3rd GRF One Health Summit 2015
04–06 October 2015 • Davos • Switzerland

Fostering interdisciplinary collaboration for global public and animal health

PROGRAMME & SHORT ABSTRACTS

Global Risk Forum GRF Davos
The European Academy of Allergy and Clinical Immunology Organisation

Swiss National Science Foundation

Swiss International AirLines – Official Carrier

GRF Davos announces

"Sharing Practical Know-how for Improved Risk Management"

Submit your paper for the planet@risk ONE HEALTH Special Issue
To be published in December 2015

http://www.planet-risk.org
Email: planetrisk@grforum.org
This 3rd GRF One Health Summit 2015 Programme booklet is conceptualised as an environmental and printer friendly digital publication.

Join the discussion online

#ONEHEALTH2015
PATRONAGE INSTITUTIONS

Federal Office of Public Health FOHP

The World Organisation for Animal Health (OIE)

Food and Agriculture Organization of the United Nations

United Nations Environment Programme UNEP

CO-HOSTING INSTITUTIONS

The European Academy of Allergy and Clinical Immunology Organisation

University of Denver – Graduate School of Social Work

H+ Die Spitäler

International Congress on Pathogens at the Human Animal Interface (ICOPHAI)

International Research Institute of Disaster Science (IRIDeS)

Michigan State University

SIAF – Swiss Institute of Allergy and Asthma Research
On behalf of GRF Davos, I am very pleased to welcome you to Davos for the 3rd GRF One Health Summit 2015, and would like to thank you for joining this international gathering. This year’s summit builds on the success and progress of its preceding conferences in 2012 and 2013 and once again features a broad range of topics. It brings together actors and stakeholders from different regions and aims to strengthen partnerships and networks between science and practice, policy building institutions, NGOs, and the private sector. With a vital mix of formats, including keynote lectures, plenary and parallel sessions, the summit shall provide a valuable forum for dialogue and a strategic platform to foster the exchange of information and viewpoints between scientists, practitioners and policy makers.

One Health has evolved from a pure human–animal interference approach to a broad and holistic paradigm that addresses and frames the complex interactions between human health, livestock, pet and wildlife health, environmental health, climate, ecosystems, agriculture, food systems and resilient, sustainable development. It includes aspects of nutrition, agriculture, the safety and security of food supplies, environmental stewardship and the management of natural resources, water, energy, and ecosystems services, as well as questions of awareness, behaviour and learning, governance, economics, and disaster preparedness.

Keeping in mind that more than half of the worldwide population is living in urban areas and rural exodus continues to grow; One Health may become a crucial approach to successfully cope with all the drivers and consequences in urbanization dynamics. This year, important international agreements of the UN, the Hyogo Framework for Action (HFA), and the Millennium Development Goals (MDGs) come to an end and are to be replaced by new international frameworks. The Sendai Framework for Disaster Risk Reduction 2015-2030, replacing the HFA, has been adopted at the UN World Conference in Sendai, Japan, on March 18, 2015. End of September in New York, the United Nations Sustainable Development Summit 2015 has successfully agreed on the Sustainable Development Goals, the SDGs, replacing the UN Millennium Development Goals of the last decade. Let us hope that by the end of this year, the United Nations Framework Convention on Climate Change will also agree on powerful instruments and commitments at COP15 in Paris.

The One Health approach has a direct and substantial impact on these frameworks and conventions. I would like to thank all the institutions and speakers for revealing these links and raising awareness. As a paradigm, One Health could be seen as THE solution to achieve the many goals set in these frameworks and conventions. It is therefore important to further strengthen our global movement at the interface of science, society, policy and practice. One Health is highly interdisciplinary and cross-sectorial and provides a fascinating, powerful framework that a variety of professional communities and social groups can adhere to, thus fostering a more sustainable way of life on our planet.
ENDORSING PARTNERS

- Academica Raetica, Davos Platz, Switzerland
- African Rights Initiative International (ARII), Accra, Ghana
- aha! Allergiezentrum Schweiz, Bern, Switzerland
- Animal Health Australia, Canberra, Australia
- ARCHIVE Global, New York, USA
- Association Burkinabé pour la Survie de l’Enfance, Ouagadougou, Burkina Faso
- Association of qualified nutritionists Switzerland, Bern, Switzerland
- Atharva Ayurveda India, Rajkot, India
- Aussätzigen-Hilfswerk Österreich, Bregenz, Austria
- Basic Health Foundation, Abuja, Nigeria
- Beijing Normal University, Beijing, China
- Blue torch Home Care LTD., Enugu, Nigeria
- Catholic Bishops’ Conference of India Coalition for AIDS and Related Diseases (CBCI-CARD), New Delhi, India
- Centre for Advanced Research & Development (CARD), Bhopal, India
- ChildHelp Sierra Leone, Freetown, Sierra Leone
- CILSIDA, Lomé, Togo
- Colorado State University, Warner College of Natural Resources, Fort Collins, USA
- Commonwealth Peoples’ Association of Uganda (CPAUG), Kampala, Uganda
- Community Health Development Organisation, Accra, Ghana
- Concern Health Education Project (CHEP), Accra, Ghana
- Consortium of Universities for Global Health, Washington, D.C., USA
- CRIMEDIM – Research Center in Emergency and Disaster Medicine, Novara, Italy
- DesertNet International, Hamburg, Germany
- Earthquakes and Megacities (EMI), Quezon City, Philippines
- Enhancing Learning and Research for Humanitarian Assistance (ELRHA), Cardiff, Wales
- Food Law Latest, Turin, Italy
- Global Alliance for Rabies Control (GARC), Manhattan, Kansas, USA
- Gavi –The Vaccine Alliance, Geneva, Switzerland
- H + Die Spitäter der Schweiz, Bern, Switzerland
- Healthy-Polis International Consortium for Urban Environmental Health & Sustainability
- Institute for Biosecurity (IBS), Halle, Germany
- IntBiotechnologies, Brooklyn, Maryland, USA
- International Food Design Society, International
- International One Health Congress 2015, Maastricht, The Netherlands
- International Society for Disease Surveillance (ISDS), Brighton, USA
- London School of Hygiene and Tropical Medicine, London, UK
- Minority Self Empowerment Foundation (MSEF), Dhaka, Bangladesh
- Northumbria University, Disaster and Development Centre, Newcastle-upon-Tyne, UK
- One Health Central and Eastern Africa (OHCEA), Kololo, Uganda
- One Health Initiative, Sarasota, USA
- Participatory Human Rights Advancement Society, Dhaka, Bangladesh
• PharmaAfrica, Global
• Rivers Network, Portland, USA
• SAFOSO AG, Bern, Switzerland
• SaniWater Solutions, Lucknow, India
• Swiss Institute of Allergy and Asthma Research (SIAF), Davos Platz, Switzerland
• Swiss National Science Foundation (SNSF) – Healthy Nutrition and Sustainable Food Production (NRP 69), Bern, Switzerland
• The Sackler Institute for Nutrition Science, New York, USA
• University of Agriculture Faisalabad, Faisalabad, Pakistan
• UNU International Institute for Global Health (UNU-IIGH), Kuala Lumpur, Malaysia
• Vier Pfoten – Stiftung für Tierschutz, Zürich, Switzerland
• WaterEmpowerment, Global
• World Animal Protection, London, UK
• World Association for Disaster and Emergency Medicine (WADEM), Madison, USA
• World Veterinary Association, Brussels, Belgium

MEDIA PARTNERS

Competence Hospitalforum

Hospital Healthcare Management
SCIentIFIC and tECNICAL ADvISORY BOARD

• Wael Al-Delaimy, Chief, Division of Global Health, Department of Family and Preventive Medicine, University of California, San Diego, USA

• Ali Ardalan, Director of Disaster and Emergency Health Academy at Tehran University of Medical Sciences, Tehran, Iran

• Gertjan Berndt Beekman, Water Resources Planning and Development Specialist, InterAmerican Institute for Cooperation on Agriculture—IICA, Brasilia, Brazil

• Eric Bertherat, Global Alert and Response, Department of Pandemic and Epidemic Diseases, World Health Organization WHO, Geneva, Switzerland

• Jean Bousquet, Professor of Pulmonary Medicine, Montpellier University, Montpellier, France

• Andrew Collins, Disaster and Development Network (DDN) and Dept. of Geography, Northumbria University, Newcastle-upon-Tyne, UK

• Peter Daniels, Deputy Director, CSIRO Australian Animal Health Laboratory (AAHL), Geelong, Australia

• Peter Daszak, President, EcoHealth Alliance, New York, USA

• Claude Favrot, Professor, Head of the dermatology Unit, Vetsuisse Faculty in Zürich, Switzerland

• Katherine H. Haman, Fish and Wildlife Health Specialist, Washington Department of Fish and Wildlife, Olympia, WA, USA

• Duncan Hannant, Professor of Applied Immunology, School of Veterinary Medicine and Science, University of Nottingham, UK

• Bruce Kaplan, One Health Initiative, Sarasota, USA

• Alexander Kekulé, Director, Institute for Biosecurity Research (IBS), Halle, Germany

• Hillel S. Koren, Consultant and CEO, Environmental Health LLC, Durham, USA

• Shubha Kumar, Assistant Professor, Department of Preventive Medicine, Keck School of Medicine, University of Southern California (USC) and Director, Master of Public Health Online Program and Distance Education, USC Institute for Global Health, Los Angeles, USA

• Roderick Lawrence, Visiting Professor, International Institute for Global Health, United Nations University, Kuala Lumpur, Malaysia
- **David T. Long**, Professor, Aqueous and Environmental Geochemistry. Co-Director TREHB Project, Department of Geological Sciences, College of Natural Science, Michigan State University, East Lansing, USA

- **Andrea Meisser**, Swiss Tropical and Public Health Institute, Basel, Switzerland

- **Maria Antonella Muraro**, Head of the Veneto Region Food Allergy Centre of Excellence for Research and Treatment, University of Padua, Padua, Italy

- **Steven G. Pueppke**, Associate Vice-President, Research and Graduate Studies, Director, Global and Strategic Initiatives, College of Agriculture and Natural Resources, Michigan State University, East Lansing, USA

- **Dato’ C.P. Ramachandran**, Academician Professor Emeritus, Kuala Lumpur, Malaysia

- **Arno Rosemarin**, Senior Research Fellow, Stockholm Environment Institute, Stockholm, Sweden

- **Mark Rosenberg**, Professor, Queens University and Co-Chair Global Environmental Change and Human Health Project, Hamilton, Canada

- **Peter Schmitz**, Senior research fellow, Institute for Hygiene and Public Health, WHO CC, University of Bonn, Germany

- **David L. Skole**, Professor, Global Ecology, Remote Sensing, and GIS, Department of Forestry, Michigan State University, East Lansing, USA

- **Philip Tedeschi**, Executive Director, Institute for Human–Animal Connection, Graduate School of Social Work, University of Denver, USA

- **Thomas C. Voice**, Professor, Department of Civil and Environmental Engineering, Michigan State University, East Lansing, USA

- **Chadia Wannous**, Senior Policy Advisor, United Nations System Influenza Coordination UNSIC, Switzerland

- **James Herbert Williams**, Dean, DU Graduate School of Social Work, University of Denver, Denver, USA

- **Qian Ye**, Professor, State Key Laboratory for Earth Surface Processes and Resource Ecology, Beijing Normal University, Beijing, P.R. China
# Programme Overview

**Sunday, 04 Oct. 2015**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:00-16:40</td>
<td>Opening Ceremony</td>
<td>Aspen</td>
</tr>
<tr>
<td>16:40-17:10</td>
<td>Her Royal Highness Princess CHULABHORN: Honorary Lecture • Human Health as a Key Factor for Sustainable Development</td>
<td>Aspen</td>
</tr>
<tr>
<td>17:20-17:50</td>
<td>MOLIN VALDES, Helena: Keynote I • Climate and Clean Air Coalition: Quick Action Needed on Super Pollutants – for Climate and Health Benefits</td>
<td>Aspen</td>
</tr>
<tr>
<td>17:50-18:30</td>
<td>NEIRA, Maria P.: Keynote II • Health as a Pillar for Sustainable Development</td>
<td>Aspen</td>
</tr>
<tr>
<td>18:30-18:45</td>
<td>Signing Ceremony: MoU between IRIDeS Tohoku University, Sendai and GRF Davos</td>
<td>Aspen</td>
</tr>
<tr>
<td>18:45-19:00</td>
<td>Poster Session Opening</td>
<td>Foyer Aspen</td>
</tr>
</tbody>
</table>

**Monday, 05 Oct. 2015**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30-10:00</td>
<td>MON1.1: A Focus on Behaviours Necessary for Food Security in Animal Protein Value Chains</td>
<td>Jakobshorn</td>
</tr>
<tr>
<td>08:30-10:00</td>
<td>MON1.2: Integrative Health Risk Management</td>
<td>Pischa</td>
</tr>
<tr>
<td>08:30-10:00</td>
<td>MON1.3: Water and Health</td>
<td>Parsenn</td>
</tr>
<tr>
<td>10:30-11:00</td>
<td>EGAWA, Shinichi: Keynote III • One Health in the Sendai Framework for Disaster Risk Reduction 2015–2030</td>
<td>Aspen</td>
</tr>
<tr>
<td>11:00-12:30</td>
<td>Plenary I: One Health and the Sendai Framework for Disaster Risk Reduction</td>
<td>Aspen</td>
</tr>
<tr>
<td>12:30-13:30</td>
<td>MON3.1: Poster Session</td>
<td>Foyer Aspen</td>
</tr>
<tr>
<td>13:30-14:00</td>
<td>MAHER, Markus: Keynote IV • The Role of the Red Cross for Global Public Health</td>
<td>Aspen</td>
</tr>
<tr>
<td>14:10-15:40</td>
<td>MON4.1: The One Health Approach in Action – Programmes and Initiatives</td>
<td>Jakobshorn</td>
</tr>
<tr>
<td>14:10-15:40</td>
<td>MON4.2: Food Security and Food Safety</td>
<td>Pisccha</td>
</tr>
<tr>
<td>15:50-17:20</td>
<td>MON5.1: One Health Approaches for Sustainable Development</td>
<td>Jakobshorn</td>
</tr>
<tr>
<td>15:50-17:20</td>
<td>MON5.2: Case Studies of Integrative Health Risk Management</td>
<td>Pisccha</td>
</tr>
<tr>
<td>15:50-17:20</td>
<td>MON5.3: Surveillance and Early Warning – The Basis for Prevention</td>
<td>Parsenn</td>
</tr>
<tr>
<td>17:30-19:00</td>
<td>Plenary II: Allergies and Asthma – A Rapidly Growing Disease</td>
<td>Aspen</td>
</tr>
</tbody>
</table>
**Tuesday, 06 Oct. 2015**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30-10:00</td>
<td><strong>TUE1.1: Education and Capacity Building within One Health</strong></td>
<td>Jakobshorn</td>
</tr>
<tr>
<td>08:30-10:00</td>
<td><strong>TUE1.2: Implementing Animal Based Therapies in the Health Care Setting: A Team Approach</strong></td>
<td>Pischa</td>
</tr>
<tr>
<td>08:30-10:00</td>
<td><strong>TUE1.3: Vulnerabilities and Resilience – One Health Approaches for Sustainable Development</strong></td>
<td>Parsenn</td>
</tr>
<tr>
<td>10:30-11:00</td>
<td><strong>BORRIELLO, Peter: Keynote V • One Health Aspects of Antibiotic Resistance</strong></td>
<td>Aspen</td>
</tr>
<tr>
<td>11:00-12:15</td>
<td><strong>Plenary III: Targeting Infectious Diseases (Ebola)</strong></td>
<td>Aspen</td>
</tr>
<tr>
<td>13:15-14:15</td>
<td><strong>TUE4.1: The One Health Approach in Action – Tools and Projects</strong></td>
<td>Jakobshorn</td>
</tr>
<tr>
<td>13:15-14:15</td>
<td><strong>TUE4.2: The One Health Approach for Communicable Diseases</strong></td>
<td>Pischa</td>
</tr>
<tr>
<td>13:15-14:15</td>
<td><strong>TUE4.3: Poverty and Health – One Health Approaches for Sustainable Development</strong></td>
<td>Parsenn</td>
</tr>
<tr>
<td>14:30-16:00</td>
<td><strong>Plenary IV: Engaging Developing Regions for Effective Global One Health implementation – The ICOPHAI approach</strong></td>
<td>Aspen</td>
</tr>
<tr>
<td>16:15-17:30</td>
<td><strong>Plenary V: Social Challenges and Opportunities for Effective One Health Governance</strong></td>
<td>Aspen</td>
</tr>
<tr>
<td>17:30-17:45</td>
<td><strong>Closing Ceremony</strong></td>
<td>Aspen</td>
</tr>
<tr>
<td>19:30-23:00</td>
<td><strong>Conference Dinner</strong></td>
<td>Hotel Grischa  ·  Talstrasse 3  ·  7270 Davos Platz (directly opposite the Train Station Davos Platz)</td>
</tr>
</tbody>
</table>

A mobile phone and tablet friendly version of the conference programme including all details and short abstracts can be found at https://www.conftool.pro/onehealth2015/sessions.php

or via the QR code

Join the discussion online

#ONEHEALTH2015
MAP OF THE CONGRESS CENTRE

Level 0 Promenade

Entrance
Promenade

Aspen
Plenary Hall

ATM / Cash machine

FOYER ASPEN

Level -1 Parkgeschoss

Parsenn

Pischa
Entrance Congress Centre Promenade

Level -2 Parkgeschoss
# DETAILED PROGRAMME SUNDAY, 04 OCT. 2015

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:00-16:00</td>
<td>Registration</td>
</tr>
<tr>
<td>16:00-16:40</td>
<td>Opening Ceremony</td>
</tr>
<tr>
<td>Location</td>
<td>Aspen</td>
</tr>
<tr>
<td>Chair</td>
<td>ROUHBAN, Badaoui - Senior Research Fellow, Global Risk Forum GRF Davos, Davos, Switzerland</td>
</tr>
<tr>
<td>Music</td>
<td>ViVoce - Susanne Mathys and Hans Michael Sablotny singing:</td>
</tr>
<tr>
<td></td>
<td>• Heja in den Bergen – from “Csardasfürstin“</td>
</tr>
<tr>
<td></td>
<td>• Gern hab ich die Frauen geküsst – from “Paganini“</td>
</tr>
<tr>
<td></td>
<td>• Lippen schweigen – from “die lustige Witwe“</td>
</tr>
<tr>
<td>Welcome</td>
<td>Chairman’s Welcome</td>
</tr>
<tr>
<td></td>
<td>AMMANN, Walter J. – President and CEO, Global Risk Forum GRF Davos, Davos, Switzerland</td>
</tr>
<tr>
<td>Welcome</td>
<td>Welcoming Address City of Davos</td>
</tr>
<tr>
<td></td>
<td>CAVIEZEL, Tarzisius – Mayor of the City of Davos, Davos, Switzerland</td>
</tr>
<tr>
<td>Music</td>
<td>ViVoce - Susanne Mathys and Hans Michael Sablotny singing:</td>
</tr>
<tr>
<td></td>
<td>• What a wonderful world</td>
</tr>
<tr>
<td></td>
<td>• Somewhere over the rainbow</td>
</tr>
<tr>
<td></td>
<td>• Niemand liebt dich so wie ich – from “Paganini“</td>
</tr>
<tr>
<td>16:40-17:10</td>
<td>Honorary Lecture: Human Health as a Key Factor for Sustainable Development</td>
</tr>
<tr>
<td>Location</td>
<td>Aspen</td>
</tr>
<tr>
<td></td>
<td>Her Royal Highness Princess CHULABHORN, Professor, Dr., President of the Chulabhorn Research Institute is the youngest daughter of Their Majesties King Bhumibol Adulyadej and Queen Sirikit of Thailand, Bangkok, Thailand</td>
</tr>
</tbody>
</table>

## ViVoce

Hans Michael Sablotny, Tenor

Susanne Mathys, Sopran
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:10-17:20</td>
<td>Break</td>
</tr>
</tbody>
</table>
| 17:20-17:50  | **Keynote I: Climate and Clean Air Coalition: Quick Action Needed on Super Pollutants – for Climate and Health Benefits**  
Location Aspen  
MOLIN VALDES, Helena – Head, Secretariat of the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants (CCAC), Paris, France  
Music ViVoce – Susanne Mathys and Hans Michael Sablotny singing:  
• Medley from “Funiculi, funiculla”, “Non ti scordar di me” and “Mattinata”  
• Libiamo – from “La Traviata” |
| 17:50-18:30  | **Keynote II: Health as a Pillar for Sustainable Development**  
Location Aspen  
NEIRA, Maria P. – Director, WHO Department of Public Health, Environmental and Social Determinants of Health, Geneva, Switzerland |
| 18:30-18:45  | **Signing Ceremony: MoU between IRIDeS Tohoku University, Sendai and GRF Davos**  
Location Aspen  
ONO, Yuichi – Assistant Director and Professor, International and Regional Cooperation Office Disaster Information Management and Public Collaboration Division International Research Institute of Disaster Science (IRIDeS), Tohoku University, Sendai, Japan  
AMMANN, Walter J. – President and CEO, Global Risk Forum GRF Davos, Davos, Switzerland  
CAVIEZEL, Tarzisius – Mayor of the City of Davos, Davos, Switzerland |
| 18:45-19:00  | **Poster Session Opening**  
Location Foyer Aspen |
## Detailed Programme Monday, 05 Oct. 2015

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Chair</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00-08:30</td>
<td>Registration</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 08:30-10:00| **MON1.1: A Focus on Behaviours Necessary for Food Security in Animal Protein Value Chains** | Jakobshorn        | **DANIELS, Peter Wallace** - Australian Animal Health Laboratory, Australia | RUSHTON, Jonathan - Royal Veterinary College, UK
Studying Livestock Food Systems – the Need to Create Clarity
DANIELS, Peter Wallace - Australian Animal Health Laboratory, Australia
Surveillance for Infections with Zoonotic Potential in Farmed Animals
PATRICK, Ian - University of New England, Australia
Developing Value Chain Incentives to Improve Biosecurity in Smallholder Commercial Poultry Farming Systems in Indonesia
ALLEN, John - CSIRO, Australian Animal Health Laboratory, Geelong Australia
Intergrated One Health Zoonoses Risk Assessments of Cross Border Pork Value Chains in Lao PDR
OKELLO, Anna L - Small Holder Pig Systems Project, LAO PDR
From Theory into Action: Applying a One Health Approach for the Investigation and Control of a Hyperendemic Focus of Taenia Solium in Lao PDR
ALDERS, Robyn - University of Sydney, Australia
A One Health Approach to the Incorporation of Village Poultry Production into Nutrition-Sensitive Landscapes
DIXON, Jane - Australian National University, Australia
Resilience of our Food Systems in Terms of Food Security and Public Health
KOMALADARA, Anak Agung Sagung Putri - Udayana University, Indonesia
Contract Bonus Systems to Encourage Biosecurity Adoption on Small-Scale Broiler Farms in Bali, Indonesia |
| 08:30-10:00| **MON1.2: Integrative Health Risk Management** | Pischa            | **RÜEGG, Simon** - University of Zurich, Switzerland | DOMINEY-HOWES, Dale - The University of Sydney, Australia
Rebranding Antibiotic Resistance as a Disaster Risk Problem – A Necessary Step Towards Integrated Health Risk Management
NIELSEN, Linda - Technical University of Denmark, Denmark
Comparison of Science-Based Frameworks for Risk-Informed Decision Support Across Life-Science and Engineering Disciplines
BURDAKOV, Alexey - Black & Veatch, USA
One Health Epidemic Risk Management in Kazakhstan with Open-Source EIDSS
VROEGINDEWEY, Gary A. - World Organization for Animal Health, USA
Beyond Three Rings: An Enhanced One Health Model |
**RÜEGG, Simon** – University of Zürich, Switzerland

*One Health Impacts on Clinical Decisions*

---

**MON1.3: Water and Health**

**Location**: Parsenn

**Chair**: HALL, David C. – University of Calgary, Faculty of Veterinary Medicine, Canada

**Speakers**

- **NORMATOV, Parviz** – Tajik National University, Tajikistan
  *Monitoring of Emergency Water Factors and Anthropogenous Loading of Industrial Facilities on Quality of a Waterway of Transboundary Rivers*

- **HALL, David C.** – University of Calgary, Faculty of Veterinary Medicine, Canada
  *Water Public Health, Perceptions, and Disease Mitigation Strategies in Rural Vietnam*

- **DREISEITL, Herbert** – Rambøll, Germany
  *Water Management in Singapore’s Bishan Ang-Mo Kio Park – Resilience and Liveability Through Blue-Green and Social Infrastructure*

- **HAN, Guoyi** – Stockholm Environment Institute, Stockholm, Sweden
  *Conceptualising WASH System Resilience in the Context of Natural Hazards*

- **MEJIA, Monica Pamela** – San Carlos University of Guatemala, Guatemala
  *Multisectorial Scheme Proposed for Resilience in Guatemala due to Disasters Caused by Water*

- **PATIL, Manish Dattatray** – Simple Ideas & Solutions, India
  *To Provide Millions Of Gallons Of Fresh Water To All Eco System In Sahara Desert Without Using Single Watt Of Energy*

---

**Keynote III: One Health in the Sendai Framework for Disaster Risk Reduction 2015–2030**

**Location**: Aspen

**Keynote Speaker**: EGAWA, Shinichi – Professor, Division of International Cooperation for Disaster Medicine, IRIDeS, Tohoku University, Sendai, Japan
Detailed Programme Monday, 05 Oct. 2015

11:00–12:30  
**Plenary I: One Health and the Sendai Framework for Disaster Risk Reduction**

**Location**  
Aspen

*Plenary Session co-hosted and organized by the Tohoku University, International Research Institute of Disaster Science (IRIDeS), Sendai, Japan*

**Co-Chair**  
**EGAWA, Shinichi** – Professor, Division of International Cooperation for Disaster Medicine, IRIDeS, Tohoku University, Sendai, Japan

**Co-Chair**  
**ONO, Yuichi** – Assistant Director and Professor, International and Regional Cooperation Office Disaster Information Management and Public Collaboration Division International Research Institute of Disaster Science (IRIDeS), Tohoku University, Sendai, Japan

The Sendai Framework for Disaster Risk Reduction 2015–2030 (SFDRR) was adopted at the Third World Conference for Disaster Risk Reduction, 14–18 March 2015, Sendai, JAPAN. SFDRR aims at the substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets. To achieve this goal, several targets were set and indicators (to be negotiated) will be set soon to reduce disaster risk through integrated and inclusive measures and thus strengthen resilience. Health is dramatically enhanced in the SFDRR compared to the previous Hyogo Framework for Action that provoked the Safe Hospital Campaign. Recent mega-disasters are changing its face both in the impact of hazards and the vulnerability of the communities. Accordingly, our capacity building is also required to be changed, since the health perspectives in disaster are rapidly changing. Every health professionals should recognize how to respond and to be prepared. Climate change, rapid urbanization, lack of resources, poverty and loss of biological diversities are related with each other and have greater impact on human, animal and plant health. This session includes the health overview of the SFDRR, disaster infectious diseases, and biohazards such as Ebola virus disease that require strategies not only by health professionals but also others from different sectors. Agricultural recovery process in the nuclear accident-affected area and designing cities both as a living place and a basis for increasing resilience will also be discussed. The session also introduces proposed activities of the Global Centre for Disaster Statistics that was jointly launched with UNDP and IRIDeS during the Third World Conference on Disaster Risk Reduction. The Centre would collect, archive, and analyse disaster damage data based on official sources.

**Panellists**

**ONO, Yuichi** – Assistant Director and Professor, International and Regional Cooperation Office Disaster Information Management and Public Collaboration Division International Research Institute of Disaster Science (IRIDeS), Tohoku University, Sendai, Japan

“Global Centre for Disaster Statistics”

**CHAGAN-YASUTAN, Haorile** – Assistant Professor, Disaster Infectious Disease, IRIDeS, Tohoku University, Japan

“One health and disaster related infectious disease”

**TAKADA, Ayato** – Professor, Division of Global Epidemiology, Hokkaido University Research Center for Zoonosis Control, Sapporo, Japan

“Ebolavirus: Ecology and antiviral strategies”
ISHII, Keiichi – Associate Professor, Department of Resource and Environment Economics, Graduate School of Agricultural Science, Tohoku University, Sendai, Japan
“Nuclear Disaster and a Weakened Resilience – Reconstructing Agriculture with Aged Farmers”

MURA0, Osamu – Professor, Global Centre for Disaster Statistics IRIDeS, Tohoku University, Sendai, Japan
“City as a Living Environment from a Viewpoint of Disaster Management”

12:30-13:30 LUNCH
Location Foyer Aspen

12:30-13:30
MON3.1: Poster Session
Location Foyer Aspen
Please refer to page 31 for an overview of Posters presented.

