

HEALTH IMPACTS OF CLIMATE CHANGE

A new challenge for physicians

NOVEMBER • 22nd • 2019

Université Paris Descartes

Site Necker

Faculté de Médecine Université Paris Descartes

Centre Virchow-Villermé

Université Heidelberg

Lancet Countdown: Tracking Progress on Health and Climate Change

Centre des Politiques de la Terre

Ambassade de la République fédérale d'Allemagne Paris

How is climate change affecting our health? How are physicians responding?

Climate change is undermining the foundations of good health; threatening the food we eat, the air we breathe, and the hospitals and clinics we depend on. However, the response to climate change could be the greatest global health opportunity of the 21st century.

This year has seen unprecedented levels of public and UN level engagement in climate change, but is the world responding quickly enough?

Recent research, such as the latest reports by the Lancet Countdown or the WHO, positions climate change as a major risk for global health. The concept of Planetary Health stresses the profound connections between the state of the global environment and human health. The health impacts of climate change put additional stress on many health systems, and have already been inducing significant additional mortality. Yet they remain little addressed in medical schools and school of public health, despite health practitioners being increasingly confronted with these new risks, both in industrial or developing countries. A better preparation of health professionals to these issues is crucial for more adequate care.

At the invitation of Université de Paris, the Centre Virchow-Villermé for Public Health Paris-Berlin and the University of Heidelberg, IPCC members, policy-makers, researchers, and practitioners will gather on November 22nd 2019 in Paris to address these emerging risks for public and global health.

World leaders will gather from 2nd to 13th December 2019 in Madrid for the Climate Change Conference to encourage concrete climate action. In this context, the meeting will also mark the launch of the 2019 edition of the Lancet Countdown Initiative report, which tracks the evolving health profile of climate change and provides an independent assessment of governments' delivery of their commitments to tackle climate change.



8:15 Welcome

8:45 Opening remarks

Gérard FRIEDLANDER, Dean of the Faculty of Medicine, Université Paris Descartes - Université de Paris
Anneliese DEPOUX, Co-director, Centre Virchow-Villermé for Public Health Paris - Berlin
Rainer SAUERBORN, Professor of Global Health, University of Heidelberg

9:00 Introduction: overview of current knowledge on climate/health

Marc CHAUSSIDON, Director, Institut de Physique du Globe de Paris - Université de Paris
Anthony COSTELLO, Co-Chair of Lancet Countdown

Pollution and health

10:00 An exposome perspective for climate change and health

Robert BAROUKI, Professor of Biochemistry and Research Director, Université de Paris

10:15 Respiratory consequences of pollution and climate change

Anh Tuan DINH-XUAN, Professor of Physiology, Université de Paris

10:30 Discussion

10:50 Break

Infectious diseases management

11:10 Infectious Diseases and climate change

Antoine FLAHAULT, Director of the Institute of Global Health, University of Geneva

11:25 Climate Change pathways to illness : focus on Malaria

Isabelle VILLADARY, Malaria Programme Manager, Sanofi Global Health Programs

11:40 Discussion

12:00 Planetary health perspective: climate change and health in costal municipalities

Renzo R. GUINTO, Doctor of Public Health Class of 2019, Harvard T.H. Chan School of Public Health

12:20 Lunch

Effects of rising temperature on vulnerable populations

13:30 The effects of climate change on health: how we get from generating scientific evidence to designing interventions for vulnerable populations

Aditi BUNKER, Environmental Health Researcher, University of Heidelberg

13:50 Chronic diseases and heat: climate change impact on people with diabetes and kidney stones

Rainer SAUERBORN, Professor of Global Health, University of Heidelberg

14:10 The impact of heat on mental health

Thomas MÜLLER, Professor of Psychiatry, University of Bern and Privatklinik Meiringen

14:30 Drug use and effects under climate change

Florentia KAGUELIDOU, Associate Professor of Pharmacology, Université de Paris
Agnès SOMMET, Professor of Pharmacology, Université Toulouse 3

14:50 Public management of heat waves, insights from France and Germany

Alina HERRMANN, Heidelberg Institute of Global Health, University of Heidelberg
Jean-Louis SANMARCO, Professor of Public Health, Université de Marseille
Karine LAAIDI, Climate and health project manager, Santé publique France

15:20 Discussion

15:40 Break

16:00 Training health professionals, an urgent challenge for public health

Sandra BARTEIT, Heidelberg Institute of Global Health, University of Heidelberg
Alina HERRMANN, Heidelberg Institute of Global Health, University of Heidelberg
Isabelle RICHARD, Conseillère santé et formation, Ministère de l'Enseignement Supérieur, de la Recherche et de l'Innovation
Claudia TRAIDL-HOFFMANN, Director at the Institute of Environmental Medicine, Technical University of Munich

16:30 Discussion

Final conferences

16:50 IPCC and health, thinking of an ultimate limit?

Jean-François TOUSSAINT, Professor of Physiology and Review Editor for IPCC, Université de Paris

17:20 Climate action for health, an agenda for transformative change

Sir Andrew HAINES, Professor of Environmental Change and Public Health, London School of Hygiene & Tropical Medicine

17:40 Concluding address

Maria NEIRA, Director Public Health, Environment and Social Determinants of Health, WHO

17:50 Concluding remarks

Richard HORTON, Editor-in-chief, The Lancet (TBC)

18:00 Opening of the cocktail

Michael JASPERS, Director, Scientific and Technological Department, German Embassy



« With both health and the climate crisis engaging such heightened interest, an opportunity exists for health professionals to bring the inextricable links between them into focus »
The 2019 Report of the Lancet Countdown

OPENING REMARKS BY



Dr. Anneliese DEPOUX

Co-director of the Centre Virchow-Villermé – Faculté de médecine de l'Université Paris Descartes – Université de Paris

Dr. Anneliese Depoux leads the Centre Virchow-Villermé, a French-German research center for Public Health, with a branch in Paris (Université de Paris) and another one in Berlin - Charité Universitätsmedizin. The Centre has pioneered work on the health impacts of climate change, and is widely recognised as a European hub for research on this emerging topic. Dr Depoux is herself a leading voice in the communication of these issues to the general public: she founded the 4C-Health research consortium to foster this approach, and she is a member of the Lancet Countdown initiative and the Global Consortium on Climate and Health Education at Columbia University.



