental impacts (61.6%). The results showed a significant correlation coefficient of 0.257 ($p \leq 0.001$) for individuals expressing concern about climate change are likely to believe in the importance of water-saving practices.

Interpretation: The results indicate a significant positive relationship between concern about climate change and the importance placed on water-saving practices. The findings show that while respondents have a foundational understanding of planetary health, significant gaps persist, particularly in confidence and preparedness to address environmental determinants of health.

Topic : Planetary Health Education or Curriculum

Abstract code : PO025

Abstract title:

Perspectives of nursing students and educators on climate change and sustainable hospital care: a qualitative study

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Background: Climate change impacts the environment and is directly linked to alarming adverse human health outcomes. As the largest group of healthcare professionals, nurses are essential in mitigating climate change. However, there is a lack of research on the perspectives of nurses regarding sustainable caregiving in the Netherlands. This study explores the perceptions of nursing students and their educators on climate change and their needs to feel prepared for their future role in providing sustainable care within the hospital setting.

Methods: A qualitative explorative research design using semi-structured interviews was conducted. The data was analysed using reflexive thematic analysis, and the RTARG guidelines were utilised to ensure the quality of the research.

Findings: 13 interviews were conducted with fourth-year baccalaureate nursing students and their educators. Five themes were developed: (1) climate change: an important, but unfamiliar topic; (2) the strain of implementing sustainable caregiving in a high-pressure environment; (3) from creating awareness to sustainable action; (3a) practical and tailored: integrating sustainability in education; and (4) sustainable caregiving is a collective responsibility.

Interpretation: Nursing students and their educators recognised the importance of mitigating climate change in the healthcare sector, but currently feel unprepared and experience barriers to take on a (leading) role in providing sustainable caregiving as future nurses. To prepare nursing students for this role, it is essential to systematically integrate sustainability in nursing education and provide support in the clinical and educational environment. Despite nurses being perceived as crucial, it should be a collective responsibility to mitigate climate change.

Topic : Planetary Health Education or Curriculum

Abstract code : LT006

Abstract title:

Co-design and evaluation of an audio podcast about sustainable development goals for undergraduate nursing and midwifery students

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Background: The Sustainable Development Goals (SDGs) aim to address global challenges including poverty, inequality and climate change, yet awareness among nursing and midwifery students remains limited. To bridge this gap, a co-designed audio podcast was introduced as an educational tool to enhance students' understanding of SDGs and their relevance to healthcare.

Methods: A study at Queen's University Belfast involved 566 first-year nursing and midwifery students. A 60-minute podcast, co-created with students and stakeholders, was integrated into the university's learning management system. Pre- and post-test questionnaires assessed changes in knowledge and attitudes, while focus group interviews with 37 participants, conducted six months post-intervention, explored students' reflections. Quantitative data were analysed using paired t-tests and descriptive statistics, and qualitative data were thematically analysed.

Findings: The podcast significantly increased students' SDG awareness and their recognition of its relevance to both professional practice and personal lives. Post-test results showed improvements across all three sub-scales: knowledge, professional relevance, and personal relevance. While the podcast was well-received, some students were uncertain about replaying it. Focus group discussions identified three key themes: 'More than you know,' highlighting newly acquired SDG knowledge; 'Nurse-Midwife Nudges,' indicating small behaviour changes inspired by the podcast; and 'Fitting Format,' reflecting the effectiveness of audio learning.

Interpretation: This study highlights the potential of audio podcasts as engaging tools for integrating sustainability into nursing and midwifery education. Findings suggest that co-designed educational interventions can enhance student knowledge, attitudes, and behavioural intentions regarding SDGs, reinforcing the importance of tailored learning resources in healthcare education.

Topic : Food Systems and Nutrition

Abstract code : PP151

Abstract title:

Dietary diversity and the risk of metabolic syndrome in a Japanese population: An analysis of baseline cross-sectional data from the J-MICC study

Z.W. Zin Wai Htay ¹

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Background: Diet is a key modifiable factor of metabolic syndrome, a major global health challenge. Due to the heterogeneous findings across different studies, the role of dietary diversity in preventing the metabolic syndrome remains uncertain. Given the global shift in food environments and its implications for human and planetary health, understanding how dietary diversity relates to metabolic risk is critical. This study, therefore, aims to quantify the associations between dietary diversity and the risk of metabolic syndrome among the Japanese population.

Methods: This study was conducted using baseline data from the Japan Multi-Institutional Collaborative Cohort (J-MICC) study. The baseline survey was conducted from 2005-2014 by recruiting individuals aged 35-69. Information regarding dietary intake and biometric measurements was obtained. Dietary Diversity Score (DDS) was calculated from the data based on the food frequency questionnaire. A multiple logistic regression analysis was conducted to analyze the association between DDS and metabolic syndrome.

Results: In total, 75,332 participants were included for analysis. Inverse associations were observed between a high DDS and metabolic syndrome (adjusted odds ratio, 0.83 [95% confidential interval 0.76-0.92]). Likewise, a high DDS was associated with reduced odds of a high body mass index and hypertension. No significant associations were observed between the DDS and serum triglyceride, fasting blood glucose, or high-density lipoprotein cholesterol values.

Interpretation: The findings of this study emphasize that dietary diversity has inversed associations with metabolic syndrome. Promoting a diverse and balanced diet can be a potential strategy for mitigating the burden of metabolic syndrome.

Topic : Planetary Health Education or Curriculum

Abstract code : PO029

Abstract title:

Implementation of Planetary Health (PH) in the BA Programme Healthcare Management (HCM)

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Concept & Target Audience: Today's Healthcare Management (HCM) students will in the future occupy central control and decisionmaking positions within the health system. Their knowledge about Planetary Health (PH) as well as their ability to act will be crucial for the transformation towards climate resilient health systems. To ensure a comprehensive education of HCM students, Carinthia University of Applied Sciences decided 2022 to develop an 11 ECTS module on Planetary Health Management (PHM) within the BA Programme Healthcare Management spanning four semesters – the first independent mandatory module of its kind in Austria.

As no climate-health competence framework for HCM exists, the developed key competences were based on a thorough comparison of the competence frameworks of the Planetary Health Alliance, GCCHE, ASPHER and ASAP. The module's lectures build on each other and are linked by a uniform didactic approach that enables reflective practice, allowing for an in-depth examination of student's own knowledge, emotions and actions.

Results: The first cohort will have finalized the module in July 2025. At the PH Annual Meeting results from the first continuous student evaluation will be presented. So far, it can be said that integrating PH into the curriculum of HCM is an enormous challenge due to its complexity, emotional and political overload. Additionally, the expectation towards health professionals to become active agents can easily feel overwhelming. Providing space for these aspects in a safe educational environment seems crucial for the empowerment of future HCM professionals.

Topic : Infectious Diseases and Environmental Change

Abstract code : PP026

Abstract title:

A Systems Approach to Integrating Human Health and Water-Energy-Food Nexus in South Africa

Y. Yuxiao He ^{1, 2, 3}

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Background: The Water-Energy-Food (WEF) nexus is inherently interconnected with human health, as changes in resource management affect health outcomes, such as disease transmission and malnutrition. Integrating health within the WEF framework addresses the complex interdependencies between natural systems and human well-being, especially in regions vulnerable to environmental changes. The CONNEXION project adopts a systems approach to model the regional WEF-Health nexus for South Africa, in a collaboration with universities, water resource managers and health authorities in the Netherlands and South Africa.

Methods: Using System Dynamics modelling as the analytical framework, we link a WEF nexus model to individual-based disease transmission models. The model structure, scenarios, and connecting variables are co-developed with stakeholders to ensure the relevance and acceptance of the outputs. A dashboard add-on will be created to collate research outputs and serve as a decision-support tool for local stakeholders.

Findings: To date, causal loop diagrams (CLDs) have been developed using participatory approaches to conceptualize key WEF-health connections through group model-building sessions. Cross-sectoral dialogue among stakeholders has been initiated during an inception workshop held in . Critical interlinkages between disease outcomes and system variables such as land use change, water exposure, and food security have been identified to inform model integration. Infectious disease transmission modelling has been initiated, starting with schistosomiasis, to assess how WEF resources changes impact disease control and health outcomes.

Interpretation: These preliminary results highlight the strong interconnectedness of WEF-health interactions in the study area and lay the foundation for further WEF-health modelling.

Topic : Food Systems and Nutrition

Abstract code : PP027

Abstract title:

Coffee Farming and Planetary Health in Latin America: A Literature Review

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Background

Coffee farming in Latin America is characterized by different coffee cultivation systems (CCS) along an intensification gradient ranging from traditional coffee agroforestry systems (CAFS) to intensive monoculture systems (IMCS). However, coffee landscapes are transforming towards greater intensification. This review assesses the interactions between CCS, environmental change and human health to comprehensively evaluate the Planetary Health impacts of coffee intensification.

Methods

A literature search was conducted in Scopus and Pubmed on the impacts of CCS on six Planetary Boundaries and human health. 2992 unique records were screened, with 146 selected as key literature. Results were analyzed using the DPSEEA framework to assess the causal links between CCS, environmental impacts, and health outcomes.

Findings

Most producers live below poverty line, work in unsafe conditions, and face pressure to increase production through intensification. Coffee intensification contributes to deforestation, biodiversity loss, climate change, biochemical fluxes, pesticide leakage, and freshwater use. CAFS can minimize most of these impacts, reduce pesticide exposure and, through Nature's Contributions to People, support livelihood diversification, income stability, food security, mental health, identity, and resilience, and may mitigate extreme weather events. However, they may increase animal bites and stings, and leishmaniasis.

Interpretation

Coffee intensification significantly affects human and planetary health. While CAFS offer an alternative with synergistic benefits for both, structural inequities must be addressed to harness their potential. Financial and technical support for producers, incentives for sustainable farming, stronger labor and pesticide regulations, and higher prices for producers through measures such as minimum guarantees or sustainability primes are key.

Topic : Health System Greening and Strengthening

Abstract code : PO126

Abstract title:

Indigenous Elders' voices on health-systems change informed by planetary health: a qualitative and relational systems mapping inquiry

N Nicole Redvers ¹

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Background: Indigenous Peoples and their knowledge systems are being looked to for solutions regarding climate change, including within health-care settings. Indigenous Elders specifically are noted knowledge keepers within their communities and are often looked to with great respect for their Land-based knowledges as they pertain to planetary health approaches. We sought to explore the views of health-systems change informed by planetary health within the circumpolar north from the perspective of Indigenous Elders.

Methods: We held a sharing circle, in which Indigenous Elders identified four interconnected themes following a cyclical pattern that were also depicted with relational systems mapping, including the past and how we got here, where we are now, where we need to go in the future, and our reflections.

Findings: Our findings showed that any concepts related to planetary health that are discussed within health systems cannot be disconnected from the context around them. For the relational systems mapping, 62 key interconnected concepts were identified from the sharing circle. The three most interconnected elements for our relational systems map on health-systems change informed by planetary health were Indigenous Peoples, Indigenous self-determination, and Indigenous health and healing, meaning that many of the concepts for planetary health are connected to these three concepts.

Interpretation: Our research emphasized that health-care systems currently operate within structural contexts and processes that have been formed by colonization and continue to perpetuate a disconnect between individuals, communities, and the planet. Overall, health systems were stated to be currently devoid of any environmental context or consideration.

Topic : Environmental Pollution and Health

Abstract code : PP029

Abstract title:

Association Between Harmful Algal Blooms and Kidney Disease in Korea

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Background: Harmful algal blooms (HABs) have become a recurring environmental issue in Korea, particularly during summer. Certain cyanobacteria responsible for HABs produce toxins such as microcystins, primarily known as hepatotoxins, with emerging evidence suggesting potential nephrotoxicity. This study examines the association between HAB exposure and the incidence of glomerular and renal tubulo-interstitial diseases in Korea.

Methods: Chlorophyll-a concentration, a widely used proxy for HABs, was analyzed using data from 987 nationwide water quality monitoring sites (2001–2020). The annual average chlorophyll-a concentration was calculated for 206 administrative units (Si-Gun-Gu), along with moving averages over 0-1, 0-2, and 0-3 years. Age- and sex-standardized incidence rates of glomerular disease (N00-N06) and renal tubulo-interstitial disease (N10-N15) were derived from Korean National Health Insurance data (2004–2020). Generalized linear mixed models with a negative binomial distribution were applied to assess associations between chlorophyll-a levels and disease incidence.

Findings: A one-unit increase in the logarithmic chlorophyll-a concentration was associated with a 3.9%, 4.7%, 5.5%, and 5.8% increase in glomerular disease incidence at lags 0, 0-1, 0-2, and 0-3 years, respectively. Renal tubulo-interstitial disease incidence increased by 1.4%, 2.5%, and 2.7% at lags 0-1, 0-2, and 0-3 years.

Interpretation: Findings suggest that HAB exposure may contribute to increased incidence rates of kidney diseases, underscoring the need for strengthened water quality monitoring and public health interventions to mitigate potential health risks associated with HABs.

Topic : Policy and Advocacy in Planetary Health

Abstract code : PO033

Abstract title:

Advancing Planetary Health in Canadian Medical Schools: A National Agenda for Systems Change

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¹ AFMC Canada

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Project/Initiative Concept:

This initiative contributes to the global dialogue on planetary health by showcasing the Associated Faculties of Medicine of Canada (AFMC) national efforts to integrate planetary health into Canadian medical schools. With an approved roadmap and detailed progress plan for implementation, this project focuses on curriculum, governance, research, and policy development. In preparation for the **Planetary Health for All and In All: Boosting Urgency and Agency for Systems Change** conference, this initiative offers insights into progress and lessons learned, aligning with international efforts to advance planetary health.

Target Audience:

The primary audience includes faculty members, healthcare educators, medical students, and policymakers in Canada and worldwide. This project invites collaboration and offers inspiration for international shareholders seeking to integrate planetary health into medical curricula and healthcare practices.

Goals:

Share the AFMC's national strategy and the progress of its approved roadmap for integrating planetary health into Canadian medical schools.

Facilitate global research collaborations on the intersections of climate change, health, and planetary health.

Develop and disseminate policy recommendations that promote the integration of planetary health into medical education and healthcare systems.

Foster a network of educators, researchers, and policymakers to drive planetary health systems change worldwide.

Results:

The expected outcomes include the expansion of planetary health education and research initiatives, actionable policy recommendations for global integration, and the establishment of a global network of stakeholders committed to advancing planetary health education in medical schools. The project will provide valuable contributions to the international planetary health movement at the 2025 conference.

Topic : Climate Change and Health

Abstract code : PP031

Abstract title:

Ethical Issues in Research on Climate-Sensitive Infectious Diseases: A Qualitative Analysis

Maria Merritt ⁵

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⁵ . Berman Institute of Bioethics and Bloomberg School of Public Health (Department United States

Climate-sensitive infectious diseases present growing challenges for planetary health and global health equity, yet little is known about how scientists navigate the ethical dimensions of research on these diseases within the climate crisis. This qualitative analysis of in-depth interview data examines the perspectives of 15 infectious disease researchers working on climate-sensitive pathogens to identify ethical issues arising in their research. Participants study diverse climate-sensitive diseases including malaria, dengue, schistosomiasis, and waterborne pathogens, with most acknowledging complex relationships between climate factors and disease transmission. Researchers report being motivated by both scientific curiosity and ethical commitments to reduce disease burden among disadvantaged populations. Researchers consistently identified climate change as presenting profound social justice concerns due to its disproportionate impacts on the most vulnerable populations. Key ethical considerations identified in the context of climate-sensitive infectious disease research included the importance of aligning research with community needs and ensuring equitable partnerships with endemic country researchers. Significant barriers to translating research into public health benefits include (i) lack of appropriate funding models, (ii) short-term research cycles, (iii) academic incentive systems that devalue implementation science, and (iv) disconnects between researchers and policymakers. Many researchers acknowledged the need to move beyond current research models toward more collaborative approaches that build local capacity. These findings highlight the need for research systems that better support long-term partnerships with affected communities, recognize diverse forms of knowledge and expertise, and align academic incentives with real-world impact rather than publication metrics alone.

Topic : Planetary Health Education or Curriculum

Abstract code : PP032

Abstract title:

Transdisciplinary Planetary Health Education at Charité – Universitätsmedizin Berlin: Educating the changemakers of tomorrow

O.M. Oskar Masztalerz ¹

Katja Kehlenbeck ², Henrika Kleineberg-Massuthe ³, Nathalie J. Lambrecht ⁴, Anna Müller-Hauser ¹, Carin Noerhadi ¹, Lisa M. Pörtner ^{1,3}, Jillian Waid ¹, Amanda Wendt ¹, Sabine Gabrysch ^{1,3}

¹ Potsdam Institute for Climate Impact Research (PIK) Germany

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Integrating Planetary Health into university curricula is an important lever for change. Since 2021, we have taught a Planetary Health course for medical, public health and environmental sciences students at a major university hospital in Germany. The course consists of 15 three-hour sessions and aims to provide the changemakers of tomorrow with knowledge on health in the context of global change, skills in systematic and critical thinking, and confidence in their ability to enact change. Under the umbrella of the Planetary Health framework, we integrate approaches and concepts from Earth system sciences (e.g. Planetary Boundaries, Nature's Contributions to People), social and health sciences (e.g. Earth System Justice, intersectionality, health promotion and equity), as well as Indigenous perspectives (e.g. decolonial approaches). The first half of the course focuses on socioecological systems, including cities, food systems, economic systems and health systems, and in the second half, students apply what they have learned to real-world examples, guided by the Planetary Health Alliance's Case Studies. Finally, we provide space for dealing with emotions related to the Earth crisis, and practise methods to strengthen personal resilience and move from knowledge to action. The course has been regularly refined since its inception to incorporate students' feedback and adapt to changing political and societal contexts. Our material will be published under a Creative Commons license in summer 2025, enabling widespread use in higher education and collaborative further development within the Planetary Health community. We will present our concept, provide examples and share our experiences.

Topic : Environmental Pollution and Health

Abstract code : PP034

Abstract title:

Long-term exposure to ambient nitrogen dioxide and Chronic Obstructive Pulmonary Disease: a systematic review and quantitative synthesis

T.M.I. Tessa Haverkate ¹

Periklis Charalampous ^{1,2}, Elia Gonzato ¹, Susanne Breitner-Busch ³, Juanita Haagsma ¹

¹ Erasmus MC Netherlands

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Background: Anthropogenic activities, such as fossil fuel combustion, release nitrogen dioxide (NO₂). Epidemiological studies suggest an association between long-term NO₂ exposure and Chronic Obstructive Pulmonary Disease (COPD), but the extent to which NO₂ contributes to the global burden of disease of COPD remains uncertain. Exposure-response functions (ERFs) are essential for quantifying this burden. This study aimed to 1) systematically review the association between long-term NO₂ exposure and COPD; 2) derive and compare ERFs using different meta-analytical approaches; and 3) evaluate differences between curves restricted to region-specific input studies.

Methods: We searched for epidemiological studies in several electronic databases and search engines. Studies were included if they reported on the general population, assessed long-term exposure to NO₂, investigated COPD incidence, prevalence, or mortality, and reported a quantifiable measure of association. Individual study estimates were meta-analyzed using a conventional random-effects model, meta-regression, and the Burden of Proof Risk Function (BPRF) framework.

Findings: We included 24 studies for the quantitative synthesis. The pooled random-effects relative risk (RR) indicated a positive association between NO₂ and combined COPD incidence and mortality, with higher risks in Europe (RR=1.08, 95%Confidence Interval (CI):1.01-1.15), compared to all study regions (RR=1.04, 95%CI:1.00-1.09). Conventional meta-regression yielded a fluctuating ERF, while BPRF suggested a saturation effect at higher exposure levels globally.

Interpretation: This systematic review and quantitative synthesis showed the impact of human-driven NO₂ pollution of COPD outcomes. Tailored regional ERFs and standardized exposure definitions are essential for more accurate estimates of the disease burden of COPD attributable to ambient NO₂ exposure.

Topic : Planetary Health Education or Curriculum

Abstract code : PO036

Abstract title:

Development of a Planetary Health Online Course Based on an Online Survey with Students in Health-, Environment-, and Sustainability-Related Programs

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⁴ Institute for Medical Information Processing, LMU Munich Germany

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Concept and Project Details

To advance education in Planetary Health, LMU Munich and the University of Bayreuth, Germany, are developing an online course for the Virtual University of Bavaria (VHB). The course seeks to train students with the knowledge and skills to contribute to sustainable health-promoting practices and systemic transformations. To ensure the course meets student needs, an online survey based on 31 items was conducted in early 2025 to assess prior knowledge and interests in Planetary Health topics, planetary health literacy, and socioeconomic data. A total of 190 students from Bavarian universities participated.

Target Audience

The primary audience includes international students studying health-, environment-, and sustainability-related programs.

Goals

This initiative aims to equip students with transformative competences to bridge the knowledge-action gap in Planetary Health. The course will focus on interdisciplinary learning, practical skill development, and enhancing planetary health literacy. By incorporating these elements into higher education curricula, the program aspires to prepare future professionals to contribute effectively to public health, healthcare, and environmental policy.

Results

The findings highlight a clear demand for the course, with many students recognizing it as an opportunity to strengthen interdisciplinary collaboration and develop skills for sustainable health transformations. The majority of students consider Planetary Health relevant, with 84.2% valuing competence acquisition for socio-ecological transformation, 85.5% likely to choose a related online course, and 83.7% supporting its integration into their studies. These insights are guiding the course development, ensuring its alignment with student needs and expectations for the winter semester 2025.

Topic : Climate Change and Health

Abstract code : PO037

Abstract title:

Effect of seasonal and meteorological factors on suicide in the Boreal region 2001-2021 (pilot study of the Lithuanian case)

V.V. Vidmantas Vaiciulis ¹

Ričardas Radišauskas ¹, Olga Mesceriakova ¹, Gintarė Kalinienė ¹, Donatas Valiukas ²,
Jonė Vencloviienė ³

¹ Lithuanian University of Health Sciences Lithuania

² The Lithuanian Hydrometeorological Service Lithuania

³ Vytautas Magnus University Lithuania

Background:

The development and implementation of suicide prevention interventions require an assessment of the full range of potential risk factors. This study examined the associations between the total number of suicides in a seasonal context and various meteorological parameters in Lithuania as part of the Boreal region, funded by the European Union (AURORA under the Grant Agreement n° 101157643).

Methods:

The study included data on 21,487 cases of suicide in Lithuania between 2001 and 2021. The data were collected from the register of the Institute of Hygiene. The associations between weather variables and the daily number of suicides were assessed using multivariate Poisson regression.

Results:

Results: The highest rate ratio (RR) of suicide was observed in June and July (1.35 and 1.36, respectively) compared to January, with a similar pattern across different sexes and age groups. Higher temperatures significantly increased the RR of suicide in the general population, among men, and across all age groups. Additionally, a greater number of sunny hours per day was associated with a higher RR in the entire sample, in both sexes, as well as in the youngest and oldest age groups. Higher atmospheric pressure was identified as a protective factor, reducing the RR in the overall sample, among men, and in the youngest and middle-aged groups. An average relative humidity of 50% or more significantly increased the RR of suicide in the general population and among men.

Topic : Planetary Health Education or Curriculum

Abstract code : PP035

Abstract title:

Pre-service Teachers' Insights on Climate Change and Health in Kosovo: Exploring Knowledge, Attitudes, and Practices

L.R. Lira Ramadani ¹

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¹ University of Bremen Germany

² Bielefeld University Germany

³ University of Prishtina Kosovo

Background: As educators play a pivotal role in shaping the perspectives of future agents of change, it is crucial to assess their knowledge, attitudes, and practices regarding climate change, currently considered one of the biggest health emergencies.

Methods: We conducted a cross-sectional survey with 137 pre-service teachers, students enrolled in teacher education programs, at the Faculty of Education, University of Prishtina, Kosovo. Participants were approached via convenience sampling. Descriptive and inferential statistics were used for data analyses.

Findings: Our findings revealed misconceptions regarding the causes of climate change, with 64% incorrectly attributing climate change to natural processes or equal combined natural and human causes. Likewise, over 94% of the respondents were not aware of the scientific consensus on anthropogenic climate change. However, 97% reported that they think climate change is currently affecting the health of individuals at least a moderate amount. Most respondents identified illness from reduced air quality (95.6%) as exacerbated health outcomes due to climate change, while mental health conditions were perceived as the least important in connection to climate change (47.4%). A multiple linear regression model with age, gender, education level, mother's education, father's education, place of residence, attitudes and practices explained 44% of climate-health knowledge.

Interpretation: The findings from this research could contribute to the development of targeted interventions and educational strategies aimed at enhancing pre-service teachers' knowledge of climate change and health-related challenges, thereby enabling them to effectively impart this knowledge to their future students.

Topic : Climate Change and Health

Abstract code : PP037

Abstract title:

Aligning climate action and health in cities: evidence from an umbrella review

E.J. Emma Hutchinson ¹

Tobias Schuster ¹, Hugh Sharma Waddington ¹, Melanie Crane ², James Milner ¹, Kristine Belesova ³, Catalina Turcu ⁴, Jane Falconer ¹, Roberto Picetti ¹, Blanca Anton ¹, Lorna Benton ¹, Rebecca Newbould ¹, Tamzin Reynolds ¹, Peninah Murage ¹, Mike Davies ⁴, Paul Wilkinson ¹, Sarah Whitmee ¹, Robert Hughes ¹, Rosie Green ¹, Andy Haines ¹

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Background

To address the challenges presented by climate change, cities will need to implement adaptation and mitigation actions in multiple sectors, many of which have potential co-benefits for health. We sought to identify and synthesise scientific evidence of implemented city-level actions that address both climate change and health impacts.

Methods

We conducted an umbrella review using systematic review methods. Thirteen databases were searched covering 2009-2024. We developed a simple taxonomy of policy objectives in five sectors (buildings, transport, waste, food and urban form), reflecting principal targets for policy action, to which we mapped identified actions, and presented a narrative synthesis.

Findings

We identified 60 reviews, with the majority of evidence from the transport sector or relating to changes in urban form. Most evidence focused on mitigation, from actions in the transport and buildings sectors and those relating to urban form, with little evidence for climate impact from the food and waste sectors. There was limited evidence on adaptation. Health co-benefits were most evident for actions that increased active transport, and for those that increased energy efficiency of housing. The majority of evidence was from high income countries. Several reviews presented limited evidence of quality assessment.

Interpretation

Current evidence on implemented climate actions at city level suggests only modest effects on mitigation, adaptation and health, with very few studies reporting on both climate impacts and health. We found no evidence of implemented action at city level towards effective climate action at the transformative scale thought necessary to achieve net zero emissions.

Topic : Biodiversity and Health

Abstract code : PO038

Abstract title:

Improving watershed health through Nature-based Solutions and community-based forest management in the Pacific: a case study from Manus Island in Papua New Guinea

Alice Latinne ¹

Jonathan Booth ¹, Terencehill Galiurea ¹, Michael Londron ¹, Fiona Manu ¹, Misu Nick ¹, Sylvia Noble ¹, Nella Sabak ¹, Dorothea Teke ¹, Stacy Jupiter ¹

¹ Wildlife Conservation Society Fiji

Background: Pacific Island countries, highly vulnerable to climate-sensitive and water-related diseases, offer a model for addressing systems health within watersheds. Human activities in these watersheds contribute to the spread of water-related diseases, with outbreaks worsened by climate change, land use, and social factors. Inadequate water and sanitation infrastructure further exacerbates these issues.

Methods: In partnership with Indigenous communities on Manus Island, Papua New Guinea, we apply the Watershed Interventions for Systems Health (WISH) approach to integrated watershed management. This approach tackles interconnected drivers of ill-health at multiple scales and provides biodiversity and public health benefits. We have supported landowning groups on Manus Island in protecting their forests against commercial logging through conservation agreements/deeds for over a decade. To assess effectiveness of these conservation actions, we analyzed tree cover loss over 23 years using binomial regression models and monitored water quality by testing 84 water samples from various sources. We also developed Water and Sanitation Safety Plans to identify priority Nature-based Solutions and WASH interventions to be implemented.

Findings: Areas with conservation interventions generally exhibited a lower probability of tree cover loss compared to unmanaged zones, indicating the effectiveness of management in reducing deforestation. Water quality monitoring revealed high *E. coli* contamination within watersheds experiencing high deforestation and degradation while watersheds with successful forest conservation efforts demonstrated low levels of *E. coli* contamination.

Interpretation: Community-driven forest conservation interventions are effective Nature-based Solutions that enhance watershed health and reduce the risk of water-related diseases in Manus Island communities.

Topic : Infectious Diseases and Environmental Change

Abstract code : PP040

Abstract title:

Selling spillover: a qualitative study of wildlife trade and market practices in Southeast Asia

K.L. Kyra Lilier ¹

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Background:

Zoonotic spillover is a major driver of emerging infectious diseases and pandemics. Southeast Asia is home to global hotspots for spillover events due to unprecedented environmental change, land use shifts, biodiversity loss and wildlife trade. Within this context, wildlife markets are critical interfaces where spillover risks are amplified. However, there is limited understanding of the operational dynamics, hygiene, and regulatory environments in these markets. This study examines risk behaviors and spillover prevention opportunities in a cross-border wildlife market.

Methods:

We employed a formative qualitative study design at a cross-border wildlife market in Southeast Asia in January 2025. We used participatory and non-participatory observation, in-depth interviews and shared walks and a deductive thematic approach for analysis. We classified the market and taxa traded following the taxa risk categories by Wikramanayake.

Findings:

The market was ranked as 'very high risk' for spillover due to the taxa traded. Observations revealed handling and hygiene practices that could increase pathogen transmission risk, such as direct contact with live and dead wildlife, inadequate waste disposal, and lack of protective measures. Cross-border trade was driven by economic and cultural factors, with wildlife consumption embedded in local traditions.

Interpretation:

This wildlife market operates at the intersection of restrictive trade laws, culturally embedded practices and high spillover risk. Spillover prevention strategies should integrate a holistic and culturally informed One Health approach that addresses immediate market risks while considering broader systemic drivers, including habitat encroachment and agricultural expansion. A risk-informed regulatory framework may help mitigate future spillover threats.

Topic : Planetary Health Education or Curriculum

Abstract code : LT007

Abstract title:

Growing Planetary Health Education: A Course Landscape Analysis at JHU

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As environmental changes accelerate and impact human health worldwide, educating future leaders is essential to advancing solutions for a healthier planet and society. The Education Program within the Johns Hopkins Institute for Planetary Health (JHIPH) is committed to integrating Planetary Health curriculum across all JHU schools and divisions. To ground this effort in data, JHU's Planetary Health Course Landscape Analysis assesses the current and future state of such offerings and provides a replicable process for mapping Planetary Health curriculum at a university-wide level.

Utilizing AI, this analysis reviewed JHU's catalog of over 10,000 courses. Among the identified courses across JHU's eight schools, 202 were classified as directly related to Planetary Health, 240 as adjacent, and 227 as having potential for Planetary Health integration, while unrelated courses were excluded.

This research aims to identify Planetary Health gaps in curricula and provide actionable insights for curriculum enhancement, faculty engagement, and interdisciplinary collaboration throughout JHU. Key data points include the university-wide scope of Planetary Health education, its disciplinary distribution, and potential trends over time.

This landscape analysis represents a crucial step toward integrating Planetary Health into education at all levels at JHU. By fostering systemic change, we aim to align academia with the urgent need to address complex challenges at the intersection of human health and global environmental change. This poster seeks to engage educators, deans, and program directors shaping curricula, as well as students, and university leadership advancing Planetary Health education from around the world.

Topic : Planetary Health Education or Curriculum

Abstract code : PO039

Abstract title:

Planetary Health education at the University of Helsinki

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Project/Initiative concept: In May 2024, we launched the 2.5 ECTS course *Introduction to Planetary Health* at the University of Helsinki, the first course of its kind offered at a Finnish university. Taught once yearly over a two week period featuring 3+3 days of classroom teaching, the course includes lectures from experts from a variety of academic fields, as well as team-based learning group work assignments. In addition to on-site teaching and group assignments, the students are required to provide a learning diary upon completing the course.

Target audience: The course is offered as optional studies for 3rd to 6th year medical students at the University of Helsinki. Psychology, logopedics, and dentistry students are also able to join the course.