13:30-14:00
Keynote IV: The Role of the Red Cross for Global Public Health
Aspen
Keynote Speaker MADER, Markus – Director-General, Swiss Red Cross, Berne, Switzerland

14:00-14:10 Break
### MON4.1: The One Health Approach in Action – Programmes and Initiatives

**Location:** Jakobshorn  
**Co-Chair:** TAYLOR, Melanie Rose – Macquarie University, Australia  
**Speakers:**  
- DOUMA, Dale Peter – Manitoba Agriculture, Food and Rural Development, Canada  
  - *1st International One Welfare (OW) Conference*  
- ISMAIL, Noor Hassim – Universiti Kebangsaan Malaysia, Malaysia  
  - *South East Asia One Health University Network (SEAOHUN): One Health Initiative from Universities to Stakeholders*  
- CANALI, Massimo – University of Bologna, Italy  
  - *An Operational Tool to Enhance One Health Interdisciplinarity*  
- KINGSLEY, Pete – University of Edinburgh, UK  
  - *Working Towards ‘One Health’ – the Hidden Politics of Breaking Down Barriers*  
- TAYLOR, Melanie Rose – University of Western Sydney, Australia  
  - *The HALTER Project: An Interdisciplinary One Health Collaboration in Action*  
- BRANDES, Hagit – University of Denver, USA  
  - *One Health and Positive Youth Development – The potential of Green Care interventions*

### MON4.2: Food Security and Food Safety

**Location:** Pischa  
**Co-Chair:** BORIANI, Elena – DTU, Denmark  
**Co-Chair:** ALDERS, Robyn Gwen – University of Sydney, Australia  
**Speakers:**  
- REED, Florence Leanne – Sustainable Harvest International, USA  
  - *Healthy Farms for Healthy People and a Healthy Planet*  
- ALDERS, Robyn – The University of Sydney, Australia, International Rural Poultry Centre, Kyeema Foundation, Australia  
  - *Let them Eat Eggs: Promoting the Vital Contribution of Eggs to Food and Nutrition Security in Resource-Poor Settings*  
- JENSEN, Michael J – Institute for Governance and Policy Analysis, University of Canberra, Australia  
  - *Mass and Elite Framing of Food Security Concerns in Australia*  
- BORIANI, Elena – DTU, Denmark  
  - *INTEGRATED FOOD SECURITY: Mapping and Selecting Different Indicators and Metrics*  
- GUYONNET, Vincent – International Egg Foundation, UK  
  - *Eggs: The Un-Cracked Potential of Eggs to Improve Human Nutrition Around the World*
14:10-15:40  
**MON4.3: Wildlife, Livestock and Pets – The Human Animal Interface**

**Location:** Parsenn  
**Co-Chair:** POSPISCHIL, Andreas – University of Zurich / ETH Zurich, Switzerland
**Co-Chair:** COLSTON, Angie – GALVmed, UK

**Speakers**
- POSPISCHIL, Andreas – Collegium Helveticum, University of Zurich / ETH Zurich, Switzerland

*One Medicine – One Oncology – Incidence and Geographical Distribution of Tumors in Dogs and Cats in Switzerland 1955–2008*

- COLSTON, Angie – GALVmed, UK

*Fostering Intersectoral Collaboration for Control of Taeniasis and Cysticercosis in Humans and Pigs*

- WARD, Michael P – The University of Sydney, Australia

*Planning for Rabies Incursions in Remote, Northern Australian Indigenous Communities*

- DÜRR, Salome – Veterinary Public Health Institute, University of Bern, Switzerland; The University of Sydney, Faculty of Veterinary Science, Australia

*Quantification of Roaming Behaviour of Free-Ranging Domestic Dogs to Inform Zoonosis Transmission*

- WARDROP, Nicola A – University of Southampton, UK

*Landscape Heterogeneity and Taenia spp. Distributions in Humans and Pigs: Evidence of Environmental Influences on Disease Transmission*

- MUTONONO-WATKISS, Beryl – World Animal Protection, UK

*Dog Population Management: Integrated Solutions for Animals and People*

15:40-15:50  Break

15:50-17:20  
**MON5.1: One Health Approaches for Sustainable Development**

**Location:** Jakobshorn  
**Co-Chair:** THI LE, Huong – Hanoi Medical University, Vietnam  
**Co-Chair:** KINGSLEY, Pete – University of Edinburgh, UK

**Speakers**
- SOHAIL, Kamran – Organization for Social Development Initiative, Pakistan

*Socio–Economic Determinants of Hepatitis B & C in Rural Poor of Pakistan*

- INTHAVONG, Phouth – National Animal Health Laboratory, Ministry of Agriculture and Forestry, Department of Livestock and Fisheries, Luang Prabang, Lao PDR

*Use of Rapid Anthropology to Determine Taenia Solium Transmission Drivers and Control Options in a Remote Community in Northern Lao PDR*

- ISLAM, Khaleda – Institute of Epidemiology, Disease Control and Research (IEDCR), People’s Republic of Bangladesh

*“One Health Bangladesh” A Professional Initiative to Transform One Health Agenda to a One Health movement in Bangladesh*
MON5.2: Case Studies of Integrative Health Risk Management

15:50-17:20

Location: Pischa
Chair: KEKULÉ, Alexander - Institut für Biologische Sicherheitsforschung GmbH, Germany

Speakers

TANGENA, Julie-Anne Akiko - Institut Pasteur du Laos, Lao PDR; Durham University, Stockton Rd, Durham, UK
Risk of Mosquito-Borne Diseases in Relation to Rubber Plantation Development in South-East Asia

NADIRADZE, Kakha - Association for Farmers Rights Defense, AFRD, Georgia
Snoozes Risk Assessment and Prevention in Georgia

PANIAGO, Marcelo - Ceva Animal Health, France
Vaccination Against Avian Influenza: What Has Changed and What Should Be Changed

LIMMONGKON, Yuparat - School of Occupational Health and Safety, Institute of Medicine, Suranaree University of Technology, Nakhon Ratchasima, Thailand
Preparation of Hearing Conservation Program for Stone Crushing Industry

SUMALEE, Buensanteai - Suranaree University of Technology, Thailand
The Study of Fatigue Compared Between Touch Screen and Keypad Mobile Phones When Social Networking

MON5.3: Surveillance and Early Warning - The Basis for Prevention

15:50-17:20

Location: Parsenn
Chair: STAL, Marc - Global Risk Forum GRF Davos, Davos, Switzerland

Speakers

ACHARYA, Resham Prasad - Relief International, Nepal
Fighting Zoonoses in Afghanistan, Bangladesh and Nepal: Concept and Progress of the One Health Asia Programme
Plenary II: Allergies and Asthma – A Rapidly Growing Disease

Allergies and Asthma are not just public health problems for developed countries; the prevalence of allergic diseases is also increasing in developing countries. As negative and aggravating side effects of our technological progress with its overwhelming pollution of the atmosphere, the hydro-, bio-, and geosphere, the potential for allergic reactions of people, animals and plants is substantially increasing and the human and economic burden associated with these conditions getting worse. It is estimated that up to 30 percent of pets are suffering from allergies. But also changes in life style and food production may partially account for this increased prevalence. Allergies are only the tip of the iceberg when it comes to the medical problems that may be triggered or worsened by all the substances people and animals can come in contact with. The costs to society could be reduced to a large extent through concerted national and international actions. This session discusses the drivers for the rise of prevalence, explores the interconnections between human and animal allergies, and presents solutions for today’s challenges in research and treatment of allergies and asthma patients in human and veterinary medicine.
Detailed Programme Monday, 05 Oct. 2015

Panellists

**MURARO, Maria Antonella** – Head of the Veneto Region Food Allergy Centre of Excellence for Research and Treatment, University of Padua, Italy
“Food allergy and anaphylaxis: The new epidemic of 21st century.”

**AGACHE, Ioana** – EAACI Vice-President Communication & Membership, Associate Professor, Allergy & Clinical Immunology, Transylvania University, Brasov, Romania
“The asthma epidemic: How did we come to worldwide 600 Million patients?”

**FAVROT, Claude** – Professor, Head Dermatology Unit, Vetsuisse Faculty, Zurich, Switzerland
“Allergic diseases of animals and potential interactions with humans”

**SCHMID-GRENDELMEIER, Peter** – Head Allergy Unit, Department of Dermatology, University Hospital Zurich, Zurich, Switzerland
“Allergic diseases in Africa”
08:00–08:30  Registration

08:30–10:00  **TUE1.1: Education and Capacity Building within One Health**
Location: Jakobshorn
Chair: **VROEGINDEWEY, Gary A.** – World Organization for Animal Health, USA
Speakers:
- **MANCINI, Jay A.** – The University of Georgia, USA
  *Improving Community Health through Mobilizing Formal Systems and Informal Networks: A Social Organizational Approach*
- **CONN, David Bruce** – Berry College, USA
  *Opening the One Health Workforce Pipeline: Education and Research Define an Unprecedented One Health Undergraduate Degree Program*
- **SITHAMPARAM, Sumitra** – Malaysian Medical Association, Malaysia
  *The TranSAge Project*
- **ISMAIL, Noor Hassim** – Universiti Kebangsaan Malaysia, Malaysia
  *South East Asia One Health University Network (SEA0HUN) Agenda for Future and Present One Health Workforce*
- **VROEGINDEWEY, Gary A.** – World Organization for Animal Health, USA
  *The World Organisation for Animal Health (OIE) One Health Role in Resilience and Disaster Management*
- **VROEGINDEWEY, Gary A.** – World Organization for Animal Health, USA
  *One Health and Resilience: A New Biological Modelling Framework*

08:30–10:00  **TUE1.2: Implementing Animal Based Therapies in the Health Care Setting: A Team Approach**
Location: Pischa
Chair: **PIERCE, Bess Janine** – Center for Animal Human Relationships, Virginia–Maryland College of Veterinary Medicine, USA
Speakers:
- **PIERCE, Bess Janine** – Center for Animal Human Relationships, Virginia–Maryland College of Veterinary Medicine, USA
  *Introduction to animal assisted therapies with focus on canine interactions*
- **DAVIS, Trent A** – Virginia Polytechnic Institute, Cook Counseling Center
  *Implementing Animal Based Therapies in the Health Care Setting: A Team Approach*
- **BERTKE, Andrea S.** – Virginia–Maryland College of Veterinary Medicine, USA
  *Risk Management for Disease Transmission*

08:30–10:00  **TUE1.3: Vulnerabilities and Resilience – One Health Approaches for Sustainable Development**
Location: Parsenn
Co-Chair: **GANZLEBEN, Catherine** – European Environment Agency, Denmark
Co-Chair: **VAN KERKHOVE, Maria D.** – Institut Pasteur, France
Speakers:
- **RÜEGG, Simon** – University of Zürich, Switzerland
  *Sustainable Development: Where Are We Heading?*
## Detailed Programme Tuesday, 06 Oct. 2015

**RICHTER, Carsten** – Center for Mountain Ecosystem Studies, Kunming Institute of Botany, Chinese Academy of Sciences; World Agroforestry Centre (ICRAF), East and Central Asia Region  
*Ebola Virus Disease Outbreak in West Africa: The Lessons We Have Not Learned*

**OKELLO, Anna** – Australian Animal Health Laboratory, Lao PDR  
*Understanding Social Drivers of Taenia solium Transmission in Northern Laos*

**ROGERS, Barbara** – Independent Author, UK  
*A Matter of Life and Death: Reproductive Health Should be Part of One Health*

**HEROLD, Annika** – Global Risk Forum GRF Davos, Switzerland  
*The Effects of Ebola on African Tourism*

### 10:00-10:30 Break

### 10:30-11:00

**Keynote V: AMR – There is a lot going on, but not enough One Health**  
Aspen  
**BORRIELLO, Peter** – Professor, Chief Executive Officer, Veterinary Medicines Directorate VMD, Surrey, UK

### 11:00-12:15

**Plenary III: Targeting Infectious Diseases (Ebola)**  
Aspen  
**BERTKE, Andrea** – Assistant Professor, Infectious Diseases & Public Health, Department of Population Health Sciences, Virginia–Maryland College of Veterinary Medicine, Virginia Tech, Blacksburg, USA  

The 2014 Ebola epidemic is the largest in history, affecting multiple countries in West Africa. There were a small number of cases reported in Nigeria and Mali and a single case reported in Senegal; however, these cases were contained, with no further spread in these countries.  
The WHO reported on October 14, 2014 that the number of new Ebola cases could reach 10,000 per week by December 2014. As of August 4, 2015, more than 11,296 deaths and 27,898 cases had been reported in Sierra Leone, Liberia and Guinea, according to the WHO.  
While numbers of Ebola cases have dropped, the affected countries still need the support of the international community to get to zero cases, stay there, and to move forward on the road to recovery.  
This session will discuss the recent advances, strategies and challenges of all Ebola aspects.

### Panellists

**NORTON, Ian** – Head, Foreign Medical Team Unit, World Health Organization WHO, Geneva, Switzerland  
*“Ebola Response – Perspectives from the Field”*

**VAN KERKHOVE, Maria** – Head, Outbreak Investigation Task Force, Center for Global Health, Institut Pasteur, Paris, France  
*“Analysis of Ebola field data – informing public health policy”*
KEKULÉ, Alexander S. – Director, Institute for Medical Microbiology at the Martin Luther University Halle-Wittenberg and Chairman, Institute for Biosecurity Research (IBS), Halle, Germany
“Lessons Learnt from Ebola: How Can We Prevent the Next Epidemic?”

12:15–13:15
LUNCH

13:15–14:15
TUE4.1: The One Health Approach in Action – Tools and Projects
Location Jakobshorn
Co-Chair COWEN, Peter – North Carolina State University, USA
Co-Chair BERTKE, Andrea S. – Virginia-Maryland College of Veterinary Medicine, USA
Speakers ALDERS, Robyn Gwen – International Rural Poultry Centre, Kyeema Foundation, and Charles Perkins Centre, The University of Sydney, Australia
Gender Issues in Human, Animal and Plant Health Using a Broad One Health Perspective
HEFFERNAN, Claire – Livestock Development Group, UK
Creating a One Health Metric
GANZLEBEN, Catherine – European Environment Agency, Denmark
Environment, Health and Well-being Nexus – the European Environment Agency (EEA) Perspective
MASCARENHAS, Adolfo Caridade – Local & Indigenous Knowledge System, Tanzania (LInKS), Commission of Science & Technology (COSTECH) Research on Poverty Alleviation (REPOA)
Integrating Knowledge Systems: Beyond the Triple Health of The Maasai and Leapfrogging Into a Modern Health Facility in Kagera/Central Africa

13:15–14:15
TUE4.2: The One Health Approach for Communicable Diseases
Location Pischa
Chair SMITH, Woutrina Ann – University of California, Davis, USA
Speakers VAN DER WERF, Sylvie – Institut Pasteur, France, on behalf of the PREDEMICS Consortium
Preparedness, Prediction and Prevention of Emerging Zoonotic Viruses with Pandemic Potential using Multidisciplinary Approaches
CANALI, Massimo – University of Bologna, Italy
The Economic Dimension Of Vector-Borne Disease Ecology: Public Costs Of Aedes Albopictus Control In Europe, A Case Study
WARDROP, Nicola A – University of Southampton, UK
The Epidemiology of Q Fever in Western Kenya
**Detailed Programme Tuesday, 06 Oct. 2015**

**13:15-14:15**

**TUE4.3: Poverty and Health – One Health Approaches for Sustainable Development**

**Location** Parsenn

**Chair** ARABASADI, Ashley – International Medical Corps, USA

**Speakers**

PETTAN–BREWER, Klaisy Christina – School of Medicine, University of Washington, Seattle USA; School of Veterinary Medicine and One Health, One World Brazil–Latin America, University Federal of Viçosa, Minas Gerais Brazil

*Borrelia in Brazil – Fact or Fiction? A Collaborative Study with a One Health Approach*

MAGEN, Jed Gary – College of Osteopathic Medicine Michigan State University, USA

*A Muslim Mental Health Conference: Community Approaches to Dealing with Disaffection and Extremism*

G. VARATHARAJA, Puspa Rani – KPJ Healthcare University College Nilai, Malaysia

*A Street Conducive to All Ages*

ONYANGO, Esther Achieng – Griffith University School of Environment: Centre for Environment and Population Health and Environmental Research Futures Institute, Australia

*A Conceptual Framework for Conducting and Integrated Vulnerability Assessment in Climate Change and Malaria Transmission*

**14:15-14:30**

Break

**14:30-16:00**

**Plenary IV: Engaging Developing Regions for Effective Global One Health implementation – The ICOPHAI approach**

**Location** Aspen

*Plenary Session co-hosted and organized by the International Congress on Pathogens at the Human Animal Interface (ICOPHAI)*

**Chair** ALDERS, Robyn – Associate Professor and Principal Research Fellow, Faculty of Veterinary Science, University of Sydney, Australia

This panel will provide insights on effective One Health implementation using model projects between North and South as well as South South partnerships. Developing regions remain hotspots of emerging zoonotic infectious diseases; among recent ones including Middle Eastern Respiratory Syndrome (MERS), Ebola virus and also various Antimicrobial resistant strains. We plan to summarize key recommendations for building sustainable One Health system and capacity in low resource settings using shared experience and engagement among global partners via the ICOPHAI and associated partnerships. In addition, specific models including Ohio State east Africa One Health model implementation and also the Global Innovation Initiative among U.S., Brazil and U.K partners that focuses on global issues such as antimicrobial resistance, capacity building, Bovine Tuberculosis and Rabies will be included. In addition, the use of advanced electronic technology systems for effective partnership and efficient implementation will be highlighted.
Panellists

**KAZWALA, Rudovick** – Professor of Veterinary Epidemiology and Public Health, Acting Dean, Faculty of Veterinary Medicine, Sokoine University of Agriculture, Tanzania

“One Health Approach to Solve Complex Problems and Improve Livelihoods at the Human–Livestock–Wildlife Interface”

**BISESI, Michael** – Senior Associate Dean for Academic Affairs and Director, Center for Public Health Practice, Interim Chair of Environmental Health Sciences, and tenured Associate Professor of Environmental Health Sciences, College of Public Health, The Ohio State University, USA

“The Environmental Component of the One Health Approach: An Expanded Paradigm”

**MATIUZZI, Mateus** – Associate Professor of Bacteriology and Dean of Graduate Programs, University of Sao Francisco Valley (UNIVASF), Petrolina, Brazil

“Brazilian Experience in One Health: ICOPHAI – One Health for Sustainable Development”

**COWEN, Peter** – Associate Professor, College of Veterinary Medicine’s, Department of Population Health and Pathobiology, North Carolina State University, USA (tbc)

“Key Elements for Starting Up One Health Surveillance and Response Systems: What ICOPHAI Brings to the Table”

**GEBREYES, Wondwossen** – Professor of Molecular Epidemiology, Director of Global Health Programs, College of Veterinary Medicine, The Ohio State University, and Chair, Ohio State Global One Health Task Force, USA

“ICOPHAI: Engaging Health Sciences and Beyond for Effective and Sustainable Global One Health Implementation”

16:00-16:15
Break

16:15-17:30

**Plenary V: Social Challenges and Opportunities for Effective One Health Governance**

**Location**
Aspen

*Plenary Session co-hosted and organized by the University of Denver, Graduate School of Social Work, Denver, USA*

**Chair**

**WILLIAMS, James Herbert** – Dean, Graduate School of Social Work, University of Denver, USA

This Plenary Session focuses on the multiple inter-connections and feedbacks that exist between various social and societal issues and furthering the One Health paradigm. We will look at social and societal issues both in terms of challenges (e.g., social inequality and disparities, patterns of oppression, lack of access to various resources including education) and opportunities (e.g., improved availability of knowledge about sustainability and One Health, social learning processes, trends toward better awareness of animal health and welfare issues). The Plenary will explore ways and means to use improved knowledge, insight and practice in the above areas to inform One Health governance at various levels with the goal to enhance its coherence, accountability and effectiveness. The Session will apply an inter-disciplinary and systems approach in exploring these aspects.
Panellists

**READING, Richard** – Director, Conservation Biology, Denver Zoological Foundation, Denver, USA
“A One Health Approach to Protected Areas Management and Governance: Examples from Mongolia and the USA”

**RECHKEMMER, Andreas** – Professor and American Humane Endowed Chair, University of Denver, Denver, USA
“One Health Governance and the Social Sciences: Enhancing coherence, accountability and effectiveness”

**TEDESCHI, Philip** – Professor, Executive Director, Institute for Human-Animal Connection, University of Denver, Denver, USA

17:30–17:45
**Closing Ceremony**
Aspen

**AMMANN, Walter J.** – President and CEO, Global Risk Forum GRF Davos, Davos, Switzerland
• *Poster Award*
• *Closing Remarks*

19:30–23:00
**Conference Dinner**
Hotel Grischa
Talstrasse 3, 7270 Davos Platz
(directly opposite the Train Station Davos Platz)
http://www.hotelgrischa.ch

Enrolment possible until 05 Oct. 2015 for Euro 70
The initial Poster Session Opening will take place on Sunday, 04 October 2015. The posters will be displayed during the whole duration of the conference. During the Poster Session on Monday, 05 October 2015 from 12:30–13:30, presenting authors will be available for discussion. You will be given a red poster award voting sheet at registration, please fill out the card and submit it at the GRF Davos booth. The Poster with the most votes will be awarded during the closing ceremony of the GRF One Health Summit 2015.

<table>
<thead>
<tr>
<th>Posterboard Number</th>
<th>Poster Presentation</th>
</tr>
</thead>
</table>
| PB 01              | **CLADERÒN, Jaime de Jesùs** – Short Stay Surgery Unit, Mexico  
**Allergic Rhinitis** |
| PB 02              | **EDIA–ASUKE, Uregwu Agnes** – Ahmadu Bello University, Nigeria  
**Serporevalence Of Taenia solium–Cysticercosis among Humans Living in Pig Farming Settlements of Kaduna Metropolis, Nigeria** |
| PB 03              | **FÄNDER, Gabriele** – MEDAIR, Switzerland  
**Extremely Low Exclusive Breast Feeding (EBF) Rate among the Syrian Refugee Communities in Jordan** |
| PB 04              | **LE, Thi Phuong Mai** – Institut Pasteur, Cambodia  
**Impact of Livestock Intensification on Community Health in Vietnam** |
| PB 08              | **SITHAMPARAM, Sumitra** – Malaysian Medical Association, Malaysia  
**A Street Conducive To All Ages** |
| PB 09              | **ALMATRAFI, Mohammed Hamoud** – King Saud Bin Abdulaziz University for Health Sciences, Saudi Arabia  
**Prevalence and Etiology of Microcytosis in Sickle Cell Anemia Patients** |
| PB 11              | **KINGSLEY, Pete** – University of Edinburgh, UK  
**One World–One Health and neglected zoonotic disease: Elimination, emergence and emergency in Uganda** |
| PB 12              | **KYSELY, Jan** – Institute of Atmospheric Physics CAS, Czech Republic  
**Contrasting Patterns of Hot Spell Effects on Morbidity and Mortality for Cardiovascular Diseases in the Czech Republic** |
| PB 13              | **LE, Huong Thi** – HANOI MEDICAL UNIVERSITY, Vietnam  
**A new one health training –Adressing the needs of preventive medicine doctor in Vietnam** |
| PB 14              | **LU, JiaHai** – Sen Yat-sen University, China  
**A One Health Approach for Studying on Emerging Infectious Diseases, in Guangdong** |
MAIBACH, Sereina - aha! Swiss Allergy Centre, Switzerland
Atopic Diseases – an Increasingly Important Issue of One Health?

DOUMA, Dale Peter - Government of Manitoba, Canada
One Welfare – Aligning Animal Welfare And The Human Condition

ARABASADI, Ashley - International Medical Corps, USA
The importance of culture in a health emergency: International Medical Corps’ Experience from the Ebola Response

SITTITOON, Nalin - Suranaree University of Technology, Thailand
Dust Mitigation Measures and Health Surveillance in Stone Crushing Plant

THEPPITAK, Chalermsiri - Suranaree University of Technology, Thailand
Noise-induced hearing loss among quarry workers in Nakhon Ratchasima, Thailand

• Please fill in an evaluation sheet to submit your vote. The Poster Award Evaluation Sheets are available at the registration desk
GLOBAL RISK FORUM GRF DAVOS
“From Thoughts to Action”

GRF Davos Mission
Through a variety of activities, GRF Davos aims at serving as a Centre of Excellence in knowledge and know-how generation, exchange and transfer for the application of timely and appropriate risk reduction and disaster management strategies, tools and practical solutions. In doing so, GRF Davos helps to reduce vulnerability to all types of risks and disasters and protect life, property, the environment, critical infrastructures and services and all means of businesses on a sustainable basis.

GRF Davos Main Purposes:
• To bridge the gaps between science and practice;
• To promote the worldwide exchange of know-how and experience;
• To promote solutions in integrative risk management;
• To harmonise risk reduction with climate change adaptation, land degradation, public health and food security;
• To provide a network for decision-makers, practitioners and experts from politics, governments, IGOs, the private sector, science, NGOs and the public;
• To contribute to the UN Hyogo Framework for Action and the UN Millennium Development Goals.

GRF Davos Operational Pillars:
• CONFERENCES AND WORKSHOPS
• RISK ACADEMY
• RESEARCH & DEVELOPMENT

Visit us at the GRF Davos Booth in the Exhibition Area of the GRF One Health Summit 2015
GENERAL INFORMATION & EMERGENCY

Taxi:
Express-Taxi  Tel. +41 (0)81 410 11 11

Zurich Airport:
Telephone: +41(0)43 816 22 11
Email: info@unique.ch

Other Information

Banking:
Local currency: Swiss Francs / CHF 1.– = 100 Rappen
Payment with credit cards and in EURO

Bank Offices:
Mon – Fri 08:30/09:00 – 12:00 and 14:00 –
16:30/17:30

Train Stations:
Davos Dorf:  Mon – Sun 07:40 – 11:40
and 13:50 – 18:10
Davos Platz:  Mon – Sun 04:45 – 22:00

Guest Pass
All hotel guests are entitled to a guest pass for
the duration of their stay in Davos. This entitles
guests to a variety of discounts including
unlimited public transport on some routes,
discounted tours and child minding. Please
check with your hotel for details.

Bus
The local bus is free with guest pass that you
receive from the hotel upon your arrival. Without
the guest pass bus tickets cost approximately
CHF 2.90 per ticket, valid for 1 hour of travel.

EMERGENCY NUMBERS
Medical Emergency
Tel. 144

Police
Tel. 117

REGA (Swiss air-rescue)
Tel. 1414

Hospital Davos
Promenade 4, Davos Platz
Tel. +41 (0)81 414 88 88

Pharmacy
Amavita Apotheke Davos Platz
Promenade 49, 7270 Davos Platz
Tel. +41 (0)58 878 10 50
EXTENDED ABSTRACTS AND POSTERS

For download in PDF Format available:

**Extended Abstract Collection**
A collection of extended abstracts from presentations given at the One Health Summit 2015.

**Poster Collection**
A digital copy of the posters presented during the GRF One Health Summit 2015.

To download a digital copy in PDF format follow:

http://onehealth.grforum.org/abstracts/

or via the QR code:
3rd GRF One Health Summit 2015
Fostering interdisciplinary collaboration for
global public and animal health

04–06 October 2015 • Davos • Switzerland

Short Abstracts Collection

Oral Presentations
Poster Presentation

Edited by
Marc Stal
Annika Herold
Jill Portmann
Walter J. Ammann

Global Risk Forum GRF Davos, Switzerland
Table of Contents

Abstracts are sorted alphabetically according to the presenting author or chair listed and divided into groups according to the type of abstracts submitted.

Oral Presentations

Poster Presentations

Authors Index
Oral Presentations

An Operational Tool to Enhance One Health Interdisciplinarity

ARAGRANDE, Maurizio; CANALI, Massimo

Gender Issues in Human, Animal and Plant Health Using a Broad One Health Perspective

BAGNOL, Brigitte (1,2); ALDERS, Robyn Gwen (2,3); MCCONCHIE, Robyn (4)

Use of Rapid Anthropology to Determine Taenia Solium Transmission Drivers and Control Options in a Remote Community in Northern Lao PDR

BARDOSH, Kevin (1); INTHAVONG, Phouth (2); XAYAHEUANG, Sivilai (3); OKELLO, Anna (3)

Understanding Social Drivers of Taenia solium Transmission in Northern Laos

BARDOSH, Kevin (1); INTHAVONG, Phouth (2); XAYAHEUANG, Sivilay (2); OKELLO, Anna (3)

INTEGRATED FOOD SECURITY: Mapping and Selecting Different Indicators and Metrics

BORIANI, Elena; MIRAGLIA, Simona; HALD, Tine

One Health Epidemic Risk Management in Kazakhstan with Open-Source EIDSS

BURDAKOV, Alexey (2); KAZAKOV, Stanislav (3); ESMAGAMBETOVA, Aizhan (1); UKHAROV, Andrey (2); KOPZHASAROV, Damir (1)

The Economic Dimension Of Vector-Borne Disease Ecology: Public Costs Of Aedes Albopictus Control In Europe, A Case Study

CANALI, Massimo; RIVAS MORALES, Stefano

An Investigation into the Early Detection of Psychosis and Depression in Individuals via Social Media

COLLINS EADE, Amanda; DE QUINCEY, Ed; FOSTER, John

Opening the One Health Workforce Pipeline: Education and Research Define an Unprecedented One Health Undergraduate Degree Program

CONN, David Bruce

Fostering Intersectoral Collaboration For Control Of Taeniasis And Cysticercosis In Humans And Pigs

CORDEL, Claudia (1); COLSTON, Angie (2)

Surveillance for Infections with Zoonotic Potential in Farmed Animals

DANIELS, Peter Wallace

A Focus on Behaviours Necessary for Food Security in Animal Protein Value Chains

DANIELS, Peter Wallace

Let Them Eat Eggs: Promoting the Vital Contribution of Eggs to Food and Nutrition Security in Resource-Poor Settings

DE BRUYN, Julia (1); ALDERS, Robyn (1,2); BAGNOL, Brigitte (2,3); GUYONNET, Vincent (4); MCGREGOR, Ombelline (1); THIEME, Olaf (5)

Rebranding Antibiotic Resistance As A Disaster Risk Problem – A Necessary Step Towards Integrated Health Risk Management

DOMINEY-HOWES, Dale (1); LABBATE, Maurizio (2)

1st International One Welfare (OW) Conference

DOUMA, Dale Peter (1); RUSK, Richard Craig (2)
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Management in Singapore’s Bishan Ang-M o Kio Park – Resilience and Liveability through Blue-Green and Social Infrastructure</td>
<td>DREISEITL, Herbert (1); DREISEITL-WANSCHURA, Bettina (2); LALOUSCHEK, Wolfgang (3)</td>
<td>57</td>
</tr>
<tr>
<td>Quantification Of Roaming Behaviour Of Free-Ranging Domestic Dogs To Inform Zoonosis Transmission</td>
<td>DÜRR, Salome (1,2); BOMBARA, Courtenay (2); GONGORA, Jaime (2); DHAND, Navneet (2); WARD, Michael P (2)</td>
<td>58</td>
</tr>
<tr>
<td>MedilabSecure: Laboratory Network for a One Health Approach of Vector-Borne and Respiratory Viruses in the Mediterranean and Black Sea Regions</td>
<td>ESCADAFAL, Camille (1); MANUGUERRA, Jean-Claude (1); JIMENEZ CLAVERO, Miguel Angel (2); PEREZ RAMIREZ, Elisa (2); ROBERT, Vincent (3); PICARD, Marie (3); DENTE, Maria Grazia (4); DECLICH, Silvia (4); RICCARDO, Flavia (4); CHERBLANC, Fanny (1); VICTOIR, Ka</td>
<td>58</td>
</tr>
<tr>
<td>One Health Approach for CCHF Surveillance in Kazakhstan: Results of Open Source EIDSS Application for Risk Level Evaluation</td>
<td>ESMAGAMBETOVA, Aizhan (2); BURDAKOV, Alexey (1); KAZAKOV, Stanislav (3); UKHAROV, Andrey (1); OSP ANOV, Kenes (4)</td>
<td>59</td>
</tr>
<tr>
<td>Vaccination Against Avian Influenza: What Has Changed and What Should Be Changed</td>
<td>GARDIN, Yannick, Charles</td>
<td>60</td>
</tr>
<tr>
<td>The Impacts of Climate Change on Food Safety and Health, The Case of Iran</td>
<td>GHAZI, Iran; MAHMOUDZADEH, Amir; HASANZADEH, Samira; HAMEDI, Mohadeseh</td>
<td>60</td>
</tr>
<tr>
<td>Eggs: The Un-Cracked Potential of Eggs to Improve Human Nutrition A round the World</td>
<td>GUYONNET, Vincent (1); ALDERS, Robyn (2); BAGNOL, Brigitte (2); DE BRYUN, Julia (2); THIEME, Olaf (3)</td>
<td>61</td>
</tr>
<tr>
<td>Water Public Health, Perceptions, and Disease Mitigation Strategies in Rural Vietnam.</td>
<td>HALL, David C.; LE, Quynh Ba</td>
<td>62</td>
</tr>
<tr>
<td>Creating a One Health Metric</td>
<td>HEFFERNAN, Claire</td>
<td>62</td>
</tr>
<tr>
<td>The Effects of Ebola on African Tourism</td>
<td>HEROLD, Annika; AMMANN, Walter; MOSEDALE, Jan.</td>
<td>63</td>
</tr>
<tr>
<td>“One Health Bangladesh” A Professional Initiative to Transform One Health Agenda to a One Health movement in Bangladesh</td>
<td>ISLAM, Khaleda</td>
<td>63</td>
</tr>
<tr>
<td>South East Asia One Health University Network (SEA OHUN):One Health Initiative From Universities to Stakeholders</td>
<td>ISMAIL, Noor Hassim</td>
<td>64</td>
</tr>
<tr>
<td>South East Asia One Health University Network(SEAOHUN) Agenda for Future and Present One Health Workforce</td>
<td>ISMAIL, Prof Dr Noor Hassim</td>
<td>65</td>
</tr>
<tr>
<td>Environment, Health and Well-being nexus - the European Environment Agency (EEA) Perspective</td>
<td>JAROSINSKA, Dorota; HOOGHEVEEN, Ybele; GANZLEBEN, Catherine</td>
<td>65</td>
</tr>
<tr>
<td>Mass and Elite Framing of Food Security Concerns in Australia</td>
<td>JENSEN, Michael J; HAUSMANN, Roger; SI, Wei</td>
<td>66</td>
</tr>
</tbody>
</table>
Conceptualising WASH System Resilience in the Context of Natural Hazards
JOHANNESSEN, Åse (1); HAN, Guoyi (1); THOMALLA, Frank (2); JOHNSSON, Karlee (2)............ 66