Pr. Rainer SAUERBORN

MD, PhD MPH, MSc
Senior Professor of Heidelberg University

Rainer Sauerborn was lead author of the health chapter of the recent assessment report of the IPCC (Inter-Governmental Panel on Climate change. He served as an advisor to the German Federal Government on "Global Environmental Changes" from 2000-2004. He was Guest Professor of Climate Change and Global Health in Umeå, Sweden and is currently Visiting Chair for Climate Change at the Centre Virchow-Villermé for Public Health Paris-Berlin, at Université Sorbonne Paris Cité. Since 1997, he has held the Chair of Public Health at Heidelberg University. He has a long-standing track record of service and research in Africa and Asia on health systems with a particular focus on climate change and health.



Pr. Marc CHAUSSIDON
Institut de physique du globe de Paris - Université de Paris

Marc Chaussidon is a specialist in geochemistry and cosmochemistry. He studied the formation and early evolution of the Solar system and planets from the exploration of the chemical and isotopic variations in extraterrestrial matter and in samples from the early Earth; isotopic composition of the Sun from the study of Solar wind implanted in lunar soils; variations of surface temperature on Earth during the Precambrian; origin of the first continental crust on Earth; and geochemical cycles of elements in the crust and mantle of the Earth. He received a PhD from Institut National Polytechnique de Lorraine in 1988. He is Research director at CNRS since 1998. Since 2016, he is Director of Institut de physique du globe de Paris.

An overview of climate and environmental change on the Earth in the Anthropocene

The observation of environmental changes on Earth at a global scale suggests that the Earth may have entered a new geological epoch, the Anthropocene. Human activities impact the critical zone of the Earth system by modifying physical conditions, fluxes of matter and biogeochemical cycles on the continents and in the oceans. Surface temperature has increased by ≈ 1° since 1850, as a result of a change of the radiation balance of the Earth due to the increase in the concentration of greenhouse gases. Predictions of the intergovernmental panel on climate change range from +1.6° to +2.5° in 2050 depending on whether greenhouse gases emissions decrease or continue at the same rate than today. This increase of temperature will not only affect polar regions and coastal areas but will modify life in the oceans by changing their temperature and pH, will endanger the sustainability of crops in some regions, and will have many other consequences, all of them being not clearly identified yet.



Pr. Anthony COSTELLO
Co-chair, Lancet Countdown

Anthony Costello studied medicine and psychology at Cambridge University. An award-winning professor of child health, he directed the Institute for Global Health at University College London, and until March 2018 was director of maternal, child and adolescent health at the World Health Organization in Geneva. For over twenty years he has studied the science of community participation through women's sympathy groups with teams in Bangladesh, India, Malawi and Nepal. A well-known commentator on global health with over 350 academic publications, he chairs the Lancet Countdown on Tracking the Health Impacts of Climate Change. In 2016 he received a Lifetime Achievement Award from the British Medical Journal. His own sympathy groups have encompassed a book circle, a soul band, a cricket club, and research teams in different cultures. In November 2018 he published his book 'The Social Edge. The Power of Sympathy Groups for our Health, Wealth and Sustainable Future'.

Presentation of the 2019 report of the Lancet Countdown on health and climate change

The nature and scale of the response to climate change will be the determining factor in shaping the health of nations for centuries to come. The Lancet Countdown brings together 35 leading universities and UN agencies from across the globe to track the world's response, and the benefits this brings for our health.



Pr. Robert BAROUKI
Université de Paris - INSERM - Assistance Publique-Hôpitaux de Paris

Robert Barouki is an MD, biochemist and molecular biologist whose main research focus has focused on the impact of environmental contaminants on human health and the mechanisms of action involved in those effects. He has studied the biological consequences following the activation of the dioxin receptor AhR and delineated the different mechanisms of toxicity. He studied the different effects triggered by different ligands of the AhR using in particular "-omics" technologies, suggesting that part of the toxicity may be related to the disruption of endogenous functions. He has also studied the effects of combination of contaminants. More recently, he has been involved in international research programs aiming at characterizing the human exposome and at determining how to translate exposome science into policies. In addition, as head of the clinical metabolic biochemistry department, he has initiated and organized a shared mass spectrometry facility at the Necker hospital. His focus is on developing multiplex targeted proteomic and metabolomic assays, notably in the field of metabolic diseases and in toxicodynamics.

An exposome perspective for climate change and health

Climate change encompasses a variety of distinct consequences that may affect human health. It is critical not only to assess all these impacts individually but also their possible interactions. Those interactions may be related to a simultaneous exposure or to cumulative exposure over time. The exposome concept was put forward in 2005 by Chris Wild and aimed at integrating all exposures over the life of an individual, including the fetal stage and encompassing exposures to chemical, physical or biological agents, diet, infection, as well as psychological and socio -economical stresses.

The exposome, together with its complement, the genome, is meant to provide a more thorough understanding of causes of diseases involving genetic and environmental cues. The exposome concept is particularly well suited to assess climate change effects because of the different impacts which are elicited. It is expected that the combination of some of the climate change impacts may lead to more deleterious consequences: increased heat, infectious agents and pollution may constitute a dangerous cocktail for pulmonary diseases. Climate change also cannot be separated from other environmental changes. Indeed, the application of the exposome concept also consists in assessing the combination of climate change effects with other environmental factors: the combination of increased particulate matters and of increased ozone is expected to worsen atmospheric pollution. Finally, there may be a brighter side to the possible synergism of the various stressors described above. If real action is taken to mitigate the different climate change effects as well as those of other environmental stressors, then one would expect significant health benefits even if the mitigation of each stressor alone is modest. It is an additional reason to take action promptly and simultaneously in different battle field fronts.



Pr. Anh Tuan DINH-XUAN
Respiratory Physiology Unit, Cochin Hospital, Université de Paris

Anh Tuan Dinh-Xuan has got his MD from Paris Descartes University (France) and his PhD in Clinical Sciences from the University of Cambridge (UK). He is currently the Head of the Respiratory Physiology Unit of the Thoracic Department of Cochin Hospital, one of the main teaching Hospitals affiliated to the University of Paris. His research is focused on the role of Nitric Oxide in respiratory physiology and pulmonary diseases including idiopathic pulmonary hypertension, asthma, ARDS, cystic fibrosis and pulmonary fibrosis. He is past Chief-Editor of the European Respiratory Journal, and currently the elect Chair of the Publication Committee of the European Respiratory Society.