Goals: We have aimed at giving a comprehensive introduction to Planetary Health, highlighting the field's holistic and solutions-oriented approach, while providing the students with tools and perspectives to meet current and future challenges arising from the dynamic relationship between humans and our environment. By inviting experts from several fields – including Sustainability and Environmental Sciences, Theology, Pharmacy, Nutrition, Public Affairs, and Veterinary Medicine – in addition to experts in Planetary Health and sustainable healthcare, we have aimed to highlight the importance of multi- and transdisciplinary collaboration.

Results: The course received positive student feedback after its first iteration in May 2024. While attendance was limited, the small student group provided valuable opportunities for in-depth discussions. The course offers an important complement to online-only alternatives.

Topic : Environmental Pollution and Health

Abstract code : PO040

Abstract title:

Exploring antimicrobial resistance and its environmental determinants in Fijian watersheds

Alice Latinne ¹

Samuel Bloomfield ², Alison Mather ², Gemma Langridge ², Lisa Crossman ², John Wain ², Serge Morand ³, Ponipate Baleinamau ⁴, Aaron Jenkins ⁵, Stacy Jupiter ¹, Sangeeta Mangubhai ¹, Timoci Naivalulevu ⁴, Anaseini Ratu ⁴, Mereia Ravoka ¹, Jacqueline Thomas ⁵, Andrew Tukana ¹

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⁵ University of Sydney Australia

Background: Antimicrobial resistance (AMR) is a growing health concern in Pacific Island countries, where wastewater pollution, climate change, agriculture intensification and other forms of land use modification exacerbate the issue. Despite this significant public health risk, data on AMR outside of clinical settings remains limited due to resource constraints and lack of surveillance systems. The impact of environmental factors on AMR also remains unclear.

Methods: Water, sediment and swab samples were collected from diverse environmental sources across 29 communities in five Fijian watersheds along a range of anthropogenic activity and waterborne microbial disease burden. Water samples were vacuum filtered and DNA extracted from filters and directly from sediment and swab samples. A total of 296 samples were sequenced using the Illumina MiSeq platform. Sequencing data were processed using Kraken2 for taxonomic classification and FastDeMe for identification of antibiotic resistance genes (ARGs).

Findings: In total, 434 ARGs associated with 13 antibiotic classes, including beta-lactams (n=183), aminoglycosides (n=59) and tetracyclines (n=42), were detected in Fijian watersheds. Distinct microbial communities and ARGs were uncovered in highly anthropogenically altered watersheds, suggesting an impact of ecological degradation on AMR and microbial diversity. A large quantity of unknown taxa was present. High diversity of AMR genes was observed in household storm drains, creek water, fishpond water and sediment adjacent to agriculture.

Interpretation: Our findings suggest that watershed health and AMR are interconnected. Pollution and habitat degradation in Fijian watersheds can disrupt microbial communities, potentially causing an increase in AMR, and expose Indigenous communities to antimicrobial-resistant bacteria.

Topic : Climate Change and Health

Abstract code : PO041

Abstract title:

Integrating health and mosquito-borne virus risks into climate adaptation: a transdisciplinary approach in Rotterdam

P.A. Pauline Best ^{1, 2}

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¹ Erasmus MC Netherlands

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Cities worldwide are adopting climate adaptation measures, but their impact on health, including mosquito-borne viruses (MBVs), is poorly understood. Research shows limited collaboration between climate and health sectors, despite the need to integrate health into climate adaptation, particularly at the local level. Rotterdam's dense urban delta requires extensive climate adaptation, making it an interesting case. Therefore, this study maps the climate adaptation development process and involved stakeholders in Rotterdam, to explore when and how the health sector can be included to better integrate health considerations.

Nine interviews and one transdisciplinary collaboration workshop were conducted with key local stakeholders in climate adaptation, MBVs, and public health, to map the climate adaptation process and identify involved stakeholders. Furthermore, we assessed opportunities and barriers for including health stakeholders and health considerations in climate adaptation development.

Interviews revealed health stakeholders are rarely involved in the climate adaptation development process or consulted on health impacts. Mosquito risks are thus far not considered. Barriers such as lack of awareness, competing priorities, and knowledge gaps hinder collaboration. Workshop discussions confirmed this but identified stages where health considerations and collaborations with health stakeholders could be integrated. Stakeholders highlighted the need for tools to facilitate this, in future work we will develop a flowchart for incorporating MBV risks into the climate adaptation processes.

The lack of collaboration with health sectors may lead to the oversight of health risks associated with climate adaptation measures. Process analysis and stakeholder discussions identified opportunities to include health, but actionable knowledge and tools are needed.

Topic : Gender, Culture & Participatory Approach in Planetary Health

Abstract code : PP042

Abstract title:

Authorship Trends in The Lancet Planetary Health

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Background

The United Nations Framework Convention on Climate Change (UNFCCC) calls for women's equal and meaningful participation in international climate efforts. Hence, there is a need to document gender- and region-specific authorship data in *The Lancet Planetary Health*.

Methods

Research articles in all issues published in *The Lancet Planetary Health* from April 2017 (first issue) until February 2025 were considered. For each article, the primary affiliation, country, and gender was noted for each author. The country of the author's primary affiliation was categorized as either low-income and middle-income country (LMIC) or high-income country (HIC) based on classification by the World Bank. Statistical differences in means were computed using the Student's *t*-test.

Findings

From 2017-2025, 356 research articles were published in the journal. There was a total of 4164 authors [1519 (36.5%) female, and overall 1333 (32%) in LMICs]. In HIC, the mean number of male authors was significantly higher than females [189 vs 125, diff=64 (95% CI 38.1-89.7, $P<0.001$)], similarly in LMIC [105 vs 43, diff=62 (95% CI 22.3-100.2, $P=0.003$)]. The ratio of female to male authors in HIC was 0.66, whereas 0.42 in LMIC.

Interpretation

Our study demonstrates the significantly low proportion of female authors in *The Lancet Planetary Health*. The female proportion is lower in LMIC than in HIC. As an indicator of women's participation in international climate efforts, these results suggest that goals of UNFCCC are not met. Thus, we urge further efforts to increase women's participation in planetary health literature.

Topic : Environmental Pollution and Health

Abstract code : PP043

Abstract title:

Long-term exposure to air pollution and impaired odor identification in the German National Cohort (NAKO)

S. Claire Slesinski ^{1, 2, 3}

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Background: Air pollution is a risk factor for impairment in brain function, for which poor odor identification is an early indicator. Pollutants may translocate to the brain through the nose, contributing to both olfactory dysfunction and neurodegeneration. However, little is known about the link between air pollution and odor identification.

Methods: A subset of German National Cohort (NAKO) participants (N=50,855) completed the Sniffin' Sticks 12-item test to determine impaired odor identification (score < 10). We used logistic regression in a cross-sectional study to calculate the association between interquartile range (IQR) increases in modelled annual residential mean PM₁₀, PM_{2.5}, and NO₂ for year of study participation (YO) and year prior to participation (YP) and impaired odor identification, adjusting for socio-demographic variables. We tested for effect modification in stratified analyses.

Findings: IQR increases in YP PM_{2.5} (odds ratio [OR] 1.06, 95% confidence interval [CI] 1.01-1.12), YO PM₁₀ (OR 1.07, 95% CI 1.02-1.13), and YP PM₁₀ (OR 1.09, 95% CI 1.04-1.15) were associated with higher odds of impaired odor identification, and associations were significantly stronger for those aged 70+. NO₂ showed no association except for those aged 70+ for YO (OR 2.63, 95% CI 1.40-5.01) and YP (OR 3.23, 95% CI 1.70-6.22).

Interpretation: Long-term exposure to air pollution was associated with impaired odor identification among >50,000 German residents. Results support a potential connection between long-term air pollution exposure and impairment in brain function. This is the largest known study of air pollution and odor identification globally.

Topic : Food Systems and Nutrition

Abstract code : LT008

Abstract title:

Sustainable diets and cancer: a systematic review and meta-analysis

M.A.K. Marina Kasper ¹

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Background: Modern food systems contribute to environmental degradation, while prevailing unhealthy eating behaviors exacerbate the global cancer burden, creating a dual synergistic crisis for both planetary and human health. Investigating the impact of sustainable diets on cancer is therefore critical.

Methods: Following the 2020 PRISMA guidelines for reporting systematic reviews and meta-analysis, observational studies on cancer incidence and mortality among adults, assessing the sustainability of their diets using various metrics, were examined. Effect measures were pooled to compare the highest versus lowest adherence to sustainable dietary patterns. Summary effect estimates for cancer incidence and mortality were calculated using random-effects models. Subgroup analyses were conducted by sex, geographic region, study design, sustainability metric used, dietary assessment indices reflecting sustainability, and cancer type. E-values were used to evaluate the robustness of associations against potential unmeasured confounding. The study was pre-registered in PROSPERO (ID CRD42024545102).

Results: Nineteen effect estimates from 17 studies, encompassing over 2.2 million participants, revealed a significant reduction in cancer incidence (RE = 0.93 [95% CI 0.88-0.98], I²=84.67%) and cancer mortality (HR = 0.88; 95% CI 0.85–0.92, I²=21.25%) associated with higher adherence to sustainable diets. Subgroup analyses indicated that the overall effect was modified by study design, sustainability metrics, and dietary assessment index.

Discussion: These findings support evidence linking sustainable diets to reduced cancer incidence and mortality, highlighting their potential role in cancer prevention while offering concurrent environmental benefits. The analysis also revealed notable variability in sustainability metrics, emphasizing the need for standardized approaches in future research.

Topic : Planetary Health Education or Curriculum

Abstract code : PO045

Abstract title:

Integrating Planetary Health education effectively into the existing health curricula at the Faculty of Medical Sciences, Univ. of Groningen, the NL.

R.R. Renée Bakker ¹, Bettine Haar ¹, Leonie Pierik ¹, Jenneke Kramer ¹

¹ UMCG Netherlands

Project/Initiative Concept

The well-being of individuals is deeply influenced by the socio-economic and environmental conditions in which they live. Paradoxically, while the healthcare sector is dedicated to improving health, it also consumes significant natural resources and generates considerable waste, and therefore creates a vicious circle of negative side effects. Enhancing sustainability in this sector is essential, not only for environmental preservation but also for long-term economic viability and ethical responsibility.

To contribute effectively to these essential changes, the University of Groningen and UMCG have committed to the UN Sustainable Development Goals. Additionally, the Dutch Federation of University Medical Centres has signed the Green Deal Sustainable Care 3.0. As a result, the Faculty of Medical Sciences is required to incorporate Planetary Health (PH) education into all its programs.

To get this started, a curriculum assessment of the academic year 2022/23 was conducted to evaluate the strengths and challenges of integrating PH across the faculty's educational programs, and several pilot initiatives were tested. The development of PH education is driven by the active engagement of students, dedicated educators, the "Sustainable UMCG" team, and various Non-Governmental Organizations.

Target Audience

The target audience are students, teaching and supporting staff of the Medical Faculty.

Goals

By 2026 PH content must be fully integrated into the faculty's curricula independent of PH staff.

Results (if applicable)

In 2025, efforts will focus on finishing key learning objectives for future healthcare professionals, adapting existing course materials and exam questions, and providing training for educators.

Topic : Planetary Health Education or Curriculum

Abstract code : PO046

Abstract title:

Integrating Planetary Health into Undergraduate Medical Education at uOttawa

Liam Quartermain ¹

Isabelle Raiche ¹, Sherry Tan ¹, Nieve Seguin ¹, Harry Wang ¹, Vanessa Bournival ¹, Nicole Prince ¹, Jennifer Shames ², Kuan-Chin Chen ¹, Bradley Mac Cosham ¹, Zoe Tsai ¹, HM Husein Moloo ¹

¹ University of Ottawa Canada

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Project:

This project describes a pragmatic approach to the design and implementation of a longitudinal Planetary Health (PH) curriculum within the University of Ottawa's undergraduate medical program. A dedicated PH Working Group—comprising faculty members, medical students, and a community partner—collaboratively defined core competencies informed by the Canadian Federation of Medical Students and the UK Medical Schools Council. From these, high-yield learning objectives (LOs) were developed and aligned with existing curricular content. A curriculum scan identified opportunities to embed PH content into current lectures. As a result, 56 new PH LOs were integrated across the pre-clerkship curriculum. To support faculty in delivering this content and mitigate challenges related to limited subject-matter expertise, narrated slides were developed and presented within existing lectures.

Target Audience:

This project is intended for faculties of medicine and other teaching institutions, medical educators, and curriculum planners seeking scalable and sustainable methods for integrating planetary health into undergraduate medical education.

Goals:

The primary goal was to create a PH curriculum that could be delivered longitudinally using existing teaching time and resources. The design also aimed to overcome typical barriers such as faculty development, while ensuring meaningful integration with existing content.

Results:

PH content is now part of lectures and evaluated through multiple-choice questions, with additional assessments under development. Internal evaluations from Years 1 and 2 demonstrated strong student support for the relevance, quality, and integration of PH topics. This initiative offers a practical, replicable model for PH curriculum integration in medical education.

Topic : Health System Greening and Strengthening

Abstract code : PP152

Abstract title:

Climate resilience among primary care professionals (PCP)

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Background: There is a lack of consideration for PCPs in the discourse on climate-resilient health systems. This study aims to address the research gap in Austria regarding the climate-health literacy of PCPs, their activities, and needs.

Methods: Online focus groups with general practitioners, occupational therapists, and physiotherapists, as well as individual interviews with two community nurses, one home care helper, one practice assistant, and one pediatrician, were conducted between March and June 2024. A two-stage analysis structure based on WHO's Operational Framework for Building Climate Resilient and Low Carbon Health Systems was developed, distinguishing at level 1 between six climate resilience phases and at level 2 ten dimensions of climate-resilient health systems.

Findings: PCPs are already confronted with the health effects of climate change in various ways. Heat is the dominant issue, affecting both their workability and their patients/clients. Psychological stress related to extreme weather was also discussed in depth. Although PCPs provide climate-sensitive health consultations, there is a fear of being perceived as instrumentalizing. Barriers include lack of time, financial resources, and target group-specific further training offers.

Interpretation: Comparison with international literature shows that PCPs could take a leading role in climate-related risk assessment, risk monitoring, early warning, and research. Strengthening the link between climate resilience and emergency care and disaster management could enhance their capacity to cope, recover, and adapt to climate-related shocks and stressors. Active participation in regional networks would be beneficial. Supportive structural framework conditions at meso and macro levels are required to empower PCPs.

Topic : Health System Greening and Strengthening

Abstract code : PO127

Abstract title:

Towards a net-zero healthcare system in Kenya: Stakeholder perspectives on opportunities, challenges and priorities

I.M. Iris Martine Blom ¹

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¹ London School of Hygiene and Tropical Medicine United Kingdom

² University of Eldoret Kenya

Background

Kenya's healthcare system committed to achieving net-zero greenhouse gas emissions by 2030 as part of the UNFCCC COP26 Health Program. To turn these ambitious commitments into outcomes and share learnings with other nations, a comprehensive assessment of the perspectives of key stakeholders likely to be involved in implementing the transition of the healthcare system is needed.

Methods

This study employs qualitative methods, including 21 semi-structured interviews with key stakeholders and a Delphi consensus process, to explore stakeholder perspectives on Kenya's journey to a net-zero healthcare system.

Findings

Stakeholders identified and validated 14 process components crucial for this transformation, ranging from leadership and financing to behavioral change and monitoring. Critical barriers, such as infrastructure limitations, competing health priorities, financial constraints, and gaps in strategy coordination, were highlighted. Stakeholders ranked three interventions as the highest priority: implementing clean energy solutions in healthcare facilities, developing national sustainable healthcare policies that are informed by existing evidence on climate benefits, and generating localized data to guide actionable policies. Ranking interventions based on feasibility, however, produced different results that favored simpler, more immediately actionable measures like hospital vegetable gardens and the creation of guidelines for health facilities.

Interpretation

While the transition to net-zero poses challenges, stakeholders expressed optimism about the potential of current strong leadership, strategic partnerships, and the growing momentum for action on climate change and health. This research provides actionable insights and recommendations to guide Kenya's transition to a sustainable, resilient healthcare system, while offering valuable lessons for other countries facing similar challenges.

Topic : Health System Greening and Strengthening

Abstract code : LT009

Abstract title:

The Role of Health Workers in Kenya's Net-Zero Transition: A Mixed-Methods Study on Healthcare System Climate Change Mitigation and Adaptation

I.M. Iris Martine Blom ¹

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Background

Climate change presents a critical challenge to healthcare systems, particularly in low- and middle-income countries like Kenya. Health workers are key to leading the transition toward a sustainable, climate-resilient healthcare system. This mixed-methods study explores the perceptions, knowledge, and roles of Kenyan health workers in mitigation and adaptation in healthcare.

Methods

An online questionnaire, completed by 118 health workers, explored their understanding of climate change's impacts on health, the healthcare system's role in emissions reduction and adaptation, and current practices. A subsequent focus group discussion delved deeper into the identified themes, with a particular focus on education of health workers to support climate action.

Findings

The findings reveal that while health workers are aware of the health risks posed by climate change, financial limitations and insufficient training present significant barriers to the implementation of sustainable practices. The focus group emphasized the need for practical, context-specific education to equip health workers with actionable knowledge and skills, alongside fostering emotional resilience and ethical leadership.

Interpretation

Key recommendations include co-creating educational programs with communities and health workers, integrating climate-health modules into curricula, and leveraging innovative approaches such as peer-led workshops and social media campaigns. These insights underscore the transformative potential of education in empowering health workers to lead Kenya's transition to a sustainable, climate-resilient healthcare system.

Topic : Policy and Advocacy in Planetary Health

Abstract code : LT010

Abstract title:

Toward Climate Resilient Health Systems: Implementation of Climate Adaptation for Health in Western Cape, South Africa

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Background

As climate change accelerates, its impact on human health and health systems grows. For the health system to protect communities and effectively respond to climate-related shocks and stressors, it must prioritize climate adaptation. Although countries have made commitments in recent years to climate-resilient and sustainable health systems, their implementation remains understudied. The Western Cape province in South Africa, recently affected by a severe drought in 2015-2018 and extreme heat events, has emphasized health as a priority adaptation sector.

Methods

Through a policy document analysis and in-depth interviews, this study investigates the factors influencing the implementation of climate adaptation for health in the Western Cape.

Findings

Three research papers comprise this study: one on the coherence of climate adaptation policies for health, one on the health sector's response to the Western Cape drought, and one on the governance of heat-related health risks at the subnational and local levels. The findings highlight that managing climate risks relies on leveraging multi-sector organizational and individual capacities rather than through structured policy support.

Interpretation

Collectively, this study demonstrates the need for inclusive cross-sector governance structures, multi-level stakeholder engagement, and integrated policy frameworks that better align strategies with local implementation. Top-down and bottom-up, context-specific adaptation actions are needed to address climate risks effectively and ensure health systems that are resilient to climate change.

Topic : Planetary Health Education or Curriculum

Abstract code : PP044

Abstract title:

Pro-environmental behaviors and eco-anxiety among a sample of Italian adolescents: a national survey and intervention on climate change awareness.

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Background

Climate change is a critical global challenge, impacting both physical and mental health. Among adolescents, eco-anxiety emerged as a growing psychological response, influencing emotional well-being and behavioral choices. This study is aimed to assess eco-anxiety levels and pro-environmental behaviors among a sample of Italian adolescents and evaluates the effectiveness of an educational intervention through the administration of a pre-post questionnaire.

Methods

A pre-post test experimental study was conducted in 90 classes (out of 148 planned) from 17 secondary schools across three Italian regions, representing North, Center and South Italy. Participants are filling validated psychometric tools: the Climate Change Anxiety Scale (CCAS) to assess eco-anxiety, the New Ecological Paradigm Scale-Revised (NEP-R) to measure sustainable behaviors, and a socio-demographic questionnaire. The intervention consists of an interactive online workshop led by mental health experts, designed to provide coping strategies for eco-anxiety, foster critical thinking, and encourage sustainable behaviors. Follow-up assessments will evaluate long-term effects.

Findings

The topics of the intervention are: climate change, complex systems, impact of climate change on health and psychological well-being, eco-anxiety and related emotions, possible solutions and pro-environmental behaviours. Preliminary results will be presented, as interventions are ongoing. Initial qualitative feedback suggests increased student engagement and motivation to adopt pro-environmental actions.

Interpretation

This research highlights the need for structured climate education in school curricula, integrating environmental knowledge with psychological resilience strategies. The results will be shared with the scientific community and the decision makers' network to support youth policies.

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Topic : Mental Health and Environmental Change

Abstract code : PP045

Abstract title:

Navigating the Storm: Towards Coexisting Ways of Knowing in Approaching Environmental Distress

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Background:

Environmental change is having profound psychological impacts on communities worldwide, affecting diverse populations across cultures and generations. This PhD research 'wrap-up' explores these effects through bridging two distinct yet interconnected studies: one focusing on Circumpolar Indigenous communities, particularly the Sámi, and the other on Dutch young adults.

Methods:

The first study is a systematic review that explores 'strength-based' factors promoting mental resilience among Circumpolar Indigenous peoples, with a focus on the Sámi, in the context of environmental change. The second study consists of a large survey, currently divided into two papers under review, investigating environmental distress and solastalgia, as well as climate distress and denial, among 1,006 Dutch young adults (ages 16-35).

Findings:

Indigenous People, such as the Sámi, exhibit unique resilience and traditional knowledge, which offer critical pathways for navigating disruptions. However, our study uncovers a gap in research on 'strength-based factors' that could further enhance mental well-being within these communities.

Among surveyed Dutch young adults, many reported distress and concerns, while others displayed significant indifference or denial. The findings emphasize the complexity of psychological responses to environmental change, challenging the binary of 'activist vs. denier'.

Interpretation:

We underscore the importance of taking a 'strength-based' approach in exploring the interconnection of environmental change and mental wellbeing. Tailored public health initiatives, integrating Indigenous and youth perspectives, are needed to address distress in vulnerable groups while promoting broader environmental awareness and action. By understanding diverse psychological responses, we can support mental wellbeing and foster sustainable futures.

Topic : Planetary Health Education or Curriculum

Abstract code : PO049

Abstract title:

A Planetary Health Medical Elective - Incorporating Planetary Health in Postgraduate Medical Training

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Project/Initiative Concept:

Embedding planetary health education into postgraduate medical curriculum is an essential step towards achieving transformative change, considering the unique role and responsibility of medical education institutions in shaping our futures. In May 2024, led by Yellowknife physicians, the University of Alberta's Department of Family Medicine facilitated a two-week postgraduate medical elective designed to introduce its learners to the concept of planetary health, the first of its kind in Canada.

Target Audience: Healthcare professionals, educators

Goals:

Based on the Climate Change Toolkit for Health Professionals, the elective aims to have its participants investigate the anthropocene and the fragile interconnectedness of human and environmental health. Participants examine the ecological determinants of health, their health impacts and how these are inequitably experienced by certain patient populations. They position climate change as a public health crisis, critically assess their role as physicians and the role of the healthcare system in climate mitigation and climate action and synthesize how to incorporate planetary health into patient care.

Results:

The first iteration of this project took place in May 2024 and was a great success. Overall, both the quantitative and qualitative data collected suggested that the elective was an effective way to integrate planetary health into postgraduate medical curriculum. Participants' level of comfort with the topic significantly improved and they felt empowered to integrate what they learned into their practice. A second iteration of the elective will be taking place in May 2025.

Topic : Planetary Health Education or Curriculum

Abstract code : PP046

Abstract title:

PlanetaryHealth.now – a new online course aimed at a wide learner community

S.J.A. Samuel Sandboge ^{1, 2}

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² University of Tampere Finland

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Project/Initiative Concept: Students of Medicine, Psychology, Logopedics, and Dentistry at the University of Helsinki have had the option of studying Planetary Health since May 2024. In order to make the topic available for a wider audience, a new University of Helsinki massive open online course (MOOC) – PlanetaryHealth.now – will launch in September 2025 as part of the Finnish Climate University network.

The course will be asynchronous and available year-round and accordingly, students will be able to complete it at their own pace. The material consists of texts, videos, podcasts, infographics, external resources, interactive ThingLink scenarios, and AI chatbot assignments. Exercises will consist of multiple-choice quizzes and short essays which will be reviewed by student peers.

At enrolment, students are asked if their learning process data may be used for research purposes. We are planning two studies based on this data: one where students answer a questionnaire regarding climate emotions and resilience, aiming to assess if/how Planetary Health education impacts these emotions, and one where students are tasked with explaining what they've learned about specific topics to a pre-trained AI chatbot.

Target audience: The MOOC is not only aimed at students and professionals within Health, Environmental and Sustainability sciences, but also to a wider learner community via the Open University.

Goals: The complex and interconnected threats and challenges we currently face require multidisciplinary collaboration both within and outside of academia. PlanetaryHealth.now – the first MOOC of its kind in Finland – aims to provide a knowledge framework, facilitating such collaboration.

Topic : Policy and Advocacy in Planetary Health

Abstract code : PP047

Abstract title:

Advancing and Integrating Climate and Health Policies: Insights from Six Geographies

Joshua Ettinger ¹

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Around the world, national governments are grappling with the interlinked challenges of how to address climate change and protect their citizens' health. This study investigates the current status of climate and health policy integration, and potential for further integration, in six geographies: Brazil, the Caribbean, Germany, Kenya, the United Kingdom, and the United States. We synthesize the findings of studies conducted in each location, drawing on a total of 225 in-depth interviews with high-level stakeholders who work on climate and/or health policy or adjacent policy topics including transportation and agriculture. We found stakeholders in all countries feel that climate policy and health policy are largely separate at present but are beginning to become more integrated. Nearly all stakeholders believe that further integration of climate and health policy would be beneficial. Commonly reported barriers to such integration include shortages of funding and data, silos between climate-focused and health-focused parts of government, low awareness among policymakers and the public, and other systemic challenges. Strategies commonly suggested to enhance policy integration include improving cross-sectoral collaboration, scaling up successful programs and adapting initiatives from other nations, increasing the uptake of science in policymaking, and enhancing research, communication, education, and advocacy. These findings offer many important and actionable insights for government actors, health professionals, climate professionals, researchers, philanthropists, and advocates seeking to advance and integrate national climate and health policies.

Topic : Biodiversity and Health

Abstract code : PO128

Abstract title:

“Removing an Ogiek from the Forest is like removing a fish from water”: A qualitative examination on Ogiek community impacts from forced land eviction for conservation

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¹ Ogiek Peoples' Development Program Kenya

² Western University Canada

³ Minority Rights Group United Kingdom

⁴ Invisible Flock United Kingdom

Background: Despite Indigenous Peoples being better guardians of their Forests than international or state protection agencies, they continue to be forcibly evicted from their Lands. Despite the known impacts that forced land eviction for conservation has on the well-being of Indigenous Peoples in varied contexts, there remains limited appreciation of the well-being impacts of forced land eviction within Kenya from an Indigenous perspective. Therefore, the aim of this research was to better understand the well-being impacts of forced land evictions from an Ogiek perspective.

Methods: 26 semi-structured interviews and one sharing circle were carried out with Ogiek Peoples in Kenya between December 2021 and March 2023. The interviews and sharing circle were transcribed verbatim, then reflexive thematic analysis was carried out through iterative coding to identify key themes.

Findings: Six themes were characterized: 1) Our cultural practices, ceremonies, and spirituality are tied to our identity as Ogiek; 2) Our foods and plants are our medicines; 3) Maintaining our culture in an everchanging world; 4) The Forest and Ogiek are as one in a reciprocal relationship; 5) Removing an Ogiek from the Forest is like removing a fish from water; and 6) Hope that our rights will be recognized.

Implications: Our study exemplifies the substantial and ongoing impacts of colonial conservation approaches on Ogiek Peoples in Kenya, and highlights the continued need for local and international allies to stand in solidarity with and support Ogiek and other Indigenous Peoples in their efforts to return as the original stewards of their homelands.

Topic : Environmental Pollution and Health

Abstract code : PP049

Abstract title:

A Scandinavian Cohorts Study of Black Carbon Exposure and Birth Weight Outcomes

K.M. Kajsa Pira ¹

Zorana Jovanovic Andersen ², Jiawei Zhang ², Marie Bergmann ², Rina So ², George Maria Napolitano ², Cale Lawlor ¹, Tanya Andersson Nystedt ¹, Youn Hee Lim ², Matthias Ketzel ³, Anna Oudin ¹, Marie Pedersen ², Ebba Malmqvist ¹

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³ Aarhus University Denmark

Background: Air pollution has been linked to reduced birth weight, but the specific effects of black carbon (BC) remain insufficiently explored. This study examined the association of gestational BC exposure and birth weight outcomes.

Methods: We analyzed singleton births in Denmark (1998–2016; n = 1,058,906) and Scania, Sweden (2000–2009; n = 43,676). BC and fine particulate matter (PM_{2.5}) concentrations were estimated using high-resolution dispersion models based on maternal residential addresses during pregnancy. Linear, logistic, and Poisson regression models were used to assess associations between BC exposure and birth weight, low birth weight (LBW), and small for gestational age (SGA), adjusting for spatiotemporal and individual-level covariates.

Findings: Gestational BC exposure was associated with birth weight and SGA risk: interquartile range (0.34 µg/m³ in DK, and 0.25 µg/m³ in SE) increase in BC was associated with -6 g (95% CI: -7, -5.34) and -9.41 g (-17.05, -1.78) decrease in birth weight and a relative risk (RR) of 1.01 (1.00, 1.02) and 1.09 (1.02, 1.18) for SGA in DK and SE, respectively. No association was observed with LBW. After adjusting for PM_{2.5}, the associations were attenuated but remained borderline significant with both for birth weight and SGA in both cohorts.

Interpretation: Our findings suggest that BC adversely affects birth weight, potentially independent of PM_{2.5}, and add important new evidence supporting regulation of BC in addition to PM_{2.5}.

Topic : Communication around Planetary Health

Abstract code : PO051

Abstract title:

Towards Becoming a Net Zero Researcher

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Project- As part of the researcher development across Cambridge University and Anglia Ruskin a new programme aims to help researchers consider their research plans and delivery in terms of sustainability and reflecting the wider ambitions to decarbonise and address environmental justice. Based on several levels of knowledge including Sustainability Development Goals to local University commitments, the course enables critical thinking to support sustainable education

Target Audience- PhD students, ECRs and more experienced and senior researchers across two universities are engaged via the CaRM ([CaRM - Research methods in the heart of Cambridge](#)). Interdisciplinary participants are invited to considering the impact of their work and planetary health provides a lense for adapting methods for increased inclusion, equity and carbon reduction

Goals - There is growing recognition that research (across disciplines) has a carbon cost and that researchers can take responsibility for practices that increase disparity between peoples and places. The know-how to make improvements is low and so this course invites reflection and understanding of the responsibility and commitment of universities to prepare for Net Zero, to enable knowledge into action and to share ideas for methods that reduce carbon footprint

Results - The course [Towards becoming a Net Zero researcher - ARU](#) is gaining traction because regulated and unregulated funders are asking for greater commitment to research within grant applications. The University Alliance of 14 Universities [University Alliance Members – University Alliance](#) in the UK have now commissioned the course as required learning in their ECR programme

Topic : Planetary Health Education or Curriculum

Abstract code : PO052

Abstract title:

Planetary Health in higher education and how do we initiate transformation? An explorative analysis of student essays from an online course on Planetary Health

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Project/Initiative Concept

An online course on planetary health was developed by the Chair of Public Health and Health Services Research at LMU Munich together with the universities of Augsburg, Regensburg and Würzburg in 2020. It is offered through the Virtual University of Bavaria (vhb). So far, between 250 and 300 students in health-related courses have taken the course each semester.

Target audience

Due to its high relevance, the course is not only interesting for the main target group of students in health-related study programmes, but also for students from other programmes who want to approach the topics of planetary boundaries, climate change, sustainability and health aspects.

Goals

The course provides an introduction to the complex field of planetary health and presents the role of changing global conditions and their significance for prevention, disease and epidemiology in the context of inter- and transdisciplinary as well as holistic approaches.

The course ends with examples of transformation in different contexts (e.g. health care, public health services, community, urban environment) and is intended to initiate transformation processes among students. As an exam, students have to write an essay on a topic of their choice in the field of planetary health that requires transformation. In the essay the students discuss possible steps for transformative change.

Results

For the conference, the essay topics were mapped onto key themes (e.g. climate-smart healthcare, nutrition, mobility). The results of the mapping show the broad and transdisciplinary range of issues addressed by the students in their essays.