An Assessment of Access to Health Services for Children and Inter Sectoral Coordination in National Rural Health Mission in State of Punjab (India)
KAUR, Navreet; KAUR, Ravneet; SITLHOU, Lhoukholai .......................... 67

Fighting Zoonoses in Afghanistan, Bangladesh and Nepal: Concept and Progress of the One Health Asia Programme
KHAH, Javed; ACHARYA, Resham Prasad ........................................... 68

Working Towards ‘One Health’ – The Hidden Politics of Breaking Down Barriers
KINGSLEY, Pete ................................. 68

Contract Bonus Systems to Encourage Biosecurity Adoption on Small-Scale Broiler Farms in Bali, Indonesia
KOMALADARA, Anak Agung Sagung Putri (1); PATRICK, Ian (2); HOANG, Nam (2) .............. 69

Preparation of Hearing Conservation Program for Stone Crushing Industry
LIMMONGKON, Yuparat (1); SITTITOON, Nalin (2); EKA, Wasana (3); HONGRATHANAKORN, Jirathon (3) ........................................ 69

A Muslim Mental Health Conference: Community Approaches to Dealing with Disaffection and Extremism
MAGEN, Jed Gary; ABBASI, Farha .......................... 70

Improving Community Health through Mobilizing Formal Systems and Informal Networks: A Social Organizational Approach
MANCINI, Jay A.; BOWEN, Gary L. .................................................. 70

Ebola Virus Disease Outbreak in West Africa: The Lessons We Have Not Learned
MARTIN, Vincent (1); RICHTER, Carsten (2,3); FEARNLEY, Lyle (4); WILCOX, Bruce (5) ........... 71

Integrating Knowledge Systems: Beyond the Triple Health of The Maasai And Leapfrogging Into A Modern Health Facility In Kagera/Central Africa
MASCARENHAS, Adolfo Caridade (1); PAIS, Anthony Victor (2) .................................. 72

Shifting the Diagnostic Paradigm for Undiagnosed Illnesses – Low-tech Lessons Emerging from the Wild
MAZET, Jonna AK (1); SMITH, Woutrina (1); ANTHONY, Simon J (2,4); KREUDER-JOHNSON, Christine (1); JOLY, Damien (3); WOLFE, Nathan (3); KAresh, William B. (2); DASZAK, Peter (2); GOLDSTEIN, Tracey (1) ......................... 72

Multisectorial Scheme Proposed for Resilience in Guatemala due to Disasters Caused by Water
MEJIA, Monica Pamela ........................................... 73

Dog Population Management: Integrated Solutions for Animals and People
MUTONONO-WATKISS, Beryl (1); FOGELBERG, Emelie (1); PARRAVANI, Ellie (1); KC, Pankaj (1); MUDOGA, Emily (2) .................................................. 74

Snoozes Risk Assessment and Prevention in Georgia
NADIRADZE, Kakha; PHIROSMANASHVILI, Nana ........................................ 74

Social Benefits of Reducing the Risk of Lung Cancer from Radon Exposure
NAVRUD, Stale ........................................... 75
Comparison of Science-Based Frameworks for Risk-Informed Decision Support Across Life-Science and Engineering Disciplines

NIELSEN, Linda (1); SCHLUNDT, Jørgen (2); FABER, Michael Havbro (3) ........................................... 75

Monitoring of Emergency Water Factors and Anthropogenous Loading of Industrial Facilities on Quality of a Waterway of Transboundary Rivers

NORMATOV, Parviz ................................................................. 76

Intergrated One Health Zoonoses Risk Assessments of Cross Border Pork Value Chains in Lao PDR

OKELLO, Anna (1); TIEMANN, Tassilo (2); INTHAVONG, Phouth (3); OKELLO, Walter (1); PHENGVILAYSOUK, Ammyal (4); KEONOUCHANH, Soukanh (4); KHAMLOME, Boualam (5); NEWBY, Jonathan (2); BLASZAK, Kate (1,6); ALLEN, John (1) ........................................... 76

A Conceptual Framework for Conducting and Integrated Vulnerability Assessment in Climate Change and Malaria Transmission

ONYANGO, Esther Achieng .......................................................... 77

Zoonotic Disease Unit of Kenya: Blueprint for National One Health Action

OSORO, Eric (1,2); MBABU, Murithi (3); NJERU, Ian (1); BODAL, Huzefa (4); KIBOYE, Maurice (5); RESCH, Kristin (5); KAIRU-WANYOIKE, Salome (3); KIAMBI, Stella (3); BITEK, Austine (2,3); MUTURI, Mathew (2,3) ........................................... 78

To Provide Millions Of Gallons Of Fresh Water To All Eco System In Sahara Desert Without Using Single Watt Of Energy.

PATIL, Manish Dattatray .............................................................. 78

Ambient Air Quality Surveillance: Environmental Impact of Brick Kiln Emission

PATWARI, Jayprakash Manoharrao; NARKHEDE, Raju Kashinath .................................................. 79

Borrelia in Brazil – Fact or Fiction? A Collaborative Study with a One Health Approach

PETTAN-BREWER, Klaisy Christina (1,2); RODRIGUES, Patricia (3); BANDEIRA, Antonio Carlos (4); NERO, Luis Augusto (2); R DE PAULA, Tarcizio Antonio (2); SCATAMBURLO MOREIRA, Maria Aparecida (2); BANKHEAD, Troy (5) ........................................... 80

One Health Perspective and Assessment of Giardia and Cryptosporidium Infections Related to Wastewater and Excreta Use in Agriculture in Vietnam

PHAM-DUC, Phuc (1); NGUYEN-VIET, Hung (1,2,4); ODERMATT, Peter (2,3); ZINSSTAG, Jakob (2,3) ........................................... 80

Implementing Animal Based Therapies in the Health Care Setting: A Team Approach

PIERCE, Bess Janine ................................................................. 81

One Medicine - One Oncology – Incidence and Geographical Distribution of Tumors in Dogs and Cats in Switzerland 1955-2008

POSPISCHIL, Andreas (1); GRÜNTZIG, Katrin (1); GRAF, Ramona (1); BOO, Gianluca (1,2); FOLKERS, Gerd (1); OTTO, Vivianne (3); FABRIKANT, Sara Irina (2) ........................................... 82

Healthy Farms for Healthy People and a Healthy Planet

REED, Florence Leanne ............................................................. 83

A Matter of Life and Death: Reproductive Health Should be Part of One Health

ROGERS, Barbara ................................................................. 83

One Health Impacts on Clinical Decisions

RUEGG, Simon ................................................................. 84
Sustainable Development: Where Are We Heading?

RÜEGG, Simon ................................................................. 84

Trauma Signature Analysis of the West Africa Ebola Outbreak: The Prominent Role of Fear Behaviors

SHULTZ, James Michael ................................................... 85

Complex Systems Analysis of Disasters: Enhancing the One Health Connection

SHULTZ, James Michael ................................................... 85

The 2013 Lac-Mégantic Runaway Train Derailment: A Complex Systems Analysis of the Event from a One Health Perspective

SHULTZ, James Michael (1); GENEREUX, Méliissa (2); ROY, Mathieu (3); MALTAIS, Danielle (4); MAZURIK, Laurie (5) ......................................................... 86

The TransAge Project

SITHAMPARAN, Sumitra (1); GUNASAGARAN, Vinomarlini (2); G. VARATHARAJA, Puspa Rani (3) . 87

A Street Conducive to All Ages

SITHAMPARAN, Sumitra (1); GUNASAGARAN, Vinomarlini (2); G. VARATHARAJA, Puspa Rani (3) . 88

Socio-Economic Determinants of Hepatitis B & C in Rural Poor of Pakistan

SOHAIL, Kamran .................................................................. 88

The Study of Fatigue Compared Between Touch Screen and Keypad Mobile Phones When Social Networking

SUMALEE, Buensanteai; SUPATTRA, Ruangram; RATREE, Khongpolpan; SUPASINEE, Pethuri; KWANCHANOK, Sompan ....................................................... 89

Risk of Mosquito-Borne Diseases in Relation to Rubber Plantation Development in South-East Asia

TANGENA, Julie-Anne Akiko (1,2); THAMMMAVONG, Phoutmany (1); LINDSAY, Steve William (2); Brey, Paul (1) ................................................................. 89

The HHALTER Project: An Interdisciplinary One Health Collaboration In Action

TAYLOR, Melanie Rose (1); SCHREMBI, Nicole (1); WIETHOELTER, Anke (1); TORIBIO, Jenny-Ann (2); DHAND, Navneet (2); KUNG, Nina (3); MOLONEY, Barbara (4); WRIGHT, Therese (4); FIELD, Hume (5) ........................................................................... 90


THYS, Séverine (1); SAHIBI, Hamid (2); MWAPE, Evans K. (3); KNOBEL, Darryn (4); RAHALI, Tarik (2); GABRIEL, Sarah (5); PHIRI, Andrew (3); VAN ROOYEN, Jacques (4); SIMPSON, Greg (6); LEFEVRE, Pierre (1); RHALEM, Abdelkibir (2); MARCOTTY, Tanguy (5); DORNY, ......................... 91

Preparedness, Prediction and Prevention of Emerging Zoonotic Viruses with Pandemic Potential Using Multidisciplinary Approaches

VAN DER WERF, Sylvie ....................................................... 91

Institut Pasteur: An International Partner to Implement One Health

VAN KERKHOVE, Maria; VICTOIR, Kathleen; PITROU, Isabelle; JOUAN, Marc; FONTANET, Arnaud; BRECHOT, Christian; GLOBAL HEALTH, Center for; INTERNATIONAL DIRECTION, Pasteur; EBOLA TASK FORCE, Pasteur ......................................................... 92

One Health and Resilience: A New Biological Modelling Framework

VROEGINDEWEY, Gary A. .................................................... 93
The World Organisation for Animal Health (OIE) One Health Role in Resilience and Disaster Management

VROEGINDEWEY, Gary A ................................................................. 93

Beyond Three Rings: An Enhanced One Health Model

VROEGINDEWEY, Gary A ................................................................. 94

Planning for Rabies Incursions in Remote, Northern Australian Indigenous Communities

WARD, Michael P; DURR, Salome .................................................. 94

The Epidemiology of Q Fever in Western Kenya.

WARDROP, Nicola A (1); COOK, Elizabeth A (2); DE GLANVILLE, William A (2); THOMAS, Lian (2); ATKINSON, Peter M (1); WAMAE, Claire N (3); FEVRE, Eric M (4) .................................................. 95

Landscape Heterogeneity and Taenia spp. Distributions in Humans and Pigs: Evidence of Environmental Influences on Disease Transmission

WARDROP, Nicola A (1); THOMAS, Lian (2); ATKINSON, Peter M (1); COOK, Elizabeth A (2); DE GLANVILLE, Will (2); WAMAE, Claire N (3); FEVRE, Eric M (4). .................................................. 95

Poster Presentations

Prevalence and Etiology of Microcytosis in Sickle Cell Anemia Patients

ALMATRAFI, Mohammed Hamoud; ISMAIL, Abdulmalik Marwan .................................................. 97

Allergic Rhinitis

CALDERON, Jaime de Jesus ................................................................. 97

Seroprevalence of Taenia Solium-Cysticercosis among Humans Living in Pig Farming Settlements of Kaduna Metropolis, Nigeria

EDIA-ASUKE, Uregwu Agnes (1,2); INABO, Helen (1); UMOH, Veronica (1); WHONG, Clement (1); MUKARATIRWA, Samson (2); ASUKE, Sunday (3); ELLA, Elijah Ekah (1) .................................................. 98

Extremely Low Exclusive Breast Feeding (EBF) Rate among the Syrian Refugee Communities in Jordan

FÄNDER, Gabriele; STAMHUIS, Ellen; HOEVE, Johan B. ten; DYMENT, Wendy; BECK, Namseon .................................................. 98

The Importance of Culture in a Health Emergency: International Medical Corps’ Experience from the Ebola Response

FEUCHTE, Friederike; CASEY, Sean; ARABASADI, Ashley; BLACKMAN, Camille; PERRY, Kathryn .................................................. 99

Determining the Risk of Occupational Exposure to Benzene, Toluene, Ethyl benzene and Xylene (BTEX) among Gasoline Stations Workers

GHAZI, Iran (1); GHAZANCHAEI, Elham (2); JEBELLI, Beheshteh (2); NASRI, Athareh (3); MAHMOUDZADEH, Amir (4) .................................................. 99

Investigating the Relationship between Occupational and Non-Occupational Function and Low Back Pain of Iranian Workers of Irankhodro Car Manufacturing

GHAZI, Iran (1); JEBELLI, Beheshteh (2); GHAZANCHAEI, Elham (2); MAHMOUDZADEH, Amir (3) .................................................. 100


GHAZI, Iran (1); KIANI, Reza (2); JEBELLI, Beheshteh (3); GHAZANCHAEI, Elham (3); MAHMOUDZADEH, Amir (4) .................................................. 101
Relationship between Multiple Sclerosis with Plumb Spatial Dispersion (Case Study in Iran)

GHazi, Iran; Khosravi, Elham; Mahmoudzadeh, Amir

A Street Conducive To All Ages

Gunasagar, Vinomarlini (2); Sithamparam, Sumitra (1); G. Varatharaja, Puspa Rani (3)

Contrasting Patterns of Hot Spell Effects on Morbidity and Mortality for Cardiovascular Diseases in the Czech Republic

Hanzlikova, Hana (1,2); Plavcova, Eva (1); Kyncl, Jan (3); Kriz, Bohumir (3); Kysely, Jan (1)

A New One Health Training - Adressing the Needs of Preventive Medicine Doctors in Vietnam

Le, Huong Thi (1); Le, Xuan Thi Thanh (1); Nguyen, Hinh Duc (1); Fenwick, Stanley (2); Kim, Oanh Thuy (3)

Impact of Livestock Intensification on Community Health in Vietnam

Le, Thi Phuong Mai (1); Froehlich, Yves (2)

Atopic Diseases - An Increasingly Important Issue of One Health?

Maibach, Sereina; Luethi, Hannes; Schaeppi, Georg

One Welfare - Aligning Animal Welfare And The Human Condition

Rusk, Richard Craig (1); Douma, Dale Peter (2)

Emerging Innovators Councils for One Health

Schäfer, Jacob

Dust Mitigation Measures and Health Surveillance in Stone Crushing Plant

Sittitoon, Nalin (1); Hongrathanakorn, Jirathon (2); Eka, Wasana (2)

One World-One Health and neglected zoonotic disease: Elimination, emergence and emergency in Uganda

Smith, James; Taylor, Emma Michelle; Kingsley, Pete

Noise-induced Hearing Loss Among Quarry Workers in Nakhon Ratchasima, Thailand

Theppitak, Calermisiri (1); Limmongkon, Yuparat (1); Sittitoon, Nalin (2); Chauchot, Pilunthana (1); E-Ka, Wasana (3); Hongrathanakorn, Jirathon (3)

Authors index

Notes
An Operational Tool to Enhance One Health Interdisciplinarity

ARAGRANDE, Maurizio; CANALI, Massimo
University of Bologna, Italy

Presenting author: CANALI, Massimo
massimo.canali2@unibo.it

The development of analytical methodologies along the human history allowed for the greatest scientific achievements at the cost of a less comprehensive understanding of real phenomena, in terms of context, side effects, and feedbacks. The One Health (OH) approach requires that disciplinary barriers are removed for a global understanding of complex health problems. Especially with the increasing interaction of socio-economic systems in the globalized context, a real need for a renewed approach to health issues does exist and is theoretically justified, but few essays have been developed to quantify the advantages of OH in comparison with the traditional mono-disciplinary methods. In 2014, partners from 20 European countries have organized a network (NEOH - http://neoh.onehealthglobal.net/) to study in depth the problem of OH evaluation, according to an interdisciplinary approach. NEOH is a Trans Domain Action of the European Programme COST. This paper is an individual contribution within the NEOH framework. It focuses on a system approach and interdisciplinarity: the two basic conceptual references to build up a global and holistic understanding of complex health problems. In this paper, the authors develop a multi-disciplinary matrix to approach the scientific complexity of real health cases. Complexity is tackled with a system scheme based on the combination of simple epidemiologic and socio-economic models to reach an all-inclusive understanding of each examined case. According to this approach, a matrix allows to attribute the multiple aspects and effects of the disease to specific expertise. The aim of the matrix is to identify the existing scientific and cultural borders among disciplines, the grey areas of knowledge (where knowledge is missing), and the overlapping territories (where analytical competences are redundant and/or cooperative). This procedure intends to be a pivotal tool to coordinate different disciplinary competences and increase effectiveness in health research, policy and management.

Keywords: One Health interdisciplinarity

Session: MON4.1 The One Health Approach in Action - Programmes and Initiatives

Mon 05.10.2015 • 14:10-15:40 • Location: Jakobshorn
Gender Issues in Human, Animal and Plant Health Using a Broad One Health Perspective

BAGNOL, Brigitte (1,2); ALDERS, Robyn Gwen (2,3); MCCONCHIE, Robyn (4)
1: Department of Anthropology, Witwatersrand University, Johannesburg, South Africa; 2: International Rural Poultry Centre, Kyeema Foundation, Brisbane, Australia & Maputo, Mozambique; 3: Faculty of Veterinary Science and the Charles Perkins Centre, The University of Sydney, Camperdown, NSW 2006 Australia; 4: Plant and Food Sciences, Faculty of Agriculture and Environment, The University of Sydney, NSW 2006, Australia

Presenting author: ALDERS, Robyn Gwen robyn.alders@sydney.edu.au

A broad One Health perspective approximates an ecohealth approach which is a core concept integrating environmental aspects with human and animal health (domestic and wild animals). Zoonotic and emerging diseases affect human health and impact negatively on food security. Although both the risk of contracting a disease and the subsequent impacts vary between different genders, age groups, cultures and social conditions, very little research has been done on this and few guidelines or interventions focus adequately on these aspects.

Our conceptual framework identifies the relationship between gender inequalities and the risk of contracting a disease through a broad One Health perspective. It looks at the varying impacts of plant, animal and human diseases and identifies four contributing factors. We first discuss the socially defined roles including social, economic, cultural, legal and political factors that often determine which place men and women occupy in society, which animals and plants men or women have accumulated knowledge of, which they have control of and which they benefit from and consequently the impact men and women have on the environment due to these specific roles. Second, we analyse the gender differences in risk of infection. It also analyses cultural differences that influence practices connected to animal, plant and human diseases and discusses respective preventions and treatments. Thirdly, we also identify the different ways men and women are impacted by diseases of human, plants and animals. Lastly, we assess the biological factors that influence the differences in exposure, infection rates and mortality rates between men and women during their life cycle. These four factors contribute to gender variations in relation to animal, human, plant and ecological health.

Keywords: gender, conceptual framework, risk, impact, emerging diseases

Session: TUE4.1 The One Health Approach in Action - Tools and Projects

Tue 06.10.2015 • 13:15-14:15 • Location: Jakobshorn

Use of Rapid Anthropology to Determine Taenia Solium Transmission Drivers and Control Options in a Remote Community in Northern Lao PDR

BARDOSH, Kevin (1); INTHAVONG, Phouth (2); XAYAHEUANG, Sivilai (3); OKELLO, Anna (3)
1: School of Social and Political Science, The University of Edinburgh, 58 George Square, Edinburgh, United Kingdom; 2: National Animal Health Laboratory, Ministry of Agriculture and Forestry, Department of Livestock and Fisheries, Luang Prabang Road, Ban Huanmouang, Vientiane Capital, Lao Democratic People’s Republic; 3: CSIRO Animal, Food and Health Sciences, Australian Animal Health Laboratory (AAHL) Regional Programme, 5 Portarlington Road, East Geelong, Victoria, Australia

Presenting author: INTHAVONG, Phouth drphouth@yahoo.com

Taenia solium taeniasis-cysticercosis is a Neglected Tropical Disease of significant public health concerns. Humans are both the definitive and end host of the parasite, with consumption of undercooked pork, poor sanitation, and free ranging pig production are important risk factors for disease transmission. A recent parasitological study in northern Laos identified a hyperendemic Taenia solium tapeworm prevalence of 26% in a secluded minority community; the highest reported prevalence to date in south-east
Asia. Interestingly, unlike the majority of communities examined in the project catchment area that did not exhibit T.solium hyperendemicity, this village was homogenous for a particular minority; it was therefore felt that a greater understanding of specific cultural practices could contribute valuable insights as to why the disease may exist at such elevated levels in this particular village. A rapid ethnographic approach consisting of a suite of social research methodologies was used to examine the community's KAPs around various disease transmission dynamics, including sacrificial slaughter and consumption of pork, hygiene practices and pig production systems. Qualitative research around cultural practices revealed that although pork is normally consumed well cooked, in the event of sacrificial slaughter occurring around major animistic festivals and household events the pork was always consumed raw, and as such could explain the unusually high prevalence of T.solium in this homogenous community. This finding, coupled with important supporting information regarding cultural norms of food preparation, latrine use and disease knowledge, highlights the innate complexities of implementing a One Health approach that integrates disease control within certain cultural contexts, and the importance of understanding specific disease transmission dynamics for the development of longer term control recommendations. The use of rapid ethnography in this way showcases its relevance to NTD research as an important “first step” methodology for engaging and directing longer-term transdisciplinary approaches in an area traditionally dominated by the biomedical sciences.

Keywords: Laos, Taenia solium, One Health, NTD

Session: MON5.1 One Health Approaches for Sustainable Development

Mon 05.10.2015 • 15:50-17:20 • Location: Jakobshorn

Understanding Social Drivers of Taenia solium Transmission in Northern Laos

BARDOSH, Kevin (1); INTHAVONG, Phouth (2); XAYAHEUANG, Sivilay (2); OKELLO, Anna (3)
1: University of Edinburgh, United Kingdom; 2: Department of Livestock and Fisheries, Lao People’s Democratic Republic; 3: Australian Animal Health Laboratory, Lao People’s Democratic Republic

Presenting author: OKELLO, Anna
anna.okello@ed.ac.uk

Taenia solium taeniasis-cysticercosis is a Neglected Tropical Disease of significant public health importance across endemic regions of the world, for which a One Health approach has been promoted for control. Humans are both the definitive and accidental dead end host of the parasite, with consumption of undercooked pork, open defecation and free ranging pig production systems important risk factors for disease transmission. Recent epidemiological investigations in northern Lao PDR identified a hyperendemic Taenia solium tapeworm prevalence of 26.1% in a secluded minority community; the highest reported prevalence to date in southeast Asia. A rapid ethnographic approach consisting of a suite of social research methodologies was used to examine the community’s knowledge, attitudes and practices around various disease transmission dynamics, including sacrificial slaughter and consumption of pork, hygiene practices and pig production systems. Qualitative research around cultural practices revealed that although pork is normally consumed well cooked, in the event of sacrificial slaughter occurring around major animistic festivals and household events the pork was always consumed raw, and as such could explain the unusually high prevalence of T.solium in this homogenous ethnic community. This finding, coupled with important supporting information regarding cultural norms of food preparation, latrine use and disease knowledge, highlights the innate complexities of implementing a One Health approach that integrates disease control within certain cultural contexts, and the importance of understanding social drivers of disease transmission for the development of longer term control recommendations. The use of rapid ethnography in this way showcases its relevance to NTD research as an important “first step” methodology for
engaging and directing longer-term transdisciplinary approaches in an area traditionally dominated by the biomedical sciences.

**Keywords:** Taenia solium, Neglected Tropical Disease, transdisciplinarity, social research methodologies, Southeast Asia

**Session:** TUE1.3 Vulnerabilities and Resilience - One Health Approaches for Sustainable Development

Tue 06.10.2015 • 08:30-10:00 • Location: Parsenn

**INTEGRATED FOOD SECURITY: Mapping and Selecting Different Indicators and Metrics**

BORIANI, Elena; MIRAGLIA, Simona; HALD, Tine

*DTU, Denmark*

Presenting author: BORIANI, Elena

email: ebor@food.dtu.dk

In food security, integration of data and knowledge across disciplines is needed to prevent food-related diseases, improve sustainability, traceability, quality, animal welfare, diminish food waste, have a clear picture of the environmental impact, improve communication to different stakeholders and introduce nutritional factors considering the enlarging need to “feed the planet”. We propose a map of indicators and metrics for making a holistic assessment of food considering human health risks (e.g. infectious agents, contaminants), benefits (nutritional values), environmental impacts, and social impacts (in particular vulnerable population). The map is analysed with a SWOT (strengths, weaknesses, opportunities and threats) analysis for each problem formulation. A pig Italian product is the first case study.

The map is focus on the availability of databases, data uncertainty and on the preferences of different stakeholders (governance regulators, NGO, distribution chains, small and big production industry, consumers) in relation also to different regulations (e.g. CO-DEX alimentarius, Water Framework Directive, REACH). Each indicator is investigated with a the list of queries (e.g. formula, single, composite, regulated, possible to be calculated, databases availability, uncertainty, variability). Key indicators and defined metrics for decision making for each specific problem formulation (e.g. a variable to improve food safety but enlarging environmental impact) are assessed using the SWOT approach.

Risk Assessment (Human health, Environmental, Food) and Life Cycle Assessment (LCA) procedures and databases can be carefully combined within decision process in order to get an optimal set of descriptive indicators, metrics and values for a specific problem formulation.

Still lot of research is needed to improve the quality and reproducibility of input data for these studies and some area are still missing in both disciplines (e.g. microbial assessment and Endocrine Disruptors activity in LCA, transport data referred to food traceability in RA, chemicals total emissions, mixture exposure, animal welfare, social, health and safety).

**Keywords:** food security, mapping, indicators

**Session:** MON4.2 Food Security and Food Safety

Mon 05.10.2015 • 14:10-15:40 • Location: Pischa

**One Health Epidemic Risk Management in Kazakhstan with Open-Source EIDSS**

BURDAKOV, Alexey (2); KAZAKOV, Stanislav (3); ESMAGAMBETOVA, Aizhan (1); UKHAROV, Andrey (2); KOPZHASAROV, Damir (1)

1: Committee on Consumer Rights Protection of the Ministry of National Economics of the Republic of Kazakhstan; 2: Black & Veatch, United States of America; 3: Kazakh Scientific Center of Quarantine and Zoonotic Diseases, Almaty, Kazakhstan

Presenting author: BURDAKOV, Alexey

email: burdakovav@bv.com

Epidemic risk management methodology development and approbation based on multivariate analysis per administrative areas of Kazakhstan using the Electronic Integrated Disease Surveillance System (EIDSS) capabilities.
Large territory and diverse natural climatic and landscape characteristics of Kazakhstan make epidemic risks assessment and prediction for the whole country challenging. In order to transition epidemic risks management to individual administrative areas the Committee for Consumer Rights Protection of Kazakhstan developed a concept for modernizing the existing national epidemiological surveillance system.

The sanitary-epidemiological and socio-economic current and retrospective data will be consolidated in a new tool for epidemic risk management called the Regional Sanitary-Epidemiological Passport (RSEP) for each of Kazakhstan's districts, providing capabilities for short-term (2-3 years) and long-term (3-5 years) forecasting. RSEP will focus on plague, tularemia, anthrax, CCHF, brucellosis, cholera and other marker diseases. Since population sporadic morbidity hinders the ability to forecast, RSEP will include GIS maps of natural foci, their distribution and long-term observations epizootic activity.

The open-source EIDSS will serve as the main tool of the proposed methodology in addition to its functions of collecting, processing and analyzing data on 64 diseases in 269 organizations of the Committee as the national epidemiological e-surveillance system. In 2012-13 we tested the EIDSS capability to forecast the disease risk for the Kazakhstani population of contracting the Crimean-Congo hemorrhagic fever (CCHF). The forecast proved to be 81.3/88.9% accurate.

The epidemic risk management methodology was developed and approbed for CCHF. Next steps:

- Methods development for the rest of marker diseases
- Estimation methods adjustment (increasing of the number of factors, use of specific algorithms for individual nosologies) and calibration
- Reach back data bank formation (15-20 years deep on 6 infections based on historical data)
- Methodology introduction into neighbor countries for regional risk management.

Keywords: risk management, one health, EIDSS

The Economic Dimension Of Vector-Borne Disease Ecology: Public Costs Of Aedes Albopictus Control In Europe, A Case Study

CANALI, Massimo; RIVAS MORALES, Stefano
University of Bologna, Italy
Presenting author: CANALI, Massimo
massimo.canali2@unibo.it

Aedes albopictus, or Asian tiger mosquito, invaded in the last decades a wide area of the World and is considered one of the most invasive mosquito species, with a very aggressive behaviour and specific aptitudes to infest urban ecosystems. It is also a known vector of important human and animal diseases, especially caused by viruses and nematodes, and has proved capacity for local transmission of Chikungunya and Dengue within Europe. Its global expansion has been facilitated by growth of international trade and movement of people. Prevention of diseases vectored by this Culicidae largely depends on the management of the ecological factors, which boost the spreading and the intensity of infestations. This research evaluated public costs related to the implementation of the Plan for A. albopictus control and Chikungunya and Dengue prevention set up in Emilia-Romagna region (Northern Italy), where a Chikungunya epidemic outbreak occurred in 2007 with 247 people infected. The Plan started in 2008 by involving more than 280 municipalities and 4.3 million inhabitants within the region. The Plan's activities mainly target the ecological conditions for the multiplication of infestation hotspots in urban areas to reduce the probability of rapid and uncontrolled disease spreading in case of outbreaks: this includes monitoring the infestation intensity, larvicide treatments in public and private areas, adulticide emergency treatments to isolate disease outbreaks, information in schools and to citizens, and compulsory good practices. The study accessed to data on the expenditure sup-
ported by all the public institutions involved in the implementation of the Plan. Main results include: evaluation of public costs related to some key indicators (inhabitants, extension of urban areas, type of treatments, etc.), analysis of differences in expenditure among municipalities and correlation between expenditure and socio-economic and environmental factors, as well as recommendations to improve the Plan’s economic efficiency and management.