Respiratory consequences of pollution and climate change

Over the last half of century, major changes involving the atmosphere and the climate, including global warming induced by anthropogenic factors, have greatly impacted on the biosphere and human health.

Urbanization and a westernized lifestyle causing high levels of vehicle emissions are related to increased frequency of pollen-induced respiratory allergy that, in turn, accounts for higher prevalence of allergic asthma in people living in urban areas. Climatic factors (temperature, humidity, wind speed, thunderstorms, etc.) can account for increased presence of biologic (allergens) and chemical (pollutants) atmospheric factors triggering sensitization and paving the way to the emergence of allergic diseases.

Unless effective measures will be taken to mitigate the future impact of climate change and global warming, it is likely that the current detrimental influence of global warning on the prevalence of allergic respiratory diseases and its direct negative consequences on individual health and global economy will continue to rise.



Pr. Antoine FLAHAULT
Institute of Global Health, Faculty of Medicine, University of Geneva

Antoine Flahault MD, PhD in biomathematics, is professor of public health at the Faculty of Medicine of the University of Geneva where he is the founding director of the Institute of Global Health. He has been appointed founding director of the French School of Public Health, co-director of Centre Virchow-Villermé for Public Health Paris-Berlin, co-director of the European Academic Global Health Alliance and president of the Agency for Public Health Education Accreditation. He has conducted his research in mathematical modelling of communicable diseases. He has chaired the WHO collaborative centre for electronic disease surveillance and has coordinated research on Chikungunya in Indian Ocean and in French Caribean Islands (Inserm Prize, 2006). He was elected corresponding member at Académie Nationale de Médecine (Paris). He has chaired in 2016 the World Health Summit, the M8 Alliance, and in 2016 and 2018 the Geneva Health Forum. Last May 2019, he had 284 scientific publication referenced in Medline.

Infectious Diseases and Climate Change

There is little doubt that climate change is a threat to health through direct and indirect mechanisms. Climate change affects infectious diseases via the pathogen, host and transmission environment. Transmission routes can be affected mostly by air temperature, precipitation, humidity, extreme events, climate variability and ocean. The most commonly studied topics in the literature are insect-borne and fecal-oral diseases. Outbreaks of some of these related diseases but also airborne transmitted conditions often follow extreme events, such as flooding (e.g. West Nile Fever, Rift Valley Fever, malaria, acute diarrhea) or heat waves and droughts (e.g. dengue, chikungunya, Zika, Yellow Fever). However, over the past three decades, the published negative or uncertain links between infectious diseases and climate change has been growing. For example, the controversial response of malaria and schistosomiasis to rising temperatures have been reported from Asia and Africa, addressing the complex relations between climate change and infectious diseases, which involves many interactions with social and environmental components over space and time. Another example of such complexity is illustrated by the apparently conflicting results on the influence of raising temperatures on Aedes aegypti: the dengue epidemic potential increases in temperate areas or extremely hot climates when it decreases in tropical areas.

When heat waves, extreme weather events, drought and floods have been consistently associated to increasing risk of infectious diseases, anticipating the consequences of climate change on these diseases remains challenging and often leaves communities poorly prepared to the risk of emerging outbreaks.



Dr. Isabelle VILLADARY
Global Health Programs, Chief Medical Office Department, Sanofi Group

Isabelle Villardy is a physician, specialized in Public Health and Epidemiology. She did her Medical Thesis on Plasmodium Falciparum Resistance to treatment in Ivory Coast with Medecins Sans Frontière, EPICENTRE. During her Public Health training and right after, she experienced Public Health Campaigns evaluations to support French Health Ministers decisions (Hepatitis B vaccination, HIV information Campaigns) within Réseau National De Santé Publique in Saint Maurice. Isabelle worked 5 years at Agence Française de Sécurité Sanitaire et des Produits de Santé where she oversighted drugs and medical devices evaluation for reimbursement purpose. In 2002, she joined Sanofi and took Medical Affairs roles in various organizations within the Group such as Research & Development, French Affiliate and now Global Headquarter as Global Health Malaria Programs Head.

Climate Change pathways to illness : focus on Malaria

Climate change is undeniable; it is demonstrated clearly by temperature and weather changes over time. Climate change is having an increasing direct impact on human health. In addition, changing temperature and climate are altering the eco-systems of humans as well as of that of the pathogens and their vectors that affect humans.

All those impacts play a role on malaria burden in endemic countries and put at risk malaria-free countries. Some findings and research involving meteorologists and entomologists are already available. The role of Sanofi is to take part of the fight against malaria but not only. When taken a closer look on other illnesses impacted with climate change, a broader role is shown. Last but not least, the efforts to decrease environmental impact generated by pharmaceutical activities is also needed and will be illustrated with few concrete examples.