Topic : Climate Change and Health

Abstract code : PO053

Abstract title:

Extreme weather events, resource insecurity, mobility, and HIV risks: a latent class analysis with refugee youth in a Ugandan humanitarian setting

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Background: Extreme weather events (EWE) and pathways to HIV vulnerabilities are understudied in humanitarian settings. We investigated associations between EWE, resource insecurities, mobility, and HIV vulnerabilities with refugee youth in Bidi Bidi Refugee Settlement, Uganda.

Methods: We analyzed baseline data (02/2024) with a purposive sample of refugee youth aged 16-24 years in Bidi Bidi. We conducted latent class analysis (LCA) to identify distinct risk profiles based on resource insecurities (water, food, sanitation), EWE exposure (number, frequency), and past 6-month mobility, followed by multivariable regression to examine associations between these profiles and HIV vulnerabilities (transactional sex, intimate partner violence [IPV], sexual relationship power [SRP], condom use self-efficacy [CUSE], reproductive autonomy).

Findings: Among n=400 participants (mean age: 19.49 years, standard deviation=2.3; gender: 50% cisgender women, 50% cisgender men), LCA identified three risk classes: Class 1 (moderately resource insecure, highly mobile, frequent EWE exposure), Class 2 (water insecure, low mobility, low EWE exposure), and Class 3 (severely resource insecure, high EWE exposure). Compared to Class 2: Class 1 (adjusted beta coefficient ($a\beta$)=-3.63, 95% confidence interval (CI)=-6.27) and Class 3 ($a\beta$ =-4.24, 95%CI=-6.80, -1.68) reported significantly lower SRP; Class 1 ($a\beta$ =-2.55, 95%CI=-4.21, -0.90) and Class 3 ($a\beta$ =-3.09, 95%CI=-4.69, -1.48) reported significantly lower CUSE; Class 1 (Adjusted odds ratio [AOR]=4.81, 95%CI=1.00, 23.03) and Class 3 (AOR=5.59, 95%CI=1.19, 26.36,) had higher IPV; and Class 1 reported lower reproductive autonomy ($a\beta$ =-0.27, 95%CI=-0.54, -0.01).

Interpretation: Study findings indicate that EWE exposure, mobility, and resource insecurities are associated with relational-level HIV vulnerabilities among refugee youth in a Ugandan humanitarian setting.

Topic : Arts, Narrative, and other Community Engagement in Planetary Health

Abstract code : LT011

Abstract title:

Developing digital stories with youth on climate change and HIV vulnerabilities in Nairobi and Kisumu, Kenya: methods and reflections

C.H.L. Carmen Logie ¹

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Project: Despite a growing focus on the linkages between climate change and HIV vulnerability in Sub-Saharan Africa through pathways such as gender-based violence, youth experiences remain understudied. We developed and implemented a digital storytelling (DST) workshop methodology with youth aged 16-24 in two Kenyan regions to generate insight into youths' lived experiences at the nexus of climate change and HIV.

Target audience: DST involves the creation of short audio-visual clips that combine personal storytelling with images, voice-over narration, and sound effects. This approach can be used as tool for education, advocacy, and youth-centred knowledge production. Youth participants (n=54) were purposively sampled from two locations: a) Nairobi informal settlements, including sexually diverse men (n=9), sex workers (n=12), young women (n=8), young men (n=8), and adolescent mothers (n=8); and b) Kisumu, a fishing community, with young women (n=9).

Goals: The two-day DST workshops focused on: (1) providing information on climate change and its pathways to sexual health outcomes, including HIV; (2) building youth capacity to share their lived experiences and generate solutions through storytelling; (3) teaching audiovisual production skills; and (4) promoting advocacy, awareness, and peer education on HIV and climate change-related issues.

Results: Youth reflections on participating in these DST workshops identified the following themes: new insights on HIV and climate change; developing new video-production skills; building community connections; and feeling more empowered. Findings reveal how DST can amplify youth voices and in turn generate new insights on the intersection of climate change and HIV in climate-affected contexts such as Kenya.

Topic : Planetary Health Education or Curriculum

Abstract code : PP052

Abstract title:

Medical school performance and participation metrics in the Planetary Health Report Card: global trends from 2020 to 2025

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Background: The Planetary Health Report Card (PHRC) is an international organization dedicated to advocating for planetary health education in health professional schools. Since 2020, the PHRC has annually produced metric-based report cards that assess school planetary health practices in five subsections: curriculum, interdisciplinary research, community outreach, support for student-led initiatives, and campus sustainability. The PHRC is a barometer for the state of planetary health education, providing a valuable decision-making tool for students, institutions, and policymakers. Our analysis focused on medical school report cards because they comprise the majority of the overall dataset and offer a longer observation period with more granular data.

Methods: Metric-level data were extracted from all medical schools that completed at least one PHRC from 2020 to 2025. We calculated summary statistics and examined global trends over time for each metric, all subsections, and overall score.

Findings: Regional representation and school participation increased, with two countries (11 schools) participating in 2020 and 18 countries (138 schools) participating in 2025. The US and UK were the most-represented countries. Mean and median overall score decreased from 2020 to 2022 before recovering steadily through 2025. Notably, mean curriculum scores increased from 2020 to 2025, with an 11% increase from 2024 to 2025.

Interpretation: The increasing trends in both overall and subsection scores from 2020 to 2025 suggest heightened awareness and implementation of planetary health education in medical schools globally. Continued growth of the PHRC will enhance its potential to inform institutional-level improvement in planetary health education.

Topic : Health System Greening and Strengthening

Abstract code : PP053

Abstract title:

Transforming healthcare foodservice for individual and planetary health – results from the NURISHD study

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Background

Healthcare foodservice has huge potential to improve health, reduce institutions' environmental footprint, and influence societal perceptions of a healthy and sustainable diet. We aim to assess the status quo of healthcare foodservice in Germany and evaluate barriers and levers for change.

Methods

The mixed-methods *NURISHD* study assessed the healthiness and nutritional adequacy of meals using the Planetary Health Diet Index, the Healthy Eating Index-2020, and the German nutrient database in 2 hospitals and 3 nursing homes. Annual environmental impacts were analyzed based on procurement data, using a life-cycle analysis database. We conducted 18 stakeholder interviews in 9 healthcare institutions and evaluated transcripts using qualitative content analysis.

Findings

The dietary quality of foodservice was low due to a high amount of animal-source foods, refined grains and sugar, and low shares of wholesome, plant-based foods. Provision of several nutrients was inadequate. High procurement of red meat and dairy contributed to an unfavorable environmental footprint. Healthcare stakeholders showed a general openness to change, but often a lack of agency and knowledge regarding shifts towards healthy and sustainable foodservice. Perceived barriers included financial limitations and acceptance of plant-based foods. Suggested solutions included institutional commitment, teamwork, and political support. Institutions that served more plant-based meals reported acceptance of foodservice changes over time.

Interpretation

Our study shows drastic shortfalls in dietary quality and sustainability of healthcare foodservice, highlighting an urgent need for action. Perceived barriers, solutions, and 'lessons learned' by healthcare stakeholders should be addressed when designing foodservice interventions.

Topic : Planetary Health Education or Curriculum

Abstract code : PP054

Abstract title:

Application of the Planetary Health Education Framework: Insights from students and educators involved in multi-disciplinary curricula co-design

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¹ Monash University Australia

Background To prepare our future healthcare workforce for planetary health challenges, experts have called for transformative approaches to tertiary education. This study examines a whole-of-Faculty curriculum co-design intervention in an Australian institution. A suite of learning and teaching activities were developed to simultaneously empower students and build educators' capacity to promote planetary health in their current and future practice.

Methods Twenty-four co-design workshops were facilitated over 15 months, involving 48 Champion students and 18 Champion educators from 12 health disciplines. Champions from each discipline developed, piloted and refined a learning and teaching activity, informed by the Planetary Health Education (PHE) Framework. Curriculum materials (learning objectives, slide decks, activity instructions, etc) were analysed deductively to determine which curriculum concepts were most frequently prioritised.

Findings Twelve learning and teaching activities were designed with, and for, health professions students, including assessment tasks (n 3), self-paced online modules (n 8), laboratory activities (n 2) and interactive workshops (n 7). Champions prioritised two PHE Framework domains; 'The Anthropocene and Health' and 'Movement Building and Systems Change'. A number of curriculum concepts not currently included in the PHE Framework were also identified, and may be useful for iterating the PHE Framework.

Interpretation Curriculum co-design, involving students and educators, was an effective approach to increase the quality and quantity of planetary health education offered to healthcare students. The PHE Framework was a useful resource to guide such multi-disciplinary curriculum development, however future iterations could include additional concepts and details identified as missing in the current Framework.

Topic : Mental Health and Environmental Change

Abstract code : PO131

Abstract title:

Exploring Eco-Anxiety in Italian Adolescents: Validation of the Climate Change Anxiety Scale and Hogg Eco-Anxiety Scale

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Background Validating reliable psychometric measures for assessing climate change-related anxiety is essential to develop accurate diagnosis and targeted interventions, especially for adolescents who are particularly vulnerable to these emotional burdens. The present study aims to explore the psychometric properties of the Climate Change Anxiety Scale and the Hogg Eco-Anxiety Scale among adolescents in Italy.

Methods Two samples of Italian adolescents were recruited. In the first sample, the psychometric properties of the CCAS were explored. In the second sample, the psychometric properties of the HEAS were explored. Participants were asked to respond to four self-report questionnaires: the CCAS, the HEAS, the Climate Change Worry Scale, and the New Ecological Paradigm Scale-Revised.

Results The CCAS showed a two-factor structure (i.e. cognitive impairment and functional impairment) with a good fit. McDonald's Omega values were .91 and .87. Both the CCAS factors were positively correlated with climate change worry, whereas only cognitive impairment was positively associated with pro-environmental behaviors. The HEAS showed a four-factor structure (i.e. affective symptoms, rumination, behavioral symptoms, anxiety about personal impact) with a good fit. McDonald's Omega values ranged from .74 to .85. All the HEAS factors positively correlated with climate change worry, anxiety, and pro-environmental behaviors.

Interpretation The CCAS and the HEAS are useful instruments with good psychometric properties for assessing climate change anxiety and eco-anxiety among Italian adolescents. The results highlight the potential dimensionality of the constructs assessed. Identifying dimensions helps us better define the constructs and their psychological correlates, which inform subsequent intervention strategies.

Topic : Health System Greening and Strengthening

Abstract code : LT012

Abstract title:

Climate-Resilient Healthcare in Chad: A Case Study of Vulnerability and Capacity Assessment

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Background

Chad is highly vulnerable to climate change, with rising temperatures, erratic rainfall, droughts, and resource scarcity exacerbating food insecurity, malnutrition, and vector-borne diseases such as malaria. These climate stressors have significantly impacted healthcare services in Ngouri, a rural area in the Lac Region, where facilities struggle to maintain essential services. This case study presents a facility-adapted Climate Vulnerability and Capacity Assessment (VCA) for a rural hospital in Chad, identifying key risks and prioritizing solutions to enhance climate resilience.

Methods

A participatory mixed-methods design was employed, structured into five stages: (1) Literature review on climate hazards, exposure pathways, and population vulnerabilities; (2) Facility audit assessing infrastructure and healthcare delivery gaps; (3) Qualitative focus groups to refine risk identification; (4) Development of a matrix of solutions with cost estimates and feasibility analysis; and (5) A participatory prioritization process to develop a multi-year facility improvement plan.

Findings

The VCA identified critical climate risks, including increased malarial mortality and power outages disrupting oxygen supply. A total of 35 solutions were generated, with 22 priority actions selected for implementation. These included anticipatory planning, community sensitization, supplementary feeding programs, and improved waste management. The assessment underscored the importance of community engagement, multidisciplinary collaboration, and staff motivation in strengthening healthcare resilience.

Interpretation

This adapted VCA provides a replicable method for assessing climate vulnerabilities in healthcare facilities. Findings highlight the need for sustainable, context-specific adaptation strategies to align health systems with global sustainability goals and ensure quality healthcare access amid climate change.

Topic : Planetary Health Education or Curriculum

Abstract code : PO057

Abstract title:

Co-Creating Planetary Health Education: Empowering Communities in Southeast Asia through the CATA-Earth Project

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Background

The climate and the global environmental crisis requires the integration of Planetary Health into higher education. Although the number of Planetary Health courses is rapidly increasing, they remain mostly available and oriented to students from high-income countries. Through the CATA-Earth project we aimed to expand access to these courses in climate-vulnerable areas of Asia, offering a curriculum tailored to the local context and community needs.

Methods

The CATA-Earth project employs a "Co-Design, Co-Develop, and Co-Deliver" (3Cs) approach to co-create educational material in collaboration with local stakeholders. A co-creation activity, following design thinking framework, was held in August 2024 at Universitas Indonesia, involving 28 participants from academia, government, and NGOs in Indonesia and Bangladesh to gather insights for developing Planetary Health education tailored to Indonesia and Bangladesh specific context.

Findings

The findings revealed participants' knowledge gaps and their willingness to deepen their understanding of policy, teaching, community engagement, and research. They highlighted key competencies like critical thinking, communication, ethical leadership, and lifelong learning, focusing on local issues and social justice. These insights informed a culturally adapted, ethically grounded competency framework for Planetary Health education.

Interpretation

The study identified key competencies for Planetary Health professionals, highlighting a gap in interdisciplinary education. It suggests that education should focus on adaptive thinking and problem-solving, especially in climate-vulnerable regions like Southeast Asia. Ethical leadership and social responsibility were emphasized, encouraging professionals to act with integrity and promote sustainability. Lifelong learning was considered important to keep professionals updated on evolving Planetary Health challenges.

Topic : Arts, Narrative, and other Community Engagement in Planetary Health

Abstract code : PO058

Abstract title:

Planetary health at the heart of the living world: an exhibition of nature photos with significant quotes to raise awareness among general practitioners

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A congress of General Practitioners (GPs) was held in Dijon in 2022. The event organisers wanted to promote and enhance Planetary Health (PH), both in terms of organisation and content of the sessions.

As someone who is committed to PH and an amateur photographer, I was asked to propose a photo exhibition on this theme.

I selected eleven nature photographs that I had taken in previous years. The first photograph in the exhibition, measuring 50x70cm and depicting the Cirque de Gavarnie, is next to an introductory text in the same format about what PH is all about. The next ten photographs, in 40x60 cm format, are accompanied by ten significant texts on PH.

The beauty of our planet is thus illustrated by quotations that are often philosophical, sometimes poetic, sometimes factual, witnessing the planet's splendours, damages and weaknesses.

As an exhibition designed for GPs, some of the quotes chosen are specifically tailored to an audience of health professionals, such as a quote from the 'Declaration calling for family doctors of the world to act on PH' - next to contrasting Pyrenean trees in autumn - or this other one from the 'Pledge for PH to unite health professionals in the Anthropocene' -next to a bird on a lake at sunset-.

The exhibition was seen by several hundred GPs over two days. Last summer, it was given a second life in the library of the town where I practise, continuing its role of raising awareness among professionals and the general public.

Topic : Planetary Health Education or Curriculum

Abstract code : PO059

Abstract title:

Establishing an Interuniversity Online Journal Club for Planetary Health Master's Students

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Project/Initiative Concept:

The Planetary Health Journal Club project, as part of the PHA Campus Ambassador Programme, is an initiative designed to foster academic engagement and international networking among Master's students in Planetary Health. This project aims to connect students from different universities through a structured forum for critical discussion, seeks to address student-reported feelings of isolation in online learning, and enhances engagement with planetary health research.

Target Audience:

The initiative targets Master's students who study Planetary Health online at the Universitat Oberta de Catalunya (UOC) and the London School of Hygiene and Tropical Medicine (LSHTM), with possible expansion to other institutions offering similar programs.

Goals:

Primary objectives of the journal club are:

Strengthen critical reading and discussion skills in planetary health. Facilitate interdisciplinary networking. Provide a dedicated space for discussion of research papers and case studies. Assess the demand for such initiatives through student feedback and engagement.

Results:

Preliminary survey results (n=18) show strong interest in the journal club. Peer connection is low, with 61% rating their connection as 1 or 2 (low) on a 5-point Likert scale and 33.3% selecting 3 (somewhat connected). Only 16.7% feel part of the broader planetary health community, while 33% do not. Workload is potentially the most significant barrier to attending (66.7%), split between academic (38.9%) and job (44.4%) commitments. The first session of the journal club is scheduled for April 2025, with data collection ongoing to assess further requirements, with final survey results and attendance data to be presented at PHAM 2025.

Topic : Urban Health and Sustainability

Abstract code : PP061

Abstract title:

Association of greenspace and landscape metrics with prevalence of chronic diseases: an ecological study in the Tuscany region, Italy.

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Background

Urban green spaces have shown health benefits in North America and Northern Europe, but evidence is limited for Southern European compact cities. The relationship between urban structure, distribution of green spaces, and health outcomes were examined in the 273 municipalities of Tuscany, Italy.

Methods

This ecological cross-sectional study used exposure data from remote sensing and land use datasets. Exposure variables included the Normalized Difference Vegetation Index (NDVI), percentage of impervious surfaces, and urban landscape metrics. Municipality-level health outcomes, collected from Tuscany's open-access health data portal, were diabetes, hypertension, ischemic heart disease (IHD), heart failure (HF) and dementia prevalence. Prevalence ratios with 95% confidence intervals were estimated using robust Poisson regression models and adjusted for potential confounders, including urbanicity and socio-demographic factors.

Findings

The study highlighted a borderline inverse association between NDVI and IHD prevalence, with a prevalence ratio (PR) of 0.986. Greater landscape connectivity was associated with a lower prevalence of IHD (PR: 0.983) and dementia (PR: 0.970). In cluster analysis, fragmented structures vs compact ones showed a higher prevalence of HF (PR: 1.050) and dementia (PR: 1.068). Compared to sprawling, dispersed monocentric municipalities had a lower prevalence of HF (PR: 0.854) and diabetes (PR: 0.718), but a higher prevalence of dementia (PR: 1.262), while polycentric municipalities exhibited a higher prevalence of IHD (PR: 1.042). The compact monocentric structure didn't show significant associations.

Interpretation

Strategic urban and greenspace planning could help reduce the burden of chronic diseases in Tuscany and in other similar settings.

Topic : Gender, Culture & Participatory Approach in Planetary Health

Abstract code : PO061

Abstract title:

Fostering a Sustainable University Hospital Through Participatory Staff Engagement

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This paper presents the concept and initial phase of an initiative within the Caring Nature EU funded project, focused on developing, testing, and validating a participatory staff engagement model at a university hospital in Granollers, Catalonia. Recognizing the crucial role of frontline staff in achieving long-term sustainability, this initiative aims to build a dynamic Community of Practice (CoP) encompassing medical, nursing, clerical, customer service, and surgical guard personnel. The CoP serves as a platform for fostering collaboration and generating innovative methods towards a more sustainable hospital environment. The core objective is to empower staff to actively contribute to identifying challenges and co-creating solutions related to environmental impact, resource management, and operational efficiency. This presentation will outline the theoretical framework underpinning the participatory engagement model, the planned activities for the CoP (including workshops, seminars, and training sessions), and the methodology for evaluating its effectiveness. Preliminary insights into the formation of the CoP and the initial analysis of engagement activities will be discussed, highlighting the potential of this model to cultivate a culture of ownership and drive meaningful change towards a sustainable university hospital.

Keywords: Participatory Engagement, Staff Engagement, Community of Practice, Sustainability, University Hospital, Healthcare Innovation.

Topic : Planetary Health Education or Curriculum

Abstract code : PP062

Abstract title:

Intervention study on the educational potential of implementing planetary health literacy in medical studies

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Background: Pediatricians play a crucial role in climate-sensitive health counselling (CSHC) due to children's vulnerability to planetary crises. However, few medical education programs consider the health effects of planetary crises on children and the development of transformative medical responses. We assessed whether a student-led module could enhance students' planetary health literacy and evaluated its didactic design.

Methods: A teaching module titled "Child Health in Times of Planetary Crises" was co-developed, integrating insights from interviews with pediatricians practicing CSHC. Measurable learning objectives were created using Bloom's taxonomy. The module included an online course and a seminar that applied CSHC in pediatric scenarios, focussing on preventive and adaptive consultation. Pre- and post-course questionnaires assessed planetary health literacy, covering knowledge, understanding, and self-assessed competence, along with feedback on the course design. Statistical analysis included paired t-tests, Pearson correlations, and median comparisons.

Findings: Pediatricians identified the lack of education as a barrier to implementing CSHC. Students rated the module's content as "important", "interesting" and "neglected in the rest of the curriculum". Their planetary health literacy improved significantly across knowledge, comprehension of pediatrician's special responsibilities, and self-assessed competence to advise patients on adaptive and preventive measures ($p < 0.01$). The module's design received positive evaluation.

Interpretation: The module effectively enhanced planetary health literacy among medical students. Competence-based education on medical response strategies is essential for addressing children's vulnerability to the growing health risks posed by planetary crises. We recommend integrating planetary health education into discipline-specific teaching and cross-disciplinary subjects.

Topic : Health System Greening and Strengthening

Abstract code : PO062

Abstract title:

Quantifying the Role of Operating Theatres in Healthcare System Carbon Emissions

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Background Healthcare systems (HSs) contribute ~4.4% of global carbon emissions, primarily from the supply chain, as highlighted in our recent rapid scoping review, “The elephant in the room in greenhouse gases emissions: rethinking healthcare systems to face climate change”. Within hospitals, operating theatres (OTs) are among the most resource- and emission-intensive areas, yet their specific contribution and mitigation options remain underexplored. This study builds on previous work by examining OTs as a key site for emissions and potential mitigation.

Methods We expanded upon our prior scoping review by conducting a targeted literature search with keywords related to greenhouse gas emissions, hospitals, and OTs. Inclusion criteria were based on the original study, with added focus on mitigation strategies in OTs. We analysed the literature to determine OTs' share of healthcare emissions and identify mitigation opportunities.

Findings Our analysis suggests that OTs contribute disproportionately to healthcare-related carbon emissions, driven by energy-intensive processes, anaesthetic gases, and single-use surgical equipment. However, the studies on OT sustainability are geographically uneven, with most research in high-income, English-speaking countries. Targeted interventions in OTs—such as optimised waste disposal, energy-efficient sterilisation, and reduced reliance on high-impact anaesthetic gases—show potential for significant emissions reductions.

Interpretation Targeted interventions in OTs can reduce the environmental impact of HSs. Understanding OT's carbon footprint relative to total HSs emissions can guide sustainability policies. Further research is needed to ensure equitable access to sustainable practices across diverse healthcare settings.

Topic : Health System Greening and Strengthening

Abstract code : PP064

Abstract title:

Plastics to Play: Engaging Future Innovators in Healthcare Sustainability through Recycled Medical Waste

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United States hospitals produce approximately 6 million tons of waste annually. Our project originated from a medical resident orientation session at Atrium Health Carolinas Medical Center in Charlotte, North Carolina focusing on healthcare sustainability. In a “Shark Tank” style competition, participants pitched ideas for transforming medical plastic into something purposeful for patients. This annual onboarding event was held in partnership with Envision Charlotte at The Innovation Barn, a sustainability hub leading Charlotte’s transition to a circular economy.

We launched the “Plastic to Play” program originating from the prior session’s proposals. This innovative program seeks to transform plastic hospital waste into toys for children at Atrium Health Levine Children’s Hospital. We aim to demonstrate that plastic hospital waste can be repurposed meaningfully for patients rather than end up in landfills, oceans, or shipped to developing countries. Phase 1: Our team collected empty saline bottles from the operating rooms, which were then processed into 3D flake at the Innovation Barn’s Plastic Lab. Phase 2: Toy prototypes have been created using a 3D-printer. Phases 3: We are working with our local STEM middle school program to design and print items. Children hospitalized at Levine Children’s Hospital can select a toy and information will be provided on its life cycle.

Expansion plans include exploring making adaptive tools and prosthetic components, further demonstrating the potential of circular economy solutions in healthcare. This program brings awareness to the challenge of healthcare waste and sparks collaborative solutions that embrace a cradle-to-cradle framework for waste reduction.

Topic : Planetary Health Education or Curriculum

Abstract code : PO063

Abstract title:

National activities to strengthen climate literacy in healthcare professions in Austria

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Initiative Concept

Climate change and its impact on health are increasingly being taken into account in health policy. Pressure points arise from more frequent heat waves, increased pollen load, among others. To tackle these challenges, the healthcare system plays a key role through health promotion, prevention, and medical care. Climate-smart health workforce as a relevant dimension for a climate-resilient health system therefore needs to be strengthened in its role. Here we present the work at national level aiming to strengthen a climate-smart health workforce.

Target Audience

The target audience includes healthcare professionals, teachers, and policymakers in the health system. To establish health-related climate literacy in healthcare professions in the long term, three implementation processes need to be set up including those in training, those already working in the healthcare professions, and those responsible for training and educating healthcare professionals.

Goals

The primary goals to strengthen the role of a climate-smart health workforce in Austria are: (1) building a common understanding of climate-smart health workforce, (2) developing a comprehensive content framework for health-related climate literacy, (3) implementing a train-the-train course for those responsible for training and educating healthcare professionals, and (4) organising networking events.

Results

The initiative has led to the creation of a common understanding and a cross-professional handbook aimed at strengthening health-related climate literacy. Systematically building and strengthening health-related climate literacy in the health system, especially among healthcare professionals, is an appropriate way to adapt to the multiple and severe impacts of climate change on people's health and well-being.

Topic : Policy and Advocacy in Planetary Health

Abstract code : PO064

Abstract title:

National Public Health Institutes' journey to embrace planetary health systems approaches

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National Public Health Institutes (NPHIs) and their academic partners envision NPHIs as vanguards of planetary health systems approaches to tackle severe, interconnected challenges. Climate change, environmental degradation, and biodiversity loss are disproportionately caused by high-income countries, while low-income countries and future generations bear the consequences. A just approach must prioritize fundamental human needs—clean water, air, land, and wellbeing—within planetary boundaries.

NPHIs can play a key role in embedding planetary health thinking into all sectors, leading a paradigm shift to a sustainable, equitable society that meets the needs of all. But we cannot do this alone. We need to create networks of researchers, policy makers, civil society actors and health professionals, and embed learning and sharing within these networks to accelerate our efforts. Therefore, we have started collaborating with partners for transformative change, focusing on resilience, adaptation, mitigation, and restoration.

We will share NPHIs' work to meet planetary health challenges. For example, indicators tracking climate-related health risks and impacts are being developed to enhance surveillance and monitoring. This informs and improves national and local adaptation efforts and the climate resilience of health systems. Aligned with efforts to lower the climate footprint of health systems, this provides significant current and future health benefits. Furthermore, our advisory work on transforming cities and towns into healthy climate-resilient environments embraces a nature-inclusive approach, recognising that healthy ecosystems form the foundation of our health and well-being. With our partners we will continue to strive towards an equitable, safe and just world where future generations can thrive.

Topic : Climate Change and Health

Abstract code : PP154

Abstract title:

Mapping the Climate–Health–Adaptation Nexus: A Qualitative Systems Analysis of Feedback Dynamics in Global Adaptation Strategies

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Climate change poses escalating threats to human health and wellbeing, prompting the adoption of adaptation interventions across multiple sectors. However, the feedback dynamics linking adaptation strategies, health outcomes, and climate vulnerability remain poorly understood. This study explores these systemic interconnections to inform more resilient adaptation policy.

Using a systems thinking approach, we developed a qualitative Causal Loop Diagram (CLD) to map the interrelationships between climate hazards, adaptation interventions (e.g., infrastructure, nature-based solutions), and health outcomes. The diagram was constructed through a structured literature synthesis of over 70 peer-reviewed studies and policy reports, focusing on feedback mechanisms and potential unintended consequences.

We identify key balancing loops through which adaptation reduces health burdens and vulnerability (e.g., via healthcare demand, critical infrastructure protection), alongside reinforcing loops that amplify risk (e.g., health-driven vulnerability, maladaptive reliance on emission-intensive technologies). The analysis highlights the risk of “Fixes That Fail” patterns, where short-term adaptations exacerbate long-term systemic fragility.

Health is both shaped by and a determinant of climate vulnerability, highlighting the need for integrative adaptation strategies that avoid maladaptation and generate co-benefits for resilience and mitigation. A systems thinking lens reveals how narrowly focused or siloed interventions can inadvertently reinforce systemic risks. To capture these dynamics, we revise the “Fixes That Fail” archetype within the climate–health–adaptation nexus, illustrating how maladaptive responses can intensify climate hazards, while integrative strategies foster long-term resilience and mitigation. The CLD provides a conceptual foundation for designing adaptation interventions that are systemic, health-sensitive, and sustainability-oriented.

Topic : Planetary Health Education or Curriculum

Abstract code : PP066

Abstract title:

Educating for a Healthier Planet: A Systematic Review of Frameworks, Competencies, and Teaching Methods in Planetary Health Education

C.C.R. Carme Carrion ¹

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Background: Planetary Health examines the impact of the global environmental crisis on health, highlighting the urgent need for transdisciplinary, intersectoral, and holistic solutions tailored to local realities. Thus, it is essential to design training programs that align with the unique needs of diverse groups and geographical areas. Although planetary health programs are emerging worldwide, their scope and learning outcomes remain largely unknown. This review aims to illuminate the current state of planetary health education.

Methods: Following PRISMA Extension for Scoping Reviews (PRISMA-ScR) guidelines, studies targeting undergraduate and postgraduate students, focusing on skills, knowledge, and abilities related to planetary health, were included. Databases consulted included MEDLINE via PubMed, Scopus, Web of Science, and ProQuest. The protocol has been registered in the Open Science Framework database (registration number: osf.io/h2b3j, March 2024).

Findings: Seventy-three articles were included, 88% from high-income countries and 49% focused on health professionals. Identified conceptual frameworks included "One Health," "Sustainable Development Goals," and the "Planetary Health Education Framework." Transversal skills (complex problem-solving, systemic thinking, collaboration, interdisciplinary) and specific competencies (understanding health interactions with climate change, pollution) were outlined in 45% of studies. Half of the studies described 23 general topics and 93 specific content areas. Teaching methods included in-person (59%), virtual (12%), and hybrid models (29%).

Interpretation: This review highlights the heterogeneity in conceptual frameworks, competencies, content, and teaching methods in planetary health education for health professionals. Future research should focus on developing and evaluating evidence-based educational models to address the evolving challenges of planetary health.

Topic : Planetary Health Education or Curriculum

Abstract code : PP067

Abstract title:

Medical education in times of ecological and climate crises in Czechia

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Our 30-hour elective course offers medical students in Prague the opportunity to explore the health impacts of the ecological and climate crises on health. Drawing on the concepts of planetary boundaries and socioecological determinants of health, and structured around the interrelated crises of chemical pollution, loss of abundance and diversity of life, and climate change, we cover diverse themes ranging from planetary homeostasis and mechanisms of climate change; extreme weather and vulnerability; changing patterns of infectious diseases; urbanism and transport; endocrine and metabolic disruption and the impacts of microplastics and PFAS; neuroimmunology; nutrition and food systems: microbiome and biodiversity; philosophical critiques of anthropocentrism; mental health; healthcare related pollution; to social responsibility of medical professionals. Our team consists of medical doctors of different backgrounds - general practice, anaesthesia, internal medicine, neurology, psychiatry, and researchers in the area of endocrine disruptors, ecology, anthropology and ethics, and engineering applied to healthcare - engaging students with a variety of perspectives and professional experiences. Our teaching is informed by experiential and dialogical pedagogy, grounded in interdisciplinary approaches, with the aim to strengthen critical and integrative system thinking, and consists of interactive introduction to the topic, student presentation of diverse texts, group work on case studies, and discussion, and is concluded by a final reflective essay. After four successful iterations for over 80 international students from Europe, Middle East, Asia, and America, we now expand this project into an e-learning course for GPs, public engagement through different media, and webinars for the general public in Czechia.

Topic : Gender, Culture & Participatory Approach in Planetary Health

Abstract code : PP068

Abstract title:

Priorities and Options for Action for Planetary Health in Eastern Africa in Research, Education and Community Action

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Background:

The concept of Planetary Health is increasingly recognized in Eastern Africa, where activism, education and research are steadily growing. However, there is limited evidence on the specific priorities and actions needed to promote Planetary Health in this region. This study aims to identify priorities and options for action for Planetary Health in research, education and community action, focusing on the regions of Mwanza, Tanzania and Eldoret, Kenya.