Keywords: Economic efficiency of vector-borne diseases control, Tiger Mosquito, Chikungunya and Dengue spreading in Europe

Session: TUE4.2 The One Health Approach for Communicable Diseases

Tue 06.10.2015 • 13:15-14:15 • Location: Pischa

An Investigation into the Early Detection of Psychosis and Depression in Individuals via Social Media

COLLINS EADE, Amanda; DE QUINCEY, Ed; FOSTER, John
University of Greenwich, United Kingdom

Presenting author: COLLINS EADE, Amanda
A.collinseade@gre.ac.uk

Mental health problems, if left untreated, can impact on a young person and their family in many ways. With a rise in suicides amongst young people linked to social networking in the UK, there are concerns that young people who frequently post ‘vague’ but worrying messages may encourage online friends not to take them seriously. Mental health experts argue that ‘dark’ postings should not be hastily dismissed because they can serve as an early warning system for timely intervention. With a number of Social media sites, such as Twitter, allowing third party access to user’s posts and profile information, this is a possible area to explore in the early detection of psychosis and depression.

A pilot study was undertaken to analyse the content of UK geolocated tweets, that contained specific keywords related to depression and psychosis; Keywords were taken from Beck’s depression inventory (BDI) and the Krawieck, Goldberg and Vaughn (KGV) assessment tools. Examples of keywords were; I look ugly, suicidal thoughts, hearing voices, I hate myself, People are talking about me.

Over 20,000 tweets posted between July and November 2013 have been collected, with a subset analysed using SPSS.

Initial results suggest that individuals feel comfortable expressing their mental health difficulties to online friends, family and other twitter users. There were some posts indicating actual or vague thoughts of self harm or suicide which may cause concern or other responses from those reading them. Low self esteem was a recurrent theme.

Further analysis of these tweets will be discussed along with implications for automated detection systems and future work exploring how to teach the public to recognise when someone who is online may need help and support.

Keywords: Early detection, mental health, young people, Twitter

Session: MON5.3 Surveillance and Early Warning - The Basis for Prevention

Mon 05.10.2015 • 15:50-17:20 • Location: Parsenn

Opening the One Health Workforce Pipeline: Education and Research Define an Unprecedented One Health Undergraduate Degree Program

CONN, David Bruce
Berry College, United States of America

Presenting author: CONN, David Bruce
bconn@berry.edu

Building and sustaining a pipeline of scientists trained in One Health thinking and practice is a growing global priority, but to date has focused on graduate and professional education. To address the need for well-trained, effectively oriented students entering these fields, we have established the first undergraduate degree program in One Health Science (OHS) in the United States. Our B.S. curriculum comprises integrative OHS courses and research as a minor, with majors in either biology, animal science, or environmental science. Our strengths leverage our 100-square-kilometer

Opening the One Health Workforce Pipeline: Education and Research Define an Unprecedented One Health Undergraduate Degree Program

CONN, David Bruce
Berry College, United States of America

Presenting author: CONN, David Bruce
bconn@berry.edu

Building and sustaining a pipeline of scientists trained in One Health thinking and practice is a growing global priority, but to date has focused on graduate and professional education. To address the need for well-trained, effectively oriented students entering these fields, we have established the first undergraduate degree program in One Health Science (OHS) in the United States. Our B.S. curriculum comprises integrative OHS courses and research as a minor, with majors in either biology, animal science, or environmental science. Our strengths leverage our 100-square-kilometer
Fostering Intersectoral Collaboration For Control Of Taeniasis And Cysticercosis In Humans And Pigs
CORDEL, Claudia (1); COLSTON, Angie (2)  
1: GALVmed, South Africa; 2: GALVmed
Presenting author: COLSTON, Angie
angie.colston@galvmed.org
Taeniasis and cysticercosis in humans is recognised by WHO, FAO and OIE as a neglected tropical disease and important zoonosis requiring collaboration between human and veterinary public health sectors. The disease is common in South and South East Asia, Sub-Saharan Africa and Latin America. Taeniasis is caused by the human tapeworm, Taenia solium. Humans are infected by eating undercooked pork or ingesting contaminated food or water. Pigs are infected by eating contaminated human faeces or parasite eggs from the environment. In pigs, eggs develop into cysticerci in the muscles but cause no clinical disease. In humans, cysticerci may cause severe and sometimes fatal symptoms including the most common preventable form of epilepsy with associated socio-economic losses. Porcine cysticercosis (PC) reduces the value of village pig production and availability of safe pork, an important protein source. Control of taeniasis and cysticercosis by education, sanitation, meat inspection and pig husbandry has limited success. An alternative, economically effective method to interrupt the life-cycle is direct reduction of PC prevalence to control and eliminate the disease in not only pigs but also humans. The combined use of two, new tools in pigs, oxfendazole (30mg/kg, commercially available, MCI, Morocco) for PC treatment and TSOL18 vaccine (M. Lightowlers, University Melbourne. Registration expected 2016, IIL, India) for PC prevention has been shown safe and effective. In 2015, GALVmed (funding by DFID, UK and BMGF) is starting a collaborative series of field trials in Uganda, Tanzania, South Africa and Nepal to evaluate, over two years, the systematic use of oxfendazole and TSOL18 in free-roaming pigs to reduce PC prevalence as assessed by necropsy. In Uganda (in collaboration with Imperial College London), the trial will also evaluate the effect of annual, praziquantel, human com-
munity, mass drug administration to school children and adults given concurrently in the same villages.

**Keywords:** Zoonosis, Porcine Cysticercosis, Oxfendazole, TSOL18

**Session:** MON4.3 Wildlife, Livestock and Pets - The Human Animal Interface

**Mon 05.10.2015 • 14:10-15:40 • Location: Parsenn**

Surveillance for Infections with Zoonotic Potential in Farmed Animals

**DANIELS, Peter Wallace**

*Australian Animal Health Laboratory, Australia*

Presenting author: DANIELS, Peter Wallace

peter.daniels@csiro.au

It is the policy of the animal health organizations, the OIE and the FAO, as well as the WHO that countries should be alert for infections in animals that may pose major public health threats, detect these and report occurrences. However the challenges for comprehensive surveillance for such infections are enormous, given the huge populations of farmed animals globally in a multitude of different farming systems at varying stages of sophistication. Animals are raised commercially across a range of settings from traditional village systems to modern intensive farming units. Clearly one single approach to surveillance for potential zoonotic infections will not be applicable in all situations. The challenge is to identify animal farming systems that could lead to a higher probability of emergence of pathogens with acquired characteristics that may then lead to their becoming serious zoonotic threats. It is usually stated that large populations of a single farmed species give opportunities for sustained transmission of infections with the consequent opportunities for emergence of new strains. Hence it would seem appropriate risk management to target a significant proportion of surveillance efforts at intensively farmed animal industries where ever they are maintained or being developed. The most recent human pandemic agent, the pandemic H1N1 2009 influenza virus, has been identified as arising in intensively farmed pigs in the Americas. Strains of zoonotic avian influenza with a high proportion of fatal human cases have arisen in the intensive poultry populations of East Asia, while the Nipah virus outbreak in Malaysia was propagated in intensively farmed pigs. Ideally such infections should be detected in the farmed animals before extensive transmission to people occurs. This paper advocates that the risk be recognized and that concerted attention be given to developing management solutions for a problem that has tacitly been considered too hard.

**Keywords:** surveillance, intensive animal farming, zoonoses, risk management

**Session:** MON5.3 Surveillance and Early Warning - The Basis for Prevention

**Mon 05.10.2015 • 15:50-17:20 • Location: Parsenn**

A Focus on Behaviours Necessary for Food Security in Animal Protein Value Chains

**DANIELS, Peter Wallace**

*Australian Animal Health Laboratory, Australia*

Presenting author:

Food security refers to people’s having physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Foods of animal origin have nutritional benefits and attract a high level of preference in most societies. Hence the identification and management of risks relating to food security at all points along the animal protein value chain is a necessary component in delivering the food security outcome. In a one health context the management of the various risks posed by infectious agents is one important dimension of food security. Infections may reduce productivity, cause barriers to commerce and marketing or even cause human disease. Importantly, the management of these risks requires a holistic approach involving an understanding of the human drivers of activities in the production, sale, processing and marketing of the animal products as much as an understanding of the microbiology and host/environment interactions that lead to
transmission and disease. The behavioural influences will have financial or economic components but also habitual components based on cultural influences or tradition. Management of the pathways of transmission of infections animal to animal, animal to person and product to person depends critically on modification of human behaviours that facilitate transmission of such infections.

The papers in this session delineate aspects of the “behaviour chain” approach and give examples of specific problems and specific interventions that have contributed to favourable outcomes.

*Keywords*: food security, human behaviour, value chains, economics, zoonoses

*Session*: MON1.1 A Focus on Behaviours Necessary for Food Security in Animal Protein Value Chains

Mon 05.10.2015 • 08:30-10:00 • Location: Jakobshorn

**Let Them Eat Eggs: Promoting the Vital Contribution of Eggs to Food and Nutrition Security in Resource-Poor Settings**

DE BRUYN, Julia (1); ALDERS, Robyn (1,2); BAGNOL, Brigitte (2,3); GUYONNET, Vincent (4); MCGREGOR, Ombelline (1); THIEME, Olaf (5)

1: The University of Sydney, Australia; 2: International Rural Poultry Centre, Kyema Foundation, Australia; 3: The University of Witwatersrand, South Africa; 4: International Egg Foundation, London, United Kingdom; 5: Food and Agriculture Organization of the United Nations, Rome, Italy

Presenting author: ALDERS, Robyn robyn.alders@sydney.edu.au

Animal source foods are widely-recognised for their valuable contribution to human nutrition, as sources of high-quality protein and bioavailable micronutrients. In developing countries, they have the potential to greatly enhance the nutritional adequacy of traditional diets based on staple crops. Globally, poultry numbers have more than doubled in the past 25 years, in marked contrast to the more conservative increases in the number of other livestock. Family poultry encompasses a range of small-scale production systems which comprise up to 80 percent of poultry stocks in low-income food-deficit countries, in rural, urban and peri-urban areas.

The availability of eggs throughout the year can help to mitigate the effects of seasonal food shortages, particularly in scavenging systems where less palatable or less nutrient-dense food sources can be transformed into highly nutritious food for human consumption. Eggs constitute an important source of choline, essential fatty acids, vitamins and protein, and are known to be amongst the most affordable sources of many nutrients – with particular importance for growth and development during the intra-uterine and early post-natal periods.

A recent collaborative effort between the Food and Agriculture Organization of the United Nations (FAO) and International Egg Foundation (IEF) has brought together representatives from the poultry sector in Zimbabwe, with recognition of the potential for a greater contribution to national food and nutrition security. Current research funded by the governments of Australia, Tanzania and Zambia is exploring egg consumption patterns with a particular focus on nutritionally-vulnerable groups. Through the introduction of a Newcastle disease control program, this work aims to provide households with guidelines on the inclusion of eggs in existing local diets. Consideration is also being given to other barriers to egg consumption, with a project comparing storage options to increase the conservation of eggs in village settings.

*Keywords*: Food security, nutrition security, undernutrition, maternal and child health, family poultry

*Session*: MON4.2 Food Security and Food Safety

Mon 05.10.2015 • 14:10-15:40 • Location: Pischa
Rebranding Antibiotic Resistance As A Disaster Risk Problem – A Necessary Step Towards Integrated Health Risk Management

DOMINEY-HOWES, Dale (1); LABBATE, Maurizio (2)
1: The University of Sydney; 2: University of Technology Sydney
Presenting author: DOMINEY-HOWES, Dale
dale.dominey-howes@sydney.edu.au

To see the emergence of antibiotic resistance rebranded as a ‘disaster risk management’ problem. Antibiotic resistance presents as an increasingly global and multifaceted risk to human and animal life every bit as profound as other disaster risks such as climate change, natural disasters and global security. Antibiotic resistance is no longer a “business as usual problem”. Rebranding the risk in this manner opens up new opportunities for engagement between management, community and diverse stakeholders allowing access to the skills and expertise of others such as disaster risk managers.

We use a mixed method approach including systematic literature reviews; questionnaire surveys and interviews to explore stakeholder (e.g., doctors, health care professionals, members of the public, farmers etc) understanding about the causes and consequences of antibiotic resistance and their role in facilitating or ameliorating the problem. From this empirical data, intervention strategies may be developed that reduce the unnecessary prescription of antibiotics.

(1) The issue is almost exclusively framed as a health and medical problem; (2) health practitioners have been the dominate focus of efforts to better control the use of antibiotics through antimicrobial stewardship programs; and (3) using psycho-social models of risk perception usually employed in natural disaster contexts provides useful alternatives for investigating stakeholder attitudes towards the problem of antibiotic resistance.

Given the current state of the antibiotic resistance problem and the likely near future of untreatable bacterial infections, including epidemics and pandemics, we propose an alternative and novel policy perspective. Governments and disaster policy makers across the world use the Emergency Risk Management process in the management of and preparation for natural disasters. This process is a systematic method that identifies, analyses, evaluates and treats risks and takes an iterative approach with well-defined activities that lead to implementation of risk-treatment strategies.

Keywords: antibiotic resistance, disaster risk
Session: MON1.2 Integrative Health Risk Management
Mon 05.10.2015 • 08:30-10:00 • Location: Pischa

1st International One Welfare (OW) Conference
DOUMA, Dale Peter (1); RUSK, Richard Craig (2)
1: Manitoba Agriculture, Food and Rural Development, Canada; 2: Manitoba Health, Healthy Living and Seniors, Canada
Presenting author: DOUMA, Dale Peter
dale.douma@gov.mb.ca

The Province of Manitoba under the leadership of the One Health Steering Committee has begun the preparations for the 1st International One Welfare (OW) Conference in Winnipeg, Manitoba, Canada in 2016. The OW concept builds on the international One World One Health Expert Consultation held in Winnipeg in 2009. OW takes the next step recognizing the connection that exists between the welfare of animals and the humans that they coexist with. This will expand previous accomplishments into the OW sphere engaging issues such as animal welfare and related disparities of human health.

This is an opportunity for national and international subject matter experts and decision makers engaged in the fields of human and animal health and welfare to converge to learn from each other. They will discuss the science, best practices, models, and policies that have shown successes in managing complex issues such as hoarding involving animals as well as on-farm animal welfare issues often related to human health disparities, such as mental
health, ageing and socioeconomic status. These cases are becoming increasingly recognized as challenges that demand collaborative cross-jurisdictional approaches for successful resolution. The complexity of developing a comprehensive management program involves multiple government and community based organizations. These relationships are often difficult to arrange and maintain in the absence of high-level support.

Workshops will provide education on the psychosocial impacts on those involved in human or animal welfare incidents, recognizing when mental health intervention is required and how to mitigate these impacts.

We invite the international community to engage in this initiative. The outcome can provide a roadmap to navigate the way forward as it relates to prevention, response and recovery of these challenges encompassing governance, academic, and operational models. The presentation will include a summary of past, present and potential future of the OW concept.

*Keywords: One Welfare, conference, mental health, disparities, animal welfare*

Session: MON4.1 The One Health Approach in Action - Programmes and Initiatives

Mon 05.10.2015 • 14:10-15:40 • Location: Jakobshorn

**Water Management in Singapore's Bishan Ang-Mo Kio Park – Resilience and Liveability through Blue-Green and Social Infrastructure**

DREISEITL, Herbert (1); DREISEITL-WANSCHURA, Bettina (2); LALOUSCHEK, Wolfgang (3)

1: Rambøll; 2: Rambøll; 3: The Tree

Presenting author: DREISEITL, Herbert hebd@ramboll.com

We need to find solutions to environmental crises like climate change and flooding, especially within cities and urban regions. Can we create living systems that filter, clean and regulate water, balance temperature, produce good air, save natural resources, increase biodiversity and at the same time meet the need for places where people stay healthy and enjoy life?

Since 1981 we research and create such resilient spaces. One of our key findings was that this needs to be a win-win situation for people and nature. As numerous flood events proved, water will take back the space it needs. Why should we not consider this space already when we plan our settlements? But we have to tell the story of water playfully and create beauty in order to have the installation of blue-green infrastructure become an interdisciplinary topic and to be accepted by people. Today, designers and engineers have to get local residents, decision-makers and other stakeholders on board early to foster acceptance and a common approach for best solutions. Highest aesthetics and good technical performance work best within the local cultural context.

We will discuss international examples of blue-green infrastructure where good governance, intelligent engineering and high design performance work hand in hand to enhance resilience and liveability.

The case will be made primarily by Singapore’s recently built Bishan Ang-Mo Kio Park and also touch on other cases like Cloudburst in Copenhagen, an innovative way to adapt urban open spaces like streets and plazas for heavy storm water events and by that prevent flooding.

Water is as dynamic as our societies. Wherever possible, hydrology in urban development should not only be seen as a problem but as an opportunity for contemporary design and creativity to increase health and biodiversity and to create a liveable citiescape.

*Keywords: Liveability, blue-green infrastructure, urban flooding, resilience, aesthetics, public health*

Session: MON1.3 Water and Health

Mon 05.10.2015 • 08:30-10:00 • Location: Parsenn
Quantification Of Roaming Behaviour Of Free-Ranging Domestic Dogs To Inform Zoonosis Transmission
DURR, Salome (1,2); BOMBARA, Courtenay (2); GONGORA, Jaime (2); DHAND, Navneet (2); WARD, Michael P (2)
1: Veterinary Public Health Institute, University of Bern, Switzerland; 2: The University of Sydney, Faculty of Veterinary Science, Australia
Presenting author: DÜRR, Salome salome.duerr@vetsuisse.unibe.ch

The close relationship between animals and humans facilitates zoonosis transmission. Since dogs have been domesticated, they live in close proximity to humans. Rabies is probably the most severe zoonosis that is transmitted by dogs, which act as the main reservoir. The spread of infectious diseases depend on the roaming behaviour of their hosts. The investigation of the dog movement can therefore provide information on contact rates between individuals and disease spread.

In remote northern Australia domestic dogs are numerous and free-roaming. Rabies is absent from Australia but there is a risk of incursion from neighbouring, rabies-endemic Indonesia. Knowledge of roaming behaviour of dogs would enable evidence based preparedness plans for such an incursion, but this information has been lacking.

We collared 105 free-roaming dogs in six Aboriginal and Torres Strait Islander communities in northern Australia during different seasons to investigate their roaming behaviours. The dogs were found to roam generally around the dog owner’s home with relatively small home range sizes of 0.4 and 4.9 ha for the median core and extended home range, respectively. However, some individuals were found to roam much more widely (HR size of 40–104 ha) and cover large areas of their community or beyond. These far roaming dogs are of particular interest for infectious disease transmission. Season and age-gender interactions were found to influence home range sizes significantly. Contact rates were estimated from the GPS data collected. The daily contact rates between individuals ranged from 0–400 and were highly dependent on the distance between the dogs’ homes. A logistic regression model was used to fit a distance kernel function to the data to describe disease transmission between individuals.

Such information can further be implemented in theoretical rabies transmission models to estimate spread and control options for rabies in both dogs and humans within these communities.

Keywords: dogs, free-roaming, home range, contact rates, rabies

MediLabSecure: Laboratory Network for a One Health Approach of Vector-Borne and Respiratory Viruses in the Mediterranean and Black Sea Regions
ESCADAFAFAL, Camille (1); MANUGUERRA, Jean-Claude (1); JIMENEZ CLAVERO, Miguel Angel (2); PEREZ RAMIREZ, Elisa (2); ROBERT, Vincent (3); PICARD, Marie (3); DENTE, Maria Grazia (4); DECLICH, Silvia (4); RICCARDO, Flavia (4); CHERBLANC, Fanny (1); VICTOIR, Ka
1: Institut Pasteur, France; 2: Centre for Research on Animal Health (CISA-INIA), Madrid, Spain; 3: Institut de Recherche pour le Développement (IRD), Montpellier, France; 4: Istituto Superiore di Sanità (ISS), Roma, Italy
Presenting author: VICTOIR, Kathleen kathleen.victoir@pasteur.fr

As (re-)emerging viruses are threatening global health, the EU-funded MediLabSecure project (2014-2017) aims at enhancing the preparedness and response to viral threats by establishing an integrated network of laboratories in 19 non-EU countries of the Mediterranean and Black Sea areas in partnership with Institutes in 3 European countries. The MediLabSecure project is reinforcing the laboratory network established by the EpiSouth Plus project (2010-2013) by involving partners from animal virology and medical entomology laboratories additionally to previous partners from human virology laboratories.
and public health institutions.

One laboratory per field of study (human virology, animal virology, medical entomology) and per country was selected in 2014. A first meeting held in Paris in January 2015, involved the heads of laboratories and aimed at first interdisciplinary interactions in the fields of interest. A “Needs assessment” questionnaire was implemented to assess laboratory capacities and needs regarding biosafety, diagnostic methods and integration of laboratory and epidemiological surveillance for emerging vector-borne and respiratory viruses.

Fifty laboratories were selected to actively join the project. The January meeting allowed the project partners and head of laboratories to meet and exchange on the objectives and future steps of the project, their experiences, needs and expectations. Based on these discussions and on the responses to the “Needs assessment” questionnaire, a training curriculum was set up, of which the first workshops will be organized in June 2015, enabling laboratories to implement harmonized and up-to-date techniques to perform (1) laboratory diagnosis of vector-borne viral diseases such as West Nile, Dengue, Rift Valley Fever, Chikungunya and (2) tailored training on mosquito species determination.

By enhancing diagnostic capacities and regional multidisciplinary cooperation, the Medilabsecure network could represent the cornerstone of a corporate preparedness and response to vector-borne and respiratory viral threats in the Mediterranean and Black Sea regions based on a One Health approach.

Keywords: Laboratory network, Vector-borne viral diseases, Integrative surveillance, Animal virology, Human Virology, Entomology

Session: MON5.3 Surveillance and Early Warning - The Basis for Prevention

One Health Approach for CCHF Surveillance in Kazakhstan: Results of Open Source EIDSS Application for Risk Level Evaluation

ESMAGAMBETOVA, Aizhan (2); BURDAKOV, Alexey (1); KAZAKOV, Stanislav (3); UKHAROV, Andrey (1); OSPANOV, Kenes (4)
1: Black & Veatch, Overland Park, KS, USA; 2: Committee of State Sanitary and Epidemiological Surveillance of the Ministry of Health of Kazakhstan; 3: Kazakh Scientific Center of Quarantine and Zoonotic Infections, Almaty, Kazakhstan; 4: Scientific Center of Sanitary and Epidemiological Expertise and Monitoring, Almaty, Kazakhstan
Presenting author: KAZAKOV, Stanislav Stanislav.Kazakov@css.kz

Development of a Crimean-Congo Hemorrhagic Fever (CCHF) risk evaluation methodology based on a one health surveillance approach for the natural CCHD foci in the Republic of Kazakhstan for population epidemic risks with application of open source Electronic Integrated Disease Surveillance System (EIDSS). Kazakhstan has several active CCHF natural foci: 3-12 human CCHF cases occur per year; infection occurs through tick bites and CCHF patient blood contact. Prediction of the CCHF epidemiological situation is extremely difficult due to a variety of natural and social factors.

EIDSS software tool was used for epidemiological and vector surveillance data processing for situation prediction for certain regions of Kazakhstan. EIDSS collects and processes epidemiological, clinical and laboratory information on pathogens in humans, animals and vectors. EIDSS was installed at 146 sites of the Ministry of Agriculture, and 8 sites of the Ministry of Health in Kazakhstan. In 2012, EIDSS was loaded with 3 groups of indicators for 2007-2011: population counts, tick infection rate and CCHF human incidence rate. A multivariate epidemiological analysis was conducted in the EIDSS to reveal areas with the highest CCHF risk. As the result, outbreak prognosis risk levels for 2013 were assigned for 25 CCHF endemic districts of Kazakhstan. This information was provided to the public health service of Kazakhstan to plan activities for 2013.

According to the actual information on CCHF foci situation in 2013 it was determined that the prognosis for districts with high outbreak risks made in 2012 is accurate for 88.9%, for
districts with medium and low risks - 81.3%. The statistical significance is 0.95. The results let us consider that utilized approach for data collection and analysis using EIDSS software provides a reliable tool for prognosis of CCHF epidemic threats for specific districts, and can be used for the management decision-making support.

Keywords: One Health, CCHF, Epidemic Risk Model, Open Source Tool, Kazakhstan
Session: MON5.3 Surveillance and Early Warning - The Basis for Prevention
Mon 05.10.2015 • 15:50-17:20 • Location: Parsenn

Vaccination Against Avian Influenza: What Has Changed and What Should Be Changed
GARDIN, Yannick, Charles
Ceva Animal Health, France
Presenting author: GARDIN, Yannick, Charles yannick.gardin@ceva.com
Avian Influenza has changed dramatically in the last few years, and now poses a major threat not only to our health but the entire global economy. The disease is now induced by more types of viruses and is present in more countries than ever before. The more recent viruses are better “adapted” to wild waterfowl populations and can be carried over much longer distances. The recent epizootics that have occurred in the USA and Europe do illustrate this. This changes the way in which the disease is spread and must also change our approach to controlling it. The risk is much higher than ever and this is the right time to forget old dogmas and adapt to this new situation.

A new vector vaccine has been developed that overcomes most of the previous objections to using vaccination. Many experiments have been conducted that demonstrate its capacity to protect against a wide variety of different H5 type HPAIVs, breakthrough the presence of MDA’s and be used reliably in the hatchery. Vaccinated birds can be clearly identified as part of a DIVA monitoring strategy to eradicate the disease, an important development from the classical vaccines used until now. Because of this new rHVT-HA5 vaccine, vaccination can no longer be neglected but needs to be considered as an essential part of a One Health strategy to protect the poultry industry and wider communities against potentially enormous clinical and economic losses.

More funds should be dedicated to the research of new AI vaccines. We cannot continue to dedicate so much resource to understanding the rain and the ways to control it. It is now time to also work more intensively on umbrellas.

Keywords: Avian Influenza, Prevention, Vaccination
Session: MON5.2 Case Studies of Integrative Health Risk Management
Mon 05.10.2015 • 15:50-17:20 • Location: Pischa

The Impacts of Climate Change on Food Safety and Health, The Case of Iran
GHAZI, Iran; MAHMOUDZADEH, Amir; HASANZADEH, Samira; HAMEDI, Mohadeseh
Research Institute of Natural Hazards Engineering of Shakes Pajouh, Isfahan, Iran, Islamic Republic of
Presenting author: MAHMOUDZADEH, Amir amiramj1@yahoo.com
Climate plays a significant role in people’s health. Climate change may be a factor leading to increased risks of food- and water borne illnesses from consumption of existing and emerging biological materials. Higher average temperatures will likely lead to hotter days and more frequent and longer heat waves. This could increase the number of heat-waves illnesses which could terminate to casualties. Higher temperatures could increase the concentrations of air and water pollutants. Changes in temperature, precipitation patterns, and extreme weather events could enhance the spread of some diseases.

The impacts of climate change on health depends on many factors. These factors include the effectiveness of a community’s public health and safety systems to address or preparation for the risk and the behavior, age, gender, and economic status of individu-
als affected. Impacts will likely vary by region, the sensitivity of populations, the extent and length of exposure to climate change impacts, and resiliency.

The impacts of climate change on public health around the globe could have important consequences for IRAN. For example, more frequent and intense drought in areas such as Sistan-Baluchistan province and in arid cities of Iran may cause more health disasters such as malaria, leishmaniasis.

The aim of this research is to study the impacts of climate change on food security and health in IRAN.

Descriptive and analytical methods were employed and the research was supported by the literature review of reliable national and international documents.

This article describes the observed and projected health impacts of climate change, current and future populations at risk, and the strategies, policies and measures that have been used to reduce the impacts.

**Keywords:** Climate Change, Food Safety, Health, IRAN

Session: MON4.2 Food Security and Food Safety

Mon 05.10.2015 • 14:10-15:40 • Location: Pischa

---

**Eggs: The Un-Cracked Potential of Eggs to Improve Human Nutrition Around the World**

GUYONNET, Vincent (1); ALDERS, Robyn (2); BAGNOL, Brigitte (2); DE BRYUN, Julia (2); THIEME, Olaf (3)

1: International Egg Foundation, UK; 2: University of Sydney, Australia; 3: FAO, Italy

Presenting author: GUYONNET, Vincent vincent@internationalegg.com

Eggs are one of the most recognized and accepted foods by consumers around the world. They are generally acknowledged as naturally rich in proteins and certain vitamins and minerals. With production increasing worldwide by 14 million tonnes or 25% between 2000 and 2010, can the eggs contribute further to human nutrition?

Regular eggs can contribute to meeting the basic human needs in terms of proteins and other nutrients in the developing world where protein consumption is low and often of plant-origin. The work required to maximize their potential is massive, taking into consideration the needs to concurrently boost production and promote consumption in a number of countries. A model based on Private-Public Partnership has been developed to build capacities within national producers’ organizations to achieve improvement in egg production and egg consumption in Southern Africa.

In the developed world, in addition to their recognized nutritional value, eggs can be used as a vehicle to deliver more nutrients such as vitamin A, folic acid and omega 3 polyunsaturated fatty acids (n-3 PUFA) in deficient populations. The science behind the enrichment of nutrients in the egg has been well demonstrated and it is fairly easy and cost effective to produce these functional eggs. A number of nutritional and health benefits have also been clearly demonstrated in sound clinical studies. For instance, the consumption of eggs enriched in n-3 PUFA have shown to contribute to lower serum triglyceride levels and higher HDL-cholesterol, both related to a reduced risk of fatal ischemic heart disease. Unfortunately, the potential of these functional eggs for human nutrition and health is still not yet realized due to a number of reasons related to the nature of the egg itself, the skepticism of consumers, the promotion and advertising required and the lack of support from the health professionals.