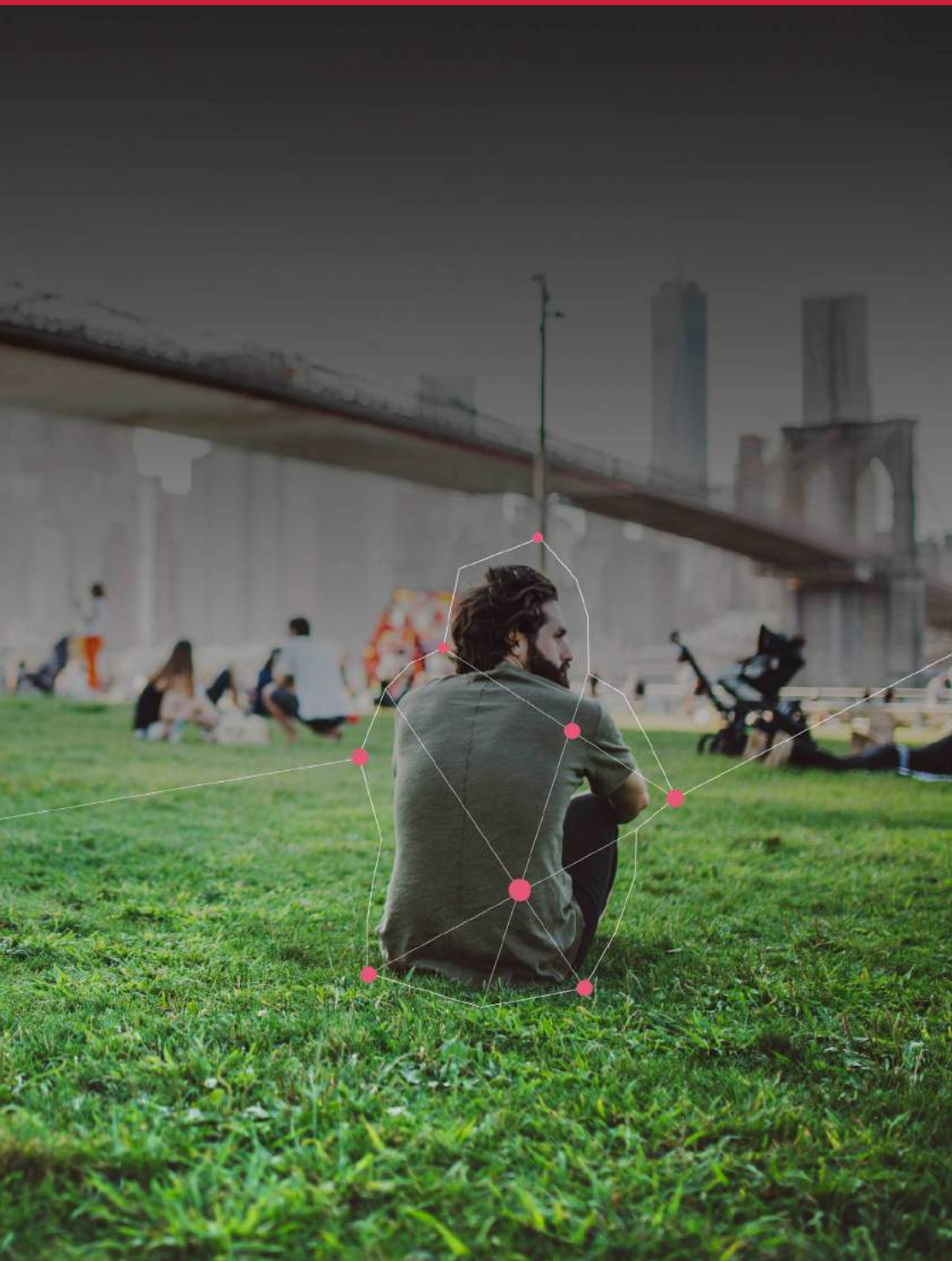


Dr. Renzo R. GUINTO
Doctor of Public Health candidate at the Harvard T.H. Chan School of Public Health

A Filipino physician with broad interests in global health and sustainable development, Dr. Renzo Guinto is a third-year Doctor of Public Health (DrPH) candidate at the Harvard T.H. Chan School of Public Health. He was gifted with a broad array of skills that are essential in reimagining health in the 21st century – from global perspective and effective communication, to strategic thinking and network-building. His experience spans a wide breadth of the public health realm – from universal health care, medical education, and migrant health, to global health diplomacy, noncommunicable diseases, and climate change & energy policy. He has a deep passion for health justice, and firmly believes that today's health inequalities and threats can be addressed through effective governance and accountable institutions; entrepreneurship and innovation; design- and systems-thinking; tri-sector collaboration among government, industry, and civil society; and an unwavering commitment to the right to health.

Planetary health perspective: climate change and health in costal municipalities

Del Carmen is a small coastal municipality in the province of Surigao del Norte that is already facing the initial manifestations of climate change such as sea level rise, prolonged droughts, and extreme weather events like typhoons and flooding. These changes in turn lead to myriad health effects such as resurgence of infectious diseases and threats to community nutrition. Despite numerous chronic challenges, the town has started to mount different responses - including in the health sector - to build resilience and adapt to the effects of climate change, but much more still need to be done.





Dr. Aditi BUNKER
University of Heidelberg

Aditi Bunker is an environmental health researcher at the University of Heidelberg. Aditi's primary interest is in testing climate change adaptation strategies in vulnerable communities. She is currently leading a randomized controlled trial investigating how cool-roof technologies affect population health, environmental and economic outcomes in sub-Saharan Africa. In Dhaka, Bangladesh, Aditi is part of a team assessing how local traditional materials (i.e. coconut fiber roof insulation) play a role in reducing the burden of indoor heat in an urban megacity. Aditi brings expertise on analysis of temperature-non-communicable disease (NCDs) relationships in vulnerable populations, including the elderly and inhabitants of low-and-middle income settings. She has presented a massive online open course hosted by the Centre Virchow-Villermé on climate change and NCDs for Policy Makers and taught a time-series course at Harvard University. Aditi has worked as a policy analyst for the New Zealand government and on public health projects in Bhutan, Germany, Burkina Faso and Bangladesh.

The effects of climate change on health: how we get from generating scientific evidence to designing interventions for vulnerable populations

Non-communicable diseases (NCDs) are the leading cause of deaths globally, accounting for almost 2/3rds or 38 million deaths annually. We found that increasing heat from anthropogenic climate change is likely to exacerbate the risk of NCDs such as diabetes, cardiovascular, respiratory, genitourinary, and mental health outcomes directly and indirectly in vulnerable communities including the elderly and in low-and-middle income countries.

These health impacts will place added pressure on health and social systems, particularly in low and middle income countries where the burden of NCDs is increasing at a fast pace. Interventions can be designed to reduce both carbon emissions and improve NCD health outcomes.

Aditi will describe ongoing studies where they test climate change adaptation strategies to inform policy makers on the best interventions for reducing carbon emissions and improving health of vulnerable populations.



Pr. Thomas Jorg Müller

Private Clinic Meiringen, Switzerland
Translational Research Center, University Hospital of Psychiatry,
University of Bern

Thomas Müller is a Professor of Psychiatry at the University of Bern. From 2009 to 2016, he was vic-director at the University Hospital of Psychiatry. He is a specialist in neurophysiology in patients with affective disorders, schizophrenia and ADHD. He also worked on epidemiological studies on the effects of weather / climate change on psychiatric patients in Switzerland together with the Institute for Geography, Climatology, Climate Dynamics and Climate Change in Giessen (Prof. Luterbacher). Since 2017, he is Medical Director at Privatklinik Meiringen in Switzerland

Climate change and mental health: a new challenge

The talk provides an overview of the current and long-term effects of climate change on mental health. Data from current research, including our own, hint on climate change being another stress factor that may lead to higher prevalence of mental disorders. Potential consequences for the community and possible measures will be discussed.