Methods:

From October to December 2024, 26 semi-structured interviews were conducted with key informants, including researchers, activists, educators, and student leaders from various institutions and organizations. Participants were selected employing purposive and snowball sampling. Thematic analysis was carried out by an international team using Braun and Clarke's framework.

Preliminary Results and Interpretation:

First, the interviewed key informants identified cultural and contextual diverse communities as central in education, research and action. Community members, who are most affected by climate and environmental impacts, are experts on their context. They should be equitably involved in research, education and action, and capacity strengthened through education campaigns, empowering local leaders and funding for locally-led initiatives. However, limitations of their responsibilities and capabilities have to be acknowledged.

Second, higher learning institutions are seen as hubs for transformation, promoting Planetary Health research, education and action. Especially students' initiatives are feasible and impactful. Capacity building in higher learning institutions should be prioritized.

Third, the results emphasize the practical and multidisciplinary approach of Planetary Health research and education, from practice-based learning to interventional research, and the need for transdisciplinary cooperation.

Topic : Climate Change and Health

Abstract code : PP069

Abstract title:

The International Neuro Climate Working Group: A Global, Interdisciplinary Model for Advancing Planetary Health Through Brain Health

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Project/Initiative Concept

Climate change is the defining global health crisis of our time, yet its effects on brain health remain under-recognized and under-researched, especially in low- and middle-income countries. Emerging evidence links climate-related stressors—such as heat, air pollution, environmental toxins, and vector-borne diseases—to neurological and mental health issues.

To address this gap, we launched the International Neuro Climate Working Group (NCWG), a global, interdisciplinary consortium of neuroscientists, clinicians, public health professionals, environmental scientists, policymakers, and community leaders focused on the intersection of climate change and brain health.

Target Audience

NCWG engages planetary health researchers, public health professionals, biomedical and environmental scientists, mental health practitioners, policymakers, and climate advocates. It is particularly relevant for those developing climate-health strategies in vulnerable communities and low-resource settings.

Goals

NCWG's mission is to enhance the understanding of how climate change affects brain health and to use this knowledge to drive meaningful change. Its key objectives include:

1. To advance understanding of how climate change impacts neurological and mental health.
2. To foster interdisciplinary and international collaboration across research, clinical practice, and policy.
3. To generate actionable, evidence-based guidance for adaptation and prevention strategies at both global and local levels.
4. To provide a scalable model for other planetary health efforts.

Results

Since April 2024, NCWG has grown to 160+ members from 38 countries, catalyzing research, co-authoring publications, developing educational materials, and presenting at global health and climate meetings. Its collaborative, interdisciplinary, and community-centered approach provides a unique and replicable framework for other planetary health initiatives.

Topic : Arts, Narrative, and other Community Engagement in Planetary Health

Abstract code : PO068

Abstract title:

Piloting an Experiential Planetary Health Learning Program for Young African Australians

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Planetary Health is a social, transdisciplinary movement that examines and understands the human impacts on Earth's natural systems, human health, and, ultimately, all life on Earth. A pilot program providing experiential learning opportunities for young African Australians was designed to engage an underrepresented demographic in this movement. The pilot program offered the opportunity to explore Planetary Health meaningfully in a localized context. Initial activities included community outreach to identify interested participants and tailor the program to their needs. These consultations resulted in a 3-day series of participatory workshops titled "the Planetary Health Summit," addressing various elements of Planetary Health based on the Planetary Health Education Framework. Topics covered include sustainable food systems, biodiversity, and the relationship between climate change and mental health. The proposed session will discuss lessons learned, student-led model development, and overall best practices moving forward.

Topic : Arts, Narrative, and other Community Engagement in Planetary Health

Abstract code : PP070

Abstract title:

Empowering Local NGOs through Impact Investment: Lessons from Indonesia's Bisa Sembuh Fund for Planetary Health

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The Bisa Sembuh Fund is a catalytic impact investment initiative by Kitabisa, Indonesia's largest digital crowdfunding platform, that supports community-led health interventions aligned with planetary health principles. Launched in 2024, the program awarded a total of Rp1.000.000.000 (55.000 euro) to five grassroots Civil Society Organizations (CSOs) across Indonesia. Each selected CSOs received Rp200.000.000 (11.000 euro) along with tailored mentoring in program design, implementation, and participatory monitoring and evaluation (M&E).

The target audience includes local CSOs working on issues at the intersection of human and environmental health, particularly in underserved regions. The program aims to strengthen NGO capacity to manage and accelerate the delivery of planetary health-aligned interventions—ranging from nutrition and sanitation to behavioral change and environmental sustainability.

Through this model, Kitabisa not only empowers CSOs but also engages the public as indirect contributors to planetary health via digital fundraising. By linking social enterprise with community impact, Bisa Sembuh Fund redefines collective responsibility for planetary health challenges.

The initiative reached over 1,000 beneficiaries in Java and East Nusa Tenggara through funded CSOs. Results include reduced stunting and wasting through community-based nutrition, improved water access and reduced single-use plastics, and a shift toward healthy, local beverage consumption in schools. These efforts contribute to climate-resilient communities, responsible consumption, and sustainable food systems—core components of the planetary health approach.

Topic : Infectious Diseases and Environmental Change

Abstract code : PO134

Abstract title:

Strategic uncertainties surrounding mosquito borne disease policy-making in the Netherlands: a game theoretic approach

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Introduction: One Health decisions are challenging due to substantive and strategic uncertainty. Strategic uncertainty about other actors' incentives and priorities can lead to unilateral decisions based on individual interpretations of evidence, potentially resulting in suboptimal outcomes. This study aims to map strategic uncertainties surrounding a specific One Health issue (mosquito-borne disease policy) in the Netherlands.

Methods: We used a game-theoretic framework to identify game characteristics from 26 stakeholder interviews: context (where the game is played), actors (who is playing), content (what is at stake), and process (how the game has developed and what strategies were employed). Games with the same set of actors and overlapping content were clustered.

Results: We identified 15 games, centered mostly around trade-offs between domains (human health, animal health, and the environment) and the volunteer dilemma inherent in prevention policy. We identified three game clusters: Multi-level governance (Multi-Issue and Cascade games) forms the context in which mosquito-borne disease policy is developed and carried out. In this context actors have to decide across time and hierarchical levels how to deal with the threat of invasive mosquito's (Volunteer dilemma and Hub-Spoke games) and zoonotic diseases in general (Battle-of-the-Sexes and Principal-Agent games, and the volunteer's dilemma).

Conclusion: One Health decisions are challenging due to uncertainty. Although the focus is often on substantive uncertainty, strategic uncertainty about other actors' incentives and priorities can lead to unilateral decisions based on limited interpretations of evidence, potentially resulting in suboptimal outcomes. We argue for more awareness of strategic uncertainties and an actor-centered approach.

Topic : Planetary Health Education or Curriculum

Abstract code : PP072

Abstract title:

Planetary Health Education in Pre-registration Nursing Curricula: Empowering Future Leaders and Protecting Our Planet

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Initiative

The nursing profession is positioned to drive change within the healthcare setting to promote planetary health. As population health and healthcare systems suffer, there is an urgent need to integrate fit-for-purpose planetary health education into undergraduate nursing curriculum. In 2024, an Australian university introduced core planetary health curricula into the Bachelor of Nursing program. The curricula focused on developing connections between planetary health and nursing practice while developing advocacy skills to address environmental impacts.

Target Audience

The curricula (online self-guided module and face-to-face tutorial) was co-designed by nursing students (n 5) and educators (n 2). These learning and teaching activities were piloted, examined and refined following student feedback and delivered to second year Bachelor of Nursing Students (n 200).

Goals

The intervention goals were twofold. 1) To assess impact on student perceptions before and after engagement with the planetary health curricula via a five question pre-post poll. 2) To analyse student responses during tutorials regarding key learnings, student concerns regarding planetary health, and advocacy opportunities to improve global impacts.

Results

Quantitative pre- and post- poll data show statistically significant improvements in perceptions about planetary health in nursing practice across all five indicators. Qualitative thematic analysis of collected and validated student responses resulted in four key themes: Education, Planetary Impacts, Human Responsibility, and Resources/Sustainability. Students described associations with disease trends, differentiation between planetary health and climate change, the need for quality planetary health curricula, and urgent political action to mitigate damage to our planet and inhabitants.

Topic : Climate Change and Health

Abstract code : PO069

Abstract title:

European Climate Change and Health Systems Course

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Project/Initiative Concept

A 10-week online course was offered to health professionals and students by the Association of Schools of Public Health in the European Region and the Global Consortium for Climate and Health Education. Participants were required to attend 70% of the webinars, complete weekly quizzes, and achieve 70% on the final assessment to get a certificate. Each webinar included a 50-min lecture and two 15-min case studies.

Target Audience

Health professionals and students in Europe

Goals

This course aimed to educate health professionals and students on the impact of climate change on health systems in Europe.

Results

A total of 4,382 people from 164 countries registered for the course. Most participants were from Africa (1976) and Europe (1191). The countries with the greatest number of participants were Nigeria (370), Kenya (344), and Ghana (253). Most participants were employed by academic institutions (1418) followed by government or intergovernmental institutions (1346) and non-governmental organisations (844). Participants had mostly a Public Health or Medical background (1673 and 863, respectively). Most participants had not received any Climate and Health training (2538). Overall, feedback on the webinars was good. During the first 8 webinars, 2209/4518 (49%) participants considered the content of the lectures as excellent or very good. Satisfaction with case studies was comparable with 2194/4566 (48%) participants considering their content as excellent or very good. Importantly, 1952/4576 (43%) participants reported that the webinars were extremely or very impactful on their practice. Final results will be available by the time of the conference.

Topic : Health System Greening and Strengthening

Abstract code : PP073

Abstract title:

Developing equitable health systems to respond to health care accessibility, climate change, and demographic change in Japan and New Zealand

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Project Concept: Globally, chronic health conditions and emerging infectious diseases place increasing demands on already stretched health systems, exacerbating inequities. Demographic changes such as ageing and migration and climate change-related extreme events or natural disasters will further increase vulnerable populations. Despite these issues, we must strive to provide equitable access to primary care services as an essential component in resilient health systems to achieve universal healthcare coverage. With the support of both governments (via JSPS and Royal Society), researchers and healthcare providers working in primary care and planetary health in Japan and New Zealand have launched a collaboration to develop equitable health systems resilient to climate and demographic change.

Target audience: Policymakers, healthcare practitioners, and researchers, especially those working in primary care settings.

Goals: Both countries have similar geographic characteristics, such as mountainous terrain, disaster risk, and rural populations. Meanwhile, each country has a unique health system facing different demographic challenges, such as super ageing in Japan and increasing migration in New Zealand. The collaboration has identified several areas of mutual interest and importance to both countries – addressing the health needs of a rapidly changing population (especially challenges around aging), meeting the challenges of providing good access to healthcare especially in rural areas facing significant workforce shortages, and identifying ways to increase resilience in rural communities to natural disasters and the impacts of climate change. Since these issues will affect many countries, this project aims to demonstrate how to develop equitable and resilient health systems through sharing existing experiences.

Topic : Planetary Health Education or Curriculum

Abstract code : PP074

Abstract title:

Planetary Health Education in the Bolivian Amazon: Course Development and Implementation for University Professors, Researchers and NGO Professionals

S.L.O. Shannon Leigh O'Brien ^{1, 2, 3}

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⁸ Escuela Militar de Ingeniería Unidad Académica Riberalta Bolivia

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¹² Utrecht University Netherlands

¹³ Gobierno Municipal Riberalta Bolivia

Project: From April to June 2024, we developed and implemented an educational course in Planetary Health (PH) at the Autonomous University of El Beni - José Ballivián (UAB-JB) in partnership with the Barcelona Institute for Global Health and Medicus Mundi Mediterrània (MMMed) in Riberalta, Bolivia.

Target Audience: Our primary audience were UAB-JB faculty from Nursing, Education and Forestry Sciences. Additionally, professionals from Medicus Mundi Riberalta, investigators from the Amazon Forest Research Institute (IIFA) and other professionals associated with the UAB-JB were invited to participate.

Goals: The overarching aim of the project was to enhance the teaching and research capacity of the UAB-JB faculty in PH, enabling its integration into existing courses. To achieve this, we designed a PH course tailored to the local Amazonian context.

Results: The program included 10 jointly-designed modules given in 20 hybrid sessions, plus one field day visiting a local community to learn how they sustainably manage and derive economic benefit from their forest. Twenty-three participants attended six or more sessions (fourteen women, nine men). Among them, nine developed plans to integrate PH into their existing courses or classes, while eleven designed research protocols to conduct PH-focused studies in their respective fields. To ensure the course's long-term sustainability, all sessions were recorded and made available through a MOOC and a [website](#) promoting PH in the Bolivian Amazon was created to serve as an ongoing resource.

Financing: This project was financed by the Catalan Agency for Development Cooperation and the Generality of Catalunya (R/N:21482/AE0087 N-PR2022/L1).

Topic : Infectious Diseases and Environmental Change

Abstract code : PP075

Abstract title:

Be-MOMO in Nursing Homes (Belgian Mortality Monitoring): the surveillance of excess mortality among nursing home residents

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Background: Nursing home (NH) residents are among the most vulnerable groups during public health emergencies, such as the COVID-19 pandemic, seasonal influenza epidemics, or environmental events like heatwaves. In response, we created a surveillance of excess mortality among NH residents in real time, called “the Belgian Mortality Monitoring (Be-MOMO) in NH”.

Methods: Be-MOMO in NH relies on weekly mortality data provided by Statbel, which identifies NH residents using a proxy derived from household position codes in the National Register. The Be-MOMO statistical model is applied to this data to detect deviations from expected mortality patterns. This is done by comparing observed deaths with expected mortality, based on historical trends of the past five years. Estimates of excess mortality are available from 2015, making it possible to estimate excess mortality among nursing home residents and non-residents.

Findings: Our analyses revealed significant findings, including the absence of excess mortality in NHs in 2021 following the introduction of COVID-19 vaccinations, as well as a targeted increase in excess mortality among non-residents. During influenza epidemics, mortality trends for both populations were generally similar, whereas more significant differences were observed during heat waves.

Interpretation: This new surveillance system not only enhances our understanding of the situation in NHs but also supports public health decision-making by enabling targeted preventive measures for elderly individuals, whether they live in long-term care facilities or not. The system delivers these results in a sustainable way by exploiting existing data flows, without burdening national or regional authorities, or nursing home staff.

Topic : Infectious Diseases and Environmental Change

Abstract code : PP076

Abstract title:

**Tree Cover Loss Due to Fires and Pneumonia Incidence in the Bolivian Amazon from 2002-2023:
An Ecological Study**

S.L.O. Shannon Leigh O'Brien ^{1, 2, 3}

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Background: Bolivia has lost approximately 12% of its forest cover since 2000. Preserving the Amazon is crucial for both planetary health and local population wellbeing. Deforestation has been linked to adverse health outcomes, notably through slash-and-burn techniques that increase air pollution and contribute to respiratory and infectious diseases. This study examines the relationship between tree cover loss due to fire and pneumonia incidence in the Biogeographical Bolivian Amazon.

Methods: We analyzed yearly municipal panel data from 2002-2023 (n=89 municipalities) on registered pneumonia cases from the National System of Health Information - Epidemiological Surveillance (SNIS-VE) alongside tree cover loss (especially due to fires) data from Global Forest Watch. We used negative binomial regression models with fixed effects for year and municipality and a population offset to estimate rate ratios (RRs). Models were adjusted for socioeconomic covariates obtained from the National Institute of Statistics (INE) and were stratified by sex, age and pre/post-pneumococcal vaccine introduction (2014).

Findings: Overall tree cover loss was consistently associated with pneumonia incidence, with stronger effects for fire-related loss. In the adjusted model for the total population studied, a 1% increase in the rate of tree cover loss due to fires was associated with a 37% rise in pneumonia incidence (95% CI=14–65, p=0.001). This association remained notable even after vaccine introduction (18%, 95% CI=2–37, p=0.02).

Interpretation: Tree cover loss due to fire is strongly associated with increased pneumonia incidence in the Bolivian Amazon, emphasizing the need for effective forest preservation to protect both tropical ecosystems and public health.

Topic : Infectious Diseases and Environmental Change

Abstract code : PP077

Abstract title:

Analysing EWARS-csd for nationwide implementation in the Dominican Republic: Technical, Operational, and Administrative factors.

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Background. Dengue is considered the fastest-spreading mosquito-borne disease in the world affecting tropical countries and causing periodic waves of devastating outbreaks. With the purpose of seeking tailored strategies for outbreak control, EWARS-csd has become the most promising strategy to predict dengue outbreaks and trigger the deployment of early response activities.

Methods. A mixed-methods study of two components: the evaluation of the statistical performance of the EWARS-csd tool and a stakeholders' assessment of its pilot implementation process in the Dominican Republic. Hospitalised dengue cases from 12 provinces of three endemicity levels and meteorological data from 2017 to 2023 were used for the calibration and testing of the model. Semi-structured interviews and a focus group discussion were conducted to gather stakeholders' insights.

Findings. The statistical performance of EWARS-csd across endemicity levels was optimal. Overall, the low endemicity provinces presented the best statistical performance with all the statistical measurement metrics above 0.7, except for one. The high endemicity provinces showed a comparatively less optimal statistical performance; however, meaningful information was produced in all 12 pilot provinces regarding predicted outbreak probability and predicted disease incidence between 5 to 12 weeks following the observation period. The stakeholder perspective showed that the biggest challenges are the availability of meteorological and entomological data, scarcity of workforce and timely allocation of a budget for outbreak response.

Interpretation. Nation-wide EWARS-csd implementation throughout the country is feasible. Optimal statistical performance of the EWARS-csd tool was observed and multiple favourable and limiting factors to fully implement the tool were identified.

Topic : Policy and Advocacy in Planetary Health

Abstract code : PO070

Abstract title:

Environmental Partner Network for green transition in health care, social and rescue services in Päijät-Häme, Finland

Riitta-Maija Hämäläinen ¹

A. Anni Toivanen ¹

¹ Wellbeing Services County of Päijät-Häme Finland

Initiative Concept

The social and health care sector is responsible for 6.5 % of global greenhouse gas emissions in Finland. Without action, these emissions will continue to increase. Health and care providers must address their environmental footprint without compromising patient safety. The Wellbeing Services County of Päijät-Häme provides health, social, and rescue services for the Päijät-Häme region in Finland. Since 2023, the county has implemented its environmental program through the Environmental Partner Network Initiative targeting increased staff awareness and sustainable solutions among 8,000 employees and 170 service points.

Target participants and goals

The Environmental Partner Network includes employees from various roles in the county. Partners dedicate one day per month to advancing environmental issues at their workplace. They collaborate with supervisors and colleagues to develop an annual plan and educate and engage their communities of practice towards sustainable choices. Partners receive training and support through bimonthly meetings. The Environmental Partner Network of the county is linked to the national network.

The goals are to increase staff awareness, commitment, and engagement in environmental issues; enhance capability for green transformation in the service points and reduce the environmental impact of the county by decreasing waste, improving recycling, and saving energy, for example.

Results

The Environmental Partner Network sets annual goals and regularly monitors their implementation. In 2024-2025, the network collaborated with Lappeenranta–Lahti University of Technology LUT to develop a participatory staff engagement model as part of the international Caring Nature project (Horizon Europe Grant agreement n°101137340).

Topic : Urban Health and Sustainability

Abstract code : PP078

Abstract title:

Developing a multicentre experimental study protocol to evaluate seven nature-based therapy interventions in four European countries

M.T.M. Margarita Triguero-Mas ^{1, 2, 3}

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The rising prevalence of mental health disorders is a global concern. Traditional treatments, though effective, often face high costs, side effects, and limited accessibility. Emerging research suggests that nature-based therapies (NBTs) can offer mental health benefits. This evidence, however, is mostly from studies using different and unclear protocols, with small sample sizes, lacking control groups, unclear protocols, and only including short-term measures. Little is known about the health economics of NBTs.

The GreenME HEurope project aimed to develop a common protocol to evaluate the mental health benefits and cost-effectiveness of seven existing NBTs in four European countries. The protocol development involved identifying existing flexible interventions and focusing on the core elements to be consistent across interventions. We formed a Working Group, requested specific information to the interventions three times, had three in-person and six online meetings, seven rounds of open feedback, and three months of intense internal discussion in each country over 14 months.

The final study protocol focuses on individuals experiencing significant stress, comparing NBTs to usual care in terms of perceived stress, quality of life, subjective wellbeing, and cost-effectiveness. The randomized experimental design includes 78 participants per intervention divided into two groups: one exposed to NBTs and the other receiving usual care while on a waiting list. NBTs include horticulture, forest bathing, and surfing, with sessions lasting 120 minutes weekly for 12 weeks. Data will be collected at multiple points to assess various health outcomes and user satisfaction. Data collection will occur between spring 2025 and summer 2026.

Topic : Biodiversity and Health

Abstract code : PP079

Abstract title:

Nature-based solution for use, planning and management of blue-green urban spaces: the VeBS project for improving well-being in cities

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Climate changes and other factors have a profound impact on lives health.

VeBS project is an Italian initiative that aims to improve the active and participatory use of blue and green areas (i.e. parks, gardens, tree-lined avenues, and wetlands) in Italian cities, with a particular focus on Nature-Based Solutions (NBS).

Blue and green areas, elemental components of NBS, deeply contribute to mental and physical health by supplying spaces for outdoor activities, relaxations, and social interactions. These aspects are involved in urban health Benefit, by reducing stress, bettering mood.

Promoting studies, research, trainings, and communication for the effective use of blue and green infrastructures, VeBS project engages stakeholders, citizens, and students, with a specific goal in improving well-being and health of citizens. Moreover, the project aims to develop policies for the re-thinking and management of urban blue and green spaces, thus improving the understanding of NBS effects on health, particularly for vulnerable population groups. Different activities have been designed to engage specific stakeholders, with some targeted at citizens, at policymakers, health professionals, environmental technicians and researchers, with the precise aim to enhance and develop synergy between many professionals, providing common skills and knowledges about blue and green infrastructures.

The outcomes of the VeBS project include the planning of policies, studying the effects of using these spaces on the most vulnerable populations, conducting training courses and activities, and developing an atlas of plant species. The project is funded by the Italian Ministry of Health as part of the PNC/PNRR.

Topic : Health System Greening and Strengthening

Abstract code : PO071

Abstract title:

How primary care can make the difference in socio-ecological transition

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Primary care professionals are at the heart of healthcare systems, playing a vital role and exerting significant influence. Throughout their career, they develop skills as professionals, scholars, health advocates, collaborators, communicators, and leaders (Canmeds framework). These competencies can be used to engage in socio-ecological transition in healthcare. In this paper, we describe the progress made in implementing ecological transition within our healthcare institutions since 2019.

Through a focus group, we identified the various actions undertaken in favor of the social and ecological transition since 2020 within Geneva's healthcare institutions: Geneva University Hospitals, the Medical Faculty at the University of Geneva, and the Geneva School of Health Sciences. A detailed description of these actions will be provided.

The main actions carried out over the last 5 years have included : a pre-graduate training course for all healthcare students ; an institutional strategy for ecological transition in the three institutions ; a community of practice to train and support teams ; the establishment of a transdisciplinary ecological network ; an awareness campaign on the health and environment co-benefits ; the creation of a planetary health association ; and continuing education programs for various private and public institutions, at the cantonal and national levels.

In just five years, and starting from scratch, a small group of healthcare students and primary care professionals has successfully built a solid and sustainable training system, as well as a network of people committed to the ecological transition. Several initiatives are now underway to further accelerate this transformation.

Topic : Climate Change and Health

Abstract code : PO072

Abstract title:

Safe and Healthy Movement in Any Weather: Development of Climate-Adapted Exercise Recommendations for Older People

O Outi Sulopuisto ¹

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Project Concept and Details: Physical activity is important for health of older people and arguably contributes to their climate resilience. The aim of the study was to develop exercise recommendations for older adults that are adapted to climate-related challenges in a three-step process: internet research, expert workshops, and finalization. This initiative is part of the project "KliMate - Teaching climate and health literacy while promoting active mobility and physical activity", which aims to promote health, social participation, and climate adaptations for older people through tailored recommendations and social formats for active mobility and physical activity. The project is funded by the Austrian Research Promotion Agency.

Target Audience: The primary target audience for this project is people aged 65 and older in Austria.

Goals: The main goals of the project are to counteract the negative effects of climate change on healthy aging by providing climate-adapted exercise recommendations, which will also be embedded in a buddy system supported by a digital app. These recommendations aim to help older adults remain active despite unfavourable outdoor conditions (heat, air pollution, and pollen exposure).

Results: The project identified 67 relevant sources for recommendations from 29 different institutions and summarized them for expert discussion. The expert feedback was collected in a workshop and via email. The recommendations were adjusted accordingly and given on various topics, including general advice, timing, location, procedure, type & intensity of exercise, clothing and sun protection, drinking and pre-existing conditions. The recommendations will be finalized in the beginning of April 2025.

Topic : Mental Health and Environmental Change

Abstract code : PO074

Abstract title:

Exploring the Implementation of Green Care to support Mental Health in Barcelona province

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The province of Barcelona, Spain's second most populous, consists of 311 municipalities, many among Europe's most densely populated. Spain's decentralized governance, including healthcare and environmental regulation. Green care—nature in everyday life (NEL), nature-based health promotion (NBP), and nature-based therapies (NBT)—show promise for mental health and wellbeing but is inconsistently integrated into. This study explores the current status of green care in Barcelona province within the Horizon Europe GreenME Project. It assesses integration into regional and local policies, legislation, and programs, as well as its role in public healthcare and its support for mental health and wellbeing equity. A qualitative analysis of 127 grey literature documents and 15 stakeholder interviews was conducted. The literature review assessed laws, planning documents, and initiatives influencing green and blue spaces (GBS) and nature-based mental health approaches. Using the READ approach, the research focused on documents endorsed by public authorities or major NGOs. Interviews provided further insights into integration challenges and opportunities. Barcelona province has strong green care potential but lacks a unified framework. Uneven access, limited healthcare integration, and structural barriers hinder impact. Despite challenges, the region's environmental legacy and interest in nature-health offer opportunities. Clear policies, funding, and collaboration are essential for sustainable progress.

Topic : Planetary Health Education or Curriculum

Abstract code : PP082

Abstract title:

An Italian Survey to Identify Educational Needs in Planetary Health: Results Guiding the Development of a University Training Course

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Background: Planetary health, which explores the links between human health and ecological systems, is crucial for sustainable development. Effective training is essential for preparing a workforce to address planetary health challenges, especially in regions like Italy, facing significant environmental pressures. This study aims to identify the training needs for planetary health among professionals in Italian institutions.

Methods: A cross-sectional survey was conducted from August to September 2024 across 15 Italian environmental and public health institutions to assess perceived training needs and preferred educational formats for a new academic program. Descriptive statistics were used to analyze the data.

Results: The survey identified key training areas: fundamental epidemiology (22%), health impacts of pollution (9%), Italian environmental health system organization (17%), advanced environmental epidemiology (13%), stakeholder engagement (19%), and health-related data atlases (20%). The most preferred educational formats were seminars and specialized postgraduate courses (29% each), followed by professional training courses (26%). Distance learning was favored by 14%, master's programs by 12%, and doctoral research by 7%. Respondents included public health doctors (60%), statisticians (46.7%), and biologists (33.3%).

Conclusions: The findings highlight a strong demand for planetary health education in Italy, covering both foundational epidemiology and specialized environmental health knowledge. The preference for interactive training suggests a need for programs that blend theoretical and practical learning. These insights have informed the development of a targeted planetary health academic training program designed to address Italy's current and future environmental health challenges.

Topic : Urban Health and Sustainability

Abstract code : PO075

Abstract title:

Health Impact Assessment of Prospective Utrecht Mobility and Air Pollution Policies

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Background: The city of Utrecht aims to reduce air pollution and related health impacts. Extensive evidence links air pollution to adverse health outcomes. This study uses quantitative health impact assessments to estimate the potential health benefits of policies aimed at reducing air pollution.

Methods: Comparative risk assessment methodology was utilized to estimate changes in mortality and morbidity outcomes attributable to PM_{2.5} and NO₂ exposure. Data from Dutch governmental, health, and statistical sources were used to assign exposure at a household level. Scenarios included compliance with the WHO's air quality guidelines, the revised EU limit values, and Utrecht-specific policies aimed at reducing air pollution. Analyses were stratified by socioeconomic characteristics to assess disparities in health impacts.

Findings: Meeting the WHO's 2021 air quality guidelines could prevent 82 deaths annually for PM_{2.5} and 80 for NO₂ in Utrecht, which represents an 3.8% reduction in mortality for each. Morbidity would also decline: NO₂ reductions would lead to a 7.1% drop in adult asthma and 1–1.5% decreases in childhood asthma and acute lower respiratory infections; PM_{2.5} reductions would yield 4.9% declines in COPD and hypertension, 4.5% in strokes and lung cancer, and 3.7% in ischemic heart disease. Additional scenario findings and demographic patterns are forthcoming.

Interpretation: These findings highlight the health benefits of reducing air pollution in Utrecht. The study supports equitable urban policymaking by identifying population subgroups most affected. The final report will be available by September and may serve as a reference for future research and similar studies in other cities.

Topic : Urban Health and Sustainability

Abstract code : PP083

Abstract title:

Multi-Dimensional Health Indicators in Urban Settings for Planetary Health - A Socio-Ecological Conceptualization

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Background Global health faces critical challenges (e.g., climate change, biodiversity loss, rise of non-communicable diseases), particularly within urban settings (e.g., cities), where over half of the global population resides. Drawing upon the Planetary Health concept and Biodiversity-Climate-Health Nexus, this research aims to emphasise human agency by using a multi-dimensional health indicator (MDHI) approach out of a socio-ecological perspective.

Methods A focused literature review, expert consensus, and participatory research with pilot cities guided the iterative development of a MDHI list to assess health impact from urban interventions. The MDHIs were categorized into several dimensions (i.e., environmental quality, emotions/cognitions, well-being, sustainable behavior, nature relationship, nature engagement, access to nature) and individual MDHIs were linked to socio-ecological components (SECs) in different layers (i.e., individual, social and physical surroundings, policy).

Findings In total 55 MDHIs are defined, prioritized (i.e., 34 high, 21 low), and linked to SECs in the four layers: individual (e.g., SEC: psychosocial factors – MDHI: quality of life); social surroundings (e.g., SEC: community – MDHI: perceived interaction); physical surroundings (e.g., SEC: [built] environment – MDHI: time in green space); policy (e.g., SEC: governance – MDHI: political participation). A suggestion of specific self-reported and/or device-based measurement(s) is provided for each MDHI.

Interpretation Providing MDHIs and SECs support the design of urban interventions which simultaneously foster the health of humans and nature. To address local and global health challenges while fostering sustainable urban development, context-specific interventions should be guided by transdisciplinary strategies that strengthen human agency of policymakers, urban planners, ecologists, health professionals, and individuals in communities.

Topic : Environmental Pollution and Health

Abstract code : PO076

Abstract title:

Inequalities in air pollution mortality in Belgium, 2022

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Background

Environmental burden of disease quantifies the population health impact of risk factors such as air pollution. Other research focuses on health inequalities, often demonstrating that the more disadvantaged bear a disproportionate part of the disease burden. This study combines both aspects into a framework for environmental health inequalities, relying on small-area-level data to assess inequalities in air pollution-related mortality in the three regions of Belgium.

Methods

Age-standardized rates of mortality due to long-term exposure to particulate matter $<2.5 \mu\text{m}$ (PM_{2.5}) and nitrogen dioxide (NO₂) are derived at the level of census tracts. The estimates are paired with an index of multiple deprivation, which allows to aggregate air pollution-related mortality by deprivation decile. Different inequality measures are calculated: The relative difference between the most and least deprived deciles, and the population attributable fraction of deprivation, which corresponds to the theoretical reduction in mortality if the whole population would be equal to the least deprived decile.

Findings

Air pollution mortality is unequally distributed in Belgium, where the more deprived are generally more affected. The largest inequalities are mostly found in Wallonia, where NO₂ mortality rates among the most deprived are more than double compared to the least deprived. The highest attributable fraction is observed in Brussels, where 30% of NO₂ mortality is attributable to deprivation. Inequalities are smaller but consistent for PM_{2.5} mortality.

Interpretation

This study highlights important environmental health inequalities, which could be mediated by applying its insights to guide pollution-reducing interventions like increasing greenspace area and other nature-based solutions.