**Keywords:** eggs, human nutrition, proteins, functional foods

Session: MON4.2 Food Security and Food Safety

Mon 05.10.2015 • 14:10-15:40 • Location: Pischa
Water Public Health, Perceptions, and Disease Mitigation Strategies in Rural Vietnam.
HALL, David C.; LE, Quynh Ba
University of Calgary, Faculty of Veterinary Medicine, Canada
Presenting author: HALL, David C.
dchall@ucalgary.ca

Integrated management of livestock species, aquaculture, and crops has been a part of rural Vietnam for centuries and is formally promoted by the Ministry of Agriculture. However, management methods may be contributing to the emergence of zoonotic diseases of recent concern (e.g., avian influenza). This suggests a need for change in public health awareness and farm management.

We used farm visits, questionnaires, focus groups, and analysis of water samples to investigate the public health knowledge, livestock management, and association with presence of coliform bacteria on 600 small scale integrated farms in north (Thai Binh) and south (An Giang) Vietnam in 2013. Water samples were analyzed in national government laboratories for E. coli as an indicator organism for fecal contamination of water using culture and tryptose broth methods. Questionnaire and focus group data were analyzed using summary statistics, probit regression, and clustering techniques for qualitative data.

More than 80% (p<.01) of drinking and household water samples in the sampling frame tested positive for unsafe levels of E. coli (ranging from 0 to 500 cfu/100ml (mean=13.5, s.d.=39.6). Farmers were well aware (>90%) that avian influenza or parasites could spread from livestock via water but were not well aware that bacteria could spread via water. Most farmers (>70%) indicated they filter and/or boil their drinking water, although other basic mitigation strategies such as hand washing or preventing mixing of livestock was not common.

The presence of E. coli in drinking water was unacceptably high in most households we sampled. Although farmers revealed some intuitive knowledge of public health, farm management procedures such as incomplete separation of livestock are likely to contribute to cross-contamination of drinking and household water. Basic public health training is recommended to help farmers appreciate the benefits of simple mitigation strategies.

Keywords: E. coli, water quality, integrated farming, Vietnam, mitigation, public health

Session: MON1.3 Water and Health
Mon 05.10.2015 • 08:30-10:00 • Location: Parsenn

Creating a One Health Metric
HEFFERNAN, Claire
Livestock Development Group, United Kingdom
Presenting author: HEFFERNAN, Claire
c.l.heffernan@reading.ac.uk

In creating a combined impact metric for human and animal health, the main issue is as follows: the longevity of a livestock life is rather not important. However, the impacts of livestock disease on the lives and livelihoods of the over 1.1 billion poor people who keep them, are. Therefore, any combined metric must account for both human well-being and the poverty impacts of livestock disease.

There are presently a number of well-accepted measures for human wellbeing ranging from the Human Development Index (HDI) to the Quality Adjusted Health Year (QALY), which measures the quality and additional quantity of years lived in the context of a disease intervention. Thus, human health metrics are generally calculated at the individual level. Conversely, livestock and poverty health measures are generally assessed at the household level. For example, the Livestock and Poverty Assessment Tool (LPA) first calculates a weighted measure to assess the poverty impacts of particular species or the ‘Species Gap’ on the household level. Second, a ranking calculation may be performed which mediates the ‘wealth effects’ of different species. Finally, the ‘Disease Gap’ or changes in the poverty status of a household due to the impact or influence of a livestock disease may be calculated. Findings from the LPA illustrated the varying impacts of the same livestock disease across households of differing socio-economic standing i.e. East Coast Fever had a proportionally higher poverty impact on the poorest farmers than those...
comparatively better off.

The following study details the creation of a One Health Metric (OHM) by combining the three tools above: the HDI, QALY and LPA. Global data sets on human health and livestock disease from OIE and WHO were utilised to inform the analysis. Key issues in creating and applying the metric are discussed in addition to policy implications.

Keywords: One Health Metric, Policy, Human and Animal Health

Session: TUE4.1 The One Health Approach in Action - Tools and Projects

Tue 06.10.2015 • 13:15-14:15 • Location: Jakobshorn

The Effects of Ebola on African Tourism
HEROLD, Annika; AMMANN, Walter; MOSEDALE, Jan
Global Risk Forum GRF Davos, Switzerland
Presenting author: HEROLD, Annika
annika.herold@grforum.org

The outbreak of Ebola not only led to several thousand fatalities, mostly in Guinea, Liberia and Sierra Leone, but also the economies and the tourism sector are heavily affected. The Ebola crisis was even made worse as there is a negative perception by tourists of Africa being a country, instead of a continent when it comes to risk assessment. This perception evoked fear, which spread faster than the virus itself. As a consequence, not only the Ebola-infected countries were suffering from economic losses, but also other African countries. Although not having had one case of Ebola, countries such as Kenya or Namibia were and still are affected by it, as tourists are avoiding the whole African continent. The recent decreases in tourism numbers in Africa show that there is a need for a strategy that prevents further losses in case of another crisis – the question remains, which one the most effective is. Interviews with National Tourism Organizations of African countries were conducted to answer this question. This presentation will show that a disease has the power not only to infect people, but also to affect several countries, and will provide recommendations and effective strategies for stimulating the tourism industry.

Keywords: Ebola, Tourism

Session: TUE1.3 Vulnerabilities and Resilience - One Health Approaches for Sustainable Development

Tue 06.10.2015 • 08:30-10:00 • Location: Parsenn

“One Health Bangladesh” A Professional Initiative to Transform One Health Agenda to a One Health movement in Bangladesh
ISLAM, Khaleda
Institute of Epidemiology, Disease Control and Research (IEDCR), Bangladesh, People's Republic of
Presenting author: ISLAM, Khaleda
islam_khaleda@yahoo.com

The professional body ‘One Health Bangladesh’ is working to improve public health of the country. Bangladesh the worst victim of climate change, having high population density, is struggling to combat emerging-reemerging infectious diseases, food safety and food security. The professionals in the field realized that country needs a multi-sectoral approach to address these diversified problems and formed ‘One Health Bangladesh’ in December 2007 involving wide range of professionals, researchers, academicians, young activists from different agencies, institutions, civil societies and networks. ‘One Health Bangladesh’ adopted multidisciplinary approach to combat disease at human animal interface, to ensuring food safety and food security. The Institute of Epidemiology, Disease Control and Research (IEDCR) is working as secretariat of ‘One Health Bangladesh’, taking different initiatives like hosting regular meetings, creating awareness among professionals and stakeholders, arranging national conferences every year. These activities attracted development partners like FAO, WHO, UNICE and other stakeholders, who supported the initiatives so that a large group of people from different disciplines like public health specialists, vet-
Veterinarians, wildlife specialists, environmentalists and social scientists are now working together under the umbrella of ‘One Health Bangladesh’.

The organization formulated ‘Strategic framework for One Health approach to infectious diseases in Bangladesh 2012’ endorsed by Ministry of Health & Family Welfare, Ministry of Fisheries & Livestock and Ministry of Environment & Forests. To develop One Health workforce, IEDCR introduced MPH (One Health and Biosecurity) in collaboration with Massey University New Zealand.

The 8th ‘One Health Bangladesh’ national conference in 2015, attracted huge participants, exceeding 400, life member 81, international expert in the field attended conference as paper presenter and panel discussants.

Full functional secretariat with designated staff and some budget to coordinate multi-sectoral approach of ‘One Health Bangladesh’ initiative is a crucial driving force to improve public health status of Bangladesh.

**Keywords:** One Health Approach, Professional body

**Session:** MON5.1 One Health Approaches for Sustainable Development

Mon 05.10.2015 • 15:50-17:20 • Location: Jakobshorn

**South East Asia One Health University Network (SEAOHUN): One Health Initiative From Universities to Stakeholders**

ISMAIL, Noor Hassim
Universiti Kebangsaan Malaysia, Malaysia
Presenting author: ISMAIL, Noor Hassim
ramalbaru@gmail.com

Nearly 75% of emerging and reemerging of diseases affecting human are originated from animals. These diseases might cause serious public health, economic and development concerns. Trans-disciplinary field have to work together to ensure success in controlling and prevention of infectious and zoonotic diseases. The technical skill and other core competencies are required by various stakeholders e.g. human, animal and environmental health professionals to collaborate to respond to disease outbreak in timely and sustainable manner.

U.S. Agency for International Development (USAID) has launched and Emerging Pandemic Threat (EPT1) program to prevent emerging and reemerging diseases that might caused pandemic threat at ‘hot spot’ regions. RESPOND is one of the project that focus on Universities network in South East Asia and Central East Africa countries to initiate one health approach to control the infectious and zoonotic diseases.

South East Asia One Health University Network (SEAOHUN) was established in December 2011 is a consortium of 10 Universities and 14 Faculties from Indonesia, Malaysia, Thailand and Vietnam. They are collaborating to develop One Health Capacity and academic partnership with government and private stakeholder in promoting One Health approach to prevent and control infectious and zoonotic diseases.

A key function of SEAOHUN and four national coordinating office from each country (NCOs) is to encourage and facilitate collaborative activities and project among network members, with emphasis on trans-disciplinary and trans-boundary partnership. Programs include but not limited to developed one health core competencies, core competencies and technical skill training modules, curriculum mapping, curriculum development, strengthening and developing teaching methodologies, staff exchange and evidence-base research for one health advocacy.

SEAOHUN members and US Universities as collaborating partner will move forward to continue One Health Advocacy in ASEAN region next 5 years under EPT2 projects.

**Keywords:** South East Asia One Health University Network, Emerging and reemerging diseases

**Session:** MON4.1 The One Health Approach in Action - Programmes and Initiatives

Mon 05.10.2015 • 14:10-15:40 • Location: Jakobshorn
The emergence of SARS corona virus in 2003, H1N1 in 2009, Middle Eastern Respiratory Syndrome (MERS) corona virus in Saudi Arabia and recently Ebola Virus epidemic are indicated that health workforce are have limited capacities to detect the early stage of spillover, amplification and spread of new disease threat. The early recognition of potential threat of the infectious diseases will allow the affected country to take preemptive steps to prevent it. Universities can contribute their expertise and facilities to train the future and present health workforce whom will have the required core competencies and technical skills to diagnose and prevent the epidemic. The One Health Workforce Themes are: Government engagement on workforce needs, translating needs to future workforce development, faculty development and In-service training. South East Asia One Health University Network (SEAOHUN) consist of Universities from Malaysia, Indonesia, Thailand and Vietnam, where faculties from various discipline expertise and stakeholders collaborating to conduct activities achieve our main objective to produce competent one health workforce.

**Keywords:** South East Asia One Health Universities Network (SEAOHUN), One Health workforces, Zoonotic diseases, Core competencies

**Session:** TUE1.1 Education and Capacity Building within One Health

Tue 06.10.2015 • 08:30-10:00 • Location: Jakobshorn
veloping knowledge-base on a broad framing of the environment, health and well-being, in support to the long-term transitions to more sustainable society.

Keywords: environment, health, well-being, Europe, integration

Session: TUE4.1 The One Health Approach in Action - Tools and Projects

Tue 06.10.2015 • 13:15-14:15 • Location: Jakobshorn

Mass and Elite Framing of Food Security Concerns in Australia
JENSEN, Michael J; HAUSMANN, Roger; SI, Wei
Institute for Governance and Policy Analysis, University of Canberra, Australia
Presenting author: JENSEN, Michael J
Michael.Jensen@canberra.edu.au

This Paper looks at the topic of Food Security from the perspective of elite and mass political drivers in the Australian Economy. In Australia Food Security is taken for granted by the population as Australia has traditionally been a food exporter and even in drought conditions Australia has been able to cope due to its size and scale of food production. The fact that Australia imports a significant part of its food is based on price not production capacity and here food quality standards are of central importance. The globalization of food production and processing have raised significant concerns for Australian consumers as food may be grown in one country under one set of regulations and packaged in another representing a potential unknown threat to Australian consumers.

The globalisation of food production and processing have raised significant concerns for Australian consumers as food may be grown in one country under one set of regulations and packaged in another representing a potential unknown threat to Australian consumers.

There are competing preferences among Australian consumers and political elites. These tensions include preferences for food grown in Australia; preferences for fresh over canned produce; and price considerations which may favour imported food and canned produce over fresh. The lack of supermarket competition in Australia exacerbates this tendency with their home brands.

This paper examines the extent to which these tendencies prevail among Australians and their political elites using a survey of Australian MPs and analyses of social media communications on Facebook and Twitter regarding food security concerns in Australia. The MP survey will contain both multiple choice and free responses which differentiate their framings of food security concerns while the social media communications will be analysed using a series of machine learning techniques. The contribution of the paper is the identification of political possibilities and constraints for addressing food security concerns in Australia.

Keywords: food security, social media, public policy, globalization

Session: MON4.2 Food Security and Food Safety

Mon 05.10.2015 • 14:10-15:40 • Location: Pischach

Conceptualising WASH System Resilience in the Context of Natural Hazards
JOHANNESSEN, Åse (1); HAN, Guoyi (1); THOMALLA, Frank (2); JOHNSSON, Karlee (2)
1: Stockholm Environment Institute, Stockholm, Sweden; 2: Stockholm Environment Institute, Bangkok, Thailand
Presenting author: HAN, Guoyi
guoyi.han@sei-international.org

The need to build the resilience of societies to multiple complex and interacting socio-economic and environmental risks is increasingly being acknowledged by donors, researchers, policymakers and practitioners. A multitude of resilience frameworks has recently been developed in the context of natural hazards, climate change, and sustainable development. These frameworks aim to identify and characterize elements of resilience at different scales (e.g., individual, community, city) and to provide entry points for decision-makers and practitioners for interventions aimed at building resilience. Most frameworks focus attention to either the community scale or the city scale.

The aim of this research is to enhance understanding of how resilience can be defined and conceptualised in the context of Water, Sanita-
tion and Hygiene (WASH) systems that are at risk from natural hazards (flood and drought). Particular attention is paid to the linkages between WASH system components and services, ecosystem management in the surrounding watershed, wider city planning processes, and the experience of the individual user. Insights on WASH system resilience will be derived from a systematic review of existing published resilience frameworks and empirical research conducted in six case studies (Durban, South Africa; Beira/Maputo, Mozambique; Cebu, Philippines; Yueyang City, China; Gorakhpur, India; Kristianstad, Sweden; and Cali, Colombia) under the project ‘Water, Sanitation and Hygiene in Resilient Cities and Urban Areas Adapting to Extreme Waters’ (Wash & Rescue) funded by the Swedish Civil Contingency Agency (MSB) between 2011 and 2014. The outcome of this project will be a new resilience framework for WASH system resilience. The framework will provide WASH system managers with an improved understanding of WASH system dynamics; the vulnerabilities of its various components to natural hazards; the causes of potential system failures; and specific entry points for disaster management interventions aimed at strengthening the resilience of the WASH system.

**Keywords:** water, sanitation, hygiene, resilience, natural hazards

**Session:** MON1.3 Water and Health

Mon 05.10.2015 • 08:30-10:00 • Location: Parsenn

---

**An Assessment of Access to Health Services for Children and Inter Sectoral Coordination in National Rural Health Mission in State of Punjab (India)**

KAUR, Navreet; KAUR, Ravneet; SITLHOU, Lhoukhokai

*Panjab University, Chandigarh*

Presenting author: KAUR, Ravneet

arora.ravne@gmail.com

Children are most important asset of a nation. The growth of civilization ultimately depends upon the human resources capability. Child development issue need attention and integrated approach and well defined respective roles of various political and social institutions. Government has enacted various legislations, formulated plans, policies and programmes for the child welfare. The child health indicators all over the country have generated the urgent interventions in the policy matters concerning child health. The Government in particular adopted synergistic approach by relating health to determinants of good health viz segments of Nutrition, sanitation, hygiene and safe drinking water. National Rural Health Mission was launched on 12th April 2005 throughout the country.

1. The NRHM (2005-12) seeks to provide effective health care to rural population throughout the country with special focus on 18 states, which have weak public health indicators and weak infrastructure.

2. The mission is an articulation of the commitment of the government to raise public spending from 0.9% of GPP-2.3% of GDP.

3. It was its key components provision of a female health activist in each village, a village health plan prepared through local team, strengthening of the rural house hold.

Objectives of the study: 1. To examine the synergistic approach of NRHM by relating health to segments of nutrition, sanitation, hygiene and safe drinking water.

2. To examine the infrastructure availability and human resources at sub centres (SC) and Primary Health Centres (PHC).

3. To evaluate the role of Accredited Social Health Activitists.

Hypothesis: 1. The infrastructure available (Laboratories, equipment) at the sub centres and Primary Health Centres is not appropriate.

2. The existing human resources (Doctors, Nurses, ANM’s, ASHA) are not adequate to meet the targets of NRHM.

3. The roles and responsibilities of ASHA Workers are well defined.

The research paper is written by using both primary and secondary sources.

**Keywords:** synergistic, child health, rural health, decentralization, ASHA worker

**Session:**

* Location:
**Fighting Zoonoses in Afghanistan, Bangladesh and Nepal: Concept and Progress of the One Health Asia Programme**

KHAN, Javed; ACHARYA, Resham Prasad  
*Relief International*

Presenting author: ACHARYA, Resham Prasad  
resham.acharya@ri.org

Relief International's One Health Asia programme works to alleviate the impact of zoonoses on fragile rural populations. The three year project (2014-2016) is funded by the European Union under their One Health Programme in Asia. The project was designed to tackle the spread of infectious diseases at the interface between animals, humans and their various environments.

This intervention targets are the most vulnerable populations including women and girls in rural communities and the main focus is on awareness raising and capacity building activities. To ensure sustainability and to institutionalize one health concepts at the community level in the target countries, formation of project support committees, youth clubs and school health clubs are planned. The project plans to create district, provincial/regional/divisional and national level Zoonotic Control Associations (ZCAs) as well as an Asia Regional Zoonoses Network. These committees/associations are the forums/structures and the corner stones of this project to advocate zoonotic diseases awareness and concrete actions at policy level. The aim of these advocacy efforts is to generate wider support in government circles for the integration of zoonoses into the public health agenda. The associations will also help oversee the integration of grassroots level surveillance with the district, provincial and national systems.

Through an intensive inception phase, the project initiated on the 1st of January, 2014. A series of visits, meetings and consultations with key personnel from the relevant Ministries, Departments and Offices were organized to educate and ensure buy in of project activities for sustainability and to explore opportunities for collaboration. 270 Community groups and clubs are being created, and 916 meetings have been held among members to initiate the awareness raising campaign in the communities.

**Keywords:** One Health, Zoonoses, Public Health, Surveillance

Session: MON5.3 Surveillance and Early Warning - The Basis for Prevention

Mon 05.10.2015 • 15:50-17:20 • Location: Parsenn

**Working Towards ‘One Health’ – The Hidden Politics of Breaking Down Barriers**

KINGSLEY, Pete  
*University of Edinburgh, United Kingdom*

Presenting author: KINGSLEY, Pete  
pete.kingsley@ed.ac.uk

One Health proposes refashioning research and interventions to address problems that spill across traditionally separate areas of knowledge and policy. Much of what is proposed under the auspices of One Health is welcome, straightforward and sensible. However, collaboration and unification are not without complications.

This paper – reflecting on empirical work in Uganda and Nigeria, as well as recent literature, considers three central aspects to One Health. That is, widespread calls to 1) pursue a global One Health strategy at national and local levels, 2) conduct more interdisciplinary research, and 3) to embrace complexity theory as an analytical strategy. Pushing a global strategy into national and local programmes risks - in its crudest form at least - replicating the issues that ‘one-size fits all’ projects in global health have often faced. Interdisciplinary research can broaden understandings of real-world problems, but also risks subsuming smaller, critical disciplines and perspectives into a homogenised discourse. Finally, complexity theory offers an intriguing way of conceptualising unpredictable, multifaceted systems, but its implications for policy are far from clear; and need to be thought through carefully.

In short, these approaches all have promise, yet each is leaden with intellectual and political risks that may not be immediately appar-
ent. This paper explores these issues, which have thus far often been neglected in a largely technocratic, apolitical One Health discourse.

Keywords: research, interdisciplinarity, complexity, neglected tropical diseases, trypanosomiasis

Session: MON4.1 The One Health Approach in Action - Programmes and Initiatives

Mon 05.10.2015 • 14:10-15:40 • Location: Jakobshorn

Contract Bonus Systems to Encourage Biosecurity Adoption on Small-Scale Broiler Farms in Bali, Indonesia

KOMALADARA, Anak Agung Sagung Putri (1); PATRICK, Ian (2); HOANG, Nam (2)
1: Udayana University; 2: University of New England

Presenting author: KOMALADARA, Anak Agung Sagung Putri
pkomaladara@gmail.com

The significant economic loss in the poultry industry, due to the recent Highly Pathogenic Avian Influenza (HPAI) outbreak, ensures that biosecurity adoption on small-scale poultry farms remains a priority for Indonesia. However, given their economic constraints, small-scale poultry growers require a form of incentive to be motivated to adopt biosecurity. Since the majority of poultry farmers manage their birds under a contract, there is an increased responsibility for contract companies to encourage better on-farm biosecurity practices. In this regard, contract bonus systems that stimulate productivity and farm management improvements are considered as a potential means to provide incentives for farmers to invest in biosecurity.

This study evaluates contract bonus systems and its capacity to encourage investment in biosecurity. Employing a gross margin approach, data obtained from six major contractor companies in Bali were used to assess the contract bonus system that best reward biosecurity implementation. Bonuses rewarded by the contract companies were categorised into two groups, namely market price bonus and performance bonuses. Results show that the price bonus plays a significant role in providing additional income for the farmers. Farm profits are mainly obtained from these bonuses in Contracts 3, 5, and 6. Higher market price bonus also indicates that contract companies pass on a greater proportion of the Healthy Farm price premium to farmers. Meanwhile, Contracts 2, 4, and 6 provide farmers with higher performance bonuses, indicating that companies encourage farmers to improve production efficiency. Overall estimates after the initial year of biosecurity investment show improvements in returns for farmers. Findings from this research are informative to contract companies and other stakeholders in considering supports for biosecurity implementation for small-scale farmers in Bali.

Keywords: Contract bonus systems, biosecurity, small-scale farmers, Bali

Session: MON1.1 A Focus on Behaviours Necessary for Food Security in Animal Protein Value Chains

Mon 05.10.2015 • 08:30-10:00 • Location: Jakobshorn

Preparation of Hearing Conservation Program for Stone Crushing Industry

LIMMONGKON, Yuparat (1); SITTITOON, Nalin (2); EKA, Wasana (3); HONGRATHANAKORN, Jirathon (3)
1: School of Occupational Health and Safety, Institute of Medicine, Suranaree University of Technology, Nakhon Ratchasima, Thailand; 2: School of Environmental Health, Institute of Medicine, Suranaree University of Technology, Nakhon Ratchasima, Thailand; 3: SilaSakol Pattana Co. Ltd, Nakhon Ratchasima, Thailand

Presenting author: LIMMONGKON, Yuparat
yuparat@sut.ac.th

Exposure to high levels of excessive noise causes early noise-induced hearing loss. Most stone crushing industry workers could expose noise in their workplaces. This study aimed to evaluate noise exposure among stone crushing industry workers using personal noise dosimeters at the workers and sound level meter at the workplace areas. There were seven sampling points at the crushed stone operations for monitoring noise using a sound level meter. Also, workers in those operations
were evaluated using personal noise dosimeters. The results revealed that the average noise levels were 96.1 - 96.3 dB (A)Leq at hopper area, 100.5 -105.7 dB (A)Leq at vibrating feeder and jaw crusher area, 87.7 - 95.0 dB (A)Leq at vibrating screen area. In addition, the time-weighted average (TWA) of the noise dosimeter for the workers in the operations were 70.0 -75.3 dB (A) for hopper workers, 88.2 - 95.0 dB (A) for vibrating feeder and jaw crusher workers, and 76.1 – 79.3 dB (A) for a vibrating screen worker. These indicated that the noise exposure in the vibrating feeder and jaw crusher areas exceeded the Thailand occupational health safety and environment standards at 90 dB (A) for eight working hours. This industry has already applied the selection and use of hearing protection devices and periodic audiometric evaluation for the workers. Therefore, the hearing conservation program including engineering and administrative controls such as using sound absorption materials, modifying work rotation system should be conducted in the vibrating feeder and jaw crusher area.

Keywords: stone crushing industry, hearing conservation program, personal noise dosimeter

Session: MON5.2 Case Studies of Integrative Health Risk Management

Mon 05.10.2015 • 15:50-17:20 • Location: Pischa

A Muslim Mental Health Conference: Community Approaches to Dealing with Disaffection and Extremism

MAGEN, Jed Gary; ABBASI, Farha
College of Osteopathic Medicine Michigan State University, United States of America
Presenting author: MAGEN, Jed Gary magenj@msu.edu

Muslim Immigrant Communities appear to have higher rates of a variety of psychiatric disorders as related to immigrant status and to exposure to traumatic events in the home country. In Muslim cultures, psychiatric disorders tend to not be well recognized and are often highly stigmatized. The Department of Psychiatry at Michigan State University holds a Muslim Mental Health conference yearly. Objectives include:

1) Basic mental health training for Imams and community leaders to help Imams better understand the way psychiatric and behavioral disorders present and to give them basic intervention and referral strategies. Sensitizing leaders in communities will help improve recognition and access to treatment especially for the important group of young adults who have both psychiatric disorders and substance use disorders and who are having difficulty integrating into the community and culture. These young adults are at risk for continued alienation, poor achievement and radicalization.

2) Public lectures to sensitize other community members and those of other faiths to issues in the Muslim community

3) A research day with posters and presentations to create a forum for researchers to discuss and to improve the quality and quantity of research on Muslim Mental Health issues.

Keywords: mental health, prevention, community intervention

Session: TUE4.3 Poverty and Health - One Health Approaches for Sustainable Development

Tue 06.10.2015 • 13:15-14:15 • Location: Parsenn

Improving Community Health through Mobilizing Formal Systems and Informal Networks: A Social Organizational Approach

MANCINI, Jay A.; BOWEN, Gary L.
The University of Georgia, United States of America
Presenting author: MANCINI, Jay A. mancini@uga.edu

Building communities from the inside out is a powerful, effective, and sustainable preventive strategy for enhancing community health, and for mobilizing diverse assets to address global challenges (Mancini & Bowen, 2013). These challenges include health disparities and under-served populations, natural disaster preparedness and recovery, and integration of immigrants in new environments. Each of these challenges pivots on health, broadly considered, and calls for multi-dimensional
social action for their solutions. We present a social organizational theory of action and change (TAC) as a strategy for mobilizing community assets that accounts for vulnerabilities while elevating processes of resilience. The approach has been integrated with key global issues concerning first responders in harm's way (Bowen, Martin, Mancini & Nelson, 2000), natural disasters (Keifer, et al, 2008), intimate partner violence in communities (Mancini, et al 2006), community gardens, violence against older adults (Roberto, et al, 2013), and community physical and mental health (Mancini, Arnold, Martin, & Bowen, 2014).

The global health example we use in this discussion are health conditions of diabetes, heart disease, and obesity, though, numerous other health situations of global significance could be used. The orientation is one of prevention, though equally applicable to intervention. There are four major framework elements (see Mancini & Bowen, 2013 for a full elaboration), the first centered on contexts of social and physical infrastructures (called community antecedents), the second focused on network structures, social capital and community capacity (called social organizational processes), the third on sense of community (called intermediate results), and the final element is individual/family/community results. We provide four global health real-life examples in the course of analyzing community situations through this theoretical lens. We conclude our discussion with implications for social action, including how to mobilize informal networks in communities through the actions of formal systems that support communities.

Keywords: Community, resilience, informal networks, formal systems

Session: TUE1.1 Education and Capacity Building within One Health

Tue 06.10.2015 • 08:30-10:00 • Location: Jakobshorn

Ebola Virus Disease Outbreak in West Africa: The Lessons We Have Not Learned

MARTIN, Vincent (1); RICHTER, Carsten

The outbreak of Ebola virus disease (EVD) in West Africa represented a crisis of massive scope and cross-sectoral nature. First reported in March 2014, the Ebola outbreak severely affected Guinea, Liberia and Sierra Leone, and threatened to impact neighbouring countries. EVD caused tragic loss of life, adversely impacted agriculture and gravely threatened food and nutrition security in the region. Governments, institutions and infrastructures struggled to cope with the enormous challenge while the way of life of affected populations hung in the balance. Now that the number of cases is declining and the situation is slowly returning to normal, questions are emerging on the incapacity of the international community and national public health systems to react timely and prevent the dramatic spread of the disease across 6 countries in Africa and beyond in Europe and the United States. What have we missed and what are the lessons we have not learned from One Health experiments that took place in various parts of the world, more particularly in Asia? Here we explore the social and ecological determinants of emerging infectious diseases, with the hope they may help lay a foundation for a preventive approach to EIDs. What can be learned from this and other EIDs (H5N1, SARS, NIPAH) is the need to focus on understanding the temporal and spatial coalescence of social and ecological factors promoting intensification of transmission. This must include considering how emergence processes operating on different scales interact, and how loss of system resilience sets the stage for disease emergence. This should include how the dynamics of critical factors lead to potential epidemic foci, lo-
cally. It should also include how these dynamics coincide with critical processes occurring on a regional scale, such as increasing movement of pathogens via humans or other “vehicles” for inter-foci pathogen transmission.

Keywords: EVD, Food and Nutrition Security, Livelihood, social-ecological systems, Interdisciplinary collaboration, West Africa, Regional approach

Session: TUE1.3 Vulnerabilities and Resilience - One Health Approaches for Sustainable Development

Tue 06.10.2015 • 08:30-10:00 • Location: Parsenn

Integrating Knowledge Systems: Beyond the Triple Health of The Maasai And Leapfrogging Into A Modern Health Facility In Kagera/Central Africa

MASCARENHAS, Adolfo Caridade (1); PAIS, Anthony Victor (2)

1: Local & Indigenous Knowledge System, Tanzania (LiInKS), Commission of Science & Technology (COSTECH) Research on Poverty Alleviation (REPOA); 2: Mazumdar Shaw Medical Center, Prof. Head of General Surgery Academic Affairs

Presenting author: MASCARENHAS, Adolfo Caridade
adcamas@gmail.com

The goals of this paper are contextualized by recognizing a serious crisis in health at global, national and community levels. Understanding the prevailing situational chasm, the opportunities, constraints at the two extremities are required if meaningful and affordable improvements are to be put in place. Building on a presentation made at GRF 2014, on the Maasai concept of “triple health” the main goal is to demonstrate how research and knowledge based approaches could lead to significant participation of people, professionals etc.

Methodologically, a pragmatic approach has been taken. Without romanticizing the triple health concept of the Maasai in Mwanga District of Tanzania, there has been a subsequent reassessment of changing circumstances for adaptation and coping mechanism of the pastoralists. Additionally a leapfrogging intervention is planned in Kagera Region of Tanzania. An advanced modern health facility will be created to serve five countries to contain increasing cases of cancers and related diseases. This requires a cost efficient way for integration of needs to the existing health services. Attention has to paid to capacity, infrastructure and listening to beneficiaries/service providers. Collaboration between professionals from countries of emerging economies opens new vistas. In this digital age of the possibility of instant information, valuable lessons can be incorporated.