Pr. Florentina KAGUELIDOU
Center of Clinical Investigations
INSERM - Assistance Publique-Hôpitaux de Paris

Dr Kaguelidou is the referent pediatrician of the Clinical Investigations Centre of Robert Debré University Hospital and she is an Associate Professor of Clinical Pharmacology at the Medical School of University of Paris. Her research focuses on clinical trial design and pediatric pharmaco-epidemiology projects with a special interest in the evaluation of analgesics.



Pr. Agnès SOMMET
Department of Pharmacology
INSERM - Centre hospitalier universitaire de Toulouse

Pr Sommet, head of the service of Medical Pharmacology in Toulouse Hospital, is pharmacoepidemiologist and methodologist. She is Professor of Clinical Pharmacology at the Medical School of the University of Toulouse 3. During her PhD, she performed pharmacoepidemiological studies to evaluate effects and serious adverse drug reactions during heat waves occurred in France in 2003 and 2006. Her research focuses on pharmacoepidemiological projects with a special interest in the evaluation of anti-infective drugs.

Drug use and effects in the era of climate change

In the coming decades, climate change is projected to lead to extreme weather events with direct and indirect impacts on human health and subsequent drug use. The rise of several diseases related to these extreme events such as mental health and/or vector-borne diseases will obviously increase the use of medications required for their management. Since some of these diseases are rarely or not at all encountered nowadays, drug research and development will be progressively steered to satisfy the demand. However, the effects of climate changes on the identification of new pharmaceutical molecules or the production of drugs may possibly impair these efforts. Focus should also be given to medication storage conditions and the development of new thermostable drug formulations. Although, the impact of climate change on drug pharmacokinetics, especially in the elderly, is expected that on drug pharmacodynamics mainly drug adverse events requires further investigation. In this presentation, we will be providing information on the key challenges pertaining to drug development, use and effects in relation with climate changes.



Dr. Alina HERMANN
Heidelberg Institute of Global Health, Heidelberg University Hospital
Working Group Climate Change, Nutrition and Health

Alina Herrmann is a medical doctor, who is particularly interested in the role of health professionals at the crosslink of climate change and health. In her doctoral thesis she investigated general practitioners' role in protecting elderly in heat waves. She was involved in developing feasible guidelines for heat health action plans in Germany. Due to her work in heat health, she has also been invited as an expert by the WHO Europe as well as several national stakeholders like the German Ministry of Health, the federal states of Baden-Württemberg and Saxony and the city of Cologne. Furthermore, Alina is interested in the health co-benefits of climate change mitigation. She has been the project coordinator of the European HOPE project, investigating health aspects of households' willingness to reduce their greenhouse gas emissions. As Alina pursues her specialization in General Medicine in parallel to her research works, she is especially interested in how to use primary care as an entry point to promote sustainable and healthy lifestyles.

The current state of heat-health action plans in Germany and the potential role of General Practitioners therein

A heatwave warning system has been established in Germany shortly after the devastating heatwave of 2003, which caused around 70.000 excess deaths in Europe. Yet, due to the federal structure of German administration, the implementation of further preventive action within heat health action plans (HHAPs) is left to the federal state or local level while national entities like the Federal Environmental Agency take over supportive functions. Therefore, the implementation of HHAPs so far remains patchy. In the presentations two examples for local implementation and further current civil society actions are given.

Training in Climate Change and health for health professionals in Germany, current steps and future perspectives

So far climate change and health is neither established as a mandatory subject in German medical schools nor is it an integral part of continuous medical education of physicians and other health staff. The presentation will illustrate the development of an accredited advanced training on heat-health for physicians developed in Germany.



Pr. Karine LAAIDI
Santé Publique France - Direction Santé Environnement Travail

Karine Laaidi is an epidemiologist and project manager on climate and health at Santé publique France. She worked on different pathologies or public health issues influenced by climate or weather (pollen allergies, strokes, car accidents, emergency visits…). Her main field of work at Santé Publique France is the link between cold or heat and health: surveillance of the health impact, prevention, alerts management, evaluation of prevention and management measures. She works in collaboration with Météo-France on the preparedness and management of cold and heat alerts, but also on different subjects through their "environment and health" commission of the High Council of Meteorology.

Prevention and management of heat waves impacts in France

Following the 2003 heatwave and its major health impact (15000 excess deaths in two weeks), a National heat wave plan was set up by the French ministry of health. This plan includes an alert system managed by Météo-France and Santé publique France, in order to anticipate heatwaves occurrences and to follow their potential impact. Prevention and management measures are set up at local and national levels. Several heat waves have been observed since 2003, totaling 8 000 excess deaths. None of those events was comparable to 2003 in terms of severity and duration.

Multidisciplinary studies were conducted to support prevention: on the urban heat island impact on elderly mortality; on the evolution of the relationship between temperature and mortality in a climate change context; on the knowledge of the French population about heat risks and prevention; on the actions and difficulties of the French local stakeholders during heatwaves (prefects, mayors, associations, staff working with elderly people or children).

Improvements are still needed to prevent the impacts of heat, mainly in a context of global warming with earlier, more intense and more frequent heatwaves: improvement of the prevention among vulnerable persons, reinforcement of social links, development of a risk and prevention culture, improvement of risk perception, and increasing of staff and financial means for hospitals and social workers.



Pr. Jean-Louis SANMARCO
Hôpital La Timone - CHU Marseille
Faculty of medicine of Aix-Marseille University

Jean-Louis Sanmarco was born in Paris in 1938. He is a University Professor since 1975. He was President of Public Health Sub-Section at the CNU (National Council of Universities) and President of INPES (National Institute of Prevention and Health Education). He works on heat wave and public health management.

Cooling/Rehydrating care of elderly patients during the July 2019 heatwave in France

While the conditions of this year's heatwave were quite similar to those of 2003, the number of casualties was 10 times smaller. The overall organization, including cool rooms in retirement houses and the financial aid provided for the installation of heat insulation within older homes have reduced the exposure of fragile people. This led to a significant decrease in the human toll caused by this heatwave. Nevertheless, the 1,500 victims and the identification of an equivalently high rate of dehydrated and hyponatremic patients (up to 30% in some centers) showcase that therapeutic management must improve significantly.