Topic : Urban Health and Sustainability

Abstract code : PO078

Abstract title:

Association between urban green spaces and mental health: a systematic review

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Mental health disorders are a growing global concern, affecting one in five individuals annually. Urban green and blue spaces, such as parks and vertical gardens, have been shown to improve mental well-being by reducing stress, enhancing physical activity, and fostering social interactions. This review evaluates the impact of these spaces on mental health conditions through a systematic review of existing studies.

A search on PubMed, Scopus, and Web of Science identified studies examining the relationship between exposure to urban green spaces and mental health in adults. Data on study characteristics, intervention type, outcomes, and effect sizes were extracted. Study quality was assessed using the RoB 2.0 tool for RCTs and ROBINS-E for observational studies.

Out of 731 papers, 18 were included in the review. Nearly all were cross-sectional, with considerable variation in study design and outcome measures. Overall, the evidence supports a protective effect of green space exposure on mental health, especially for depression, anxiety, psychological distress, and suicidal events. Proximity to green spaces strengthens this effect. However, the strength and consistency of evidence vary widely. Cohort studies with adjusted models provide the strongest evidence, showing inverse associations with depressive and anxiety symptoms, particularly over the long term. Mixed evidence exists for stress and the influence of contextual factors like pollution, noise, and socio-economic status.

The existing literature on green spaces and mental health is limited and methodologically heterogeneous. Further research is needed to clarify causal relationships and standardize intervention and outcome assessment methods.

Topic : Climate Change and Health

Abstract code : PP084

Abstract title:

Planetary health risks: A cross-sectional survey study on the relationship between connectedness to nature, global citizenship, and perceptions of climate change-related health risks

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Background

The planetary health approach assumes a strong systemic connection between people worldwide, as well as between people and the natural world. The extent to which people *experience* these connections, however, varies. The aim of this study is to investigate how people's perceived connectedness to nature and world citizenship relates to their perceptions of planetary health risks. To this end, risk perceptions and pro-environmental behaviours were studied in the context of climate change and health.

Methods

In a cross-sectional survey, people living in the Netherlands were asked about their connectedness to nature and the extent to which they consider themselves global citizens. Cognitive and affective risk perceptions, both for oneself and the global population, were assessed for a range of climate change-related health risks. Climate mitigation and adaptation behaviours were measured as outcome variables. Data collection is ongoing, aiming for 750 participants in the final sample.

Findings

Preliminary results (n = 411) show that both connectedness to nature and world citizenship positively correlate with cognitive and affective risk perceptions, both on a personal and global level. Regression analysis further indicates that world citizenship, in particular, predicts pro-environmental behaviour, encompassing climate mitigation as well as adaptation behaviours.

Interpretation

The preliminary findings suggest that interventions promoting connectedness to nature and global citizenship may enhance awareness of climate change-related health risks and possibly encourage pro-environmental behaviour. Planetary health educators and advocates could therefore consider adopting strategies that strengthen these connections, such as outdoor teaching, nature-based activities, and intercultural exchanges.

Topic : Climate Change and Health

Abstract code : PP085

Abstract title:

Climate Change and Health Sector Planning: A mixed-methods analysis of National Health Strategies of 101 countries.

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Background

Climate change is the greatest risk to human health in the 21st century. National health strategies and plans (NHSPs) are crucial in shaping a country's future health system, yet it is unclear how they address climate change-related health risks. This study aimed to (1) analyze the content of NHSPs regarding climate change, and (2) identify factors that may explain the inclusion of climate change in NHSPs.

Methods

NHSPs for 101 countries were obtained from the WHO country planning repository. We analysed NHSPs using keyword searches to identify references to climate change and health risks. NHSPs were categorized into red (no consideration of climate change), yellow (discussion of climate change), and green (yellow + discussion of adaptation strategies). Two logistic regression models were run to analyze the relationship between NHSP categorization and factors, such as national income, climate risk, and climate change-related health risk.

Findings

Climate change was addressed in 73 NHSPs, but only 38 proposed adaptation strategies. African and low-income countries tend to address climate change in their NHSPs more frequently than high-income countries. Preliminary regression results showed that higher climate risk increased the likelihood of NHSPs addressing climate change, but no significant association was found for climate change related health risks.

Interpretation

Climate adaptation measures are included only in about one third of NHSPs. Countries should include climate change and adaptation measures more systematically in their NHSPs to provide strategic direction for the necessary transformation of their health systems in view of climate change.

Topic : Environmental Pollution and Health

Abstract code : PP086

Abstract title:

Diesel exhaust particles activate inflammation in atherosclerotic vascular disease

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Background: Over 20% of global deaths related to cardiovascular disease have been attributed in part to air pollution, particularly particulate matter (1,2). In highly trafficked urban areas, diesel exhaust particles (DEP) represent a significant proportion of PM, is associated with the progression of atherosclerosis and increased plaque susceptibility to rupture (3). We previously showed interferon regulatory factor 5 (IRF5) promotes atherosclerotic plaques vulnerable to thrombosis (4).

Methods: Mouse bone marrow-derived macrophages (BMDMs), differentiated with GM-CSF (mimics inflammatory macrophages) or M-CSF (mimicking homeostatic resident macrophages) were incubated with PBS or DEP for 18 hours. Expression of inflammatory cytokines (IL-6, IL-12 α), macrophage markers CD11c (inflammatory), CD206 (anti-inflammatory) and IRF5 quantified by real-time PCR. Lungs of high fat-fed ApoE^{-/-} mice were exposed to saline or DEP for 5 weeks. The pan-macrophage marker CD64, CD206 and IRF5 were quantified in brachiocephalic artery lesions by immunohistochemistry.

Findings: In M-CSF-differentiated murine macrophages, DEP increased gene expression (relative to PBS control) of IRF5 (1.4-fold), IL-6 (31.5-fold) and IL-12 α (5.8-fold) while CD206 (0.8-fold) decreased. No differences were detected in CD11c expression or GM-CSF-differentiated macrophages. In the brachiocephalic arteries of DEP-exposed mice, CD64⁺ macrophages (28.2 $\pm$ 7.4 vs 15.5 $\pm$ 5.6, data=% of intima area) and IRF5 (16.6 $\pm$ 3.6 vs 10.1 $\pm$ 3.4) increased, while CD206 expression decreased (4.1 $\pm$ 0.9 vs 11.0 $\pm$ 1.2) compared to saline. (n = 5, p<0.05, two-tailed unpaired t-tests).

Interpretation: DEP has no impact on inflammatory macrophages but switches homeostatic resident macrophages to an inflammatory phenotype via IRF5 activation. Therefore, IRF5 warrants further investigation into the macrophage response to inhaled particles promoting vascular disease.

Topic : Planetary Health Education or Curriculum

Abstract code : PP087

Abstract title:

Researching the effectiveness of Girawa youth clubs and Youth Participatory Action Research (YPAR) as a method of Planetary Health education for 11-18 year olds

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Project Concept: This project investigates the integration of Youth Participatory Action Research (YPAR) into Planetary Health education as part of the “Girawa Youth Club” initiative. YPAR empowers young learners to act as researchers, fostering critical thinking and advocacy skills. The study focuses on addressing global challenges, such as climate change and environmental degradation, by engaging students in real-world research projects within their communities. The initiative leverages the existing Planetary Health curriculum and youth clubs started in collaboration with ABPEducom, Brazil using the “Educommunication” concept, to be expanded to the Foundation of Goodness in Sri Lanka and Kenya.

Target Audience: Students aged 11–18 participating in youth clubs. Secondary audiences include educators, policymakers, and community stakeholders interested in innovative pedagogical approaches for environmental education.

Goals:

Enhance students' knowledge, skills, values, and attitudes related to planetary health.

Foster student engagement through enquiry-based, participatory learning methods.

Assess the effectiveness of YPAR in promoting advocacy and systemic change in environmental and health issues.

Develop scalable models for integrating YPAR into educational frameworks across diverse contexts.

Results: Preliminary findings from our ongoing study will evaluate changes in students' KSVA through pre- and post-intervention surveys, interviews, and focus groups. Outcomes will include youth-led reports, advocacy materials, and community presentations showcasing critical thinking and real-world problem-solving. By fostering collaborative learning, the project seeks to empower youth as environmental stewards while providing educators with actionable insights for curriculum development. Comparative analyses across regions will inform scalability and adaptability of the YPAR model globally.

Topic : Health System Greening and Strengthening

Abstract code : PO079

Abstract title:

Integrating Planetary Health into General Practice/Family Medicine : a new European definition

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Concept and Initiative Details:

In response to the growing recognition of planetary health as a crucial dimension of healthcare, the French College of General Practice advocated for its inclusion in the European definition of General Practice /Family Medicine. This initiative was launched during the 2022 WONCA Europe (World Organization of Family Doctors - Europe) (WE) conference, leading to the formation of a dedicated working group under the WE Council. Over the following year, extensive collaboration among WE networks resulted in a revised definition unanimously adopted at the 2023 WE conference.

Target Audience:

This initiative targets general practitioners, family medicine teachers, policymakers, and healthcare stakeholders, emphasizing the integration of planetary health into primary care practice, education, and policy frameworks.

Goals:

Embed planetary health principles as the bedrock of general practice/family medicine. Enhance awareness and education on planetary health among practitioners and trainees. Align general practice with global health priorities such as One Health, Planetary Health, and the Sustainable Development Goals (SDGs). Facilitate interdisciplinary collaboration and policy engagement to support sustainable healthcare practices.

Results:

The revised definition of general practice now explicitly integrates:

One Health: recognizing the interconnectedness of human, animal, and environmental health. Planetary Health: emphasizing the dependence of human health on natural systems. SDGs: aligning primary care with sustainable development objectives. These principles are now in the WONCA Tree, ensuring their integration into training, professional development, and policy advocacy. Next steps focus on dissemination and implementation within General Practice/Family Medicine education and practice.

Topic : Policy and Advocacy in Planetary Health

Abstract code : PO082

Abstract title:

Vision on Planetary Health from the Netherlands Institute for Public Health and the Environment to support future-proof policy measures

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A healthy planet is a prerequisite for a healthy population and environment. Therefore, the Netherlands Institute for Public Health and the Environment (RIVM) brought together the relevant research and policy advice communities within our institute for planetary health. Our goal was to develop a vision on how RIVM can ally partners and research disciplines with a systems-approach, to stimulate inter-/transdisciplinary work on pressing social issues, such as the effects of climate change, pollution and biodiversity loss on all living beings.

First, we set-up an internal expert group with representatives in the fields of infectious diseases, complex systems, climate change and health, circular economy, food/nutrition, built environment, disaster management and energy systems. Second, we have identified examples of current RIVM themes and programmes that encompass a planetary health approach. Third, we wrote a position paper on the interconnectedness of the triple planetary crisis and public health. Lastly, we piloted several planetary health projects, such as developing more sustainable vaccination programmes with national and local partners. And developing a framework based on planetary boundaries for scientists and policymakers.

RIVM as 'trusted advisor' has created a vision and strategy to advocate for collaboration and systems-thinking to address interconnected societal challenges. There are no simple solutions for complex issues and wicked problems, and it is important to identify and ameliorate unintended consequences (trade-offs) and synergize opportunities. We are doing this to support future-proof (policy)measures and to encourage a Planetary Health systems approach to maximize our global impact for a healthier planet and population.

Topic : Food Systems and Nutrition

Abstract code : PP090

Abstract title:

Exploring the potential of a Planetary Health Label for promoting healthy and sustainable diets

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Background:

The global food system is a major driver of environmental degradation and public health challenges. Promoting diets that benefit both human and planetary health is increasingly urgent. One promising approach is the introduction of Planetary Health Labels on food products. However, there is a lack of empirical research on such labels and their potential impact.

Methods:

This study explores whether a Planetary Health Label can promote healthy and sustainable food choices. Based on an online survey, it examines consumer perceptions of the label's informational value and its influence on purchasing decisions.

Findings:

Among 412 completed responses, around 70% of participants agreed that a Planetary Health Label would be effective in encouraging healthier and more sustainable diets. 77% said they would prioritize products with such a label and 79% would be more likely to buy food marked as both healthy and sustainable. Participants also recognized the label's potential to raise awareness (84%) and fill gaps left by existing food labels (86%). 71% reported that knowing about the health benefits of sustainable choices would influence their food choices, highlighting the power of communicating co-benefits.

Interpretation:

Planetary Health Labels, particularly those that emphasize both health and environmental benefits, are promising policy tools for guiding dietary transitions. These findings offer insights for developing food labels that empower consumers while supporting food systems within planetary boundaries.

Keywords: Planetary Health, Sustainable Diets, Planetary Health Diet, Food Labels, Planetary Boundaries, Co-Benefits

Topic : Policy and Advocacy in Planetary Health

Abstract code : PO083

Abstract title:

Legal capacity building and partnerships for planetary health

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Concept:

States and governments are failing to respond adequately to climate change, air pollution and other planetary health crises. Science-based legal challenges in court to government inaction can lead to policy and legal changes of benefit to both people and planet, and are increasing. However, evidence of the impact of climate change is sometimes not framed to be accessible to non-scientists, including for policymakers, legislators, and in the courts.

Audience:

Environmental scientists and health professionals, advocates and activists. Civil society organisations representing people most vulnerable to climate change, including children.

Goals:

Support planetary health advocates to strengthen evidence of harms to human health in climate change and environmental litigation.

Results:

Webinars on climate change litigation (2021-2024); Publication *From analysis to action. Climate change litigation: a guide for public health professionals* (2023); Comments in The Lancet and other journals; Skills building workshop European Public Health Conference (2024); Lancet Countdown Europe: indicator of climate and health litigation in European States.

Topic : Mental Health and Environmental Change

Abstract code : PP092

Abstract title:

Mental Health Impacts Of Oil Spills: Preliminary Findings From An Ongoing Scoping Review

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Background

Oil spills represent complex ecological disasters with far-reaching psychological consequences. Despite growing recognition of their mental health impacts, systematic understanding of mediating pathways remains limited. We aim to identify and characterize the relationship between oil spill exposure and mental health outcomes, with a particular focus on mediating variables, temporal patterns, and vulnerable populations.

Methods

Following PRISMA-ScR guidelines, we conducted a comprehensive search across PubMed, Scopus, and Web of Science (January 2000 – February 2024). From an initial yield of 2016 studies, 83 articles met the inclusion criteria for full-text review. Preliminary analysis of 14 observational and analytical studies forms the basis of these interim findings.

Findings

Current evidence demonstrates consistent psychological sequelae following major oil spills, with PTSD (13-36%), depression (12–45%) and anxiety disorders (up to 38%) emerging as predominant outcomes. Multiple mediating pathways have been identified, including economic disruption, environmental degradation, cultural displacement, institutional distrust, and disaster compound effects. Vulnerable subgroups—particularly women, children, indigenous communities, and lower-income households—demonstrate disproportionate psychological burden, with one study showing 32–37% of women exposed to Deepwater Horizon experiencing significant depressive symptoms compared to controls.

Interpretation

Our preliminary findings reveal oil spills as significant environmental stressors with quantifiable mental health consequences operating through distinct psychosocial pathways. The final review (anticipated completion July 2025) will provide a comprehensive mapping of exposure-outcome relationships to inform culturally responsive mental health strategies and disaster management policies that prioritize psychosocial wellbeing in line with global principles of equality and transcultural care.

Topic : Health System Greening and Strengthening

Abstract code : PO084

Abstract title:

Financing Climate Change Adaptation in Health Systems: A Scoping Review

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BACKGROUND

The climate crisis poses a threat to human health, including an increased burden of diseases, the risk of new health emergencies, and risks to health facilities due to extreme events, such as infrastructure damage or disruption of services. New health needs arising from this scenario create a pressing need for funding to enable climate adaptation. However, knowledge of policies for financing climate adaptation in health systems remains fragmented and underexplored. This research aims to map and synthesize scientific knowledge on the topic through a scoping review to identify patterns, opportunities, and gaps that could support more robust research initiatives and government actions in this area.

METHODS

The study follows the Joanna Briggs Institute methodology for scoping reviews, addressing the following question: What are the proposals related to financing policies for climate adaptation in healthcare systems? The evidence search includes academic databases and grey literature.

FINDINGS

Preliminary findings indicate a gap in climate adaptation funding for health, including limited involvement of the health sector in multilateral climate financing initiatives. At the same time, the evidence shows the strategic and necessary role of the sector in climate adaptation, highlighting the importance of advancing scientific knowledge and governmental practices in this direction.

INTERPRETATION

Despite promising initiatives, systematic knowledge on climate adaptation financing in health remains limited. Further research, particularly with local and country-specific perspectives, is crucial for advancing financing strategies aimed at Planetary Health.

Topic : Planetary Health Education or Curriculum

Abstract code : PO085

Abstract title:

The SustainaBUL Program 2025: Building Green Skills as a Foundation for Planetary Health in Curacao

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The SustainaBUL program is an initiative of the University of Curaçao (UoC), for students to learn and engage with the topic of sustainability in a practical manner.

The SustainaBUL program consists of four components. The first is a more theoretical foundation on corporate sustainability. The second is the SDG Game XL: a sustainability game simulation for students in collaboration with business professionals; (3) the Green Tour: practical company visits to inspiring local examples of sustainability and finally (4) the SustainaBUL Student Awards: the final event where student teams work out a company sustainability assignment and do a pitch in front of a live audience and jury.

The essence of the program is to connect young talents to organizations where they tackle real life challenges in sustainability. These challenges are specific to the context of Curacao as a SIDS (Small Island Development State); this program thus fosters a deep awareness of sustainability in our local context. It fosters collaboration, next to much needed applied research and presentation skills.

The aim of the program is to (A) make the topic of sustainability more accessible and relevant to our younger generation. (B) connecting to the business community and demonstrating the relevance of sustainability for students' future careers.

Results: in three years the program has grown from 2 to almost 20 leading corporate partners (pension funds, banks, airport, port, Rijksvastgoedbedrijf, Corendon); with now multi-disciplinary teams from Finance, Technology and Hospitality. Ultimate goal is to transform the SustainaBUL program into a solidly founded minor.

<https://www.youtube.com/watch?v=vLzadfpa30k>

Topic : Health System Greening and Strengthening

Abstract code : PP157

Abstract title:

How do the public want to engage with environmentally sustainable health care? Insights from a UK-wide qualitative focus group study

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² King's College London United Kingdom

Background: Many nations are working to develop more environmentally sustainable healthcare systems, including the NHS across the UK. However, relatively little is known about the understanding and preferences of the UK public pertaining to this. We aimed to understand how the public want to engage with environmental sustainability in healthcare.

Methods: In this qualitative study we conducted 12 in-person and online focus groups with 82 members of the UK public.

Findings: Though few participants had previously thought about sustainability in relation to healthcare, they were able to identify a wide range of relevant environmental impacts. Commonly referenced topics, such as waste and recycling, reflected prevailing climate coverage on the news, social media, and from trusted commentators. Participants felt that the public needed more information about the environmental impact of their care, and efforts to mitigate this. However, the large majority of participants did not support discussion within clinical encounters, offering a range of alternatives from information leaflets to multimedia national campaigns. Participants preferred positive, action-led framings, but were concerned about the potential for greenwashing if the NHS was not also seen to “walk the walk”. Narratives around net zero healthcare targets were treated with scepticism, with concerns particularly over achievability and fairness. Participants wanted to be actively involved in discussions and plans for the development of sustainable healthcare.

Interpretation: Prompt action is needed to inform and engage with the UK public in the development of environmentally sustainable healthcare. Careful attention to context and framing will be essential.

Topic : Urban Health and Sustainability

Abstract code : PP096

Abstract title:

Using Group Model Building to explore the co-benefits of urban green spaces in Italian medium-sized cities

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Background:

Existing research highlights potential links between green spaces and improved health and social-environmental co-benefits, including reduced air pollution, increased physical activity, and lower stress levels. However, these relationships are often examined in isolation, within disciplinary silos, limiting our understanding of how green infrastructure interacts systemically with health outcomes. This study aims to reduce that gap by integrating insights from a multidisciplinary group of experts through a structured Group Model Building process, focusing on medium-sized Southern European cities.

Methods:

Between March and May 2025, three online facilitated workshops were conducted with the participation of clinicians, urban planners, environmental scientists, and policy stakeholders to co-develop systems maps. Using a Group Model Building approach and real-time diagramming via Kumu software, participants created causal loop diagrams exploring links between green space typologies and three health domains: cardiovascular and metabolic diseases (first roundtable), respiratory diseases (second), and mental health (third).

Findings:

Sixteen experts took part in the workshops. The resulting maps revealed a dense network of interactions in which green space features—such as accessibility, typology, and spatial distribution—influence individual behaviours (physical activity, stress regulation), environmental exposures (air quality, heat), and broader social conditions (mobility equity, social cohesion, access to care). Key leverage points included urban mobility, spatial planning, and proximity to green areas.

Interpretation:

Local governments should act urgently to reduce vehicular traffic in favour of public and sustainable transport, and improve access to green areas - particularly focusing on proximity and planning—to address urban heat and promote health equity.

Topic : Urban Health and Sustainability

Abstract code : LT014

Abstract title:

Health Co-benefits of Sustainable Urban Transport: An Umbrella Review with GRADE Assessment

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Background: Active mobility reduces climate change impacts while offering direct health benefits through increased physical activity and indirect benefits via air pollution reduction. The objective of this work is to synthesize evidence on health benefits of sustainable transport and barriers to its adoption.

Methods: Following PRISMA guidelines, a systematic search was conducted in April 2024 across MEDLINE, EMBASE and Web of Science. Systematic reviews of sustainable transport and health benefits were included and assessed using AMSTAR-2 and GRADE.

Findings: Of 41 included systematic reviews, 13 focused on active transport. Meta-analyses showed health co-benefits associated with active transport for total mortality (HR 0.91, 95% CI: 0.85-0.97), cardiovascular mortality (HR 0.85, 95% CI: 0.73-0.97) and morbidity, obesity risk, and endometrial cancer incidence. Walkability was associated with reduced diabetes, obesity and hypertension, and public transport initiation with lower BMI, while traffic management interventions reduced accidents. Evidence certainty was very low, mainly due to risk of bias and heterogeneity. Barriers identified included absence of protected routes, long distances, lack of infrastructure, adverse weather, and costs. Active transport interventions were found to be cost-effective.

Interpretation: Active transport shows greatest health benefits, particularly for adults. Due to heterogeneity and low-quality evidence, further research is needed, especially regarding subgroups who may benefit most. These findings support integrating public health objectives into urban mobility policies.

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Topic : Climate Change and Health

Abstract code : LT015

Abstract title:

Establishing an APP-based Heat-Health Warning System via Collaboration with Stakeholders

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Background: Under global boiling, establishing a heat-health warning system (HHWS) is crucial for reducing heat-related health risks. This paper presents an evidence-based HHWS developed through stakeholder engagement. Methods: Policy concerns related to biometeorology, epidemiology, and risk communication aspects were identified; and respective knowledge gaps were filled. Findings: Biometeorological results showed that the mean daily maximum Wet-bulb Globe Temperature (WBGT_{max}) was 33.1 ± 3.8 °C at 20 stations across Taiwan but could reach/exceed 36 °C (threshold of the dangerous category) at certain hot spots for 42.3–52.0% of days between May and October in years 2016-2022. The hot spots and periods identified using WBGT would be missed out if using temperature as the heat indicator. It was also found that relative risk (RR) for the heat-related emergency visits (HRE) was 1.83 (95% confidence interval (CI): 1.68 – 1.99) on day 0 when WBGT was above 32.5 °C for the entire Taiwan, with a modified generalized additive model. Children aged 0-14 had the highest RR (8.32, CI: 1.96 – 35.3) on day 0, compared to adults aged 15-64 and elderly. As for risk communication, occurring frequency was evaluated to avoid too frequent warnings which would numb the public and exhaust resources of the authorities responsible for executing timely responsive programs. Interpretation: By collaborating with the Central Weather Administration and Health Promotion Administration in Taiwan, an HHWS was successfully established and embedded in a cell-phone APP, which all residents in Taiwan could download.

Topic : Climate Change and Health

Abstract code : PP098

Abstract title:

Association Between Heat Exposure and Kawasaki Disease from 2011 to 2022: A Nationwide Time-Stratified Case-Crossover Study in Japan

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Background There is a lack of nationwide studies investigating the association between daily mean temperature and Kawasaki disease. This study aimed to examine the association between ambient temperature and Kawasaki disease using data from a nationwide administrative claims database.

Methods Data on daily Kawasaki disease hospitalizations in patients under 15 years of age from 2011 to 2022 were obtained from a nationwide administrative claims database. Daily mean temperature data were sourced from the Japan Meteorological Agency. A time-stratified case-crossover design with conditional quasi-Poisson regression was used to estimate the relative risk (RR) of Kawasaki disease hospitalization associated with heat exposure, considering a lag of 0–5 days. A random-effects meta-analysis was conducted to estimate pooled RRs.

Findings During the study period, a total of 48,784 Kawasaki disease hospitalizations were recorded. Exposure to high daily mean temperatures was associated with an increased risk of hospitalization. Specifically, exposure to extreme heat—defined as the 99th percentile of daily mean temperature—was associated with a 33% increase in the risk of hospitalization (RR 1.33, 95% confidence interval [CI]: 1.08–1.65).

Interpretation High daily mean temperature was associated with an increased risk of Kawasaki disease hospitalization. Further research is needed to elucidate the mechanisms underlying this association.

Topic : Urban Health and Sustainability

Abstract code : PO089

Abstract title:

Valuation practices in healthy placemaking: Towards improved evaluation and accountability of multi-value urban green initiatives

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Background

Planetary health is increasingly threatened, prompting societal and governmental stakeholders to engage in healthy placemaking at the local level. Healthy placemaking involves creating spaces that prioritize the mental and physical well-being of communities while enhancing planetary health through urban greening and promoting active mobility, such as walking and biking. These initiatives often adopt a collaborative approach in urban settings, targeting goals like physical health, mental health, community life, and environmental sustainability. However, many healthy placemaking projects struggle to account for their multiple values, particularly as some are considered "soft" and difficult to measure. Additionally, conflicting values can arise during implementation. This study aims to explore how the various worth of healthy placemaking is created and accounted for by different stakeholders, focusing on the valuation and accountability practices of both community members and local government.

Methods

Conducted as an embedded qualitative case study in Rotterdam, the Netherlands, known for its healthy placemaking initiatives, the research studies urban green initiatives that embed healthy placemaking practices. The research employs ethnographic and semi-structured interview methodologies to identify the outcome values associated with these initiatives and the existing accountability structures.

Findings

Preliminary findings indicate a friction between experience-based and evidence-based public health valuation practices, with the municipality favoring the latter while green initiatives lean towards the former.

Interpretation

The study will provide recommendations for improving the evaluation and accountability of multi-value urban green initiatives.

Topic : Communication around Planetary Health

Abstract code : LT033

Abstract title:

Making climate-sensitive health counselling acceptable for patients: Insights from a mixed-methods study in Germany

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Background:

Climate-sensitive health counseling (CSHC) equips health professionals to incorporate climate change and health topics into patient communication. A key barrier to its implementation is uncertainty about how to deliver CSHC in a manner, that is acceptable to patients. This study explored patient and physician perspectives on suitable topics and communication strategies for CSHC.

Methods:

We applied a sequential mixed-methods design. We conducted qualitative in-depth interviews with physicians and patients with experience in CSHC in Germany and analysed them using thematic analysis. Findings informed a cross-sectional survey administered to a German online panel, quantifying topic preference and testing acceptability of topics and communication strategies (i.e. framing of lifestyle-counseling) in a survey experiment with mixed-factorial design. We analysed quantitative data using descriptive statistics and mixed-ANOVA.

Findings:

Qualitative interviews with physicians (n=18) and patients (n=27) identified key topics for CSHC: health impacts of climate change and adaptation strategies, climate-friendly lifestyle changes, climate anxiety, and climate action. Physicians reported uncertainty about referencing climate change explicitly in lifestyle counseling. Survey data (n=1,491) revealed that 47% of participants wanted to receive CSHC in general, with over 70% being interested in adaptation strategies. Health-Only-framings in lifestyle counseling were more acceptable than Climate-and-Health-framings (partial $\eta^2=0.18$, $p < 0.001$) in the survey experiment. Yet, patients found Climate-and-Health-framings acceptable in qualitative interviews, if delivered in a patient-centered manner.

Interpretation:

CSHC can be acceptable to patients when topics and framings are carefully matched to individual health concerns and biopsychosocial background. Patient-centered communication may support integration of CSHC into routine care.

Topic : Food Systems and Nutrition

Abstract code : LT017

Abstract title:

Tracking dietary shifts towards lower carbon footprint in Italian households: a longitudinal analysis

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Background

Dietary shifts are recognized as major pathways to curb greenhouse gas emissions (GHGE). While recent studies have assessed the environmental footprint of diets, few have explored the various strategies consumers use to lower their carbon footprint through dietary changes. This study aims to examine the dietary shifts of consumers in Italy who have successfully reduced their carbon footprint over time.

Methods

Food purchase data from approximately 6,000 Italian households were collected between 2019 and 2024. Food-related GHGE were assessed using life cycle assessment. Households that significantly reduced their food-related GHGE during this period were identified as "champions.". The total volume of food purchases, associated GHGE, and expenses were evaluated at both time points. Patterns of food changes among the "champions" were identified through hierarchical cluster analysis based on food purchase changes. Sociodemographic characteristics were also described.

Findings

Among all households, 290 "champions" were identified. The reduction in GHGE was primarily achieved through decreased consumption of animal-based foods, particularly raw ruminant meat. Two distinct patterns of food changes were identified among the "champions," indicating two different strategies for reducing their carbon footprint. Each cluster was associated with specific sociodemographic factors, such as age and socioeconomic position.

Interpretation

This study shows that sustainable diets can be adopted in Italy, a country with a rich culinary tradition. The reduction in animal-based food consumption is a key strategy for lowering GHGE. To encourage broader adoption, targeted strategies tailored to specific demographic groups, such as age and socioeconomic status, are necessary.

Topic : Health System Greening and Strengthening

Abstract code : PO091

Abstract title:

Three magic ingredients in a seedbox for general practitioners : a sparkling recipe for cultivating Planetary Health in primary care teams

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The French College of General Practitioners (GPs) has been hosting a working group on Planetary Health (PH) since 2021.

We are a group composed of 20 GPs, committed to creating a PH seedbox with tools for GPs and their teams:

- .General awareness on PH
- .Perinatal care
- .PH diet
- .Organising an event respecting PH values
- .Eco-responsible prescribing
- .Integrating PH in coordinated health projects
- .Responding to common medical situations with a PH approach

All of these topics are part of the current seedbox, which keeps on growing with new topics. In 2025 we are working on prescribing nature and supporting PH training and research.

By actively promoting PH, our group expects to inform, form and encourage people to take action : this is the role we must play if we are to meet the immense challenges posed by environmental change.

The group is also a place where experts with different skills in PH are now well identified: their role is also to link in an interdisciplinary perspective the different PH networks in France and abroad, and to initiate work and partnerships with national institutions.

What are the 3 magic ingredients that will enable this group to actively cultivate the seeds of PH and spread it all around planet earth ?

We propose to share the recipe for our dynamics, our values and our themes with the aim of giving an overview of our seedbox and sharing ideas and inspiration with other networks.

Let's sow the seeds of Planetary Health all together.

Topic : Health System Greening and Strengthening

Abstract code : PO092

Abstract title:

Environmental sustainability in multi-criteria decision analysis for healthcare decision making: A systematic literature review

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Background: Tackling the impacts of climate change on health alongside existing challenges to healthcare systems such as resource scarcity, workforce shortages, risk management, advancing health outcomes and equity presents a grand challenge for the healthcare sector's decision makers. Multi-criteria decision analysis (MCDA) could assist healthcare decision makers in balancing the need for more environmentally sustainable healthcare against other crucial considerations such as cost, safety, health outcomes and work pressure. This study is the first stage of a larger project to design a MCDA model and accompanying tool/s to support healthcare decision makers in analysing trade-offs in a structured and systematic way.

Methods: A systematic literature review is in progress seeking to analyse existing MCDA applications in healthcare which include environmental sustainability as a criterion. Multiple health and transdisciplinary online databases will be searched (e.g. PubMed and Web of Science), a grey literature search will be conducted. Analysis will include the context, what other criterion were included alongside environmental sustainability, what MCDA and model design methodology was used, and what sub-criteria and weightings were used.