Preliminary Findings: Based on MDG some gains have been made in malaria control, HIV/AIDS and maternal deaths. Nevertheless, a public health crisis exists because of governance issues, inadequate policies, casual implementation etc. Health is not a “standalone” sector. It is critically intertwined with the culture, well being and livelihood of citizens. For a large and very diverse country like Tanzania, a “one-size-fits-all” approach will lead to an exclusive health for the few privileged while the masses both in the urban and rural areas wallow in poverty.

Keywords: Research Value, Integrating Local/Modern Knowledge

Session: MON5.1 One Health Approaches for Sustainable Development

Mon 05.10.2015 • 15:50-17:20 • Location: Jakobshorn

Shifting the Diagnostic Paradigm for Undiagnosed Illnesses – Low-tech Lessons Emerging from the Wild

MAZET, Jonna AK (1); SMITH, Woutrina (1); ANTHONY, Simon J (2,4); KREUDER-JOHNSON, Christine (1); JOLY, Damien (3); WOLFE, Nathan (3); KARESH, William B. (2); DASZAK, Peter (2); GOLDSTEIN, Tracey (1)

1: One Health Institute, University of California, Davis, United States of America; 2: EcoHealth Alliance, New York, United States of America; 3: Metabiota, San Francisco, United States of America; 4: Center for Infection and Immunity, Columbia University, New York, United States of America
Rapid identification of pandemic threats has recently become more feasible due to implementation of One Health approaches. In just four years, the PREDICT Project of USAID’s Emerging Pandemic Threats Program has detected more than 250 novel viruses from wildlife that are related to those that cause illness, epidemics, and pandemics in people. Most genomic approaches for viral discovery are extremely expensive and still available only in sophisticated laboratories with teams of diagnosticians and bioinformaticians. Therefore, more economical, portable, and technologically simple approaches were sorely needed to detect and forecast novel pathogen emergence. Because the PREDICT Project has focused on viral emergence from wildlife in remote areas in some of the most resource-constrained countries, we have by necessity developed a more sustainable approach to viral discovery and diagnosis of mystery illnesses that we have implemented across broad socioeconomic contexts. Employing simultaneous multiple-genus and family level, consensus PCR, we have been able to quickly and accurately identify novel viruses, previously undiagnosed as potential pathogens, for further characterization. This approach does not eliminate the need for careful clinical interpretation of patients, but does prevent severe intervention delays due to missed differential diagnoses and deficiencies in test availability for emerging and re-emerging pathogens. Combining cutting-edge surveillance techniques with practical implementation of holistic, One Health approaches, the global health community has now contributed significantly to inexpensive diagnostic improvement for the individual, while realize the original goal of step-wise improvement of pandemic prevention.

**Keywords:** zoonoses, emerging infectious disease, pandemics, diagnostics, wildlife

**Session:** MON5.3 Surveillance and Early Warning - The Basis for Prevention

---

**Multisectorial Scheme Proposed for Resilience in Guatemala due to Disasters Caused by Water**

MEJIA, Monica Pamela  
San Carlos University of Guatemala, Guatemala

Presenting author: MEJIA, Monica Pamela  
mejia.monica@usac.edu.gt

Guatemalan panorama due to disasters caused by water, instead of being dark, could be improved using the proposed scheme to work as a stage to perceive opportunities using the talent and national capacity, cultural and ethnic diversity to actively influence in the subject, through investment, transparent regulations, hazard recognition as key players changing, resource protection, power-sharing, strategic alliances, anticipation of risks that cannot be reduced.

Important is that a paradigm shift is generated: disaster to resilience. Instead of thinking, speaking, innovate and create solutions to reduce disaster; it is better to discuss, innovate and create alternatives or proposals to overcome post-disaster properly (because social, structural and environmental debt is still high), being able to be prepared, updated and versatile to the occurrence of various events in the future, making visible the risks with the ability to see beyond what is customary.

There are contexts, frameworks, laws and regulations, international experience, research methodologies to protect life when water becomes a hazard. However, there must be a synergy, active participation and multisectoral dynamic. Is the benefit will be greater if responsibilities and obligations are intended to each one according to their skills or whether institutions (public, private or individuals) interested in the subject work hard on their own to achieve the same goal?

It is logical and intelligent to consider that intervention and collaboration according to the capabilities, economic, intellectual and humanitarian efforts well distributed and used for the same purpose, create a powerful, fit and proper way to serve the population and its environment ensuring a secure development.
Public health is influenced by animal health and welfare. In some instances, in efforts to protect humans, animal welfare suffers. Stray dog populations are considered a problem in many developing countries and are sometimes dealt with by mass inhumane culling. The misconception that culling is the most effective method of reducing dog populations often results in severe animal suffering. Application of a full cycle of dog population management methodology (for example, as set out in the International Companion Animal Management Coalition guidelines), or steps towards this, can help tackle the spectrum of problems associated with roaming dogs, such as disease transmission, nuisance, injury and fear, dog bites and livestock predation more humanely and effectively.

To achieve this, the World Animal Protection works with global governments, IGOs, NGOs and communities to ensure sustainable solutions for animals and people alike are put in place.

For example, World Animal Protection partners with the Zanzibar Department of Livestock Development (via the Veterinary Department), who are implementing a humane dog population management programme. Following the initial success of the project, the Department have expanded objectives to include rabies elimination, which is an achievable goal and which will help reduce the animal welfare and public health burden of the disease.

As a key element of the management cycle, education is of critical importance. Changes in perception, attitude and behaviour are fundamental to long term success. World Animal Protection therefore invests in curricula mainstreaming and 'Training of Trainers' programmes, often for local authorities and municipal councils.

In conclusion, World Animal Protection supports a holistic approach which sees animal and human health as inextricably connected, and works through cooperation between municipalities, public health and veterinary sectors. By coupling humane dog population management with responsible dog ownership, conflicts between humans and dogs can be mitigated, creating harmonious co-existence.

Keywords: dog, population, management, rabies, partnerships

Session: MON4.3 Wildlife, Livestock and Pets - The Human Animal Interface

Mon 05.10.2015 • 14:10-15:40 • Location: Parsenn

Snoozes Risk Assessment and Prevention in Georgia

NADIRADZE, Kakha; PHIROMANASHVILI, Nana
Association for Farmers Rights Defense, AFRD, Georgia

Presenting author: NADIRADZE, Kakha
foodsafetyge@gmail.com

As the world population grows, particularly in urban areas, and incomes increase, diets and consumption patterns change, and demand for food and non-food agricultural products expand. In Georgia Agriculture has to face the progressive erosion of the natural resource base it depends on, in addition to the threats that originate from climate change. The desired impact on the Risk assessment in food security and nutrition and sustainable development can only be achieved if the actors involved are accountable for their actions and for the impact they have on the livelihoods of others and on the environment. It is common knowledge in climate change particularly affects developing countries like Georgia, but its effects on health, nature and environment
are still very hard to predict. In a joint effort to bridge this gap, we worked on research project to assist risk management and health decision-makers in allocating resources and implementing preventative measures ahead of disease epidemics. The Projects was focused on risk management and disease control in Animals, aiming giving to decision-makers the necessary recommendations to deploy intervention methods and help prevent large-scale spread of zoonotic diseases and different pollutants affecting food and feed for human and animals. The overall objective of our research project was to combine climate models, weather-dependent infection-control data for key diseases, and local knowledge of Farmers about population behavior, disease control and transmission patterns. We learned by these researches that there was a clear lack of use of climate-model data sets for impact studies, assessments and evaluations. We investigate the conditions of the animals diseases like: brucellosis, bovine tuberculosis, echinococcosis, leishmaniosis, listerias and zoonotic trypanosomes. These diseases pose a direct risk to human health’s in Georgia, and can also have a serious impact on livestock productivity – and hence the livelihoods of Farmers and their families.

Keywords: zoonozes, climate change, prevention, food safety

Session: MON5.2 Case Studies of Integrative Health Risk Management

Mon 05.10.2015 • 15:50-17:20 • Location: Pischa

Social Benefits of Reducing the Risk of Lung Cancer from Radon Exposure

NAVRUD, Stale
Norwegian University of Life Sciences, Norway
Presenting author: NAVRUD, Stale
stale.navrud@nmbu.no

The geology of Norway makes a large part of the population exposed to radon levels above the level of 100 Bq/m³ indoor concentration recommended as the maximum level by Norwegian Radiation Protection Authority. We conducted a Stated Preference survey asking a representative sample of 700 households in Norwegian municipalities with medium (100-200 Bq/m³), high (200-400 Bq/m³) and very high (> 400 Bq/m³) radon concentrations; for their willingness-to-pay (WTP) for mitigating measures to reduce their risk of lung cancer (based on exposure-response functions, and assumed or measured indoor radon concentrations) from the current level to below 100 Bq/m³. Econometric analyses were conducted to identify the socioeconomic determinants of their WTP and their willingness to undertake radon measurements. Social benefits of reduced lung cancer is compared to the costs of mitigating measures.

Keywords: Radon, lung cancer, Stated preference, willingness-to-pay, health economics

Session: MON1.2 Integrative Health Risk Management

Mon 05.10.2015 • 08:30-10:00 • Location: Pischa

Comparison of Science-Based Frameworks for Risk-Informed Decision Support Across Life-Science and Engineering Disciplines

NIELSEN, Linda (1); SCHLUNDT, Jørgen (2); FABER, Michael Havbro (3)
1: Technical University of Denmark, Denmark; 2: Technical University of Denmark, Denmark; 3: Technical University of Denmark, Denmark
Presenting author: NIELSEN, Linda
lindanielsen2012@gmail.com

Most risk management strategies, regardless of the types of hazards considered, have been designed for individual hazards and risks as well as individual organizations responsible for managing them. In an increasingly interconnected society, compartmentalizing the management of risk – and therefore also the underlying risk assessment - will result in major missed opportunities in relation to synergy in solutions as well as prioritization of risks. Our study is in direct response to the challenge of building a holistic, cross-disciplinary risk assessment capability that can enable the synchronization of efforts of multiple stakeholders within one or multiple management frameworks.

We have conducted a study of six academic fields, which aim to provide risk-informed,
evidence-based decision support with respect to risk and sustainability assessment: human and environmental health, civil engineering, transportation, management science and scientific computing. We describe major trends in the area of risk assessment and management and their drivers and discuss the implications for the above academic fields. We compare procedural risk frameworks and associated terminologies as well as scientific frameworks, together with underlying principles, methodologies and metrics. We highlight several theoretical principles as particularly suitable in the context of risk-informed decision making, which are applicable across academic domains: Bayesian decision analysis, Value of Information, Bayesian Probabilistic Nets, Multi-Criteria Decision Analysis, and a number of socio-economic models and indicators for risk acceptance criteria, including DALYs, HALYs and the Life Quality Index (LQI).

We propose a cross-disciplinary scientific effort, whose novel contribution is building a generic framework, which will enable a common development of metrics and models with respect to sustainability and risk assessment in a number of presently separately managed areas.

**Keywords:** Risk frameworks, comparative studies, life safety

**Session:** MON1.2 Integrative Health Risk Management

**Mon 05.10.2015 • 08:30-10:00 • Location:** Pischa

### Monitoring of Emergency Water Factors and Anthropogenous Loading of Industrial Facilities on Quality of a Waterway of Transboundary Rivers

**NORMATOV, Parviz**

**Tajik National University, Tajikistan**

Presenting author: NORMATOV, Parviz amp@bk.ru

Tajikistan is a mountainous country that one posed in an interval of altitudes from 300 up to 7000 m above the sea level, cities, settlements and kishlak (villages) are located in valleys of the rivers, which anthropogenesis loading on superficial reaches maximum. According to results of the water control analyses during storm rains, there is a bacterial pollution of the rivers prick an index can reach numerous amounts of intestine sticks in 1 liter of water (Varzob River – 3800 intestine sticks in 1 liter of water). The basic importance of a waterway of infection transfer is especially evident at study of dynamic of disease by a typhoid, which always characterized as very high level. The underground waters take appreciable place in supplement of the population of Tajikistan by potable water. Water as dynamical components of the ecosystems possesses ability promptly to transfer various pollution and infectious diseases on greater territories. However, it concerns to superficial waters but not exception is also underground waters. First, it caused by that superficial and underground waters constantly are in dynamic interaction and takes thus a place penetration and diffusion of pollution to the reservoirs of underground waters. Earlier it was observed that significant seasonal change of concentration of nitrates in underground waters: during the droughty periods concentration of nitrates did not exceed unit and during rains reached 18 mg/dm3. Tajikistan is the agrarian country and basic agricultural production is cotton. For receiver of the good harvest many farmers breaking the established norms apply enough lots mineral fertilizers and pesticides. It is necessary to note that the majority of sources of mass water delivery of rural population are near to the irrigated grounds. At rains the mineral fertilizers and pesticides hit to the underground water reservoirs.

**Keywords:** bacterial pollution, intestine stick, infection, typhoid

**Session:** MON1.3 Water and Health

**Mon 05.10.2015 • 08:30-10:00 • Location:** Parsenn

### Intergrated One Health Zoonoses Risk Assessments of Cross Border Pork Value Chains in Lao PDR

**OKELLO, Anna (1); TIEMANN, Tassilo (2); INTHAVONG, Phouth (3); OKELLO, Walter (1); PHENGVILAYSOUK, Ammaly (4); KEONOUCHANH, Soukanh (4); KHAMLONE,
The increasing demand for pork in Southeast Asia and Southern China is presenting significant opportunities for smallholder producers. It is important to understand the economic parameters and the public health risks of these pig production systems in the Greater Mekong sub-region. Lao PDR is strategically placed geographically between the larger markets of China, Thailand and Vietnam. Lao's recent accession to the WTO requires greater understanding of the patterns of livestock production and associated zoonoses risks in the country - including pork products - in order to align national policy with agreement on the Application of Sanitary and Phytosanitary (SPS) Measures. A greater understanding and quantification of the risk will help to ensure SPS recommendations are proportional to the risk, thus avoiding unnecessary penalties or transit times for pig producers and traders in the country. This study describes the integration of market chain analysis in two strategic cross border chains in Lao PDR. Integrating qualitative and quantitative research processes has lead to a greater understanding of the current knowledge, attitudes and practices of stakeholders along the pork value chain and of the associated economic and public health risks of this activity.

Evidence based recommendations can be made for setting policies and implementing government programs that address both the smallholder pig production needs and the public health risks.

Keywords: market chain analysis, zoonotic risks

A Conceptual Framework for Conducting and Integrated Vulnerability Assessment in Climate Change and Malaria Transmission
ONYANGO, Esther Achieng
Griffith University School of Environment: Centre for Environment and Population Health and Environmental Research Futures Institute, Brisbane, Australia

Climate change will impact on ecosystem regulation of climate-sensitive diseases such as malaria. Also, other important ecological, socioeconomic and sociodemographic factors, such as land use change, gender, age, human immunity, population growth, migration and transportation and levels of economic development have an influence on malaria transmission. A sufficiently accurate determination of risk must include the relative contribution this array of influences at multiple scales including those operating at the local level, as these factors can either mitigate or exacerbate the projected risk from climate impacts alone. It is also important to understand the extent to which affected communities are vulnerable to this risk and their adaptive capacity. Integrated vulnerability assessments involve the consideration of climate and other biophysical and social determinants of malaria transmission in a holistic framework for risk evaluation. A review of research on malaria transmission in the East African region, which is a high-risk area for malaria transmission, revealed only one integrated vulnerability assessment of climate change and malaria. This lack of integrated vulnerability assessments largely reflects the multiple interacting determinants involved, the lack of appropriate data, the need for a multi-disciplinary approach, and the difficulty in conducting the required analyses at multiple temporal and spatial scales. Vulnerability is also context specific and although there are general guidelines on
such assessments, there is not one universal method for such studies. Based on the theoretical concepts of climate change, malaria transmission and vulnerability, this paper will present a conceptual framework developed to conduct an integrated vulnerability assessment of climate change impact on malaria transmission in Western Kenya, East Africa. The framework utilises a systems approach, identifies critical stakeholders at regional and community level, and considers the influence of climate change, land use change and other social influences in transmission.

**Keywords:** Integrated vulnerability assessments, climate change, malaria transmission, western Kenya

**Session:** TUE4.3 Poverty and Health - One Health Approaches for Sustainable Development

**Tue 06.10.2015 • 13:15-14:15 • Location:** Parsenn

---

**Zoonotic Disease Unit of Kenya: Blueprint for National One Health Action**

OSORO, Eric (1,2); MBABU, Murithi (3); NJERU, Ian (1); BODAL, Huzeifa (4); KIBOYE, Maurice (5); RESCH, Kristin (5); KAIRU-WANYOIKE, Salome (3); KIAMBI, Stella (3); BITEK, Austine (2,3); MUTURI, Mathew (2,3)


Presenting author: MUTURI, Mathew

muturimathew@gmail.com

A One Health (OH) approach that integrates human, animal and environmental approaches to management of zoonotic diseases has gained momentum in the last decade as part of a strategy to prevent and control emerging infectious diseases. However, there are limited examples of institutionalized OH approaches. We describe Kenya’s roadmap towards establishment of a sustainable OH system at national and sub-national levels.

Since 2006, the Government of Kenya has worked to institutionalize OH approaches through creation of a multi-sectoral working group to manage zoonotic outbreaks and workshops to deliberate on mechanisms of maintaining OH practices. These efforts culminated in the establishment of an OH coordinating unit, referred to as the Zoonotic Disease Unit (ZDU) in 2011.

The ZDU bridges between the ministries of livestock and human health, with an epidemiologist deployed from each ministry aimed at establishing and maintaining collaboration at the animal and human health interface towards better prevention and control of zoonoses. As a guide for the ZDU, the country has a 5-year national strategic plan for the implementation of an OH approach. The benefits of this newly enhanced collaboration are already becoming apparent; recent outbreaks of zoonotic diseases, including Rift Valley fever (RVF) of 2006-07, rabies and anthrax were detected more rapidly, effectively responded to, better documented and the understanding of animal-human linkage of the diseases improved. This OH approach has enhanced compliance with the International Health Regulations (2005) on public health threats. The ZDU has also coordinated the development a national rabies elimination strategy that incorporates the OH approach and whose implementation is based on the Stepwise Approach to Rabies Elimination.

The ZDU is a successful model for coordination between human and animal health sectors that can be adopted in other settings.

**Keywords:** One Health (OH), Kenya, collaboration

**Session:** MON5.1 One Health Approaches for Sustainable Development

**Mon 05.10.2015 • 15:50-17:20 • Location:** Jakobshorn

---

**To Provide Millions Of Gallons Of Fresh Water To All Eco System In Sahara Desert Without Using Single Watt Of Energy.**

PATIL, Manish Dattatray

*Simple Ideas & Solutions, India*

Presenting author: PATIL, Manish Dattatray

ccare@simpleideassolutions.com
To multiply nature’s own system of evaporation of sea water by creating of “water vapor farm” above sea water and dew/fog collecting methods by creating dew farms in desert.

To design 3x3 feet cotton cloth hangings with rigid floating supports. To keep cloth hangings floating vertically on sea water with lower edge of cloth just dipping in water. Due to capillary action, water will rise in the cloth to 3 feet. Due to this

1) Increases air–sea water interaction.
2) Reduces cohesive force between water molecules creating thin film.

Wind will brush vertical cloth hangings and load water vapor in air to highest possible humidity. Each cloth hanging evaporates about 20 liters water/day.

Considering wind speed 15 kilometers/hour; in 8 hours the vapor will travel deep in desert. This will eliminate transportation cost.

During night, temperature drops to about +7°C in the desert. With higher relative humidity, air will offload about 27ml/m3 water as dew. This will eliminate condensation cost. Dew collectors will be put at strategic locations as per wind directions to maximize water extraction form air.

Most water will percolate in soil, some will again evaporate. Winds will carry these vapors further deep in desert. This dew–vapor hopping pattern will eventually increase water quantity in the whole desert eco-system, air, soil and watersheds. New aquifers, streams, rivers will form, present one will be replenished. These water bodies will store naturally desalinated water eliminating storage cost.

Negligible capital cost and no manmade energy is required to run whole system.

**Keywords:** Water to desert ecosystem; poverty migration reduction, global warming reduction.

**Session:** MON1.3 Water and Health

- **Ambient Air Quality Surveillance:**
  **Environmental Impact of Brick Kiln Emission**
  PATWARI, Jayprakash Manoharrao; NARKHEDE, Raju Kashinath
  Maharashtra Udayagiri Mahavidyalaya, India
  Presenting author: PATWARI, Jayprakash Manoharrao
  patwarijay@yahoo.com

  Air Pollution due to small scale industries have been found to cause serious occupational health hazards and adverse effects on vegetation and potential impact on the environmental conditions. The study for air pollution impact assessment for brick kiln industries was undertaken. Although industrialization is very important for the development of a country, this is a bitter fact that it speeds up the process of environmental degradation as was observed at the Udgir of district Latur in Maharashtra State (India). The monitoring of brick kiln emissions was carried out on monthly basis to estimate the pollution level of gaseous pollutants like oxides of sulphur (SOX), Oxides of nitrogen (NOX) particulate pollutants (Respirable particulate matter –RSPM) and (Non respirable particulate matter –NRSPM) during the Non operational and Operational phases of brick kilns in the year 2012-2013. Survey of public health and brick kiln worker was carried out for the health disorders like bronchitis and skin related problems. The results revealed that all the pollutants (SOX), (NOX), RSPM and NRSPM were crossing the limits prescribed by National Ambient Air Quality Standards (NAAQS) during the operational phase of brick kilns. Further the Air quality index (AQI) were calculated and the study sites were categorized from severe to high pollution including residential areas which is of most concern in respect to health conditions of local people. To minimize the emission of level of air pollutants from brick kilns, possible air pollution mitigation measures are suggested.

  **Keywords:** air pollution, brick kiln ambient air quality, public health

  **Session:** MON5.1 One Health Approaches for Sustainable Development

- **Mon 05.10.2015 • 08:30-10:00 • Location:** Parsenn
- **Mon 05.10.2015 • 15:50-17:20 • Location:** Jakobshorn
Borrelia in Brazil – Fact or Fiction? A Collaborative Study with a One Health Approach
PETTAN-BREWER, Klaisy Christina (1,2); RODRIGUES, Patricia (3); BANDEIRA, Antonio Carlos (4); NERO, Luis Augusto (2); R DE PAULA, Tarcizio Antonio (2); SCATAMBURLO MOREIRA, Maria Aparecida (2); BANKHEAD, Troy (5)
1: School of Medicine, University of Washington, Seattle USA; 2: School of Veterinary Medicine and One Health, One World Brazil-Latin America, University Federal of Viçosa, Minas Gerais Brazil; 3: Animal Hospital and PR Agropecuaria Ltda, Porto Seguro, Brazil; 4: Hospital Aliança, Infectious Diseases Sector, Salvador Bahia, Brazil; 5: Paul Allen Global Animal Health, Washington State University, Pullman, USA
Presenting author: PETTAN-BREWER, Klaisy Christina
kcpb@u.washington.edu

Members of the Borrelia genus are responsible for two important diseases of animals and humans, namely Lyme borreliosis and relapsing fever. Lyme borreliosis is currently the most common vector-borne disease in both North America and Europe, and causative agents of both diseases are now known to exist in the Middle East, Africa and Asia. Despite reports of similar clinical entities in South America over the last 20 years, laboratory confirmation of the putative etiological agent has proven difficult, presumably due to differences from other known Borrelia. In Brazil, a Lyme-like disease has been described as an emerging zoonosis, with clinical symptoms progressing from skin rash and fever to arthritis, carditis and neurological complications. Although these symptoms are similar to those associated with Lyme borreliosis in North America, the clinical picture in Brazil is also associated with recurring febrile episodes that are more closely related to relapsing fever. Identifying the causative agent has also been problematic due to the fact that current diagnostic tests for Lyme borreliosis have routinely failed. To gain a better understanding of the etiological agent inducing Lyme-like disease in Brazil, blood and tissue samples from symptomatic patients and various wildlife from the states of Minas Gerais and Bahia, Brazil were collected for DNA sequencing and multi-locus sequence typing. Utilizing the One Health concept, results from this study will shed light on the importance of wildlife as reservoirs of emergent diseases, and are expected to allow phylogenetic analysis of the putative pathogenic microorganism in order to identify as either a Lyme borreliosis- or relapsing fever-type agent. This in turn will be instrumental in laying the foundation for further laboratory studies into the biology and pathogenesis of the causative agent, and allow for the development of tests to effectively diagnose the disease in afflicted domestic animals and patients.

Keywords: Borrelia, Lyme disease, emerging infectious diseases, One Health, Medicine

One Health Perspective and Assessment of Giardia and Cryptosporidium Infections Related to Wastewater and Excreta Use in Agriculture in Vietnam
PHAM-DUC, Phuc (1); NGUYEN-VIET, Hung (1,2,4); ODERMATT, Peter (2,3); ZINSSTAG, Jakob (2,3)
1: Hanoi School of Public Health, Vietnam; 2: Swiss Tropical and Public Health Institute, Switzerland; 3: University of Basel, Switzerland; 4: International Livestock Research Institute
Presenting author: PHAM-DUC, Phuc
pdp@vohun.org

A quantitative microbial risk assessment of Giardia sp. and Cryptosporidium sp. infection was conducted using multi-trial Monte Carlo simulations to predict the risk of diarrhea related to the use of human and animal wastewater and excreta in an agricultural community in northern Vietnam. The Nhue River and irrigation systems received untreated wastewater and excreta samples were collected from 5 critical sampling points. The protozoan parasites
Giardia and Cryptosporidium by immunofluorescent antibodies and microscopy. A survey with 235 households was conducted using a structured-questionnaire to assess people’s exposure to wastewater and excreta. The most hazardous exposures included direct contact with the Nhue River and pond water and composted excreta during field work. The highest arithmetic mean concentration of diarrheogenic Cryptosporidium (6 oocysts/100 ml) was in household sewage; whereas Giardia was highest in composted excreta (120 cysts/gram). Estimated annual infection risks in all the exposures were much higher than the commonly proposed thresholds of 10^-4 (<1 infection per 10,000 individuals); and the estimated annual diarrhea risks values were at least 10-fold greater than maximal risk of 10^-3 set by the World Health Organization. The assessment indicated exceeded risks for Giardia and Cryptosporidium infections among people exposed to wastewater and excreta. Study results are useful in developing an integrated strategy for pathogen management and public health control in the agricultural settings where human and animal wastewater and excreta are intensively used as irrigation water sources and fertilizers.

**Keywords:** one health, wastewater, excreta, agriculture, risk assessment

Session: MON5.1 One Health Approaches for Sustainable Development

Mon 05.10.2015 • 15:50-17:20 • Location: Jakobshorn

**Implementing Animal Based Therapies in the Health Care Setting: A Team Approach**

PIERCE, Bess Janine  
*Center for Animal Human Relationships, Virginia-Maryland College of Veterinary Medicine, United States of America*

Presenting author:

The positive effects of the human animal bond enable the broad application of animal assisted interventions (AAI) to achieve positive therapeutic outcomes in human patients. Examples include social visitations through animal assisted activities (AAA), physical assistance by service dogs for those with disabilities, physical rehabilitation and behavioral/mental health interventions through animal assisted therapy (AAT). While initial reports of the therapeutic benefits of human-animal interactions were primarily anecdotal, a growing number of studies are contributing to a body of knowledge supporting the physical and emotional benefits for humans interacting with animals in a variety of settings. All medical professionals play a central role in public health. By educating patients and their families on the significance of the Human-Animal bond (impact on health, preserving the bond, enhancing its positive impact) and implementing whole-family wellness practices, providers can positively impact health, quality of life and healthcare costs.

The number of clients and patients seeking these services has grown exponentially in the last decade, and healthcare practitioners are increasingly asked for resources, letters of justification for housing exceptions, and opinions on animal assisted interventions. Considerable confusion exists about the legalities of public access of therapeutic vs. service animals, and some individuals choose to misrepresent service animals, thereby potentially endangering the public and the rights of those truly disabled individuals requiring the protection of the law. Furthermore, practitioners are often unfamiliar with the theory, application and evaluation of animal assisted interventions, and subsequently unintentionally neglect an opportunity to enrich the lives of their patients. Despite the primary role of the animal in AAI, veterinary and animal care professionals may also be unfamiliar with the health needs of both the animals involved in interventions and the human participants.

This session will provide an overview for healthcare practitioners of the key areas of animal based therapies and will stress an evidence-based approach to the application of animal assisted interventions. Topics covered will include an introduction to AAI, evidence-based applications of AAI, and risk management for potential disease and hazards of AAI. The overall goal is for the participants to acquire an introductory knowledge
of definitions, available resources, potential hazards and appropriate applications of animal assisted interventions. Successful AAI requires participation of professionals across the spectrum of animal and human health. The presenters represent this broad range of expertise from the fields of veterinary medicine, nursing, public health and infectious disease.

Description of session: Panel Discussion

1. Introduction to animal assisted therapies with focus on canine interactions (define the differences between between AAA, AAI, therapy vs. service dogs, ADA guidelines, canine capabilities, other animal applications, training and certification entities, etc) PIERCE, NG

2. Evidence-Based Therapeutic Applications for Animal Assisted Interventions (AAA/AAI for nursing home visits, school visits, counseling applications, service dog capabilities) DAVIS

3. Risk Management for Disease Transmission (zoonoses, reverse zoonoses, immunocompromised individuals) GRAY, BERTKE

**Keywords:** animal assisted programs, AAA, AAT, human-animal bond

Session: TUE1.2 Implementing Animal Based Therapies in the Health Care Setting: A Team Approach

Tue 06.10.2015 • 08:30-10:00 • Location: Pischach

**One Medicine - One Oncology – Incidence and Geographical Distribution of Tumors in Dogs and Cats in Switzerland 1955-2008**

POSPISCHIL, Andreas (1); GRÜNTZIG, Katrin (1); GRAF, Ramona (1); BOO, Gianluca (1,2); FOLKERS, Gerd (1); OTTO, Vivianne (3); FABRIKANT, Sara Irina (2)

1: Collegium Helveticum, University of Zurich / ETH Zurich, Switzerland; 2: Department of Geography, University of Zurich, Switzerland; 3: Institute of Pharmaceutical Sciences, ETH Zurich, Switzerland

Presenting author: POSPISCHIL, Andreas apos@vetpath.uzh.ch

Dogs and cats have been sharing their habitat with humans for millennia by being exposed to similar environmental conditions over time. This intimate coexistence is confirmed by distinct co-evolution patterns, namely in the development of similar diseases. Genetic predisposition and the presence of specific environmental circumstances are regarded as main variables for comparative disease etiology. In this context, our research intends to challenge the knowledge on spontaneous tumors development through the study and comparison of tumor incidence and geographic distribution in dogs, cats and humans.