The wide use of a simple diagnosis procedure, available to all caregivers and with immediate results, will allow patients requiring careful hydration to be separated from others, without the risk of error. Reducing older patients' exposure to outside heat can be achieved simply and by any caregiver ; a mist sprayer and a small fan should allow us to radically transform our goals.



Dr. Sandra BARTEIT
Heidelberg Institute of Global Health

Sandra Barteit is a trained Computational Linguist and a postdoctoral researcher at the Heidelberg Institute of Global Health. Her PhD research was on the evaluation of a tablet-based medical e-learning intervention in Zambia employing a mixed -methods approach. Her main interest lies in how to use technology to improve health, especially with methods based on Artificial Intelligence and Machine Learning. Furthermore, Sandra has been involved in MOOCs tackling climate change and health. Currently, she is a postdoctoral researcher in the research unit on Climate Change in Health in Sub-Saharan Africa.

MOOCs in climate change and health education

Climate change has many and large impacts on health and should be key to climate policy, as it affects, amongst others, non-communicable diseases (such as respiratory and cardiovascular diseases), the global distribution of vector-borne diseases (such as dengue and chikungunya virus vectors), malnutrition due to variability in rainfall leading to floods and droughts, raising sea-levels destroying infrastructure. With the three massive open online courses, we want to open the arguments and rationale of climate change and its impact on health to a general public, to policy-makers and to vulnerable populations especially in Africa, as well as to communicate best practices in adaptation strategies and in the promotion of health co-benefits. As a mean to reach a global audience and even potential researchers, MOOCs are a grand opportunity, especially given today's ubiquitous technological environment. MOOCs not only have been shown to have a massive global reach - some of the most successful MOOCs had a total enrollment of over 1 million students – but provide means to reliable information that can reach and empower people otherwise left out. We have developed MOOCs that take on the topic of climate change and health that will be presented and discussed with regards to their impact and participants' feedback.



Pr. Isabelle RICHARD
French Ministry of higher education, research and innovation

Isabelle Richard studied medicine at the Faculty of Pitié Salpêtrière, before becoming an intern at the University Hospital of Nantes. She is Professor of Physical Medicine and Rehabilitation at the University of Angers since 1998. Her field of expertise is the neurological rehabilitation of the cerebral palsy in adults. She was vice-dean in charge of training at the Faculty of Medicine of the University of Angers from 2004 to 2011. She is Dean since September 2011. She works as an advisor for health at French Ministry of higher education, research and innovation.

Training health professionals, an urgent challenge for public health

Health systems face major challenges among which the needs of ageing populations, and the increasing expenses of healthcare for chronic conditions. Such challenges require major changes of the competencies of health professionals organize their work. The paradigm underlying medical studies was mainly based on the competency to make an accurate diagnosis and prescribe a one shot treatment. The brain of medical students was formatted by a "diagnosis/prognosis/treatment" tryptic. Soft skills, when they were part of the curriculum at all, were restricted to the ability to communicate with the patient, obtain relevant information, and inform him/her about the decision that was taken. Studies in other fields, and specifically nursing remained organized in France outside Universities with very little opportunities for nurses to be involved in research.

This paradigm needs to be revised in depth, along three main lines.
- Health professionnals need to cooperate with counterparts of different backgrounds, with the patient, and with his/her proxies. Developing such abilities will be at best performed by teaching formats which allow interaction for instance between medical and nursing students.
- Health professional need to develop competencies which allow them to act as coaches/advisors and help a patient make his/her own decisions for his/her health, including lifestyle options. This is for instance on of the aims of the "service sanitaire" that thas been implemented for all health students.
- More knowledge is necessary to understand the social determinants of health and health equity, or to understand determinant of chronic health conditions such as observance, resilience, or inclusion. This requires more participation of health professionals other than medical doctors in health research.



Pr. Jean-François TOUSSAINT
Université de Paris - IPCC Review Editor

Jean-François Toussaint is a cardiologist and professor of physiology at Université de Paris. His work has been supported by publications in first rank medical scientific journals, books and lectures in worldwide universities and international congresses on preventive medicine, cardiovascular diseases, medical imaging, sport, and health. He presided the Expert Group «Sport, Health and Participation» of the European Commission (2011-2017), and was a board member of the French Program National Nutrition Santé (PNNS), the Orientation Committee of the Musée de l'Homme in Paris, the Commission on health consequences of climate change at the Académie Nationale de Médecine. He created the expert group Adaptation and Prospective of the High Council of Public Health (GAP-HCSP) in order to analyze the major health emerging risks. He is a current member of the Intergovernmental Panel on Climate Change (Review Editor). He wrote the report «Health Impacts of the adaptation strategy to climate change» for the two Ministries in charge of Health and Environment.

Environment and Health: Thinking the Ultimate Limit?

The interactions between climate, biodiversity, agriculture, economy, demography and energy have constantly moderated the prosperity and resilience of our societies. Large technical advances, with multiple benefits, have reduced our environmental constraints over the past two centuries. However, human activity has also led to some unforeseen effects. Man, who has become the main disrupter of his environment, is now aware of the lack of steering of his technical choices and the difficulty of setting the conditions for a sustainable dialogue.

Our understanding of human health and the dysregulations that provoke diseases is also misleading. Second-order regulations and environmental constraints are rarely integrated among the main risks. However, the health of a population is also the expression of its relationships with the underlying ecosystems, whose impacts are diffuse and occur in uncertain but late times. It is important to understand them in order to anticipate their global effects. New vulnerabilities, stemming from demographic (aging populations, urbanization), agricultural (soil impoverishment, water misuse) or societal constraints (economic recessions, political divides) will not allow us to access all adaptation options.