Findings: Results of the literature review and the MCDA model's preliminary model design requirements are expected by October.

Interpretation: Learnings from this research will contribute to problem analysis and model conceptualisation in designing a MCDA model that integrates environmental sustainability into 'business-as-usual' healthcare decision making, supporting the global transition to planetary health. Learnings will also inform the method of stakeholder involvement to co-design an output that is fit for purpose for end users.

Topic : Climate Change and Health

Abstract code : PP100

Abstract title:

Standards for Official Statistics in Climate-Health Interactions (SOSCHI)

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The *Standards for Official Statistics on Climate-Health Interactions* (SOSCHI) project is a collaborative international initiative to develop a framework of indicators for measuring climate-related health risks. These indicators aim to support regular reporting and monitoring at local, national, and international levels. While based on advanced statistical methodologies, they are designed to be flexible and adaptable in contexts where data quality or availability is limited.

Led by the UK Office for National Statistics (ONS), the project partners include the African Institute for Mathematical Sciences (AIMS-Rwanda), the Regional Institute for Population Studies (RIPS-Ghana), the UK Health Security Agency (UKHSA), the Cochrane Planetary Health Thematic Group, and a network of experts in climate epidemiology.

To encourage wide adoption and accessibility, SOSCHI is also developing an interactive knowledge-sharing platform. This includes online calculators for selected indicators, Application Programming Interface access for automated integration, and open-source R code for technical users to incorporate into their workflows. The platform enables users to apply the indicators using their own datasets or publicly available climate and health data, regardless of their technical expertise.

The target audience includes national statistical offices and producers of official statistics, as well as government policymakers and non-governmental organisations (NGOs) who can use these tools to guide evidence-based, targeted climate-health interventions.

To date, SOSCHI has released an Alpha version of the framework on [Zenodo](#) and launched a live development version of the platform. The project will also help to identify data gaps and inform future improvements in climate and health data systems.

Topic : Climate Change and Health

Abstract code : LT018

Abstract title:

Comparison of environmental vulnerability for elderly ESRD patients

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Background

There is a growing trend of aging among hemodialysis (HD) patients. Though thrice-weekly hemodialysis is routinely perceived as the standard regimen for end-stage renal disease (ESRD) patients, incremental HD has recently been advocated. Among escalating planetary crises, physiological resilience should be considered when determining hemodialysis regimens for these environmentally vulnerable populations. This study aimed to analyze association between heatwave exposure and mortality risk by hemodialysis frequency in elderly ESRD patients.

Methods

This study used data from the National Health Insurance Service in South Korea. Mortality risk was estimated using a cox proportional hazard model based on the Lalonde health field framework. Environmental vulnerability was defined as a region with high exposure to heat waves that last more than 33 consecutive days, using Korea Meteorological Administration data.

Findings

In cox proportional hazard model, the twice-weekly dialysis group (n=154) had a hazard ratio (HR) of 1.212 (p=0.377) times and thrice-weekly group (n=149) had a HR of 1.027 (p=0.897) for mortality in regions with high exposure to heat waves. In both HD groups, HD duration was significantly associated with mortality (twice-weekly: HR=1.117, p<0.001; thrice-weekly: HR=1.108, p<0.001).

Interpretation

The twice-weekly HD group showed relatively higher mortality in regions with high exposure to heat waves compared to the thrice-weekly HD group, though the difference was not significant. These study findings suggest that environmental resilience may contribute to increased physiological burden such as accelerated loss of residual kidney function and increased fluid loss.

Topic : Climate Change and Health

Abstract code : LT019

Abstract title:

A scoping review of the contributions of integrated crop-livestock systems to farmers' wellbeing in China

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Background: Agricultural production has been increasingly affected by ongoing climate change, posing significant threats to farmers' life-particularly in developing countries. Integrated crop-livestock systems are being promoted as a viable Nature-based Solution to enhance farmers' wellbeing.

Methods: We conducted a scoping review of literature from four major electronic databases, examining the effects of integrated crop-livestock systems on farmers' wellbeing in China.

Findings: A total of 3671 research papers were included. Our findings reveal a growing interest in this topic over the past five years. Most of the studies were conducted in eastern (26%) or northern (18%) China from micro scales. Two major forms of crop-livestock interaction were identified: using livestock manure to fertilize crops (54%) and feeding livestock with crop residues (34%). The reviewed studies gave equal attention to farmers' environmental (45%) and economic (45%) wellbeing, while few on societal (10%) wellbeing. Notably, positive effects on farmers' environmental and economic wellbeing led by integrated crop-livestock systems dominated in most cases, which accounted for 84% and 71% respectively.

Interpretation: Our analysis indicates that integrated crop-livestock systems hold great potential for improving farmers' wellbeing in the context of climate change. However, previous research has primarily focused on the more developed eastern regions, whereas the larger and more traditional agricultural areas in western China deserve greater attention. Furthermore, aspects of farmers' societal wellbeing, such as food security and managerial burden, should not be overlooked.

Topic : Climate Change and Health

Abstract code : PP101

Abstract title:

Health Impacts of Climate Adaptation to Extreme Heat and Floods: An Integrative Framework for Policy and Practice

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Climate change adaptation is essential for reducing health risks associated with extreme weather events, yet the health impacts of adaptation interventions remain insufficiently examined. This study investigates how interventions targeting extreme heat and floods influence health and wellbeing, identifying pathways of co-benefits, trade-offs, and potential maladaptation.

We conducted an integrative literature review across over 70 peer-reviewed articles and grey literature using a structured search strategy in Web of Science and Google Scholar. The search focused on studies reporting health and wellbeing outcomes of adaptation interventions specific to extreme heat and floods with preference for quantitative studies using retrospective data where possible. The results informed the construction of two conceptual frameworks that trace the causal pathways linking climate hazards, social vulnerability factors, and adaptation interventions to direct, indirect, and socio-economic health impacts.

The framework categorizes adaptation measures across six domains: environmental, urban, health & livelihoods, housing and building, behavioral, and communication. It distinguishes between hazard-reducing and impact/exposure-reducing interventions, and explicitly incorporates social mediating vulnerability factors, structural risk drivers, and key enablers (e.g. governance, financing, technology). It also identifies intervention levels—from individual to government—and integrates both desirable and undesirable health consequences, including pollution, disease risks, and inequality

The study contributes a novel integrative framework that unites climate hazards, adaptation measures, health system interactions, and social determinants of vulnerability. It offers a structured lens for identifying policy-relevant leverage points, advancing SDG 3 (Good Health and Wellbeing) and SDG 13 (Climate Action), while minimizing the risks of maladaptation.

Topic : Gender, Culture & Participatory Approach in Planetary Health

Abstract code : PO093

Abstract title:

Where Medicine Meets the Earth: Lessons from an Indigenous Food Garden

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Background: In Indigenous value systems across North America, health is often conceptualized as collectively held by a community of humans, plant and animal relatives, and the ecosystem as a whole. Growing plants that are nutritionally valuable or culturally relevant can be part of the work of decolonial repair. Incorporating an ecologically integrative land care practice into the training of American Indian and Alaska Native (AI/AN) health care professionals may enhance protective cultural factors not otherwise present while at an academic medical center. It can also stimulate institutional conversations about the role of medical professionals to steward planetary health.

Methods: This presentation will describe the history, motivation, and activities of the Northwest Native American Center of Excellence (NNACOE) Indigenous Food Garden. Founded in 2017, the Garden serves as a space for fostering connection among Indigenous students and faculty at a medical school in the Pacific Northwest of the United States, with the goal of improving retention and experiences of AI/AN medical students.

Findings: Utilizing program archival documents and videos, we will describe how Garden practices have integrated Indigenous ways of life and traditional ecological wisdom into the fabric of Western academic medical training. We will also share preliminary findings from a qualitative research study, currently underway, that uses Ripple Effects Mapping to document medical students' perceived impacts from taking part in Garden activities.

Interpretation: Part research study, part community project, our work offers insights for bringing holistic planetary care into academic medical training and values.

Topic : Climate Change and Health

Abstract code : LT020

Abstract title:

Knowledge and Awareness of Climate Change and Its Health Impacts Among Faculty Members in Health-Related Faculties in Istanbul

I.A. Ilknur Ayvaz ¹

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Background: Climate change is recognized as a major global threat to human health in the 21st century. Health professionals are expected to play a vital role in mitigating climate-related health risks and preparing health systems for emerging challenges. This study aimed to assess the knowledge and awareness of climate change and health impacts among faculty members working at the health faculties of a public university in Istanbul.

Methods: This descriptive study targeted 494 faculty members across four faculties: Medicine, Dentistry, Health Sciences, and Pharmacy. An online questionnaire was applied between December 2021 and April 2022. A total of 217 responses were collected. The survey included sociodemographic questions and items assessing knowledge and awareness of climate change and its health effects. Data were analyzed using Pearson's Chi-Square and Fisher's Exact tests, with statistical significance set at $p < 0.05$. Ethical approval was obtained.

Findings: Among 217 faculty members, only 37.8% ($n=82$) correctly defined climate change, though 88% ($n=191$) believed it affects personal health and 89% ($n=193$) expressed concern. Two-thirds ($n=145$) reported modifying consumption habits due to climate change, while only 24.4% ($n=53$) integrated the topic into their teaching. There were statistically significant differences between gender and health-related perceptions and between faculty type and support for including climate change in the curriculum ($p < 0.001$).

Interpretation: Despite high concern levels, faculty members demonstrated limited knowledge and low integration of climate change into educational content. Enhancing education on climate change and health impacts in the health students' curriculum is essential for advancing planetary health awareness and action.

Topic : Planetary Health Education or Curriculum

Abstract code : PP102

Abstract title:

Developing a Medical Education Roadmap: Engaging Medical Students in Planetary Health Curricular Development

Joanne Bernstein ¹

C.L.W. Christa Wagner ¹, Elizabeth Auckley ¹, Diane Peng ¹, Jacob Prunuske ¹, Kellie LeGrave ¹

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Medical students have been at the forefront of requesting climate and health education in their curriculum. Today, most U.S.-based medical schools offer some planetary health curriculum, mostly in the form of electives or individual lectures or modules while U.S.-based accrediting bodies do not require climate and health content.

The Medical College of Wisconsin (MCW) developed a Climate Med Ed Scholars program to partner students with physician advisors to collate actionable planetary health learning objectives for incorporation into MCW's early classroom-based learning while developing a curricular roadmap for the integration of planetary health throughout the four-year curriculum.

In April 2024, 12 students were recruited and paired with physician mentors. The dyads reviewed 40 patient-based written cases used weekly in the curriculum's basic science units for planetary health integration. They identified 22 cases with opportunities for integrating learning objectives adapted from Global Consortium on Climate and Health Education and Planetary Health Report Card recommendations. The Scholars' research laid the groundwork for an institutional curricular roadmap, consisting of planetary health learning objectives progressing from knowledge to action across multiple themes. For example, students will advance from describing climate change as an issue of health equity to clinically assessing individual patient vulnerability and devising an action plan to protect their health while leveraging a multidisciplinary team and community resources. Future work will engage diverse faculty and initiate teaching of the identified learning objectives across the curriculum.

Topic : Urban Health and Sustainability

Abstract code : PP104

Abstract title:

Disparities in heatwave-related risk for acute myocardial infarction by area deprivation and urbanicity: A time-stratified case-crossover study in Japan

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² Tohoku University Japan

Background While previous research has documented heatwave-related risks of acute myocardial infarction (AMI), fewer studies have examined the socioeconomic and geographical disparities of these risks. This study investigated how heatwave-related risks of emergency hospitalization for AMI differ by area deprivation and urbanicity in Japan.

Methods Hospitalizations for AMI during the warm season (June to September) between 2011 and 2021 were extracted from a nationwide administrative database. Heatwave days were defined using six criteria: days with daily mean temperatures at or above the 90th, 92.5th, and 95th percentiles lasting for at least ≥ 2 or ≥ 3 consecutive days. A time-stratified case-crossover study employing conditional quasi-Poisson regression analysis was used to estimate heatwave-related relative risks (RRs) of emergency hospitalization for AMI over lag 0-6 days. Analyses were stratified by area deprivation and urbanicity.

Findings A total of 142,977 cases for AMI were analyzed. In urban settings, heatwave-related RRs were highest among residents of the most deprived neighborhoods, ranging from 1.113 (95% confidence interval (CI): 1.001-1.237) for $\geq 90^{\text{th}}$ percentile heatwaves lasting ≥ 2 days to 1.211 (95%CI: 1.042-1.407) for $\geq 95^{\text{th}}$ percentile heatwaves lasting ≥ 3 . RRs were lowest among individuals living in the least deprived areas. Conversely, in non-urban areas, no clear pattern was observed between area deprivation and heatwave-related RRs in non-urban settings.

Interpretation Individuals living in socioeconomically deprived urban areas may be disproportionately at increased risk of heatwave-related AMI.

Topic : Arts, Narrative, and other Community Engagement in Planetary Health

Abstract code : PP105

Abstract title:

Doctors for the Environment Australia; “Fossil Fuels are a Health Hazard” Report

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¹ Doctors for the Environment Australia

Doctors for the Environment Australia is the leading national environment and health advocacy body. In 2024, DEA released their comprehensive, member-led report, *Fossil Fuels are a Health Hazard*, detailing the negative health impacts in Australia from coal, oil, and gas. This is the first report detailing negative health impacts specifically focused on fossil fuels as the root cause of illness. The report diagnoses health harms resulting from fossil fuels over their lifecycle, from extraction, to processing, combustion and waste disposal. Four key health harms are identified: Climate change, air pollution, plastic waste, and biodiversity loss. Following a diagnosis, the report details a comprehensive, evidence-based treatment plan for healthcare services, governments, the private sector, and individuals to divert from fossil fuels. The need for a multi-modal approach is highlighted, to ensure a healthier, fossil fuel-free future for Australians.

As a doctor-run organisation, prevention is paramount in protecting the health of people and the planet. By adopting a health approach, this report identifies the importance of ‘quitting’ fossil fuels to reduce our collective risk exposure.

The report was launched on August 14th with support from the Assistant Health and Aged Care Minister the Hon. Ged Kearney, various parliamentarians, and DEA members on Ngunnawal Country in Canberra. Media coverage through a variety of press reached millions across the nation and has since gained global attention.

Topic : Planetary Health Education or Curriculum

Abstract code : PP106

Abstract title:

Planet&AR Project: Integrating Planetary Health into Medical Education through Immersion in a Brazilian Quilombola Area

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Background: Planetary health is an emerging field that emphasizes the interdependence between human health and the Earth's natural systems. Despite growing global awareness, the concept remains underrepresented in medical curricula. The Planet&AR Project was developed to identify environmental and health vulnerabilities and to implement innovative strategies for medical education. The initiative focused on a coastal Brazilian island inhabited by a Quilombola community, historically affected by racism, environmental degradation, and socioeconomic inequality. **Objective:** To describe an innovative educational intervention for incorporating planetary health into medical education through the immersion of students in a community facing environmental injustice in Brazil. **Methods:** Medical students from two universities participated in a six-month theoretical training on planetary health, followed by two immersive field visits to Maré Island. Students conducted interviews, and community observations with support from local health agents. Reflections were documented in individual reports. **Results:** Students identified multiple environmental health risks, including air and water pollution, poor sanitation, and perceived links between environmental degradation and chronic illness. Student reflections revealed an expanded understanding of planetary health, environmental justice, and the importance of culturally sensitive medical practice. Many reported a shift in their perception of medical education and a desire to incorporate planetary health into their future clinical work. **Conclusion:** This initiative demonstrates the feasibility and transformative potential of integrating planetary health into medical education through community-based learning. It highlights the role of students as agents of change in the face of climate and environmental challenges, especially in regions marked by systemic inequalities.

Topic : Climate Change and Health

Abstract code : PP107

Abstract title:

Barriers and facilitators of systems transformation within a city-university partnership: a qualitative investigation of transdisciplinary collaboration

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Background: Addressing the challenge of sustainable solutions for climate resilience requires transdisciplinary working between academia, civic institutions, and the general public. While there are increasing calls for transdisciplinary research to address complex problems, aligning purposes and priorities across academic borders is replete with operational, strategic and epistemological tensions. GALLANT (Glasgow as a Living Lab Accelerating Novel Transformation) is a five-year, £10 million investment from the Natural Environment Research Council which is premised on cross-organisational collaboration between the University of Glasgow, Glasgow City Council, and a range of professional and public stakeholders to work towards urban place-based climate resilience. This study explores the many challenges and opportunities inherent in this work and aims to develop a cohesive framework to facilitate transformative partnership working in pursuit of human and planetary health.

Methods: Participatory systems mapping workshops and qualitative interviews with a broad range of GALLANT collaborators and stakeholders using systems science methodologies.

Findings: Early findings suggest challenges to collaboration exist within and across organisational boundaries. Working with a systems approach heightened awareness of differing stakeholder perspectives, roles and constraints as well as opportunities for innovation. Eliciting stakeholder perceptions of their respective spheres of control and influence helped surface limiting assumptions and enabled valuable insights regarding leverage points for systems transformation. Analysis is ongoing and further findings will be presented as the study progresses.

Interpretation: Our findings contribute to the emerging literature on frameworks for establishing conducive conditions for collaboration in transdisciplinary projects which seek to enable human and planetary health to thrive.

Topic : Climate Change and Health

Abstract code : PP108

Abstract title:

A ‘Synthetic Population’ Model for Quantifying the Impacts of Environmental Policies on Population Health and Health Inequities

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Background:

Modelling the health impacts of climate change policies can provide evidence to guide decision-making. However, conventional models are not well placed to address issues of equity as they do not generally account for the distributional impacts of policy interventions across diverse population subgroups. To address this, we developed a synthetic population model to explore the impacts of climate change mitigation policies on population health and health inequalities in the UK.

Methods:

The model simulates a georeferenced synthetic population with individual-level characteristics, including age, gender, socioeconomic status, and location. Environmental exposures (e.g., air pollution, housing risks) and health behaviours (e.g., physical activity, diet) are assigned using distributions linked to their characteristics. Policy scenarios are modelled to estimate effects on mortality, morbidity, and health inequalities, with health impacts quantified through exposure-response functions applied at the individual level.

Findings:

We are currently applying the model to assess the health impacts of climate change mitigation policies implemented across multiple sectors (housing, energy, transport, food) to capture heterogeneous health impacts across population subgroups in the UK. Preliminary results show that the model effectively captures individual-level variations, identifying disparities in health benefits and burdens, and enabling targeted interventions to reduce inequities. The model is being further developed to include additional environmental exposures and behavioural pathways.

Interpretation:

The synthetic population model provides an equity-focused approach for evaluating health policies, helping to ensure that interventions not only improve overall population health but also reduce inequalities. This framework supports evidence-based decision-making for equitable policy action.

Topic : Health System Greening and Strengthening

Abstract code : PP111

Abstract title:

Extending the scope of Health Technology Assessment (HTA) to include planetary health aspects: a systematic review of societal preference studies and proposed methodologies for economic evaluation and multicriteria decision analysis (MCDA)

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Background: Healthcare significantly impacts planetary health. In response, there is growing interest in adapting HTA frameworks to include the environmental impacts of health technologies in reimbursement decision-making. While some approaches have been proposed to assess these environmental effects, they lack widespread acceptance and systematic application. Moreover, little is known about societal preferences regarding the inclusion of planetary health aspects in HTA processes. This review aims to map existing methodologies, explore emerging approaches, and summarize societal preferences for integrating planetary health considerations into HTA.

Methods: We conducted a systematic literature review, searching databases including Medline and Embase. After applying the inclusion criteria, we categorized articles into conceptual and methodological frameworks, empirical studies, and societal preferences.

Findings: From 2,422 unique records, 20 were relevant for inclusion. Ten addressed conceptual and methodological frameworks for incorporating environmental impacts in economic evaluations, eight were empirical studies on practical integration into cost-effectiveness analysis, and two focused on stakeholders and social preferences.

Interpretation: Most methodological studies use life cycle assessment to measure medical technologies' environmental effects. This evidence is included in HTA either 1) as separate information for deliberation, 2) on the cost-side or effect-side of cost-effectiveness studies, or 3) as additional criterion in MCDA. Preference studies indicate considerable support for sustainable healthcare, including willingness to accept trade-offs for environmental advantages. Nevertheless, it remains unclear whether the proposed methodologies will be adopted and accepted on a broader scale. In conclusion, this review shows that developing methods to integrate planetary health into HTA is both increasing and feasible.

Topic : Urban Health and Sustainability

Abstract code : PP112

Abstract title:

Pathways Between Green Space Exposure and Cardiovascular Diseases: A Systematic Review of Mediation

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Background: The relationship between green space exposure and cardiovascular disease (CVD) has been well-established, but the mediators underlying this association remain insufficiently explored. Mediation analysis can identify factors that explain the pathways between green space exposure and cardiovascular health outcomes. Our study aims to synthesize evidence from observational studies that used formal mediation analyses to investigate these mediators, providing a comprehensive understanding of how green space impacts cardiovascular health.

Methods: A systematic review was conducted, based on a previous review by Liu et al. (2022). Studies published from 2022 to May 2024 were identified through searches on PubMed, Web of Science, Embase, and Scopus. Eligible studies were those that investigated the relationship between green space exposure and CVD outcomes and conducted mediation analyses.

Findings: Of the 2138 records identified, 17 were eligible for inclusion. Physical activity, air pollution, and traffic noise were the most investigated mediators in the relationship between green space exposure and cardiovascular outcomes. Preliminary findings show mixed evidence regarding their mediation effects. Social isolation did not demonstrate a significant mediating role.

Interpretation: These results highlight the complexity of the pathways between green space exposure and cardiovascular health. Inconsistent mediation effects of physical activity, air pollution and traffic noise across studies call for further research to clarify their roles. A deep understanding of these pathways is critical for shaping public health policies and urban planning strategies that optimize the health benefits of green spaces and reduce the burden of cardiovascular disease.

Topic : Climate Change and Health

Abstract code : LT021

Abstract title:

Temperatures around conception affect metabolic health in adulthood: a quasi-experimental study

Timo Münz ¹

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Background

Epigenetic adaptations in early life – starting around conception - co-shape health along the life-course. With respect to temperatures, pre-conception cold exposure is thought to increase active brown fat mass in adult offspring, which is associated with improved metabolic outcomes. With global rising temperatures, long-term metabolic health could thus be affected via warmer temperatures during pregnancies. To date, causal evidence on humans is lacking.

Methods

We used data on 430,000 individuals born between 1934 and 1971 from the UK Biobank, matched to historical temperature data. Outcome measures were BMI, waist circumference, total cholesterol, and triglycerides levels. The main exposure was temperature in the 2 weeks prior to conception, a critical period for epigenetic programming during spermatogenesis. We relied on temperature variations within geographic regions and months of conception (region-by-month-of-conception fixed effects) and controlled for sex, year of birth and year of assessment. This approach leverages a quasi-random variation in temperature.

Findings

We find that individuals conceived when temperatures were lower than usual have lower body mass indices (BMI), smaller waist circumferences, and lower levels of triglycerides and total cholesterol in adulthood, while there was no evidence for an effect on glycated hemoglobin (HbA1c).

Interpretation

Our findings demonstrate that comparably subtle changes in the environment – here: slight deviations in temperatures around conception – are associated with adulthood metabolic health. This study points to the importance of future research on similar potential long-term health externalities of rising global temperatures.

Topic : Infectious Diseases and Environmental Change

Abstract code : PP158

Abstract title:

Environmental Drivers of Antimicrobial Resistance in Nigeria: A Community-Based Surveillance Study of ESBL-Producing *E. coli* and *Salmonella*

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Background

Antimicrobial resistance (AMR) is a major planetary health challenge, particularly in low- and middle-income countries where poor sanitation, informal antibiotic access, and environmental degradation contribute to the emergence and spread of resistant pathogens. This study examined the prevalence and resistance patterns of extended-spectrum beta-lactamase (ESBL)-producing *Escherichia coli* and *Salmonella* in under-fives and their mothers in Kano and Taraba States, Nigeria. It also explored how environmental and sociodemographic exposures contribute to AMR, with whole genome sequencing (WGS) proposed to investigate resistance mechanisms and transmission.

Method

A cross-sectional study was conducted between January and July 2021. A total of 185 stool samples were collected from 94 children and 91 mothers. ESBL-producing *E. coli* and *Salmonella* were identified using standard culture methods, and antimicrobial susceptibility testing followed CLSI 2020 guidelines. Sociodemographic and antibiotic use data were collected via interviews.

Finding

ESBL-producing *E. coli* was found in 38% of samples, with higher prevalence in mothers. *Salmonella* was found in 3%. Resistance was highest to ampicillin (76%), sulfamethoxazole (60%), cefotaxime (58%), and trimethoprim (55%). Multidrug resistance was present in 72% of ESBL isolates. Taraba participants, with lower education and wealth, relied more on informal antibiotic sources.

Interpretation

The study highlights the role of household and environmental exposures in AMR spread. Planned WGS will clarify resistance pathways. Addressing these challenges requires targeted interventions, including improved WASH, regulation of antibiotic sales, and genomic surveillance, particularly in underserved communities facing compounded environmental and health inequities.

Topic : Climate Change and Health

Abstract code : PP159

Abstract title:

Thoughts after Droughts: Combined effects of prenatal and postnatal drought-related nutritional challenges on adolescent cognition in rural India

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Background

Suboptimal nutrition during pregnancy is associated with adverse health and human capital outcomes in the offspring, yet the role of the postnatal environment for effect manifestation remains understudied. We investigate the interplay of pre- and postnatal drought-related nutritional shocks in shaping cognitive health among adolescents in rural India. In the setting, a large share of the population depends on rainfed agriculture and droughts have adverse impacts on household nutrition.

Methods

Math and reading scores from the 2007-2018 Annual Status of Education Report (ASER) on 11-16-year-olds from rural India (N = 2,009,869) were linked to historical rainfall data. Drought was defined as rainfall below the 20th percentile of the district-specific long-term mean. We analyzed the interaction effect between prenatal drought exposure with drought exposure in childhood, adjusting for, sex, age, year of assessment and district fixed effects.

Findings

Drought during pregnancy was associated with lower test scores in adolescence (reading, math, total score). However, positive interaction terms between prenatal and postnatal drought exposures suggest that children already exposed to droughts prenatally were better equipped for similar postnatal conditions. Effects did not differ by sex.

Interpretation

A substantial share of the global population relies on rainfed agriculture and is directly impacted by rainfall fluctuations. As the climate crisis progresses, the unpredictability of rainfall patterns is predicted to increase. While our study suggests that similar prenatal and postnatal conditions may offer some protective benefits through epigenetic adaptations, such alignment cannot be planned or anticipated, and children will most often experience mismatches.

Topic : Gender, Culture & Participatory Approach in Planetary Health

Abstract code : PP113

Abstract title:

Do Animism in Shinto and Impermanence in Buddhism Support Climate Change Policy? A Nationwide Cross-Sectional Study in Japan

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Background

Japan is one of the countries that is less likely to support a structural approach to climate change policy. Japanese cultural concepts, such as animism in Shinto and impermanence in Buddhism, may influence the Japanese public's support for structural climate change policies. However, no study has yet investigated the association between these cultural concepts and climate change policy.

Methods

We conducted a nationwide internet survey among 10,330 adults living in Japan. Animism was assessed using 10 questions, such as "I feel the presence of sacred beings, such as spirits or fairies, in nature like mountains, rivers, and the sea," (5-point Likert scale, Cronbach's alpha: 0.90). Impermanence was assessed using 4 questions, such as "In general, everything is constantly changing, so we must accept change," (5-point Likert scale, Cronbach's alpha: 0.76). We also asked whether participants support politicians or organizations engaged in climate change policies (8 items, 4-point Likert scale), with responses aggregated into a total score (Cronbach's alpha: 0.92). Regression analyses were performed, adjusting for covariates.

Findings

Both animism and impermanence were inversely associated with supportive behaviors toward climate change policy (both $p < 0.001$). The standardized coefficient for animism was higher than that for impermanence (-0.20 vs. -0.13, respectively).

Interpretation

Japanese people who believe in animism and impermanence are less likely to support climate change policy. This aspect of Japanese culture may influence the limited support for structural climate change policies.

Topic : Policy and Advocacy in Planetary Health

Abstract code : LT022

Abstract title:

Exploring Methods to Include Carbon Footprint in an HTA: The Case of Remote Patient Monitoring

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BACKGROUND: The healthcare sector significantly contributes to global greenhouse gas emissions, yet these impacts remain largely unaddressed within Health Technology Assessments (HTAs). This study evaluated methods for incorporating carbon footprint into HTA by comparing remote patient monitoring (RPM) with usual care (UC) following cardiothoracic surgery, emphasising implications for planetary health.

METHODS: Data from an observational cohort (N=730) were reanalysed using target trial emulation with inverse probability weighting to adjust for confounding. Over three months, healthcare utilisation, patient outcomes, costs, and environmental impacts were assessed. Environmental impact, expressed in kg CO₂eq, was quantified using Life Cycle Assessment (LCA). An extended cost-effectiveness analysis (CEA) monetised carbon impacts (€0.13/kg CO₂eq). Additionally, a Multi-Criteria Decision Analysis (MCDA) using the Analytical Hierarchy Process (AHP) method was conducted, incorporating environmental impact alongside five other decision criteria.

FINDINGS: RPM had higher environmental impacts (92 kg CO₂eq) compared to UC (58 kg CO₂eq), primarily due to medical device production despite reduced patient travel. Despite the inclusion of the higher environmental impact, RPM remained cost-saving ((€139/patient) with minimal cost difference attributed to CO₂eq (<1%). MCDA indicated RPM outperformed UC across five of six criteria, except environmental impact, yet received higher overall value scores (RPM=0.65 vs UC=0.35).

INTERPRETATION: In an extended CEA, substantial differences in carbon footprint are unlikely to significantly influence HTA decisions due to the low social cost of carbon. The MCDA framework offers a more nuanced and transparent approach, enabling stakeholders to explicitly weigh environmental performance against other criteria, effectively capturing broader societal perspectives and values.

Topic : Environmental Pollution and Health

Abstract code : PP114

Abstract title:

Exploring Planetary Health Resilience to Air Pollution using nationally representative data from Korea

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Background: According to 2020 OECD data, PM2.5 concentration in South Korea was more than twice the OECD average. Perceived stress is a psychological response to environmental stressors and may vary by individual characteristics. However, there has been limited attention to resilience in the planetary health system using nationally representative data. This study aims to identify factors associated with perceived stress in populations exposed to air pollution.

Methods: This study used the 2022 Korea National Health and Nutrition Examination Survey (KNHANES) linked air pollution concentration data. We analyzed 3,047 respondents aged 19 and older. Air-polluted areas were defined as annual average PM2.5 concentrations exceeding the Korean national standard. Perceived stress was classified as a binary variable. Binary logistic regression with complex survey design was conducted using SAS 9.4, controlling factors based on the Lalonde health field model.

Findings: Among the population living in areas with higher PM2.5 exposure, women, youth, those receiving medical aid, and those diagnosed with chronic diseases experienced higher perceived stress.

Interpretation: Populations living in air-polluted areas showed higher perceived stress than those living in less air-polluted areas. Notably, the perceived stress may vary by sociodemographic and health-related characteristics under similar environmental conditions. This may result from the difference in individuals' environmental vulnerability and levels of resilience. This study highlights the need for targeted public health actions for vulnerable groups in the context of planetary health. Policies to reduce air pollution should be accompanied by interventions reflecting individual-level needs.

Topic : Business in Planetary Health

Abstract code : LT023

Abstract title:

Leveraging Green Finance to Mitigate Zoonotic Risk: An Investor Alliance Model for Sustainable Land Use and Lassa Fever Control in Nigeria

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Background

Lassa fever, a rodent-borne zoonotic disease endemic to Nigeria, is closely linked to environmental degradation driven by agricultural expansion. Deforestation and land fragmentation in high-rainfall zones (900–2100 mm annually) create ideal habitats for *Mastomys natalensis*, increasing human-rodent contact and outbreak risk. This study explores a business-oriented solution: an international Investor Alliance that mobilizes green financing to reduce Lassa fever risk through sustainable land-use practices.

Methods

We conducted a spatial overlay analysis of Sentinel-2 deforestation imagery (2023–2024), Lassa fever epidemiological data (NCDC) from 2019–2024, and rainfall distribution to identify ecological hotspots. Investment flows from Japan, Korea, Malaysia, and Singapore were reviewed for alignment with sustainability goals. A blended finance model was developed linking investor returns to health and environmental co-benefits.