We benefit from the availability of diagnostic data about tumors in dogs and cats, which have been collected between 1955 and 2008 at the two Swiss university institutes of veterinary pathology based in Berne and Zurich and at a private laboratory. We consolidated the data by coding tumor location and morphologic diagnostic terms to fulfill comparative research standards and by computing meaningful spatial references. Then we conducted an epidemiological study, using a regression model, to describe dog and cat tumors distribution and malignancy. We also tackled the tumor geographic distribution by assessing the presence of tumor clusters and we compared the results against explanatory environmental factors through spatial statistic methods.

Our research allowed creating an animal tumor registry, composed by 121,963 dog and 51,322 cat patient data, which provides continuous information for over 50 years. The epidemiologic study linked dog and cat tumor distribution to factors like breed, age and sex. With some exceptions, results were generally consistent with existing literature. The geographic distribution of incidence cases showed that tumor risk is not homogeneously distributed across Switzerland. The analysis of the environmental causes for this phenomenon is currently in progress. These results will be followed by the comparison with human tumor incidence and its geographical distribution.

**Keywords:** One Health, Cancer, Animal Registry, Epidemiology, Spatial Epidemiology

Session: MON4.3 Wildlife, Livestock and Pets - The Human Animal Interface

Mon 05.10.2015 • 14:10-15:40 • Location: Parsenn
Healthy Farms for Healthy People and a Healthy Planet
REED, Florence Leanne
*Sustainable Harvest International, United States of America*

Presenting author: REED, Florence Leanne
flo@sustainableharvest.org

Nature produces food for all its species including humans, yet humans try to destroy natural ecosystems and replace them with chemicals, GMOs & machines to grow our food. While those making money from the chemicals, GMOs and machines claim that their products are necessary to feed the growing human population, more and more world leaders are saying that the only way to sustainably feed ourselves is with agro-ecological systems that embrace nature rather than destroy it.

The presentation will provide an overview of how common farming practices are contributing to environmental and social decay including poverty, hunger, malnutrition, illness, deforestation, loss of biodiversity and climate change. This will be followed by a look at the results of research showing the importance of a global shift to sustainable farming practices and finally a success story or two from amongst the 2,000 Central American farms that have participated in Sustainable Harvest International’s sustainable farming extension program. The focus will be on the long-term, integrative approach that links ecosystem health, human health, societal health and a healthy planet.

Innovative organizations such as Sustainable Harvest International have for decades steadfastly refused to take the quick and simple approach to rural development of handing out chemicals that may increase farm production in the short-term but will impede production in the longer-term, while also causing environmental and health problems. Instead, SHI along with other organizations and businesses are promoting the idea that it is worth the extra effort to provide farmers with the kind of technical assistance that will allow them to produce more by using nature’s systems.

*Keywords: agroecology, organic, ecosystem, nutrition, biodiversity*

---

A Matter of Life and Death: Reproductive Health Should be Part of One Health
ROGERS, Barbara
*Independent author, United Kingdom*

Presenting author: ROGERS, Barbara
barbara10@outlook.com

As child deaths are driven down by a global campaign on health, there is a tragic failure to offer women the means to match births to deaths. The death and injury toll to women and children from unwanted or unintended births and abortions is unacceptably high, and parents - especially mothers - are being left literally “holding the baby” or rather many babies. Their struggle to feed, house and clothe these children - with nothing left for education - is dragging families down. The same applies to many developing countries with their enormous dependency ratios, low levels of education and internal investment, and high levels of unemployment especially among young people.

We have a unique opportunity, through health campaigns, to provide a better life for many poorer families through death control and birth control. Contraceptive methods, and innovative programmes for delivery, are better than they ever were. Some poor countries are showing that contraception is rapidly taken up if offered in an appropriate way. We now have to confront the failure of the international community to finance contraceptive programmes, and the diversion of funds to HIV/AIDS work which should have its own funding. We should also challenge UN agencies and many international aid organisations for their failure to offer contraceptive services with health care. I suggest that the best way forward to cut through international bureaucracy is a resolution at the General Assembly.
One Health Impacts on Clinical Decisions
RUEGG, Simon
University of Zürich, Switzerland
Presenting author: RUEGG, Simon
srueegg@vetclinics.uzh.ch

One health as a framework for human, animal and environmental health should provide a theoretical concept and standardised terms for transparent communication. System and chaos theory provide some grounding upon which a one health theory can build and have been applied in a variety of disciplines. Fundamentally, there is no clear delimitation of systems in regard to the flow of material, energy and information, and all systems need to be considered as open. It is up to the observer to define the limits of the system under observation. Furthermore, every system, including biological and socio-economical systems, is embedded in a hierarchy of systems which determines its function in space and time. For such complex adaptive systems, resilience is suggested as a useful proxy for health. Resilience is an emerging system property and is scale and time specific. This implies that short term resilience may paradoxically reduce a system’s long term resilience, but apparent instability today might build greater resilience for the future. Ideally, objectives of systems at different scales are synergistic, however, conflicts emerge when, for example, interests of an individual are opposing those of society. This emphasises what we already know: (1) human health has inextricable links to animal and ecosystem health and requires integrative thinking, (2) living organisms are complex adaptive systems characterized by hierarchies of interacting systems where small changes in any one element can alter the context of all other elements, (3) medical and public health decisions are made in complex environments including psychological, socio-economic, and biomedical parameters. Consequently, contradictions between curative medicine, population (herd) health management, public health and environmental policies are inevitable. Thus, for one health to be effective, it is imperative that clinical decisions include considerations across the whole scale of the hierarchy, and tools for weighing these interests must be developed.

Sustainable Development: Where Are We Heading?
RÜEGG, Simon
University of Zürich, Switzerland
Presenting author: RÜEGG, Simon
srueegg@vetclinics.uzh.ch

Complex system theory suggests that life consists of hierarchically nested open systems. Thus, global ecology is the largest hierarchical level and regional ecosystems, species, populations, individuals, organs and cells are its subsystems and components. Theoretical physics provides evidence that open stationary complex systems converge to a state of minimal entropy. States away from this minimum (dissipative states) require supplementary energy to be maintained. It can thus be argued, that since mankind has begun herding animals, it invests energy to maintain a dissipative state. According to the first law of thermodynamics, energy cannot be destroyed nor generated, and the resources necessary to maintain that dissipative state must come from what is available in the environment. Thus, any cultural and technical development results inevitably in a loss of resources (energy) for the environment. It is noteworthy that a number of proxies for human well-being, namely economic activity and burden of disease are relative to the distance from the global minimum. Maximising and minimizing respectively, is increasing the distance from the global minimum. If it is consensus that some parts of the environment are to be con-
served, this process must be constrained, and the current surrogates replaced by metrics that assess wellbeing without driving the depletion of environmental resources. Aspects such as diversity, connectedness and adaptability are candidates that could be applied to human and animal wellbeing, and research into such surrogates is a key element of a sustainable one health strategy. Furthermore, the theoretical aim of freedom from disease requires a thermodynamic isolation of human activity from its environment and should thus be questioned as a point of reference.

**Keywords:** thermodynamics, integrative strategy, metrics, endpoints

**Session:** TUE1.3 Vulnerabilities and Resilience - One Health Approaches for Sustainable Development

**Tue 06.10.2015 • 08:30-10:00 • Location:** Parsenn

---

**Trauma Signature Analysis of the West Africa Ebola Outbreak: The Prominent Role of Fear Behaviors**

**SHULTZ, James Michael**

*University of Miami Miller School of Medicine, United States of America*

Presenting author: SHULTZ, James Michael

jamesmichaelshultz@gmail.com

The ongoing Ebola virus disease (EVD) pandemic dwarfs all previous outbreaks. Earlier episodes were rural, short-lived, and sputtering, but the current West Africa EVD outbreak has surged through dense-packed urban populations in Guinea, Sierra Leone, and Liberia, intensifying into a firestorm of disease. Among these three nations, approximately 24,000 persons have become ill and 10,000 have died in the first 16 months of the outbreak. The World Health Organization has vividly described how fear behaviors have propelled virus transmission in West Africa.

Trauma signature (TSIG) analysis was applied to examine the psychological stressors in relation to exposure to the unique constellation of hazards in the West Africa Ebola Outbreak. TSIG analysis is an evidence-based method that examines the interrelationship between population exposure to a disaster (or pandemic), and the interrelated physical and psychological consequences, for the purpose of providing timely, actionable guidance for effective mental health and psychosocial support tailored to the defining features of the event. For the Ebola outbreak, the TSIG analysis consisted of the creation of a hazard profile, a matrix of psychological stressors by disaster phase, and a “trauma signature” summary for the outbreak-affected populations. Fear behaviors, and fear-riddled media portrayals, were specifically examined.

The TSIG analysis highlights how fear reactions have elevated risks for both EVD propagation and untoward psychological consequences, yet evidence-based mental health and psychosocial support (MHPSS) and policy planning have been the missing links in the response to this outbreak. EVD is a dread disease. Fear reactions are expectable, prominent, pervasive, and likely to continue to exacerbate disease spread in current and future outbreaks. MHPSS approaches must complement the medical response to diminish preventable EVD transmission and to support the psychological needs of civilians, patients, health care workers and other responders, and family members.

**Keywords:** Ebola outbreak, mental health and psychosocial support, fear behaviors, disease transmission, trauma signature analysis

**Session:** TUE1.3 Vulnerabilities and Resilience - One Health Approaches for Sustainable Development

**Tue 06.10.2015 • 08:30-10:00 • Location:** Parsenn

---

**Complex Systems Analysis of Disasters:Enhancing the One Health Connection**

**SHULTZ, James Michael**

*University of Miami Miller School of Medicine, United States of America*

Presenting author: SHULTZ, James Michael

jamesmichaelshultz@gmail.com

The Global Risk Forum provides the platform for stimulating the integration of complex systems analysis and disaster risk reduction (DRR). This integration, in the areas of science
and policy, is evolving with accelerating pace. Forward progress in the incorporation of complex systems thinking is particularly notable in these areas: disaster prediction, exploration of “unexpected interdependent risks”, analysis of complex webs of disaster emergence, description of cascading consequences, and elucidation of the concept of “general resilience” in the context of DRR and disaster risk management (DRM).

The time is now for amplifying the One Health focus, directing attention to blending the health and environmental consequences into the complex systems analysis with focus on promoting the nexus of DRR, general resilience, and prevention of negative health effects. Within the health arena, a critical priority is to elevate mental health and psychosocial support in disasters to co-equal status with medical/physical health intervention.

This presentation is built on illustrative disaster case studies that present the pre-impact landscape of health and environmental risks/vulnerabilities, the cascading sequence of impacts when disaster strikes, and the compounding consequences and adversities that occur post-impact – from a One Health perspective. Disaster case studies will identify the community assets and adaptive capacities that undergird resilience. Each case study will examine the potential to intervene in a preventive manner at various points along the pre-event, event, and post-event “cascades” to limit disaster consequences.

When disasters strike, human populations are exposed to a variety of hazards during impact. Post-impact, in the aftermath, disaster survivors and their affected communities experience a multiplicity of hazards, losses, and changes, often of prolonged duration. Health and environmental consequences are at the forefront. Now is the optimal time to merge the frameworks of complexity sciences with One Health.

**Keywords:** One Health, complexity sciences, resilience, disaster cascades

**Session:** MON4.1 The One Health Approach in Action - Programmes and Initiatives

---

**The 2013 Lac-Mégantic Runaway Train Derailment: A Complex Systems Analysis of the Event from a One Health Perspective**

SHULTZ, James Michael (1); GENEREUX, Mélissa (2); ROY, Mathieu (3); MALTAIS, Danielle (4); MAZURIK, Laurie (5)

1: University of Miami Miller School of Medicine, United States of America; 2: MOH of Estrie Public Health Department, Faculty of Medicine and Health Sciences, University of Sherbrooke, Québec, Canada; 3: University Institute of Geriatrics of Sherbrooke, Faculty of Medicine and Health Sciences, University of Sherbrooke, Québec, Canada; 4: Université du Québec à Chicoutimi, Québec, Canada; 5: CBRNE Collaborative for Health Care, Canadian Safety and Security Program, Sunnybrook Research Academy, Toronto, Ontario, Canada

Presenting author: SHULTZ, James Michael

jamesmichaelshultz@gmail.com

On July 6, 2013, an unmanned runaway freight train with 5 locomotives and 72 oil tank cars, descended 11 km on a downhill grade, accelerating to 101 kph as it entered the town of Lac-Mégantic, Quebec, Canada. Encountering a sharp curve, 63 tank cars derailed, ruptured, deformed, exploded, and burned in a 2-day conflagration. Dozens of buildings were razed, 2,000 persons were displaced, and 47 citizens were killed in the fires. Hazardous materials contamination affected air and water quality and created an ecological catastrophe. The public health, medical, and psychological consequences, as well as community strengths and indicators of resilience are being actively monitored.

A complex systems analysis of the derailment was conducted drawing upon multidisciplinary expertise in the areas of train crash engineering, public health, medical crash trauma, mental health and psychosocial support, disaster health, and complexity sciences. A synthesis of key components of the event was developed by blending direct on-scene response experience with in-depth review of investigative reports, news stories, and websites of agencies involved in disaster response and railway safety. A One Health “lens” was
applied to the analysis to connect the causal sequence to the public health and environmental consequences.

For this non-intentional, human-generated (anthropogenic), technological / transportation disaster, distinguishing features included a complex web of causation revealing failures of governance and management on the part of Transport Canada and the MMA Railway, unrepaired mechanical defects, a compounding sequence of human errors, and flagrantly dangerous train securement, leading to a preventable runaway derailment with loss of life and property, and massive ecological harm. Data will be presented from ongoing studies of the environmental, behavioral, and psychological impacts, and community resilience. Preliminary findings indicate that two-thirds of the Lac-Mégantic area population sustained human and/or material losses.

**Keywords:** One Health, Anthropogenic Disaster, Technological Disaster, Resilience, Complexity Sciences

**Session:** TUE4.1 The One Health Approach in Action - Tools and Projects

Tue 06.10.2015 • 13:15-14:15 • Location: Jakobshorn

---

**The TranSAge Project**

SITHAMPARAM, Sumitra (1); GUNASAGARAN, Vinomarlini (2); G.VARATHARAJA, Puspa Rani (3)

1: Malaysian Medical Association; 2: Institute for Medical Research, Malaysia; 3: KPJ Healthcare University College Nilai, Malaysia

Presenting author: SITHAMPARAM, Sumitra sumitraparam@gmail.com

This project aims to transform a street to encompass a society for all ages. Jalan Pahang is a vital street in Kuala Lumpur which is a centrally located and it connects facilities that provide essential services. This one-year integrative project employs a risk management tool which identifies features which may be incorporated into the developmental processes, such as: safety and security, smoke-free and a sanitised environment, green with aesthetic utilities to promote environmental health consciousness. It places health and environment high on the decision-makers’ agendas through local strategies for health promotion and protection which is sustainable, friendly to all ages and conducive to local weather conditions and involves community participation, empowerment, inter-sectoral partnerships, stakeholder involvement and equity of access. The methodology involves a situational analysis and sanitary survey which list the natural terrain, existing facilities and utilities; number and types of vehicles and pedestrians using the street; reports of snatch-thefts from the local police and reports of fire from the fire authorities; the number and characteristics of apparent jay-walkers; air and surface water pollution studies; study of litter and pests. The bustling wet market with its maze of stalls offering the city’s freshest, most diverse food selection is neither hygienic nor healthy. In addition, the plight of pedestrians facing numerous snatch-thefts, inhaling noxious vehicular smoke, erratic drivers is a nuisance for the young, the old and the sick. Waste disposal and vagabonds are unsavoury characteristics of the street. Industrious efforts should be set in place as a sustaining activity. Public health advocacy, health education and promotion of hygienic practices must be enhanced without threatening the livelihood of users. Law enforcement must be provided to make the street safer.

In tandem with infrastructure development, these parameters are addressed to make a city liveable and conducive to activities for daily living.

**Keywords:** Transform, Street, Society, All Ages

**Session:** TUE1.1 Education and Capacity Building within One Health

Tue 06.10.2015 • 08:30-10:00 • Location: Jakobshorn
A Street Conducive to All Ages
SITHAMPARAM, Sumitra (1); GUNASAGARAN, Vinomarlini (2); G.VARATHARAJA, Puspa RaniI (3)
1: Malaysian Medical Association, Malaysia; 2: Institute for Medical Research, Malaysia; 3: KPJ Healthcare University College Nilai, Malaysia
Presenting author: G.VARATHARAJA, Puspa RaniI
puspakuna36@gmail.com
This one-year study aims to make Jalan Pahang in Kuala Lumpur, Malaysia conducive to all ages. This historical locality has undergone tremendous developmental processes since independence in 1958 and today, there are many commercial centres and condominiums. This street is within the strategic zone of the Kuala Lumpur city centre and is part of the KL Structure Plan 2020. While the infrastructure is being built, the necessary maintenance and softer components appear to be side-lined in that the street is unsafe, unaesthetic, unappealing and unhealthy from the daily user and for the older or physically-challenged individual.

The aims incorporate the World Health Organization Healthy City model based on: health-supportive environment; good quality of life; basic sanitation and hygiene needs; and access to health care.

The methodology involved a risk assessment approach through a questionnaire survey on Knowledge, Attitude and Practice of 300 individuals from among the local community. The parameters looked at safety and security concerns, smoke-free, clean and green environment, and the aesthetic aspects of the street.

The outcome produced evidence to be presented to the local authority for them to work on deliverable such as to install adequate facilities such as streetlights, railings, ramps, benches, CCTV, escalators for the overhead pedestrian bridge, lifts; wash-basins and toilets near the market-place; green and handicap-disabled buses to ply the route; notices to declare the areas in front of the hospitals, institutes and hotel to be smoke-free zones; ample waste disposal facilities; greening of the environment; and increase in enforcement with police patrolling the street.

This study will benefit the local community, enhance the civic-conscious mindset of the public, and reduce the incidence of snatch-thefts. There will be an atmosphere of helpfulness in that the community will communicate in a friendly manner and a well-cultured society will slowly but surely emerge.

Keywords: Street, All Ages, Risk Assessment, KAP

Socio-Economic Determinants of Hepatitis B & C in Rural Poor of Pakistan
SOHAIL, Kamran
Organization for Social Development Initiative, Pakistan
Presenting author: SOHAIL, Kamran
drkamran@osdi.org
Hepatitis B & C have been identified the most common diseases in Matyari, Khairpur and Shikarpur districts of Sind and Mardan KPK, Pakistan. Down the road more than 7000 individuals have been catered effectively in a number of screening and vaccination campaigns, supported by the disease specific awareness and periodic workshops by involving all stakeholders. Data collected over the period of last 4 years suggests moderate to high prevalence of hepatitis B & C in these districts that accounts for 4-6 % of all health complaints. Less income opportunities, out of pocket expenses (67% of total expenditure on health care) and illiteracy has dragged the importance of health care to the bottom line on their priority list. Unsafe blood transfusions soiled drinking water and poor sanitation has turned the situation worse. Social behaviors are complex in rural communities and being a male dominating society men are supposed to be the bread earner and almost all the decisions are made by them. Females are mostly involved in domestic works and not freely allowed to go out to the health facilities for their routine checkups and can’t take active participation in immunization campaigns. Mothers have less awareness regarding first line prevention of
their children through common health and hygiene measures whereas general false beliefs and insecurities about the effects of different vaccines and medicines for secondary prevention made the situation vulnerable. Farming is the main source of livelihood in rural communities and demands more work. Due to old and traditional agricultural approaches farmers have to work from dawn to dusk to earn their livelihood that causes less interest of villagers in community development activities including health care prevention and practices and expose them to the vicious circle of health and poverty.

Keywords: socio economic determinants, hepatitis B & C, Rural areas of Pakistan

Session: MON5.1 One Health Approaches for Sustainable Development

Mon 05.10.2015 • 15:50-17:20 • Location: Jakobshorn

The Study of Fatigue Compared Between Touch Screen and Keypad Mobile Phones When Social Networking

SUMALEE, Buensanteai; SUPATTRA, Ruangram; RATREE, Khongpolpan; SUPASINEE, Petburi; KWANCHANOKE, Sompan

Suranaree University of Technology, Thailand

Presenting author: SUMALEE, Buensanteai
sumalee@sut.ac.th

The data from Economic newspaper No. 17 on June 20, 2012 that show 6.2 billion mobile user and there will be 3G network covers 85% of the worldwide. The teenagers they use mobile phone for social networking and many purpose, otherwise the data from Journal of Medicine in Thailand (Volume 337) said that if they use mobile phone are frequent and long time that may be cause of eye fatigue, thumb, wrist inflammation, shoulder and neck pain. This aims of study to investigate and survey fatigue from use of social network between touch screen and keypad mobile phone with Public Health student Suranaree University of Technology total 614 person.

This study is a Quasi experiment the wrist, fingers strength and eye strain before and after use social network between keypad and touch screen mobile phone with 614 person. The researcher screen sample by questionnaire and control illumination 600 Lux. They test eye strain by Critical Fusion Frequency and wrist and fingers strength test by Grip Strength Dynamometer before and after use mobile phone with social network continue 2 hour. The data were analyzed by SPSS.

The result compared between touch screen and keypad mobile phones fatigue. The analyzed data showed that eye strain increased with significant P-Value 0.05. The hand strength and the figure pressure decreases with significance P-Value 0.05. Moreover the compared result of the hand and the finger strength showed that the results with keypad mobile phone are increase more than touch screen mobile phone with significant at the P-Value 0.05.

This research focus to study social network by mobile phone fatigue with 3 parameter such as eye strain, hand strength and fingers pressure test and next research should be consider other parameter.

Keywords: social network, mobile phone, fatigue

Session: MON5.2 Case Studies of Integrative Health Risk Management

Mon 05.10.2015 • 15:50-17:20 • Location: Pischa

Risk of Mosquito-Borne Diseases in Relation to Rubber Plantation Development in South-East Asia

TANGENA, Julie-Anne Akiko (1,2); THAMMAVONG, Phoutmany (1); LINDSAY, Steve William (2); BREY, Paul (1)
1: Institut Pasteur du Laos, Lao People’s Democratic Republic; 2: Durham University, Stockton Rd, Durham, United Kingdom

Presenting author: TANGENA, Julie-Anne Akiko
jtangena@gmail.com

South-East Asia is experiencing unprecedented economic growth that is transforming land-use, a major driver of emerging infectious diseases. The expansion of rubber plantations is one of the leading causes of land-use change. Here we assessed the exposure risk of rubber
workers to mosquito-borne diseases with a case-study in Laos. We compared the mosquito diversity and density in the mature rubber plantations (i.e. tapped for latex) with immature rubber plantation, secondary forests and villages. Furthermore, the behavior of rubber workers was related to the host seeking behavior of vector mosquitoes. Molecular analysis is currently conducted on Aedes species for viral detection.

We used the 'human-baited double net’ trap, which protects participants from mosquito bites, for collecting host seeking mosquitoes. In 2013 the four habitats were sampled every hour for two days and two nights in three study areas every month from July to November. In 2014 this was done every two months from January to July.

A total of 24,917 mosquitoes were collected during our study. In the mature rubber plantation 3,649 mosquitoes (68 different species) were collected, including vectors of malaria, dengue, chikungunya and Japanese encephalitis. Statistical results and molecular analysis are currently in process.

A major concern highlighted by our preliminary results, is that the schedule of the rubber workers increases the exposure risk to vector mosquitoes. The workers may be at considerable risk of dengue transmission when collecting latex during the day and of malaria when tapping for latex at night. Additionally the risk of dengue and malaria is further increased by the high numbers of seasonal workers in the industry that can spread diseases (including artemisinin-resistant malaria strains) by travelling to or from disease-endemic areas. Priority should be on improving access to effective health care and providing plantation workers with protection from biting mosquitoes.

Keywords: rubber plantation, mosquito-borne diseases, malaria, dengue, Lao PDR

Session: MON5.2 Case Studies of Integrative Health Risk Management

The HHALTER Project: An Interdisciplinary One Health Collaboration In Action

TAYLOR, Melanie Rose (1); SCHREMBI, Nicole (1); WIETHOELTER, Anke (1); TORIBIO, Jenny-Ann (2); DHAND, Navneet (2); KUNG, Nina (3); MOLONEY, Barbara (4); WRIGHT, Therese (4); FIELD, Hume (5)

1: University of Western Sydney, Australia; 2: The University of Sydney, Australia; 3: Queensland Department of Agriculture and Fisheries, Australia; 4: New South Wales Department of Primary Industries, Australia; 5: EcoHealth Alliance, New York

Presenting author: TAYLOR, Melanie Rose melanie.taylor@uws.edu.au

The HHALTER project (Horse owners and Hendra virus: A longitudinal study to Evaluate Risk) is a three-year research project focussed on the changing risk perception, knowledge, attitudes, and risk mitigation practices of horse owners to Hendra virus (HeV) in Australia. The project aims to understand horse owner risk mitigation attitudes and practices and the factors that influence these, as well as horse owner views of current and possible future policy in this area, e.g. state government disease response, local government flying fox management policy, vaccine policy, industry-driven mandatory vaccination, and veterinary policy towards unvaccinated animals.

HeV provides an excellent One Health case study. It is a zoonotic disease that spills over from flying foxes to horses, and then is transmitted from horses to horses and horses to humans. It has a high case fatality rate (75% in equines, 57% in humans) making it a zoonosis of veterinary and public health significance. Since its identification in 1994 there have been 71 confirmed equine cases and seven human cases. A sudden upsurge in cases of HeV in 2011 triggered a public outcry, media frenzy, and a political response. Funding was made available through the National Hendra Virus Research Program (NHeVRP) to prioritise and fast-track HeV research, including the development of a novel vaccine.

The HHALTER project team is the most interdisciplinary of the NHeVRP-funded projects; including researchers in social science, public
health, veterinary science, epidemiology, and bat ecology. This presentation will outline the One Health context of HeV in Australia, review the benefits and challenges of One Health team working, and discuss the outcomes of the HHALTER project.

*Keywords:* Hendra virus, risk mitigation, risk management, vaccination, policy

*Session:* MON4.1 The One Health Approach in Action - Programmes and Initiatives

Mon 05.10.2015 • 14:10-15:40 • Location: Jakobshorn

---


THYS, Séverine (1); SAHIBI, Hamid (2); MWAPE, Evans K. (3); KNOBEL, Darryn (4); RAHALI, Tarik (2); GABRIEL, Sarah (5); PHIRI, Andrew (3); VAN ROOYEN, Jacques (4); SIMPSON, Greg (6); LEFEVRE, Pierre (1); RHALEM, Abdelkarir (2); MARCOTTY, Tanguy (5); DORNY, 1: Unit of Epidemiology and Tropical disease control, Department of Public Health, Institute of Tropical Medicine Antwerp, Belgium; 2: Agro-Veterinary Institute (IAV) of Rabat, Morocco; 3: School of Veterinary Medicine, University of Zambia; 4: Department of Veterinary Tropical Diseases, Faculty of Veterinary, University of Pretoria; 5: Unit of Veterinary Helminthology, Department of Biomedical Sciences, Institute of Tropical Medicine, Antwerp, Belgium; 6: Hluvukani Animal Health Clinic, Onderstepoort Veterinary Academic Hospital, Faculty of Veterinary Science, University of Pretoria

Presenting author: THYS, Séverine stthys@itg.be

For calling attention to their effect on poor, marginalised communities, widespread under-reporting and low prioritisation by national and international agencies, a number of endemic zoonoses in developing countries (anthrax, bovine tuberculosis, brucellosis, cysticercosis, echinococcosis, leishmaniasis, rabies, zoonotic trypanosomiasis and food-borne trematode infections) have recently been termed ‘neglected zoonotic diseases’ (NZDs). Although sharing characteristics with the neglected tropical diseases (NTDs), many NZDs present unique control challenges as they involve issues at the animal-human-ecosystem interface where they inflict a dual burden on communities, compromising livestock health while causing human morbidity and mortality.

To face these complex control issues, the “One Health” perspective emphasises the need for inter-sectoral collaborations between actors in agriculture, medicine, animal health, conservation and others in the social sciences, including anthropologists, sociologists and economists. While the ‘One Health’ paradigm recognises the importance of social and cultural factors in disease transmission dynamics and the planning of control interventions, the significance and potential role of applied anthropology for NZD control remains unclear.

Through three anthropological case studies, respectively assessing local knowledge and perception of rabies in the Mnisi community (Mpumulanga, South Africa), echinococcosis in the Amazigh population (High Atlas, Morocco) and cysticercosis – taeniasis in the Nsenga ethnic group (East Province, Zambia), the author attempts to reveal the complex relationships between different aspects of the social and biological world at the transmission dynamics level and therefore the potential contribution of applied anthropology for a more adapted and effective control of NZDs.

*Keywords:* Anthropology, Africa, Disease control, Neglected Tropical zoonoses,

*Session:* TUE4.2 The One Health Approach for Communicable Diseases

Tue 06.10.2015 • 13:15-14:15 • Location: Pischa

---

**Preparedness, Prediction and Prevention of Emerging Zoonotic Viruses with Pandemic Potential Using Multidisciplinary Approaches**

VAN DER WERF, Sylvie

*Institut Pasteur, France, on behalf of the PREDEMICS consortium*

Presenting author: VAN DER WERF, Sylvie sylvie.van-der-werf@pasteur.fr
Most emerging infectious diseases of humans are zoonotic and represent a persistent global threat. In a One Health approach, the FP7 PREDEMICS project (http://predemics.biomedtrain.eu) aims to unravel the complex interactions between factors involved in the various stages of emergence of zoonotic RNA viruses (lyssaviruses, Ebola disease virus, HEV, arboviruses, influenza A virus and MERS coronavirus) representing key transmission routes. Environmental, ecological and anthropological factors involved in species-barrier crossover, virus detection and/or serological data, were collected for LYSV and HEV from the environment, wild and domestic hosts and compared to data from humans thus shedding light on virus circulation over time, geographic spread and transmission. Molecular phylodynamics studies provided information on the conditions of dispersal and contribution of multiple introductions to epidemiologic waves and establishment of endemic circulation. Phylodynamic investigations applied to the H1N1pdm09 or H7N9 influenza viruses or the recently emerged MERS-CoV and EBOV, provided real-time estimates of the evolutionary rate, date of emergence and intrinsic growth rate (R0).

Replication efficiency, pathogenesis and transmissibility in natural hosts were studied for the different viruses pointing for instance to molecular determinants involved in IAV cross-species transmission and adaptation from avian to mammalian hosts. Mechanisms of evasion of the host innate immunity by the different viruses (IAV, WNV, LYSV) were uncovered. Mapping methods for animal (reservoir and vector) distribution, behaviour- and models were developed that were used to study the dynamics of lyssavirus, flavivirus, influenza virus and the newly emerging MERS-CoV, CHIKV and EBOV.

Through its cross-disciplinary expertise in veterinary and human medicine, PREDEMICS thus provides a platform for global analysis of the factors involved, causal mechanisms, potential risk, and conditions favoured for emergence, maintenance, epidemic and potentially pandemic expansion of diseases in humans due to zoonotic viruses and also to describe strategies to control and mitigate the burden of those diseases.