The first assessed declines in life expectancy must be integrated in our ways of thinking, especially since the saturation of our performances raises the question of their natural limit and tests our margins of adaptation in front of the cumulated risks. Understanding these phenomena - and their interdependencies - and admitting the boundary of our capabilities will be decisive for preparing the conditions for an increasingly closer future. We must conceive the global nature of these effects on the health and survival of our species in order to identify all the options that can still be envisaged. Unless our taboos' might and carnivals' jubilation orchestrate for us the "unbewust" last scene…



Pr. Sir Andy HAINES

Professor of Environmental Change and Public Health
London School of Hygiene & Tropical Medicine

Andy Haines was Director of the London School of Hygiene & Tropical Medicine from 2001 to 2010. He has worked internationally, including in Nepal and the USA and chaired the Scientific Advisory Panel for the 2013 WHO World Health Report. He was a member of the Intergovernmental Panel on Climate Change for the 2nd and 3rd assessment exercises and was review editor for the health chapter in the 5th assessment. He was chair of the Rockefeller /Lancet Commission on Planetary Health which published its report in 2015. He has led a number of Lancet series, co-chaired the working group which wrote the European Academies Science Advisory Council report on climate change and health, and is a member of several international bodies including the Rockefeller Economic Council on Planetary Health. He has published many papers in high impact journals on topics such as the effects of environmental change on health and the health co-benefits of low carbon policies. He is currently co-investigator on a number of research projects which focus on sustainable healthy food systems, complex urban systems for sustainability and health and the effects of climate change on health.

Climate action for health, an agenda for transformative change

Climate change poses major threats to human health but there are opportunities to address disease prevention and environmental sustainability through integrated policies at much lower environmental impacts than the current fossil fuel intensive and inequitable world economy. Transformative approaches across a range of sectors will be needed to make this a reality.



Dr. Maria NEIRA

Director, Public Health, Environment and Social Determinants of Health Department, World Health Organisation

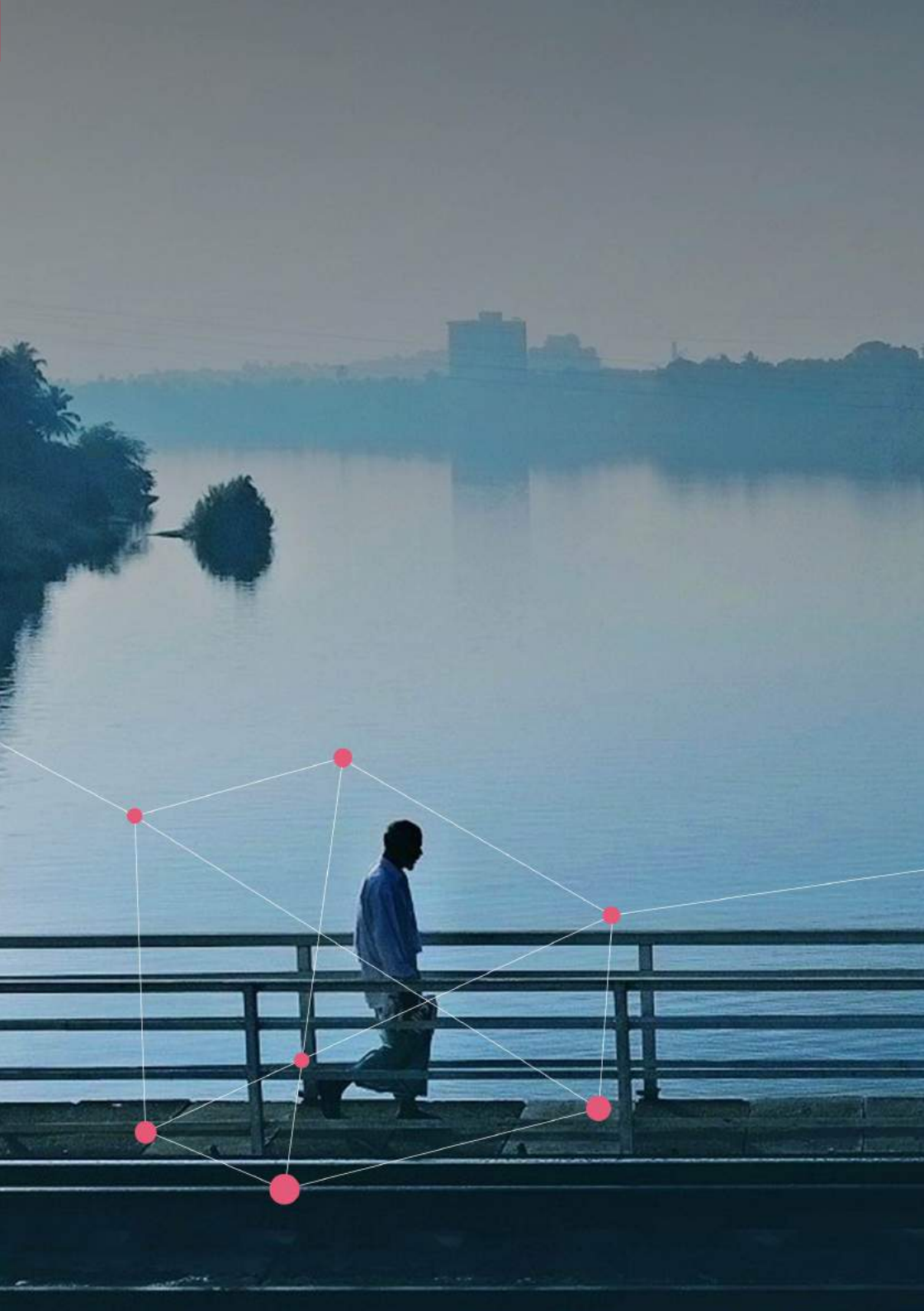
Dr. María P. Neira holds a degree in Medicine and Surgery (University of Oviedo, Spain), and a specialization in Endocrinology and Metabolic Diseases at the Université René Descartes, Paris. She then obtained a Master's degree in Public Health from the Université Pierre et Marie Curie, in Paris, France as well as a University Diploma in Human Nutrition. She also obtained an International Diploma in Emergency Preparedness and Crisis Management from the University of Geneva, Switzerland. Dr Neira is since 2005, Director of the Department of Public Health and Environment at the World Health Organization (WHO). Between 2002 and 2005, she was Vice Minister of Health and Consumer Affairs in Spain and President of the Spanish Food Safety and Nutrition Agency.