Findings

Outbreaks peaked during dry seasons, coinciding with rodent migration and land clearance. Regions with high investment potential overlapped with high-risk zones. Practices such as agroforestry, ecological buffers, and zero-deforestation certification schemes offer viable entry points for green financing.

Interpretation

The Investor Alliance model reframes zoonotic disease prevention as an investable opportunity. Asian investors bring capital and environmental sustainability and governance (ESG) frameworks, while Nigerian partners ensure local ownership. By aligning planetary health outcomes with private sector incentives, this model provides a scalable strategy to reduce zoonotic spillover, support sustainable agriculture, and strengthen health system resilience in line with global biodiversity and climate targets.

Topic : Environmental Pollution and Health

Abstract code : LT032

Abstract title:

Patient Acceptance of Ecoprescription: A Cross-Sectional Study in Primary Care

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Background: Pharmaceutical pollution is an emerging threat to ecosystems and human health. Since 2000, Sweden has promoted a “wise list” of less-polluting pharmaceuticals. Renamed *ecoprescription*, this approach has been positively received by French health authorities, despite concerns about public understanding of ecotoxicity indices. This study aimed to assess patients’ acceptance of ecoprescription in primary care, and their readiness to support environmentally responsible prescribing practices in real-life settings, including potential changes to their medication routines.

Methods: A multicenter cross-sectional quantitative study was conducted in five general practices. After being informed, adult patients completed an anonymous, self-administered questionnaire in the waiting room. Data were statistically analyzed (significance threshold: $p < 0.05$).

Findings: A total of 397 completed questionnaires were collected. Overall, 76% of respondents supported applying ecoprescription to their medications. Multivariate analysis showed no significant differences by age, sex, education, chronic condition status, or doctor-patient relationship duration ($p > 0.05$). Acceptance correlated significantly with openness to generic drugs ($p = 0.033$). Additionally, 85% were willing to adapt their purchasing habits for environmental reasons, and 87% supported withdrawing the most polluting drugs when alternatives exist.

Interpretation: Patients show strong support for integrating environmental considerations into prescribing decisions. These findings highlight the potential for citizen-driven change within healthcare systems. Ecoprescription offers a practical, scalable, and acceptable tool to reduce pharmaceutical pollution and contribute meaningfully to planetary health. Its implementation requires access to transparent ecotoxicological data and integration into prescribing tools, clinical guidelines, medical education, and health policy frameworks.

Topic : Mental Health and Environmental Change

Abstract code : PP119

Abstract title:

Effects of air temperature on depression and anxiety – systematic review and meta-analysis

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Background

Recent evidence suggests that climate change significantly impacts mental health. However, the effects of heat on specific mental health problems have not been systematically assessed. The aim of this study was to quantify the effects of air temperature on the two mental disorders causing the greatest global burden of disease: depressive and anxiety disorders. In addition, subclinical effects on negative emotions, affect, mood, and depression and anxiety were investigated.

Methods

A PROSPERO registered search in MEDLINE and PsycINFO was conducted until August 2023. Studies including a) an objective measure of air temperature (e.g., means) and b) a validated measure/diagnosis of negative emotions, affect, mood, depression, or anxiety (e.g., Beck Depression Inventory, DSM-5 diagnosis). The screening, study selection, data extraction, and risk of bias assessment was completed by two independent study investigators. Meta-analysis was conducted using the R *metafor* package.

Findings

K=30 studies were identified. The findings of the systematic review suggested that higher mean temperatures (29-36°C) were associated with more negative affect and worse mood. Regarding depression, a mixed picture emerged, with evidence for a U-shaped relationship between air temperature and depressive symptoms and psychiatric hospital admissions. Regarding anxiety symptoms, a linear relationship between air temperature and anxiety symptoms and psychiatric hospital admissions was found.

Interpretation

These findings point to differential effects of heat on depression versus anxiety. Heat action plans should specifically address people with mental health problems to sensitise them for their vulnerable status. More research into the mechanisms translating heat into depression and anxiety is warranted.

Topic : Planetary Health Education or Curriculum

Abstract code : PO101

Abstract title:

Discussion on Unconventional Food Plants

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In September 2024, the Latin American Hub for Planetary Health, in partnership with the Federal University of Goiás and ReAct Latin America, with a view to creating open dialogues and forging links between health professionals, researchers and the community to change the paradigm of antibiotic resistance, developed an agenda with planetary health education activities with a group of elderly people from the Community Work Center (CTC) in Goiânia, Goiás, Brazil. The guiding theme was the use of Non-Conventional Food Plants (NFCPs), which have the impact of balancing human health and environmental sustainability by diversifying the diet, expanding the variety of foods available, which directly influences the issue of food security and also helps to preserve biodiversity by contributing to more resilient, regenerative agricultural systems that value traditional knowledge and local culture.

The first stage, popular plants were collected and the moderator shared their properties with the participants, always based on scientific evidence. During the round table discussion, the community actively interacted with the international guests, sharing empirical knowledge about the species as well as tips on preparation and consumption.

In addition, the CTC members told personal stories, sharing experiences of how they had used these plants throughout their lives. They also reported that, as well as being tasty and nutritious, some of these plants had already been used for medicinal purposes in their routines. This exchange of knowledge between the participants in the project/action resulted in a broadening of knowledge that contributes to strengthening the community.

Topic : Planetary Health Education or Curriculum

Abstract code : PP121

Abstract title:

Assessing Nursing Students' Perspectives on Planetary Health: Implications for Curriculum Development and Competency-Based Education"

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Project/Initiative Concept:Nurses are the backbone of health systems making them non-negotiable partners in efforts to advance planetary health in the healthcare context. As adult learners, content must be relevant for meaningful learning to occur. Despite multiple proposals from non-student experts about what planetary health content is appropriate for health profession students, we do not know what students find relevant.

Target Audience: Educators in planetary-health related areas and/or the health professions

Goals: To describe health professional students' perspectives on Planetary Health and their implications for curriculum development and competency-based education

Results We conducted a cross-sectional survey of pre-licensure nursing students in a high-resource setting about their personal and professional perspectives on planetary health. Students reported a high level of concern for themselves and future generations however only half were concerned about personal harm. They reported a sense of agency that nurses can contribute to sustainable healthcare. When asked to prioritize planetary health competencies, students found identifying, diagnosing, and treating health problems, and understanding how ecosystems and health and society are connected were more of a priority than recognizing and addressing unequal impacts of environmental change, advocating for change or sharing knowledge about environmental crises. Results suggest students find individual care interactions more relevant than addressing inequities at a systems level. We used these data to customize planetary health competency-based education in our setting. This type of assessment can be used by other health professional educators to assess and evaluate the impact of planetary health curricular elements on students' planetary health competencies.

Topic : Health System Greening and Strengthening

Abstract code : PP122

Abstract title:

Healthcare Climate Action: Mapping Tools for Climate-Resilient and Low-Carbon Health Systems

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Background

Healthcare systems are both affected by climate change and contribute ~5% of global greenhouse gas (GHG) emissions. To meet international commitments like the Paris Agreement and COP26/28 health initiatives, healthcare facilities must transition toward climate resilience and sustainability. However, navigating the growing number of available tools remains challenging. This study systematically maps, categorizes, and assesses tools supporting climate-resilient and low-carbon healthcare, identifying gaps and areas for improvement.

Methods

A scoping review was conducted following the Arksey and O'Malley framework (2005), including: identifying the research question, searching for relevant sources, selecting sources based on predefined criteria, data collection, and summarizing and reporting findings.

Searches across electronic databases and grey literature were complemented by expert consultations. Tools were categorized by accessibility, implementation level (facility vs. system), mitigation vs. adaptation focus, geographic scope, and alignment with WHO's operational framework.

Findings

Initial searches (Nov 2024–Feb 2025), with a final search in March, 2025, identified 126 tools. Since 2021, tool availability increased (73%), but most (77%) were global, with only 13% tailored for low- and middle-income countries. Mitigation tools dominated (54%), while adaptation remained underrepresented (18%). Key gaps were found in financing mechanisms and workforce development.

Interpretation

Despite increasing tool availability, geographic and economic disparities persist. Strengthening synergies between mitigation and adaptation is essential for healthcare systems to become sustainable and climate-resilient.

Topic : Health System Greening and Strengthening

Abstract code : PP124

Abstract title:

Health Care Waste Assessment at a Dental Academic Institution in the Philippines

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Most healthcare waste initiatives are focused on medical clinics. However, dental clinics are also contributors of medical wastes including plastic wastes. As emphasis is given on infection control, personal protective equipment and other instruments used by dental clinics and dental academic institutions have become mostly disposable, majority of them made of plastic.

Last May 14, 2024, a Health Care Waste Assessment was conducted at the University of the Philippines College of Dentistry in partnership with Health Care Without Harm Asia. Wastes from the offices and dental clinics of the college were collected for two days (May 22 and 23) and assessed on May 24 with emphasis on plastic wastes. Key personnel interviews were also conducted.

Results:

Majority of plastic wastes were from plastic disposable utensils and medical/dental packaging.

Medical gloves comprised 10.4% of the total waste generated, while surgical gowns/aprons accounted for 8.4% of the waste.

Other wastes include tubings and accessories, plastic films, water bottles, surgical caps or covers, plastic cups and plastic food packets.

The results of the waste assessment are now the basis of waste reduction strategies of the UP College of Dentistry to implement sustainable waste management practices in dental clinics, specifically reducing plastic waste. The approach encompasses 3 main strategies: proper waste segregation and management, plastic reduction initiatives for dentists and policy integration for students and staff. This hopefully can be adopted by other dental academic institutions and dental associations.

Topic : Health System Greening and Strengthening

Abstract code : LT024

Abstract title:

Scope Sustainability: Slashing Single-Use Plastic Bottles

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Background

The healthcare sector is a significant contributor to greenhouse gas emissions, with single-use plastic sterile water bottles generating substantial waste. To address this issue, our endoscopy program implemented a multi-step quality improvement (QI) initiative replacing sterile water in disposable plastic bottles with tap water in reusable containers for upper and lower endoscopic procedures, excluding ERCP.

Methods

We first performed a scoping review which identified no clinical difference of sterile water over tap water, highlighting both economic and environmental benefits. A multidisciplinary team, including representatives from infection prevention, infectious diseases, hospital facilities, patient safety, ethics, and endoscopy QI, collaborated to ensure safety and feasibility. Institutional approval was obtained, and implementation is being evaluated using an interrupted time series (ITS) analysis, tracking complications at one week and 30 days post-procedure. Ongoing surveys collect feedback to refine the process.

Findings

Each 1L sterile water bottle generates approximately 0.575 kg CO₂ and contains 240,000 microplastics and nanoplastics (MNPs). Within the first two weeks, discontinuing 480 bottles reduced CO₂ emissions by 276 kg and prevented the release of 115 million MNPs. Annual cost savings from each of three hospital sites are projected at CAD 47,145, based on eliminating 15,715 bottles used for colonoscopies. No increase in complications has been observed.

Interpretation

This initiative effectively reduced plastic waste and emissions while maintaining patient safety. It provides a replicable model for sustainable healthcare practices, promoting environmental stewardship and mitigating potential health risks from microplastic exposure.

Topic : Communication around Planetary Health

Abstract code : PP160

Abstract title:

Planetary Health evolution over time: A Scientometric Analysis

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Background:

Planetary Health, defined in 2015 by the Rockefeller Foundation–Lancet Commission as “the health of human civilization and the state of the natural systems on which it depends” is a transdisciplinary field of growing interest, although research predates this definition. Lacking a full updated scientometric analysis of this body of evidence, this paper explores its characteristics and thematic development, following the more recent definition adopted by the Planetary Health Alliance (PHA) focused on human disruptions’ impacts on natural systems and all life forms.

Methods:

This scientometric analysis implemented a Web of Science search using the keyword "planetary health". Through a title and abstract screening, we selected English-language documents up to 2024, focusing on planetary health as defined by the PHA. The 1515 papers’ bibliometric data were processed using Biblioshiny R-package.

Findings:

Research production increased notably after 2014, with a peak in 2024 and an annual growth rate of 10.55%. The most productive countries were USA, UK, Australia, and Canada, while “The Lancet Planetary Health” was the most relevant journal. Collaboration analysis revealed strong Western Countries interconnections. A preliminary thematic mapping highlighted the “sustainability, health and nutrition” cluster as main motor theme while “climate change, environment and education” cluster represents an emerging/declining theme.

Interpretation:

Planetary Health is a growing field but remains dominated by Western Countries and commentary articles. Advancing its scientific foundations may require more original research, equitable international collaborations, and a broader integration of diverse disciplines and knowledge systems. Thematic analysis helps directing future research toward this end.

Topic : Mental Health and Environmental Change

Abstract code : PO103

Abstract title:

German medical students' interest in climate change education: eco-denial, but less anxiety and stress are associated

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Climate change is causing medical problems and will require new educational needs for doctors and medical students. Efforts are underway to integrate this into university curricula. However, inter-individual differences in interest may be related to eco-denial, climate change anxiety and individual climate protection behaviour. The aims of this study are (1) to describe the interest of German medical students in climate change education. (2) to describe the extent of climate change anxiety and eco-denial. (3) to describe the relationship with study-related stress, climate-related behaviours and magical thinking, a risk factor for belief in conspiracy theories.

Methods

Medical students from 20 German medical faculties participated in the CLIMEDI study, an anonymous survey for medical students. In addition to a questionnaire on attitudes and expectations towards teaching about climate change, climate change anxiety (Climate change anxiety scale, VAS), eco-denial (Climate self-protection scale>), climate-related behaviour and knowledge of medical facts on climate change were assessed.

Results

Preliminary results of a network analysis indicate that learning needs and interest in the topic are more strongly associated with climate-related behaviour or eco-denial, while climate anxiety and study-related stress show much less correlations. Individual differences are significant, while gender effects are small. Nevertheless, both climate change anxiety and eco-denial show considerable levels.

Discussion

German medical students show a clear climate change anxiety and are very interested in medical teaching on planetary health. Values for eco-denial are a quarter lower than in a sample of the German general population, but still significant.

Topic : Infectious Diseases and Environmental Change

Abstract code : PP128

Abstract title:

Characterizing global patterns in insecticide resistance across *Anopheles* and *Aedes* mosquitoes.

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Jason Rohr ¹

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Background

Despite past success of insecticide usage reducing mosquito-borne disease transmission, current efforts are challenged by insecticide resistance (IR) in *Anopheles* and *Aedes* mosquitoes. Recent evidence suggests that IR is increasing rapidly at national and subnational levels. This evidence is limited, however, as these analyses have only included *Anopheles* species and have had no explicit consideration of environmental and anthropogenic covariates known to influence IR. Understanding what factors may be driving IR patterns is essential to informing future IR management and vector control strategies. Our aim is to characterize global patterns of IR across mosquito species and insecticide classes in response to climatic and anthropogenic drivers.

Methods

We first compiled a global database of published site-level phenotypic IR assay data on *Anopheles* and *Aedes* populations. For each assay, we paired the site-level temperature, precipitation, human development index (HDI), and human population density and country-level insecticide usage. We assessed the associations of these predictor variables and their interactions with IR using generalized mixed effects models.

Findings

Analyses indicate that IR tends to increase with temperature, population density, and insecticide usage and decrease with HDI and precipitation. The magnitude and, in some cases, the direction of these effects depend on the genus, insecticide class, and interactions with other predictor variables.

Interpretation

These findings indicate the environmental and anthropogenic context is essential for characterizing IR patterns. These key relationships can be extended to predict hotspots of IR for each genus and insecticide class and inform vector control strategies in a changing world.

Topic : Arts, Narrative, and other Community Engagement in Planetary Health

Abstract code : PO105

Abstract title:

“They’ll Remember How You Made Them Feel”: Storytelling, Neuroaesthetics, and the Emotional Power of Communicating Planetary Health

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“They may forget what you said, they may forget what you did, but they’ll never forget how you made them feel.” This quote by Maya Angelou captures the heart of a new approach to communicating the urgency—and hope—embedded within the Planetary Health movement. This project explores the transformative power of immersive storytelling, specifically through the use of *Open Planet*, a free, high-resolution library of nature-focused video content launched at PHAM24. Used as a visual and emotional anchor, this content activates feeling, enhances memory, and fosters connection across disciplines. Grounded in the science of neuroaesthetics and the applied movement of neuroarts, this approach offers a model for shifting Planetary Health engagement from passive learning to lasting resonance.

Over the past year, Open Planet content has been used by a healthcare clinician to communicate Planetary Health framing in diverse settings—from academic medicine to the U.S. Fish & Wildlife Service to strategic planning with the U.S. Air Force. These presentations targeted professionals in healthcare, conservation, and defense, demonstrating how carefully curated visual storytelling can bridge sectors and create common ground. Audiences consistently reported a stronger emotional connection to the material, leading to deeper dialogue, collaborative opportunities, and increased receptivity to systems-level change.

This work offers a replicable strategy for educators, clinicians, and advocates aiming to inspire action and empathy in the face of planetary crisis. It also opens the door for future research and application of immersive visual environments—including in clinical spaces—as catalysts for connection, healing, and transformation.

Topic : Environmental Pollution and Health

Abstract code : PP129

Abstract title:

Trends in Lung Cancer Mortality Attributable to Air Pollution in Central Europe, 2010–2021

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Background:

Air pollution is a significant global environmental health risk, contributing to non-communicable diseases, including cancer. In Europe, it accounts for ~2% of all cancer deaths and up to 9% of lung cancer mortality. This study analyzed trends in lung cancer deaths attributable to ambient air pollution in Central Europe (2010–2021), stratified by sex and age.

Methods:

An ecological analysis was conducted using data from the Global Burden of Disease (IHME, 2021). Age-standardized mortality rates per 100,000 population and average annual percent change (AAPC) with 95% confidence intervals (CI) were calculated.

Findings:

In 2010, the highest lung cancer mortality attributable to air pollution was observed in Hungary (51.64/100,000), while the lowest was in Albania (22.30/100,000). By 2021, Montenegro reported the highest rate (48.40/100,000), and Albania remained the lowest (24.22/100,000). The most notable increase was in Albania (AAPC: 0.77%; CI: –0.75, 1.73), while North Macedonia showed the most significant decrease (AAPC: –1.91%; CI: –2.20, 0.03). Among females, the highest AAPC was in Bulgaria (3.22%; CI: 1.24, 5.12), and the most significant decline was in North Macedonia. Among males, Hungary and Bosnia and Herzegovina showed the highest mortality, while Czechia had the steepest decrease (AAPC: –2.71%; CI: –1.92, –0.31). Mortality attributable to particulate matter pollution declined most markedly in Czechia and Hungary.

Interpretation:

Regional disparities persist despite an overall decline in lung cancer mortality attributable to air pollution in Central Europe. Continued mitigation of air pollution exposure is essential for reducing preventable lung cancer mortality across the region.

Topic : Mental Health and Environmental Change

Abstract code : PO106

Abstract title:

Supporting Orphaned Children's Mental Health During the COVID-19 Pandemic: Insights from a Scoping Review on Planetary Health Approaches

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Background The COVID-19 pandemic, as a global environmental disaster, has led to widespread loss and grief, particularly affecting children orphaned by the crisis. These children face increased financial, emotional, and social vulnerabilities. This scoping review aimed to map available evidence on mental health support strategies for bereaved children during the COVID-19 pandemic and explore how the principles of planetary health can inform care and policy development in such contexts.

Methods We conducted a scoping review in March 2024 using MEDLINE (PubMed), CINAHL (EBSCO), SCOPUS, and the BVS Portal. Search terms included orphanhood, children, mental health, well-being, natural disasters, COVID-19, and planetary health. Inclusion criteria focused on studies addressing mental health strategies for orphaned children during the pandemic.

Findings Out of 551 studies identified, 19 met the inclusion criteria. Two major themes emerged: (1) the mental health impacts of orphanhood in the context of environmental disasters, and (2) the role of public policy and planetary health in promoting mental well-being. The findings highlight both the global impact of the pandemic on orphaned children and the limited implementation of effective mental health interventions.

Interpretation The pandemic intensified the vulnerability of orphaned children. While some strategies—such as emotional and financial support—were proposed, few were implemented or evaluated. The review underscores the need for integrated, cross-sectoral policies informed by planetary health principles to address current gaps in care and preparedness for future crises.

Topic : Planetary Health Education or Curriculum

Abstract code : LT025

Abstract title:

One Year In: Lessons from Launching the Johns Hopkins Institute for Planetary Health

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In April 2024, Johns Hopkins University launched the Institute for Planetary Health to confront the health challenges of a destabilizing planet by aligning research, education, and practice across medicine, public health, nursing, engineering, policy, and the arts. This abstract reflects on the first year of implementation, highlighting early strategies, milestones, and lessons learned in building a transdisciplinary platform within a large academic institution.

The Institute was created to serve as a connective hub—bridging departments, programs, and disciplines—to help integrate Planetary Health principles into core institutional activities. The target audience spans faculty, students, clinical teams, and external partners interested in environmental change and human health. In its first year, the Institute focused on convening cross-sector leadership, supporting student and faculty engagement, aligning with existing strategic priorities, and fostering new collaborations across the university.

Outcomes to date include the launch of dedicated clinical programs, integration of Planetary Health into academic offerings, launch of a new fellowship (LiPH [pronounced "Life"]: Leadership in Planetary Health), and a growing network of partners both inside and outside the university. The process of building shared language and institutional buy-in revealed both challenges and opportunities for embedding Planetary Health into the structure and culture of a research-intensive university. This case study offers a replicable approach for academic institutions aiming to align transdisciplinary expertise with urgent global health and environmental needs.

Topic : Health System Greening and Strengthening

Abstract code : PP131

Abstract title:

Bridging Frameworks and Frontlines: Applying the COPEWELL Model to Enhance Healthcare Resilience

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In the Anthropocene era, healthcare systems are increasingly challenged by environmental disruptions and complex crises. This project explores the adaptation of the Composite of Post-Event Well-being (COPEWELL) Model—originally designed to assess community resilience—to evaluate and strengthen resilience within healthcare settings. By integrating personal narratives from frontline clinicians who have navigated events such as COVID-19 surges to hurricanes, this initiative seeks to bridge macro-level resilience frameworks with lived experiences. These narratives are aligned with COPEWELL domains—including leadership, social capital, risk communication, and adaptive capacity—to identify systemic vulnerabilities and strengths. The primary audiences for this work include hospital administrators, clinicians, resilience planners, and health policy professionals. The goals are to assess and enhance the resilience of healthcare systems by applying the COPEWELL Model, humanize resilience metrics through the incorporation of clinician experiences, and foster a deeper understanding of how emotional burden, system gaps, and human connection influence recovery and preparedness. This ongoing initiative has initiated meaningful dialogues between operational leaders and clinical teams, leading to a renewed focus on tracking resilience indicators and a broader comprehension of the factors shaping recovery and preparedness. This work offers a practical approach for healthcare systems to translate Planetary Health principles into resilience strategies that are both systemic and deeply human.

Topic : Policy and Advocacy in Planetary Health

Abstract code : PO108

Abstract title:

Planetary Health thinking integrated into the work at The Finnish Institute for Health and Welfare (THL)

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Background

As environmental threats and their health impacts increase, public health institutes must take a strong role in addressing the planetary crisis.

Concept and details

Planetary Health has been a core focus at THL since 2019, when THL hosted the international conference *“Europe That Protects: Safeguarding Our Planet, Safeguarding Our Health”*. The conference strengthened awareness, fostered networks, and led to the Helsinki Declaration to protect Human and Planetary Health in the 2020’s. In 2023, THL declared Planetary Health as a key strategic theme, emphasizing the need for decision-making and structures that support sustainable and health-promoting lifestyle choices. The approach was also discussed with political parties for better understanding of their views.

Target audience

Promoting planetary health requires awareness raising among employees at the institute, decisionmakers at all levels (EU, national, regional) and across society and collaboration with a wide range of research partners.

Goals

To expand the perspective on human health and health promotion, ensuring a comprehensive understanding of current threats, future challenges and opportunities for impact at the intersection of humans and the environment.

Outcomes

The work at the institute is increasingly grounded in the recognition that healthy ecosystems are the foundation of all health and well-being. Planetary health has become a guiding framework across research, development, and innovation at the institute. The efforts have resulted in new partnerships, expanded research scopes and a more proactive approach to decision-making through statements, position papers and policy briefs highlighting the need for systemic solutions that safeguard both human and environmental health.

Topic : Climate Change and Health

Abstract code : PP132

Abstract title:

Understanding Enteric Pathogen Transmission Dynamics in a Changing Climate - The Planetary Child Health & Enterics Observatory (Plan-EO)

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Background: Diarrheal disease is a major global health threat, especially for young children in tropical and subtropical regions. Climate change is making this problem worse, increasing the incidence and severity of these illnesses. Many different types of microbes (viruses, bacteria, and protozoa) can cause diarrhea, and each one responds differently to environmental factors. Understanding how these pathogens spread is crucial for developing effective interventions.

Methods: [Plan-EO](#) (Planetary Child Health & Enterics Observatory) is a research initiative studying the link between climate change and diarrheal diseases. We compile data from studies in low- and middle-income countries, including information on infections and high resolution weather data from satellites and climate models, and analyze them to model and predict how weather patterns, like temperature, rainfall, and humidity, influence the spread of different pathogens.

Findings: Plan-EO has compiled data from 29 studies, representing over 90,000 diagnostic results from more than 60,000 children under the age of five in 43 countries. Our initial research on the *Shigella* bacterium showed that temperature and rainfall significantly influence the risk of infection. Plan-EO is expanding their research to include other important pathogens like *Campylobacter*, rotavirus, and *Cryptosporidium*.

Interpretation: Understanding how climate change affects the spread of diarrheal diseases is critical for developing effective public health strategies. Plan-EO aims to identify high-risk populations to better target interventions to prevent and control these illnesses. We plan to house and curate our findings through an interactive dashboard in collaboration with the EU-funded [SPRINGS Project](#) to share their findings and support decision-making.

Topic : Communication around Planetary Health

Abstract code : PP133

Abstract title:

A Novel Approach to Institutional Climate Action in Academic Medicine

C.L.W. Christa Wagner ¹

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Academic medicine's goal is to improve the health of individuals and communities, a mission inherently aligned with climate action. Teaching hospitals and health systems are addressing climate change as a means to improve the health of patients, families, and communities.

The Medical College of Wisconsin (MCW) launched the Center for Sustainability, Health, and the Environment (SHE Center) in 2023, harnessing resources to advance planetary health programming at a private U.S.-based medical school. The Center drives action across MCW's four missions: education, research, patient care, and community engagement.

While many universities have established departments focused on planetary health themes, MCW's unique approach embedded the Center within a medical school Institute focused on research to promote health and wellbeing. This novel approach has catalyzed collaborations between students, staff, faculty, affiliated hospitals, and community partners.

Inaugural year successes include: significant interdisciplinary relationship building, medical student participation in curricular development, planting a student garden, and engaging Native American high school students to enhance environmental health literacy in Wisconsin's tribal populations. Medical school faculty are engaged in successful research proposals and program development revamping the medical school planetary health curriculum, reducing waste in hospital operating rooms, and unique partnerships with hospital leaders to initiate targeted wastewater surveillance. Since the founding of the SHE Center, MCW has joined national consortia focused on climate and health education and health care sustainability, enhancing connectivity with peers.

The Center amplifies enthusiasm for sustainability at MCW and will continue to expand partnerships to support planetary health programming across institutional missions.

Topic : Health System Greening and Strengthening

Abstract code : LT026

Abstract title:

Investigating infectious healthcare waste management at a university dental clinic

T Tamás Demeter ¹

Andrea Fanni Vass ¹, Csilla Erdei ¹, Dóra Irinyi ¹, Imola Monos ¹, Krisztina Márton ¹

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Background: Infectious healthcare waste (IHW) contribute significantly to the environmental burden of healthcare institutions. Aim of this study was to assess and compare the composition of daily generated IHW and waste segregation awareness among clinical specialists' (STR) and clinical educational treatment rooms (ETR) at the dental clinic of Semmelweis University Faculty of Dentistry, with special focus on single-use plastics (SUP) and personal protective equipment (PPE) used in patient care.

Methods: Three waste audits were conducted in 2023 to quantify and analyze the complete daily production of IHW generated during dental care. Collected clinical waste has been analyzed and categorized; fractions were weighed using kitchen scales. Measurement data of the three audits were summarized and averaged. Independent samples t-test (significance level: $p < 0.05$) was used to compare waste quantities among STRs and ETRs.

Findings: The average daily amount of IHW generated in the dental centre weighed 59596 g in total and 93 g per patient. The heaviest fractions were medical gloves, paper towels and disposable patient bibs (22197g, 12107g and 5673g, respectively). Discarded PPE and SUP used in patient care were responsible for 57% (34154 g) of the total IHW weight. Significantly more IHW is produced per patient in ETRs compared to STRs ($p = 0.007$).

Interpretation: Excessive use of SUP and PPE in dentistry, together with overproduction, inappropriate collection and/or mismanagement of dental IHW has negative planetary health consequences. Switching to reusable, sterilizable utensils, implementing sustainable procurement and circular economy strategies, and educating stakeholders about proper waste disposal may help mitigate these effects.

Topic : Planetary Health Education or Curriculum

Abstract code : PO109

Abstract title:

Educating for System Change: Transformative Learning for Planetary Health

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In response to converging crises – Climate Change, biodiversity loss, antimicrobial resistance, rising zoonoses – systemic change in education is imperative. These crises reveal the interconnection between human health, ecosystem integrity, and social justice – demanding a shift from anthropocentric paradigms. Our innovative inter-and transdisciplinary educational program equips students to think and act systemically in the field of planetary health.

This paper presents the implementation of our continuously refined BA-level program, developed as a broader commitment to transformative education. The program rests on three core pillars: First, through lectures and facilitated dialogues, students engage with diverse knowledge systems – including Indigenous perspectives and “deep time” thinking – challenging dominant epistemologies and fostering understanding of health within complex socio-ecological systems. Second, theoretical foundations are linked to real-world applications. Students analyze faculty-led case studies drawn from our research on topics such as Climate Change and respiratory health, biodiversity loss and mental health (e.g., eco-anxiety), and the unequal impacts of environmental degradation on marginalized communities. Third, students collaborate with health professionals, local sustainability actors, and civil society partners through project-based learning in the curriculum. These fosters systems thinking and the co-creation of actionable knowledge. We argue that education for planetary health must be inherently transformative. Our program bridges research, teaching, and practice, empowers students not only to learn to “know” planetary health but to develop the agency to drive system change. Our aim is to prepare future professionals to critically engage with complexity and contribute to a more just, sustainable, and healthy future.

Topic : Planetary Health Education or Curriculum

Abstract code : LT027

Abstract title:

Resident-Led Action for Greener Operating Rooms: A Pilot Using the National Perioperative Sustainability Scorecard

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Background:

Environmental determinants such as air pollution and extreme heat contribute to approximately 13 million preventable deaths globally each year. Paradoxically, the healthcare sector itself significantly impacts planetary health, with operating rooms accounting for 10–20% of hospital-related greenhouse gas emissions. In response, the Sustainable Health Systems Community of Practice developed a sustainability scorecard, later adapted into the national Sustainable Perioperative Care Scorecard by the CASCADES initiative. This tool outlines 13 evidence-based targets to guide sustainable practices in perioperative care. This Quality Improvement Pilot Project aimed to demonstrate the utility of this national, freely available scorecard in a resident-led assessment of perioperative sustainability practices.

Methods:

Residents partnered with staff surgeons to apply the 2023 CASCADES Sustainable Perioperative Care Scorecard across two major academic institutions. Assessments covered domains such as sustainability leadership, anesthetic gas usage, reduction of low-value care, reusable instrument adoption, and waste segregation.

Findings:

Both institutions demonstrated strong engagement with resident-led evaluations. Scorecard results were able to distinguish differences and opportunities in practice between the two sites. Both hospitals scored well on elements relating to limiting low-value care, minimizing intraoperative fresh gas flows, and implementing reusable anesthesia equipment, and several opportunities for improvement were identified.

Interpretation:

This pilot project illustrates the practicality of a national scorecard for evaluating perioperative sustainability and underscores the critical role of residents in leading climate-conscious healthcare improvements. Engaging trainees in structured assessments can accelerate institutional efforts toward more sustainable perioperative practices.