Dr. Richard HORTON

Co-chair of the independent Expert Review Group, World Health Organization

Richard Horton is Editor-in-Chief of The Lancet. He is an honorary professor at the London School of Hygiene and Tropical Medicine, University College London, and the University of Oslo. Dr Horton joined The Lancet in 1990. He was the first President of the World Association of Medical Editors and he is a Past-President of the US Council of Science Editors. He is a Council member of both the UK's Academy of Medical Sciences and the University of Birmingham and is a Senior Associate of the UK health-policy think-tank, the Nuffield Trust. In 2011, he was elected a Foreign Associate of the US Institute of Medicine.



SCIENTIFIC COMMITTEE



Dr. Anneliese DEPOUX

Co-director of the Centre Virchow-Villermé – Faculté de médecine de l'Université Paris Descartes – Université de Paris

Dr. Anneliese Depoux leads the Centre Virchow-Villermé, a French-German research center for Public Health, with a branch in Paris (Université de Paris) and another one in Berlin - Charité Universitätsmedizin. The Centre has pioneered work on the health impacts of climate change, and is widely recognised as a European hub for research on this emerging topic. Dr Depoux is herself a leading voice in the communication of these issues to the general public: she founded the 4C-Health research consortium to foster this approach, and she is a member of the Lancet Countdown initiative and the Global Consortium on Climate and Health Education at Columbia University.



Pr. Rainer SAUERBORN

MD, PhD MPH, MSc
Senior Professor of Heidelberg University

Rainer Sauerborn was lead author of the health chapter of the recent assessment report of the IPCC (Inter-Governmental Panel on Climate change. He served as an advisor to the German Federal Government on "Global Environmental Changes" from 2000-2004. He was Guest Professor of Climate Change and Global Health in Umeå, Sweden and is currently Visiting Chair for Climate Change at the Centre Virchow-Villermé for Public Health Paris-Berlin, at Université Sorbonne Paris Cité. Since 1997, he has held the Chair of Public Health at Heidelberg University. He has a long-standing track record of service and research in Africa and Asia on health systems with a particular focus on climate change and health.

ORGANISING COMMITTEE



Manon XHENSEVAL

Head of the International Office at Paris Descartes Medical School

Manon Xhenseval is the International cooperation coordinator in Paris Descartes School of Medicine. As the International cooperation coordinator she organizes the International partnerships for the Faculty Medecine. She supervises student mobility for clinical rotation or study period. She is in charge of the reception of foreign delegations, creation of new partnerships and implementation of European projects. She organizes symposiums and international events with partner universities.

She worked in the French Erasmus+ Agency as a project Manager for the Euromed + project and in the French Ministry of City, Youth and Sport for the Grande Ecole du Numérique project.



Pauline VALNAUD

European Project Manager at Paris Descartes Medical School

Pauline Valnaud is a European Project Manager at Paris Descartes Medical School. She is mainly responsible of an Erasmus+ strategic partnership called IDEAL+ (Infectious Diseases Education through Active Learning), carried out by eight universities in Europe. This project selected in 2019 for a 3-year-funding aims to disseminate innovative teaching methods and enhance medical students' Infectious Diseases knowledge at the undergraduate level in Europe. She provides a daily follow-up of the project, organises all the activities and ensures that the project meets all the expected requirements. She works very closely with all the teaches involved in the project, especially Dr Caroline Charlier-Woerther et Pr Claire Le Jeunne, who are the teaching coordinators. As part of the international office of the Medical School, she also organises symposiums and develops new partnerships.

She worked as an event and communication officer at Acfas, an association promoting sciences and research in Quebec and the French-speaking world. She holds a Master degree in project management from the Political Sciences Institute of Bordeaux.



INSTITUTIONS

Université de Paris

At the heart of the global network of knowledge and innovation, Université de Paris is France's leading multidisciplinary university. With a recognized international standing, as well as a strategic portfolio of privileged academic partners throughout the world, it offers its 61,000 students state-of-the-art, innovative courses in the following fields:
- Arts, Humanities and Languages,
- Human, Economic and Social Sciences,
- Science and Technology,
- Medicine , Dentistry, Pharmacy and Nursing

Centre Virchow-Villermé

The Centre Virchow-Villermé for Public Health Paris-Berlin is dedicated to jointly develop and promote open innovative education and to foster French-German collaborations within the European context for joint research and teaching activities in Global and Public Health. The objectives of the Centre are :
- To foster the mobility of faculty and students between France and Germany;
- To encourage and organize the French-German dialogue on Public and Global Health;
- To contribute to research activities in different areas in Global and Public Health;
- To play a leading role in innovative education in Public and Global Health;
- To promote open access to education and research;

The Centre has pioneered work on the health impacts of climate change, and is widely recognised as a European hub for research on this emerging topic.

University of Heidelberg

Founded in 1386, Heidelberg University, a state university of Baden-Württemberg, is Germany's oldest university. With a long tradition of shaping the future, Heidelberg University sees itself as an internationally oriented research and teaching institution that offers a rich range of subjects and disciplines. It acknowledges its responsibility to humanity, society, and nature and is committed to broadening and harnessing its knowledge and skills, in a spirit of open-mindedness and tolerance toward individuals and ideas, for the benefit of future generations.



Lancet Countdown

Climate change is undermining the foundations of good health; threatening the food we eat, the air we breathe, and the hospitals and clinics we depend on. However, the response to climate change could be the greatest global health opportunity of the 21st century. The Lancet Countdown: Tracking Progress on Health and Climate Change brings together 35 leading academic institutions and UN agencies from every continent to monitor this transition from threat to opportunity. We track annual indicators of progress, empowering the health profession and supporting policymakers to accelerate their response.

Centre des Politiques de la Terre

The Centre des Politiques de la Terre aims to respond to scientific and political issues raised by different diagnoses on the state of the planet. Emblematic of the close collaboration between the University of Paris and Sciences Po, the Centre des Politiques de la Terre ambition is to bring to light a research community working no longer on the study of nature or of societies but on their joint exploration. This project implies to make interdisciplinarity the bedrock of its work program, in an academic world still largely organized by disciplinary communities. The Centre des Politiques de la Terre also proposes to promote collaborative research between academic actors and stakeholders. It thus aims to become a place of commitment of researchers in society.

INTERNATIONAL OFFICE
PARIS DESCARTES SCHOOL OF MEDICINE
international.medecine@parisdescartes.fr
01 53 10 46 35

PRESS CONTACT
PARIS DESCARTES SCHOOL OF MEDICINE
pauline.valnaud@parisdescartes.fr
01 53 10 46 44