Topic : Environmental Pollution and Health

Abstract code : PP136

Abstract title:

Human health Impacts of marine pollution in Small Island Developing States (SIDS): findings from a systematic literature review

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Background

Small Island Developing States (SIDS) experience disproportionate health risks from marine ecosystem degradation, owing to their profound reliance on oceanic resources for food security, economic stability, and cultural identity. Pollution, biodiversity loss, and climate-related pressures contribute to increasing disease burdens; however, no prior synthesis has systematically examined these dynamics through a Planetary Health lens.

Methods

A systematic review was conducted in accordance with PRISMA guidelines to identify peer-reviewed studies reporting associations between marine pollution and human health outcomes in SIDS. Literature searches were performed in Web of Science and PubMed from inception to 2022. Eligible studies were screened based on geographic setting, pollutant type, and health outcome. Data were thematically analyzed and mapped using an adapted Planetary Boundaries framework to trace linkages between environmental stressors and health effects.

Findings

Thirty-six studies were included. Most reported exposure through seafood consumption, with risks stemming from biological (e.g., harmful algal blooms), chemical (e.g., mercury, PCBs), and climate-related (e.g., sea-level rise) sources. Documented health outcomes encompassed seafood poisoning (notably ciguatera), heavy metal toxicity, antimicrobial resistance, and psychological distress linked to climate-driven displacement. Seven of nine Planetary Boundaries were implicated, with climate change and biochemical flows most frequently associated with adverse health pathways.

Interpretation

This review highlights the urgent need for cross-sectoral governance, effective pollution mitigation, and context-specific Planetary Health strategies. As sentinel regions of ocean-human interdependence, SIDS exemplify the critical importance of maintaining marine ecosystem integrity to safeguard human health in the Anthropocene.

Topic : Planetary Health Education or Curriculum

Abstract code : PP137

Abstract title:

The 2025 Planetary Health Report Card: a tool to monitor and inspire planetary health education in interdisciplinary health professional schools

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Background: The Planetary Health Report Card (PHRC) is an international student organisation that annually produces discrete metric-based report cards that evaluate the planetary health practices of health professional schools. The published report cards provide each school with a needs assessment to drive planetary health education and serve as an indicator of current global planetary health education practices.

Methods: We present summary statistics from the 2025 PHRC cycle and identify examples of the highest-scoring planetary health education practices from around the world. We explore how the PHRC has been successfully used internationally by students and faculty to develop planetary health education.

Findings: This year, 187 health professional schools across 10 healthcare disciplines from 21 countries published report cards. This included 57 new schools, three new disciplines and four new countries. The mean overall score was 63.0% (SD 24.0%). Initiatives such as planetary health development days, clinical lectures, and integration of planetary health across curricula have increased overall scores from previous years. Schools had the highest mean scores in the subsection evaluating student-led initiatives, albeit with a large standard deviation (mean 70.2%, SD 48.5%). Significant improvements in the community outreach subsection (mean 57.0%, SD 23.4%) were achieved this year through public-facing education sessions and partnerships.

Interpretation: Though wide standard deviations suggest high variability across institutions globally, the expansion of the PHRC and consistent improvement of report card scores are a testament to the growing commitment of the next generation of healthcare professionals to planetary health education.

Topic : Climate Change and Health

Abstract code : PP139

Abstract title:

Cognitive Effects of Heatwaves on Korean Children: A Cross-sectional Study Using National Panel and Meteorological Data

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Background

Children are especially vulnerable to environmental stressors such as heatwaves, yet evidence on their cognitive consequences remains limited. This study investigates the short-term association between cumulative heatwave exposure and cognitive self-regulation among Korean children, incorporating socio-demographic adjustments.

Methods

We analyzed cross-sectional data from the 2022 Korea Child Panel Survey, linked with regional meteorological records from the Korea Meteorological Administration. Cumulative heatwave exposure was defined as the number of days exceeding 33°C in each region during the summer. The primary outcome was self-regulation scores from cognitive assessments. Multivariate linear regression was performed, adjusting for sex, income quintile, and maternal education. A total of 616 children with complete data were included.

Results

Heatwave days were marginally associated with lower cognitive self-regulation scores ($\beta = -0.028$, 95% CI: -0.060 to 0.004 , $p = 0.083$). Girls showed slightly higher scores than boys ($p = 0.094$), and maternal education was positively associated with outcomes, with a linear increase by graduation year. The overall model explained 7.6% of variance ($R^2 = 0.0757$). Income quintile was not significantly associated with cognitive scores.

Conclusion

Although the effect of heatwave exposure did not reach conventional significance, the findings suggest potential vulnerability in cognitive functioning related to extreme heat, particularly among children with lower parental educational backgrounds. Educational and environmental adaptations may be warranted in response to ongoing climate change.

Topic : Infectious Diseases and Environmental Change

Abstract code : PP140

Abstract title:

A Sustainable Solution to Occupational Schistosomiasis: Addressing Disease Risk using Integrated Rice-Fish Co-Culture in Senegal

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Background: Schistosomiasis, which is transmitted by intermediate-host-snails, affects more than 230 million people annually across 78 countries. We showed that rice farming poses an exposure risk of schistosomiasis, leaving families at threat of infection from *Schistosoma* parasites in northern Senegal. Additionally, rice culturing has high chemical inputs for crop yields and pest control. Here, we tested whether an integrated rice system, co-culturing with native fish, would reduce snails and increase rice productivity.

Methods: Over two seasons, we recruited farmers to add native fish (Nile Tilapia and African Bonytongue) to their fields and maintained fields as no-fish controls. We assessed fish growth, rice yield, host-snail abundance, and insects. During the second season, we quantified nutrient levels and used eDNA to validate our malacology sampling and detect *Schistosoma* parasites.

Findings: Fish thrived, growing significantly larger, increasing their market and consumable value. Snail densities were reduced by African Bonytongue (a predator). Rice yield was greater from co-culture fields than controls during both seasons. Soil nutrients that support crop development were increased, and insects were decreased, in co-culture fields.

Interpretation: We developed rice-fish co-culturing in Senegal for biocontrol against Schistosomiasis. West Africa consumes about 50% of global rice, driving intensive rice agricultural development, which could increase disease. Our results suggest that rice-fish co-culturing could counter this risk and improve rice farming to have greater and more diversified food production with fewer chemical inputs. eDNA analysis currently underway shows promising ability to more-precisely detect snails and parasites to determine impacts of control innovations.

Topic : Urban Health and Sustainability

Abstract code : PP141

Abstract title:

The Spatial Distribution and Accessibility of Urban Green Spaces in Medium-Sized Italian Cities: Implications for Public Health

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Background

Urban and peri-urban green spaces, depending on their spatial distribution and accessibility, play a crucial role in individual well-being and public life. They provide key ecosystem services, including biodiversity enhancement, temperature regulation, and stormwater drainage. Additionally, they contribute to mental and physical health by reducing stress, fostering social cohesion, promoting physical activity, and mitigating exposure to noise and air pollution. However, in many Italian cities, particularly medium-sized ones, urban sprawl and fragmentation have led to an uneven distribution of green spaces. This study examines the spatial distribution and accessibility of green areas in some medium-sized Italian cities.

Methods

Three spatial analyses were conducted using GIS software:

(i) *Green space exposure* was assessed using the Pro Capita Green Space (PCGS) index, measuring green space availability per resident.

(ii) *Proximity analysis* determined accessibility based on a 300m buffer from urban parks, agricultural lands, and forests, following the 3-30-300 rule and European Common Indicators.

(iii) *Real accessibility analysis* integrated street networks, population density, and barriers, estimating the population within a 15-minute walking distance from green spaces.

Findings

The distribution and accessibility of green spaces were analysed in six medium-sized Italian cities: Arezzo, Grosseto, Latina, Rieti, Siena, and Viterbo. The final results will be ready in September 2025.

Interpretation

Results highlight disparities in green space distribution and accessibility across the cities, affecting residents' ability to benefit from urban greenery. These findings provide valuable insights for urban planning policies aimed at improving green space accessibility and promoting healthier urban environments.

Topic : Food Systems and Nutrition

Abstract code : PP142

Abstract title:

Exploring the Impact of Rice Subsidy Programs on Childhood Linear Growth: Longitudinal Insights from the Indonesian Family Life Survey

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Background

Climate change affects food security in multiple ways, via direct effects on harvests to indirect mechanisms such as supply chain mechanisms. Where baseline food security is low, food availability is prioritized. Given that policies must prepare for addressing climate-related food insecurities, it is pivotal to evaluate if support programs can contribute to improved health. In this study, we leverage the panel structure of the Indonesian Family Life Survey (IFLS) to study associations between subsidized rice, household nutritional diversity and childhood growth.

Methods

We use data from all IFLS waves (1993-2014). Outcome measures were childhood linear growth (height-for-age z-scores) among 2 – 18 year-olds (N = 59,112) as well as household dietary diversity (Household Dietary Diversity Score – HDDS and Food Consumption Score – FCS). Exposure to a rice subsidy was defined as living in a household that bought subsidized rice from RASKIN, a program launched in 1998, in the current and past survey waves. OLS regressions were adjusted for survey wave, child sex, age, household size, household assets, region and household fixed effects.

Findings

Households who bought subsidized rice had higher HDDS and FCS in these waves. Children living in households that received the rice subsidy in the waves preceding the measurement had higher height-for-age z-scores and were less likely to be stunted. Effects were more pronounced in rural areas.

Interpretation

We found medium-term positive impacts of rice subsidy programs on linear growth. Research evaluating the longer-term effects of nutrition subsidy programs in response to climate-related insecurities is encouraged.

Topic : Planetary Health Education or Curriculum

Abstract code : PO111

Abstract title:

Climate education booklet seeks to prepare families and educators in Brazil to break the climate silence and bring the Planetary Health perspective

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A partnership between the Families for Climate, Schools for Climate, and Planetary Health Brazil (USP) movements has resulted in the publication of a climate education booklet with more than 216 tips for families and educators to break the climate silence and incorporate climate issues and planetary health perspective into environmental education in schools. The booklet, launched in November 2024 and published on USP's Open Books Portal, has already had almost three thousand downloads.

The publication reports on a practical experience carried out in two schools in the interior of São Paulo. The initiative involved sensitizing principals and educators to the importance of incorporating climate issues into teaching across the board and activities with students aged 8 to 12. The children learned, in a playful way, about how greenhouse gases retain heat in the atmosphere, learned about the indigenous worldview, in contact with an indigenous leader of the Guarani ethnic group, and took part in a board game, 2.5 meters wide and 5 meters long, called Trails for the New Climate.

The initiative is attracting interest from organizations that work with municipal schools in Rio de Janeiro and Campinas, with a focus on teacher training, and has already been incorporated as a reference bibliography by Cemaden Educação. This program is part of the National Center for Natural Disaster Monitoring and Alerts, a research institution linked to Brazil's Ministry of Science, Technology, and Innovation. It aims to mobilize young people and communities to build knowledge, reflect, and act to prevent disaster risks.

Topic : Environmental Pollution and Health

Abstract code : PO112

Abstract title:

**Long-term trends in lung cancer mortality attributable to particulate matter pollution in Slovakia:
An ecological time-series analysis**

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Background:

Air pollution is a significant environmental health risk and a recognized contributor to the global lung cancer burden. In Slovakia, long-term exposure to pollutants such as nitrogen dioxide (NO₂), sulfur dioxide (SO₂), ozone (O₃), and particulate matter (PM_{2.5} and PM₁₀) arises from industrial activities, traffic, and residential heating. Air quality monitoring is conducted via a national network of stations operated by the Slovak Hydrometeorological Institute (SHMÚ).

Methods:

This ecological study assessed trends in lung cancer mortality attributable to PMP in Slovakia from 2000 to 2021. Mortality data were sourced from the Statistical Office of the Slovak Republic and Global Burden of Disease 2021. Annual mean pollutant concentrations were obtained from SHMÚ. Pollutant inter-correlations and their associations with meteorological parameters were explored using Spearman's correlation. Joinpoint regression estimated annual and average annual percent changes (APC, AAPC) in mortality rates.

Findings:

A declining trend in PMP-attributable lung cancer mortality was observed in both sexes. In the overall population, mortality decreased from 5.54 per 100,000 in 2000 to 2.96 in 2021 (AAPC: -2.89%; 95% CI: -3.16 to -0.61). Among women, the decline was less marked (AAPC: -0.96%; 95% CI: -2.58 to 0.88), while in men, mortality declined significantly from 11.12 to 5.26 per 100,000 (AAPC: -3.45%; 95% CI: -3.998 to -0.998).

Interpretation:

Despite observed improvements, limitations include ecological design, uncertainty in modelled exposure data, and potential pollutant interaction effects. Still, findings reinforce the need for sustained efforts to reduce exposure to multiple air pollutants in mitigating cancer mortality.

Topic : Mental Health and Environmental Change

Abstract code : PP143

Abstract title:

Environmental crises and mental health problems – a two-way street?

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Background

The increasing awareness of environmental crises induces eco-emotions, such as fear, grief, or anger, which have been associated with less pro-environmental behaviour. However, vulnerable individuals with elevated stress sensitivity, such as those with pre-existing mental health problems, remain understudied. The aim of this study was to investigate whether environmental crises induce a greater emotional response in individuals with depression and anxiety versus controls, and whether the two groups differ regarding “eco-paralysis”.

Methods

N=886 individuals from the general population participated in an online experiment. The Patient Health Questionnaire and the General Anxiety Disorder Scale were used to divide participants into depressed/anxious and controls. First, the participants answered questions on climate change-related chronic stress, solastalgia, and pre-traumatic stress. Second, acute stress related to climate change was induced by a 3min video on climate change. Third, pro-environmental behaviour was examined by the Work for Environmental Protection Task.

Findings

The depressed and anxious individuals vs. controls reported significantly higher levels of climate change-related chronic stress, solastalgia, and pre-traumatic stress. However, the depressed individuals experienced less negative affect and state anxiety in response to acute climate stress, and the anxious individuals experienced less state anxiety. The groups did not differ regarding pro-environmental behaviour.

Interpretation

Individuals with depression/anxiety might have a greater awareness or a more realistic perception of climate change, which might lead to higher levels of chronic climate stress and lower reactivity to acute climate stressors. Importantly, mental health problems do not appear to hinder affected individuals from engaging in pro-environmental behaviour.

Topic : Health System Greening and Strengthening

Abstract code : PP144

Abstract title:

Mapping the landscape of data sources for harmful algal bloom-related diseases in Southeast Asia: a systematic scoping review on the Philippines, Malaysia and Indonesia

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Background

Millions of individuals in Southeast Asia rely on marine ecosystems for livelihood and nutrition, making them vulnerable to anthropogenic marine disturbances. Among these, harmful algal blooms (HABs) are an increasing threat, causing intoxications that compromise health and food security, with symptoms affecting gastrointestinal, neurological, respiratory, and cardiac systems. Despite their public health relevance, HAB-related illnesses remain underreported due to limited integration between environmental monitoring and health information systems. This systematic scoping review maps data collection systems in the Philippines, Malaysia, and Indonesia and analyzes institutional collaborations underpinning HAB-related health data flows to assess how these systems capture, integrate, and respond to marine pollution-related risks.

Methods

A systematic scoping review was conducted using Arksey and O'Malley's framework and PRISMA-ScR guidelines. PubMed, Scopus, and Web of Science were searched (1970–2024), along with a complementary search in Bahasa Indonesia. Data sources, collection points, and institutional linkages were synthesized and categorized.

Findings

Twenty-two records were included, mostly documenting paralytic shellfish poisoning (43%) and ciguatera (29%). Five data source types emerged: physician reports, healthcare records, community input, local health authorities, and Department of Health investigations. Malaysia relied mainly on clinical reporting, while the Philippines showed broader and more integrated systems. One Indonesian case highlighted cross-sectoral collaboration. However, standardized, accessible, and interoperable data systems were generally lacking.

Interpretation

Surveillance systems and integration between environmental and health sectors remain limited and fragmented, constraining efforts to address HAB-related risks. Strengthening regional collaboration, investing in integrated systems, and improving data governance are essential to protect public health amid escalating marine ecosystem threats.

Topic : Planetary Health Education or Curriculum

Abstract code : LT029

Abstract title:

Attainable and marginalized domains of the planetary health education framework in an action-oriented transdisciplinary course of a graduate program

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[Background] Creation of learning environment plays a key role to foster planetary stewardships in a transdisciplinary course such as planetary health education. This paper presents domains of the planetary education framework (PHEF) that a course of the Master of Public Health program in Japan covered from 2018 to 2024.

[Methods] Above fifty graduate students with diverse academic and professional backgrounds joined the course consisted of a series of lectures, group discussion and presentation, and visits to a national research institution. Their team projects of group discussion and presentations were designed to propose action-oriented projects on the health of human and planet the group members chosen based on their literature review. The topics covered in the lectures, team projects and group presentations of the course were written out and categorized into five domains and forty-five concept components of PHEF.

[Findings] The subjects of the lectures and team projects included air pollution, green space, yellow dust, food insecurity, heatwave, and emerging infectious diseases. They fulfilled PHEF components in the domains of "interconnections within nature", "the Anthropocene and health" and some components of "systems thinking and movement building" while components of "equity and social justice" were unsatisfied.

[Interpretation] An action-oriented transdisciplinary course of a graduate program accommodated components of the four domains of PHEF and suggested potential for enhancement in developing case studies relevant to the domain of "equity and social justice".

Topic : Climate Change and Health

Abstract code : PO114

Abstract title:

Preparing our health systems to climate change, but how? Developing a health national adaptation plan in Austria: Past, present, future perspectives.

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Description: Key international agreements commend development of health national adaptation plans (HNAPs) to increase climate resilience of public health systems. Yet, when moving from theory to practice, questions arise on how to operationalise climate adaptation in the health sector, despite existing guidance from the World Health Organization (WHO). Three challenges feature prominently: first, a need for horizontal coordination ('health-in-all climate policies'); second, a need for vertical coordination across governance levels; third, the lack of key performance indicators (KPIs).

Target audience: HNAPs are aimed at transdisciplinary stakeholders in planetary health alliances, particularly regional/national policy-makers, (health care) practitioners, and researchers. The Austrian HNAPs prioritises intersectoral collaborations and co-development by integrating bottom-up and top-down approaches, for example involving non-governmental organisations.

Goals: (1) It aims to strengthen climate resilience of the national health system in Austria, including the fully cycle of anticipation, response, coping, recovery and transformation along the ten dimensions of climate resilience defined by WHO. (2) It aims to develop indicators to be used internationally in research and practice in order to guide and evaluate climate adaptation in public health systems.

Obtained results: Despite existing guidance documents from WHO, currently there is little evidence on how to operationalise climate adaptation in public health systems. A co-development process has proven successful in the Austrian context for HNAP development, also as a basis for developing KPIs to guide future climate adaptation in the health sector. In addition, welfare state contexts need to be taken into account when for successful horizontal and vertical policy integration.

Topic : Communication around Planetary Health

Abstract code : PO115

Abstract title:

Communication is key in the activities of the Ambassadors Program of Saúde Planetária Brasil

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The Planetary Health Ambassadors Program (PESP), hosted by Saúde Planetária Brasil, is now in its fifth edition. Over the years, communication has been an important pillar. Since the first edition in 2021, the ambassadors - who are undergraduate and graduate students from different parts of the country - have been trained to produce communication content around the Planetary Health Annual Meeting 2021, hosted by the University of São Paulo. In the following years, participants in the program were encouraged to produce communication content around planetary health and publish it on their respective social networks. In PESP2024, the students who took part in the program as part of the interdisciplinary working groups (GTIs) on Communication and Climate Change and Health had the support of researcher Daniela Vianna, a journalist by training, PhD in Environmental Sciences, post-doctoral fellow at Saúde Planetária Brasil (IEA-USP) and member of the PESP coordination team for content production. In the Communication GTI, they also had the support of junior mentor Thaís Presa Martins, who has a PhD in Science Education from the UFRGS, and in the Climate Change and Health GTI, with the support of journalist, nutritionist, master's and doctoral student in Collective Health Júlia Duppre de Abreu.

As a result, the ambassadors produced content that was published on the Ambassadors Program and Planetary Health Brazil channels on YouTube and Instagram, helping to amplify the concept of PH on issues related to the tragedy in Rio Grande do Sul, and heatwaves, which severely affected Brazil in 2024.

Topic : Planetary Health Education or Curriculum

Abstract code : PO116

Abstract title:

Preparing Future Educators to Incorporate Planetary Health Across Subject Areas: Reflections from a STEM Teacher Preparation Course

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We report insights from a recent effort to integrate Planetary Health into a teacher preparation program for secondary school science, technology, engineering and math (STEM) educators in the US. A course was developed by a team of Planetary Health and education researchers and offered as a required component of the program. Our goal is to share three pedagogical innovations which characterized the course. First, recognizing the inherent interdisciplinarity of Planetary Health issues, the course was designed for teachers across content areas and served pre-service teachers working towards certification across a range of STEM subject areas. This created an interdisciplinary learning community where students engaged with peers who brought vastly different perspectives and perceived distinct challenges and opportunities for teaching Planetary Health. Second, this course integrated strategies to promote social-emotional learning and educator well-being, ingredients commonly overlooked in teacher education, yet vital to address the complex emotions this work entails for both students and teachers. Third, coursework was contextualized through place-making activities in outdoor spaces with opportunities for modeling and direct practice for teachers to test several approaches to situate lessons from their respective subject areas within the local ecosystem. This presentation reflects on key outcomes from this work, centering the voices of pre-service teachers and course facilitators. The challenges and successes of this course can be used to guide teacher preparation program designers, teacher educators and, more broadly, those interested in cross-disciplinary educational efforts to leverage Planetary Health as an integrating context for deep learning across subject areas.

Topic : Infectious Diseases and Environmental Change

Abstract code : LT031

Abstract title:

Exploring the significance of agroforestry and regenerative agriculture in farmer's health and risk of zoonotic diseases

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Agroforestry and regenerative agriculture (A/RA) are emerging as promising sustainable farming approaches that intertwine economic, social, and environmental benefits, including carbon sequestration. These practices are gaining traction globally due to their potential to enhance soil health, biodiversity, and ecosystem integrity. However, the forest-farm edge generated by A/RA landscapes may give rise to pathogen spillover from wildlife into livestock and humans. The impact of A/RA on human health and zoonotic infections has not been studied to date. This pilot project examines the effects of these practices on farmworkers' health and susceptibility to arthropod-borne zoonotic diseases.

We have been holding in-depth interviews with farmers (in person and via video) on farming practices, zoonotic risk factors, and climate perspectives and adaptations. Serum is also obtained, and tested for exposure to: West Nile virus, eastern equine encephalitis virus, Everglades virus, Ehrlichia chafeensis, Rickettsia rickettsia, Borrelia burgdorferi. Farmer recruitment and testing is ongoing.

22 farmers from 19 farms have been surveyed (16 farms in person, 3 virtual). A quarter of farmers indicated that they had had fevers in the prior year, and tick exposures in the prior week. Nearly half were concerned about zoonoses. Farms engaging in agroforestry had greater tree coverage compared to non-agroforestry farms (65% vs 37%). Serological studies are underway; thus far, 1 of 16 farmers was positive for West Nile virus, and 2 of 19 were positive for Lyme disease.

Topic : Health System Greening and Strengthening

Abstract code : PO117

Abstract title:

Experience Report: Implementation of Meatless Monday for Patients Hospitalized at the Heart Institute HCFMUSP

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"Meatless Monday" is a movement that encourages reducing animal meat consumption one day a week to mitigate the negative impacts on both public health and the planet. A sustainable diet is associated with a lower burden of non-communicable chronic diseases, such as cardiovascular diseases, and reduced environmental degradation. World Meatless Day is celebrated on March 20, and in celebration, the Heart Institute at Hospital das Clínicas launched an initiative in 2025 for patients, offering a special menu. The campaign featured dishes like baked kibbeh with textured soy protein for lunch and lentil burgers with béchamel sauce for dinner. To ensure engagement and awareness, educational materials and an informational leaflet on the topic were created and distributed to staff and patients. Implementing this initiative in a public hospital in São Paulo for hospitalized patients is an innovative approach. An environmental impact assessment estimated that one day of action saved 14,000 m² of land that would otherwise be used for animal farming, conserved 1.8 million liters of water, prevented the emission of more than 6,000 kilograms of greenhouse gases, and reduced 4,000 kilograms of grains intended for animal feed. Given the promising results, two meatless meals were permanently added to the weekly menu. It is observed that environmental education focused on food significantly contributes to the sustainability of the planet.

Topic : Planetary Health Education or Curriculum

Abstract code : PO118

Abstract title:

Towards a Planetary Health Learning Garden: Growing capacity and honouring Indigenous leadership for Planetary Health Workforce Development.

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PROJECT INITIATIVE: The health sector recognises that combined social and ecological change has created an imperative for a global leadership for 'planetary health workforce development'. Meeting this need also requires that we foreground Indigenous leadership and a decolonial approach to reflect the interconnectedness of health across humans and 'all our relations' on our planetary home.

TARGET AUDIENCE: Our work specifically responds to the need for those already in the health sector workforce, addressing the widening gap between workforce capacity needs and opportunities to prepare health and allied workforces for eco-social approaches to planetary health issues.

GOALS: Our Indigenous-co-designed collaboration is trialing a 'proof of concept' for an integrative, collaborative 'learning garden' model designed to jump-start Planetary Health Workforce Development in Canada, and to connect and amplify global efforts. To achieve this, we have committed to: (i) Identify and leverage existing strengths across diverse institutions, (ii) prioritize Indigenous leadership and knowledge in the design, culture, content, and learning processes, including land-based learning as a foundational component and (iii) address the unique needs of rural, remote, and Indigenous communities, promoting cultural safety and equity.

RESULTS: Evaluation and learning is integral to our 'proof of concept' design, gathering feedback and input from participants throughout. Our presentation will share preliminary findings from our Learning Garden's 2024-2025 'seasonal round', sharing insights about how this approach is seeding changes in workforce development that meet immediate needs in the BC health sector, and serve as an incubator to inform future and foster efforts across Canada and beyond.

Topic : Planetary Health Education or Curriculum

Abstract code : PO119

Abstract title:

Evaluating Planetary Health Knowledge in Physicians and Medical Teachers

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Background: Planetary health highlights the interdependence between human well-being and the natural systems that sustain life. Despite its growing importance, medical education still lacks systematic integration of this topic. Medical educators must be prepared to address planetary health in teaching and practice. This study aimed to evaluate baseline knowledge in awareness of planetary health among medical educators following an interactive educational intervention. **Methods:** An interactive workshop was conducted with medical school faculty, including a lecture entitled “Planetary Health, the Climate Crisis, and Its Repercussions on Health.” Participants completed pre- and post-intervention questionnaires. The McNemar test was used to assess changes in categorical responses, and internal consistency was measured using Cronbach’s alpha. **Findings:** Among participants, 50% had previously heard the term “Planetary Health,” and only one (6.25%) had attended an event on the topic. Cronbach’s alpha was 0.81, indicating good reliability. Before the session, 43.75% reported understanding the concept of planetary health, 12.5% felt able to identify its relevance in medical education, 37.5% reported knowledge of climate change, 50% of air pollution, and 56.25% of social determinants of health. After the workshop, these percentages increased to 75% ($p=0.007$), 75% ($p=0.0005$), 87.5% ($p=0.07$), 87.5% ($p=0.2$), and 87.5% ($p=0.0008$), respectively. **Interpretation:** The interactive workshop significantly improved participants’ awareness of planetary health and its relevance to medical education. This approach is an effective strategy for sensitizing educators and promoting curricular integration of planetary health.

Topic : Food Systems and Nutrition

Abstract code : PP147

Abstract title:

Fostering healthy and sustainable food choices among university students: a nudging-based intervention study in Italy

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Background

The modification of the choice architecture to influence behavior without restricting options has been proven effective in encouraging healthier and more sustainable food choices. Therefore, this study aims to promote the consumption of healthy and sustainable meals and reduce plate waste in a university canteen by implementing different nudging techniques and evaluating their effects after their removal.

Methods

The experiment has been developed in a canteen at Parma University in Italy, through the collaboration of the catering company. After the baseline phase (April-May 2024), cognitively- and behaviourally-oriented nudges have been applied simultaneously during the intervention phase (October 2024-March 2025). Sales data were collected through a dedicated cash register, while a direct weighting method and a computer vision software were applied to measure plate waste across time and after a follow-up phase (April-May 2025).

Findings

By comparing the baseline (n. days of observation=30) with the intervention phase (n. days of observation=109), the increase in the average share of selected healthy and sustainable dishes did not reach statistical significance (52.49 ± 7.92 vs. 54.79 ± 8.91 , $p=0.277$). On the contrary, plate waste per person (g) decreased after the experiment (median: 31.1, IQR: 22.2-135.4 vs. median: 21.3, IQR: 18.0-25.2, $p=0.017$), without considering the follow-up, currently ongoing.

Interpretation

Preliminary results show a partial efficacy of the intervention, highlighting the complexity of consumer behaviour, which can be shaped by acting on the food environment. Increasing efforts should be made to find affordable and effective strategies to shift dietary habits to accomplish the health and environmental sustainability dimensions.

Topic : Climate Change and Health

Abstract code : PP161

Abstract title:

The role of Planetary Health in the Context of Healthcare Sustainability; An Assessment of the Knowledge, Attitudes & Practices of Healthcare Sector Workers in Egypt

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Background: Climate change imposes escalating threats to human health and well-being. The healthcare sector, as a key contributor to environmental degradation, must address its ecological footprint while supporting climate change adaptation and mitigation policies that promote planetary health. This study investigates Egyptian healthcare professionals' awareness, attitudes, and practices regarding planetary health & healthcare sustainability and explores barriers to their implementation. With healthcare at the frontlines of climate change impacts, assessing professionals' readiness for this role, provides evidence to mobilize health systems to safeguard community health within a climate-challenged future. This study addresses a critical knowledge gap and stimulates progress toward sustainable healthcare in Egypt.

Methods: A cross-sectional study design used a standardized questionnaire to measure the knowledge, attitudes, and practices (KAP) of the healthcare sector personnel in Egypt. Collected data were analyzed using descriptive, correlation, and regression methods.

Findings: Findings highlight current gaps in the climate literacy of healthcare workers revealing moderate knowledge levels (52%) and a notable disparity between attitudes (77%) and sustainable practices (18%). Findings also provide a perspective on incorporating sustainability into healthcare delivery, as it recognizes lack of time, awareness, and patient interest as the main barriers to implementing sustainable health practices in Egypt.

Interpretation: This research provides baseline data on Egyptian healthcare practitioners' readiness to incorporate planetary health principles into medical practice. Findings inform educational policies and interventions to build healthcare workforce's capacity for planetary health, enabling the sector to exemplify sustainability leadership and contribute to the global efforts against climate change and advancing planetary health.

Topic : Environmental Pollution and Health

Abstract code : PP170

Abstract title:

How Novel Type II Diabetes Mellitus Therapeutics Impact Zebrafish Development (*Danio rerio*)

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Aquatic species are increasingly vulnerable to contamination resulting from pharmaceutical waste due to increased use of medications approved to treat Type II Diabetes Mellitus and obesity. Treatment regimens for these comorbidities typically include Metformin (MET) and Glucagon-like Peptide 1 (GLP-1) agonists, namely semaglutide (Ozempic®) and tirzepatide (Mounjaro®). After the American College of Cardiology declared GLP-1s a first-line treatment option for eligible patients, superseding lifestyle interventions, GLP-1 environmental concentrations are expected to increase. While research has demonstrated that the current environmental concentrations of MET, and its primary degradation product guanyurea (GUAN), are sufficient to negatively impact the growth and development of early life stage (ELS) freshwater fishes, the environmental fate and impacts associated with novel anti-diabetics remain widely uncharacterized. Additionally, the potential risks that GLP-1 medications pose to ELS and other non-target marine organisms are unknown. Therefore, the goal of the present study is to investigate the relative potency and effects of novel anti-diabetic medications on early life stage zebrafish (*Danio rerio*). We exposed zebrafish to equal concentrations of semaglutide (SEM), tirzepatide (TIR), and a mixture of 1:1 semaglutide: tirzepatide (S/T). After 2 week exposures, the fish were analyzed for a suite of morphological parameters to determine if GLP-1 exposures correlated to significant alterations in developmental effects. Interestingly, the brains of females exposed to S/T had a larger mass than females in the control group. Similarly, females exposed to SEM and S/T had a larger overall mass than control females. Further research should be conducted to examine these unanticipated effects.