Keywords: zoonosis, emergence, pandemic, preparedness, cross-species transmissiom

Session: TUE4.2 The One Health Approach for Communicable Diseases

Tue 06.10.2015 • 13:15-14:15 • Location: Pischa

Institut Pasteur: An International Partner to Implement One Health

VAN KERKHOVE, Maria; VICTOIR, Kathleen; PITROU, Isabelle; JOUAN, Marc; FONTANET, Arnaud; BRECHOT, Christian; GLOBAL HEALTH, Center for; INTERNATIONAL DIRECTION, Pasteur; EBOLA TASK FORCE, Pasteur

Institut Pasteur, France

Presenting author: VAN KERKHOVE, Maria
maria.van-kerkhove@pasteur.fr

Human and animal health and the viability of ecosystems are inextricably linked; 75% of emerging infections are zoonotic. The emergence and re-emergence of SARS, H5N1, MERS-CoV, and Ebola have repeatedly reminded us that multi-sectorial collaboration for investigations and research of zoonotic viruses are necessary to improve the rapid detection of pathogens, identification of animal reservoirs/intermediaries, provide information on transmission between species, and provide knowledge to develop appropriate mitigation options. Much effort to achieve this has taken place at the global level between FAO, OIE and WHO. However, this high level of commitment does not necessarily translate into sufficient consideration and implementation at national and local levels.

Institut Pasteur, a not-for-profit organization based in Paris, is a key partner of the One Health Initiative. With its international network of 33 Institutes in 26 countries, its newly established Center for Global Health with a special focus on outbreak investigation, and numerous collaborations with international organizations, Pasteur is well placed to implement the One Health Initiative. Here we present examples our multidisciplinary strengths: from rabies to H5N1, Pasteur has conducted coordinated and multi-sectorial in-
vestigations of human cases in collaboration with the Ministries of Agriculture and the Ministries of Health; For MERS-CoV, members of the staff support the epidemiologic interpretation of available data, design human/animal study investigations for affected countries and provide laboratory training in the Middle East; for Ebola in West Africa, Pasteur, in collaboration with the Guinean Ministry of Health were the first to identify the virus, have provided field laboratory support in Macenta, and are working on the development of diagnostic tests, virus sequencing for mutations tracking, and vaccine development. Together with our international, national and local partners, Pasteur is working to translate knowledge learned through joint investigations and robust science into public health policy recommendations and one health actions.

Keywords: zoonoses, rapid detection, joint investigations, multisectorial

Session: MON5.3 Surveillance and Early Warning - The Basis for Prevention

Mon 05.10.2015 • 15:50-17:20 • Location: Parsenn

One Health and Resilience: A New Biological Modelling Framework
VROEGINDEWEY, Gary A
World Organization for Animal Health, United States of America

Presenting author: VROEGINDEWEY, Gary A
dvron@wahoe.org

The United Nations Hyogo Framework for Action (HFA 2005-2015) outlined five priorities for building resilience and multiple authors have developed elements and characteristics of resilience. Biological systems provide an excellent new model for resilience demonstrating resilience characteristics and establishing a framework for capacity building planning and action. These characteristics include: unity of purpose, unity of effort, sensing capability, multiple protective layers, redundancy, resource prioritization and allocation, self-repairing, automatic and hierarchical responses, reserve capacity, agile learning, anticipatory capability, and adaptability. An example of one of these characteristics, resource prioritization and allocation, is seen in the body’s ability to shunt blood to core internal organs and restrict flow to arms and legs when exposed to hypothermic conditions. Similarly communities can utilize effective resource prioritization and allocation to direct resources to critical infrastructure and sustainment that provide for the highest community benefit. Applying these biological characteristics to resilience building and disaster response will enhance the capacity of the resilience program and insulate individuals and communities from disaster events.

Keywords: modeling, disaster, resilience, risk reduction

Session: TUE1.1 Education and Capacity Building within One Health

Tue 06.10.2015 • 08:30-10:00 • Location: Jakobshorn

The World Organisation for Animal Health (OIE) One Health Role in Resilience and Disaster Management
VROEGINDEWEY, Gary A
World Organization for Animal Health United States of America

Presenting author: VROEGINDEWEY, Gary A
dvron@wahoe.org

Natural and man-made disasters require a multidisciplinary engagement to achieve optimal efficiency and effectiveness in planning, mitigation, response and recovery. The One Health framework is the concept that there is a nexus and inextricable link between human health, animal health and environmental health. The World Organisation for Animal Health (OIE) has an initiative to examine the current state of risk reduction and disaster management for animals in disasters and develop guidelines and standards with the goal of enhancing resilience and strengthening disaster management capacity within Member Countries. Recent events such as the global Influenza Pandemic, Gulf of Mexico Oil Spill, post conflict reconstruction, the Haiti earthquake with subsequent cholera outbreak, Japan’s earthquake/tsunami/radiological disaster and global warming highlight the need to bring all components of disaster management
together in a cohesive response. Veterinarians and animal experts play a critical role in multiple aspects of disaster management and response. A survey of 53 European and Eurasian countries veterinary authorities and capabilities revealed that there current capacities to deal with animal related disasters, but significant gaps within Veterinary Services that can be partially addressed through OIE standards. By developing guidance and standards the World Organisation for Animal Health (OIE) enhances the integration of animal disaster management into broader resilience and disaster management and response networks, promotes the health and welfare of animals, safeguards human health, and helps Member Countries restore economic and societal conditions when a disaster strikes.

Keywords: Standards, Survey, Guidelines, Disaster, Resilience

Session: TUE1.1 Education and Capacity Building within One Health

Tue 06.10.2015 • 08:30-10:00 • Location: Jakobshorn

Beyond Three Rings: An Enhanced One Health Model
VROEGINDEWEY, Gary A
World Organization for Animal Health, United States of America

Presenting author: VROEGINDEWEY, Gary A
drvroeg@gmail.com

One Health and One Medicine as concept models have traditionally been characterized by three intersecting rings of a Venn diagram representing Human, Animal, and Environment or Human, Domestic Animal and Wildlife. These intersections create a framework for addressing One Health issues such as emerging and zoonotic diseases at the human, animal, and environment interface, but fail to address broader concepts of One Health in a real world setting. An enhanced model of One Health would encompass the traditional three rings and also include the larger context in which the take place. The Enhanced One Health Model encompasses multiple lenses of One Health including: zoonosis, translational and comparative medicine, emerging diseases, human-animal bond, environmental focus, and sustainable agriculture. This Enhanced Model takes a holistic approach to One Health to include the political, social, cultural, economic, geographic, and religious aspects of One Health and the impacts they have on creating an effective and efficient One Health approach to global issues.

Keywords: One Health, Modeling, Culture, Economics, Political

Session: MON1.2 Integrative Health Risk Management

Mon 05.10.2015 • 08:30-10:00 • Location: Pischa

Planning for Rabies Incursions in Remote, Northern Australian Indigenous Communities
WARD, Michael P; DURR, Salome
The University of Sydney, Australia

Presenting author: WARD, Michael P
michael.ward@sydney.edu.au

Rabies has high impact on human and animal health globally. The coastal border of northern Australia is a remote area with a credible risk of rabies incursion and large populations of domestic dogs, mostly in Indigenous communities. The relationship between these Indigenous people and their dogs is complex; thus research informing response and control plans for rabies is critical to minimize adverse impact in the event of an incursion.

We developed a novel stochastic spatio-temporal model. It is based on individual dogs informed by dog census data and incorporates three types of rabies spread (within household, between households and between communities; where the second is based on a distance kernel fitted to field collected GPS data on the roaming behaviour of dogs). Three types of control strategy are implemented in the model: a) vaccination (50 and 70% coverage); b) culling (30, 50 and 70% level); and c) movement restrictions between communities, within communities (dog confinement) or both, with dog owner compliance of 50 or 80%.

Outcomes suggest that vaccination would significantly reduce the outbreak size (number
of dead dogs) while the other strategies only show a slightly positive effect when applied at high levels (70% culling and 80% compliance with movement bans). Importantly in these Indigenous communities, culling of dogs is unlikely to be successful. Also, movement bans (which culturally would be difficult to implement) would have minor impact unless there was high compliance.

This is, to the best of our knowledge, the first time a rabies model has been applied to compare control strategies for an epidemic situation with absence of rabies prior to the simulated incursion. It provides evidence on which to base preparedness plans, and to manage recent incursions in a culturally-sensitive manner.

**Keywords:** rabies, indigenous communities, Australia, disease modelling

**Session:** MON4.3 Wildlife, Livestock and Pets - The Human Animal Interface

Mon 05.10.2015 • 14:10-15:40 • Location: Parsenn

---

**The Epidemiology of Q Fever in Western Kenya.**

WARDROP, Nicola A (1); COOK, Elizabeth A (2); DE GLANVILLE, William A (2); THOMAS, Lian (2); ATKINSON, Peter M (1); WAMAE, Claire N (3); FEVRE, Eric M (4)

1: University of Southampton, United Kingdom; 2: University of Edinburgh, United Kingdom; 3: Kenya Medical Research Institute, Kenya; 4: University of Liverpool, United Kingdom

Presenting author: WARDROP, Nicola A
Nicola.Wardrop@soton.ac.uk

Evidence suggests that the intracellular bacterial pathogen Coxiella burnetii (which causes Q fever) is widespread, with a near global distribution. While there has been increasing attention to Q fever epidemiology in high-income settings, a recent systematic review highlighted significant gaps in our understanding of the prevalence, spatial distribution and risk factors for Q fever infection across Africa. This research aims to provide a One Health assessment of Q fever epidemiology in western Kenya in cattle and humans.

A cross-sectional survey was conducted: serum samples from 2113 humans and 983 cattle in 416 homesteads were analysed for C. burnetii antibodies. Questionnaires covering demographic, socio-economic and husbandry information were also administered. These data were linked to environmental datasets based on geographical locations (e.g. land cover). Multilevel regression analysis was used to assess the relationships between a range of socio-economic, demographic and environmental factors and sero-positivity in both humans and animals.

The overall sero-prevalence of C. burnetii was 2.5% in humans and 10.5% in cattle. Multi-level modelling indicated the importance of several factors for exposure to the organism. Cattle obtained from market (as opposed to those bred in their homestead) and those residing in areas with lower precipitation levels had the highest sero-prevalence. For humans, the youngest age group had the highest odds of seroprevalence, variations were observed between ethnic groups, and frequent livestock contact (specifically grazing and dealing with abortion material) was also a risk factor.

These results illustrate endemnicity of C. burnetii in western Kenya, although prevalence is relatively low. The analysis indicates that while environmental factors may play a role in cattle exposure patterns, human exposure patterns are likely to be driven more strongly by livestock contacts. The implication of livestock markets in cattle exposure risks suggests these may be a suitable target for interventions.

**Keywords:** Coxiella burnetii, epidemiology, risk factors, Q Fever

**Session:** TUE4.2 The One Health Approach for Communicable Diseases

Tue 06.10.2015 • 13:15-14:15 • Location: Pischa

---

**Landscape Heterogeneity and Taenia spp. Distributions in Humans and Pigs: Evidence of Environmental Influences on Disease Transmission**

WARDROP, Nicola A (1); THOMAS, Lian (2); ATKINSON, Peter M (1); COOK, Elizabeth A
Landscape factors have been demonstrated to influence the observed distribution of a range of infectious diseases, including schistosomiasis and soil transmitted helminths. Despite previous evidence of spatial clustering in Taenia spp. infections (human taeniasis, human cysticercosis and porcine cysticercosis) and the role of environmental factors (e.g. temperature and humidity) in the survival of eggs in the environment, little research has thus far explored the potential role of environmental factors on the observed distribution of Taenia spp. infections. This research aimed to examine the epidemiology of Taenia spp. infections in humans and pigs and to assess the role of environmental factors in observed disease distributions, while accounting for socio-economic and behavioural risk factors.

A cross-sectional survey for human taeniasis, human cysticercosis and pig cysticercosis in 416 households in western Kenya was carried out. These data were linked to questionnaire responses and additional datasets to provide information on socio-economic, behavioural and environmental factors. Multi-level logistic regression was used to examine the relationships between socio-economic, behavioural and environmental factors and disease occurrence (for human taeniasis, human cysticercosis and porcine cysticercosis).

The prevalence was 19.5% for taeniasis (95% CI 17.8%–21.3%), 6.6% for human cysticercosis (95% CI 5.6%–7.7%), and 17.2% for porcine cysticercosis (95% CI 10.2%–26.4%). The outcomes were significantly associated with a range of factors, including positive correlations with land cover: vegetated land was correlated with human taeniasis; agricultural and grassland was correlated with human cysticercosis; and flooding agricultural land and grassland was correlated with porcine cysticercosis.

These results indicate a complex interaction between socio-economic, behavioural and environmental factors in Taenia spp. transmission patterns. Environmental contamination with Taenia spp. eggs is a key issue and these results indicate that landscape factors influence patterns of taeniasis and cysticercosis occurrence in pigs and humans.

**Keywords:** Taenia spp., environment, cysticercosis, epidemiology, risk factors

**Session:** MON4.3 Wildlife, Livestock and Pets - The Human Animal Interface

**Mon 05.10.2015 • 14:10-15:40 • Location:** Parsenn
**Prevalence and Etiology of Microcytosis in Sickle Cell Anemia Patients**

**Authors:** ALMATRAFI, Mohammed Hamoud; ISMAIL, Abdulmalik Marwan  
**Institution:** King Saud bin Abdulaziz University for Health sciences, Saudi Arabia  
**Presenting Author:** ALMATRAFI, Mohammed Hamoud  
**Email:** Soul043@gmail.com

Sickle cell disease, a common condition in Saudi Arabia, can have many complications & devastating outcomes. Some conditions can co-exist with this disease that can add more problems to the patient’s health. In this study we will be looking for the presence of some of these conditions. We will be checking for the prevalence of microcytosis & some of it’s causes like iron deficiency anemia & alpha or beta thalassemias.

**Keywords:** Microcytosis, sickle, Saudi, iron, thalassemia

**Session:** MON3.1 Poster Session

---

**Allergic Rhinitis**

**Authors:** CALDERON, Jaime de Jesus  
**Email:** jaimecalderonortiz@gmail.com

There is a high incidence of chronic respiratory inflammatory disease triggered by a hereditary predisposition, which generates in patients complicated conditions affecting the airways. Based research in patients, using a simple, reliable, reproducible and safe study, statistics as well as a model of integrated management of this condition, frequently attended on the services of otolaryngology in Mexico in complicated conditions, emphasizes the need to increase global training of physicians in the care of this pathological condition and need to control pollution sources, and analysis as an additional negative phenomenon to mundial catastrophes.

We should optimize orientation to general population making emphasis on the hygienic and nutritional guidance.
It is proposed reflect on the nature of health systems worldwide, and demand political changes with the system to approach under an accessible universal health care system, in a model supported by economical simplified test, effective and safe with complementary management including oral sublingual immunotherapy.

**Keywords:** Atopy, Allergic rhinitis, Health risks, Hereditary predisposition, Environmental factors, Pollution, Etiological research, Otolaryngologic management complications, Evaluation systems health care

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

---

Seroprevalence of Taenia Solium-Cysticercosis among Humans Living in Pig Farming Settlements of Kaduna Metropolis, Nigeria

EDIA-ASUKE, Uregwu Agnes (1,2); INABO, Helen (1); UMOH, Veronica (1); WHONG, Clement (1); MUKARATIRWA, Samson (2); ASUKE, Sunday (3); ELLA, Elijah Ekah (1)

1: Ahmadu Bello University, Zaria, Kaduna, Nigeria; 2: Biological sciences, University of KwaZulu Natal, Westville, Durban, South Africa; 3: Ahmadu Bello University Teaching Hospital, Zaria, Kaduna, Nigeria.

Presenting author: EDIA-ASUKE, Uregwu Agnes

agnesasuke@gmail.com

Taenia solium cysticercosis is considered an emerging parasitic zoonosis of global importance due to its impact on both agriculture and public health in developing countries. Epidemiological information on human cysticercosis is limited in Nigeria. This study was therefore conducted to determine the prevalence of human cysticercosis in selected areas of Kaduna metropolis, Nigeria, where smallholder pig farming is embraced as a source of living. A cross sectional survey was conducted in Kaduna South and Chikun Local Government Areas of Kaduna metropolis which are widely involved in backyard pig farming and pork consumption. A total of 300 human sera were collected and tested for the presence of IgG antibodies to T. solium using an indirect enzyme linked immunosorbent assay (Ab-ELISA) technique. A structured self-administered questionnaire was used to identify sociodemographic and risk factors in the population. A total of 43 sera tested positive to IgG antibodies giving a cysticercosis prevalence of 14.3%. Bivariate analysis revealed that there was no significant difference (p>0.05) between seroprevalence and age, gender, occupation, and location. Method of pork preparation and history of epilepsy, were however found to be associated with seropositivity (p<0.05) and epileptics in the study were two times more likely to be seropositive than non epileptics (OR= 2.2, 95% CI= 1.023-3.580, p=0.04). A large proportion (74.0%) of the population had very poor knowledge and understanding of cysticercosis, and knowledge of human cysticercosis was strongly associated (p<0.01) with method of pork preparation (p=0.001) and occupation (p=0.007). This survey reports prevalence of human cysticercosis in southern parts of Kaduna metropolis; there is therefore need for further studies on impact of disease burden in the area, and in Kaduna State in general.

**Keywords:** Prevalence, cysticercosis, Antibody-ELISA, Kaduna, Taenia solium

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

---

Extremely Low Exclusive Breast Feeding (EBF) Rate among the Syrian Refugee Communities in Jordan

FÄNDER, Gabriele; STAMHUIS, Ellen; HOEVE, Johan B. ten; DYMENT, Wendy; BECK, Namseon

Medair, Switzerland

Presenting author: FÄNDER, Gabriele

healthnutadv-syr@medair.org

Medair has been implementing nutrition programs in Syrian urban refugee communities in Jordan since July of 2013 by offering nutrition screening and promoting Infant and Young Child Feeding practices (IYCF) as well as training on management of acute malnutrition for
children under 5 and pregnant and lactating women. As of April 8, a total of 31,485 refugee households have been reached by the Medair nutrition programme covering about 35% of the estimated number of refugees in urban areas outside of camps. In April of 2014, a household survey was conducted to estimate exclusive breastfeeding (EBF) rates among those households reached by Medair with IYCF messages. 990 out of 31,485 households were selected by systematic random sampling for a telephone survey. Among those sampled, 12.9% (128 households) had children less than 6 months of age; 24.2±7.7% of these reported practicing exclusive breastfeeding within the previous 24 hours. This value is much lower than levels of EBF reported in Syria prior to the crisis (42.6%) despite effective IYCF promotion activity reflected by the fact that 71.3% (±6.4%) of lactating mothers surveyed were able to state more than two benefits of EBF covered. Considering EBF is one of the most effective ways to save the lives of young children, this deterioration in EBF among refugees placing young children at an increased risk of death should serve as a warning to the humanitarian community that measures to improve EBF is needed immediately. Additionally, the survey implies other interventions are needed to address the potential obstacles to EBF practices such as cultural and social barriers. Group sessions to monitor the barriers and promoters of IYCF as well as developing a self-supporting system among caregivers influencing the social and cultural aspects of EBF may be helpful to facilitate dissemination of lessons learned among the refugee communities.

Keywords: malnutrition refugees
Session: MON3.1 Poster Session
Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

**The Importance of Culture in a Health Emergency: International Medical Corps’ Experience from the Ebola Response**

FEUCHTE, Friederike; CASEY, Sean; ARABASADI, Ashley; BLACKMAN, Camille; PERRY, Kathryn

*International Medical Corps*

Presenting author: ARABASADI, Ashley

agelman@internationalmedicalcorps.org

International Medical Corps began responding to the Ebola Virus Disease (EVD) crisis in West Africa in the summer of 2014. This poster will examine how International Medical Corps responded to the EVD outbreak and addressed cultural challenges in prevention, treatment and reintegration of individuals into communities within Liberia. International Medical Corps staff incorporated behavior change communication strategies and information on cultural practices to effectively reach populations affected by Ebola.

**Keywords:** Ebola Virus Disease, Liberia, Culture, Emergency Response, International Medical Corps

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

**Determining the Risk of Occupational Exposure to Benzene, Toluene, Ethyl benzene and Xylene (BTEX) among Gasoline Stations Workers**

GHAZI, Iran (1); GHAZANCHAEI, Elham (2); JEBELLI, Beheshteh (2); NASRI, Athareh (3); MAHMOUDZADEH, Amir (4)

1: professor in university of Isfahan and Research Institute of Shakhes Pajouh, Isfahan, Iran; 2: PhD student at Research Institute of Shakhes Pajouh, Isfahan, Iran; 3: University of Tehran Aras International Campus, Aras, Iran; 4: Shakhes Pajouh Engineering and Research Institute of Natural Hazards Isfahan, Iran

Presenting author: MAHMOUDZADEH, Amir

amiramj1@yahoo.com

Introduction:

Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) are existing in gasoline releases to the air in result of the gasoline evaporation and the workers are exposure to it at gasoline stations. The main as a goal of this research is to determine the risk of occupational exposure
to BTEX compounds among workers in selected gasoline stations in the city of Kerman in southern Iran.

Methodology:

To achieve the goal of the research, the air sample of 54 workers in 6 gasoline stations (the suburbs and downtown of Kerman) were collected in three times; morning, noon and at night (at the time that the fuel is discharged from the fuel tanker to the gasoline tank, in one of these times) by sampling pumps. The identified were then transferred to the laboratory and analyzed by Gas Chromatography with a Flame Ionization Detector.

Result:

The findings represent that the average concentration of BTEX during discharging the fuel from the tanker to the gasoline tank is higher than the average concentration of BTEX in the rest of sample. The Cancer risk for workers exposed to benzene and Ethyl benzene is estimated in the range of 1.11×10-2 – 8.22×10-4 to 1.30×10-3 - 2.79×10-5. A quantitative non-cancer risk values for benzene, Toluene, Ethyl Benzene and Xylene is also calculated and it was in the range of 134-9.83, 0.699-0.217, 1.45-0.0312 to 33.7-0.981, respectively.

Conclusions:

The results show that the average concentrations of benzene in the air is higher than standard limit proposed by Technical Committee of Occupational Hygiene in Iran 0.5 ppm or 1,600 μg/m 3, While Toluene, Ethyl Benzene And Xylene concentrations are less than the standard limit. It is shown that the cancer risk of Ethyl Benzene and Benzene is high among workers in studied gasoline stations as well.

Keywords: BTEX Compounds, Occupational Exposure, Cancer Risk, Non-cancer Risk

Investigating the Relationship between Occupational and Non-Occupational Function and Low Back Pain of Iranian Workers of Irankhodro Car Manufacturing

Introduction:

Back pain is a common and costly musculoskeletal disorder mainly occurs in working age population. Although there are many physical activities involved in the complex etiology of the disease, it still seems rather challenging to determine the cause and requires an accurate approach. Chronic back pain is a complex disorder associated with extended adverse consequences which may affect people's life style and self-awareness. There exists a substantial heterogeneity in back pain epidemiological studies which limits the possibility of collecting and comparing data. Many individual and environmental factors affect the onset and course of back pain. Additional risk factors including stress, depression, job dissatisfaction, low social support at work, ... are likely to cause back pain. Therefore, this study aims at investigating the level of back pain prevalence among auto workers emphasizing on their occupational and non-occupational dysfunction.

Methodology:

The survey was conducted on 3830 participants working in Irankhodro car manufacturing plant. MUSIC questionnaire, a comprehensive questionnaire on musculoskeletal disorders investigating their different aspects, were used. The data collected were analyzed by using SPSS technique.

Result:

Findings obtained via statistical tests showed that 25.6% back pain prevalence was among participants. The functional disorders associated with factors studied were also significantly related to the severity of back pain and...
the occupational background of individuals (p<0.05).

Recommendation:
Higher focus on prevention of back pain in auto workers may help to improve the efficiency and prevent human capital wastage.

Keywords: Low Back Pain, Functional Disorders, Car Factory

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen


GHAZI, Iran (1); KIANI, Reza (2); JEBELLI, Beheshteh (3); GHAZANCHAEI, Elham (3); MAHMOUDZADEH, Amir (4)
1: professor in university of Isfahan and Research Institute of Shakhes Pajouh, Isfahan, Iran; 2: Supervisor of Inspection and Supervision Department, Medical Records’ Center, Social Security Organization, Isfahan; 3: PhD student at Research Institute of Shakhes Pajouh, Isfahan, Iran, trends Health in Disaster and Emergency; 4: Shakhes Pajouh Engineering and Research Institute of Natural Hazards Isfahan, Iran

Presenting author: MAHMOUDZADEH, Amir amiramj1@yahoo.com

There are meaningful differences in recipes and outpatients’ costs with the implement of the transformation of health system in May, 2014. This study aims to analyze these changes in 6 first months and compare them with the same period in the previous year.

This is a descriptive study based on statistical dates in indirect treatment part of social security organization in 6 first months than the same period in previous year. Participants of this study are all insures who cared in non-property treatment centers.

Finding indicates that number of dentists, doctors and independent clinic recipes of state part decreased but this number increased in private clinics. Also, recipes’ cost and mean of them in independent university clinics and specialist’s office increased but these recipes decreased in university clinics.

Finding indicates that decreasing the recipes in doctors’ office and independent state clinic is because of unwillingness of patients and lack of satisfable services. The reason of recipes’ increasing in private clinic is for the willingness of patient and better services. Suitable service is the reason for increasing in university clinics than private offices after the performance of health system, and increased the referrals of patients to these clinics.

Keywords: Outpatient’s Recipes, Social Security Services, Health System, Cost

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

Relationship between Multiple Sclerosis with Plumb Spatial Dispersion (Case Study in Iran)

GHAZI, Iran; KHOSRAVI, Elham; MAHMOUDZADEH, Amir
Shakhes Pajouh Engineering and Research Institute of Natural Hazards Isfahan, Iran

Presenting author: MAHMOUDZADEH, Amir amiramj1@yahoo.com

The present study sets out to investigate the correlation between multiple sclerosis and the concentration of plumb in Mobarakeh, Lenjan, Najafabad city’s Iran. All cases of Multiple Sclerosis recorded between 2009 and 2011 were included. In order to calculate the plumb concentrations associated with the poll frequency of Multiple Sclerosis, the concentrations of plumb in (case study) were examined.

Materials and Methods: In this research, we applied target detection algorithms on MODIS images to detect plumb. In the next step, decision fusion method was used to combine the results. In this combination, each pixel is contaminated if 5 of 6 algorithms detect it as contaminated and the software Geographic Information System (GIS) was used to analyze the data; multiple sclerosis spatial distribution was mapped and the distribution of plumb in the case studies was determined.

Results: The results indicated a significantly
positive correlation between multiple sclerosis and the distribution of plumb.

Conclusions: The findings of the current study underscore not only the importance of preventing exposure to plumb but also the importance of controlling plumb-producing industries.

Keywords: Correlation, Multiple Sclerosis, Plumb, Spatial Distribution, Iran.

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

A Street Conducive To All Ages
GUNASAGARAN, Vinomarlini (2); SITHAMPARAM, Sumitra (1); G.VARATHARAJA, Puspa Rani (3)
1: Malaysian Medical Association; 2: Institute for Medical Research, Malaysia; 3: KPJ Healthcare University College Nilai, Malaysia

Presenting author: SITHAMPARAM, Sumitra sumitraparam@gmail.com

This one-year study aims to make Jalan Pa-hang in Kuala Lumpur, Malaysia conducive to all ages. This historical locality has undergone tremendous developmental processes since independence in 1958 and today, there are many commercial centres and condominiums. This street is within the strategic zone of the Kuala Lumpur city centre and is part of the KL Structure Plan 2020. While the infrastructure is being built, the necessary maintenance and softer components appear to be side-lined in that the street is unsafe, unaesthetic, unappealing and unhealthy from the daily user and for the older or physically-challenged individual.

The aims incorporate the World Health Organization Healthy City model based on: health-supportive environment; good quality of life; basic sanitation and hygiene needs; and access to health care.

The methodology involved a risk assessment approach through a questionnaire survey on Knowledge, Attitude and Practice of 300 individuals from among the local community. The parameters looked at safety and security concerns, smoke-free, clean and green environment, and the aesthetic aspects of the street.

The outcome produced evidence to be presented to the local authority for them to work on deliverables such as to install adequate facilities such as streetlights, railings, ramps, benches, CCTVs, escalators for the overhead pedestrian bridge, lifts; wash-basins and toilets near the market-place; green and handicap-disabled buses to ply the route; notices to declare the areas in front of the hospitals, institutes and hotel to be smoke-free zones; ample waste disposal facilities; greening of the environment; and increase in enforcement with police patrolling the street.

This study will benefit the local community, enhance the civic-conscious mindset of the public, and reduce the incidence of snatch-thefts. There will be an atmosphere of helpfulness in that the community will communicate in a friendly manner and a well-cultured society will slowly but surely emerge.

Keywords: Street, All Ages, Risk Assessment, KAP

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

Contrasting Patterns of Hot Spell Effects on Morbidity and Mortality for Cardiovascular Diseases in the Czech Republic
HANZLIKGOVA, Hana (1,2); PLAVCOVA, Eva (1); KYNCL, Jan (3); KRIZ, Bohumir (3); KYSELY, Jan (1)
1: Institute of Atmospheric Physics CAS, Czech Republic; 2: Faculty of Science, Charles University, Prague, Czech Republic; 3: National Institute of Public Health, Prague, Czech Republic

Presenting author: KYSELY, Jan kysely@ufa.cas.cz

The study examines effects of hot spells on cardiovascular disease (CVD) morbidity and mortality in the population of the Czech Republic, with emphasis on differences between ischaemic heart disease (IHD) and cerebrovascular disease (CD) and between morbidity and mortality. Daily data on CVD morbid-
ity (hospital admissions) and mortality over 1994–2009 were obtained from national hospitalization and mortality registers and standardized to account for long-term changes as well as seasonal and weekly cycles. Hot spells were defined as periods of at least two consecutive days with average daily air temperature anomalies above the 95% quantile during June to August. Relative deviations of mortality and morbidity from the baseline were evaluated.

Hot spells were associated with excess mortality for all examined cardiovascular causes (CVD, IHD and CD). The increases were more pronounced for CD than IHD mortality in most population groups, mainly in males. In the younger population (0–64 years), however; significant excess mortality was observed for IHD while there was no excess mortality for CD. A short-term displacement effect was found to be much larger for mortality due to CD than IHD. Excess CVD mortality was not accompanied by increases in hospital admissions and below-expected-levels of morbidity prevailed during hot spells, particularly for IHD in the elderly. This suggests that out-of-hospital deaths represent a major part of excess CVD mortality during heat and that for in-hospital excess deaths CVD is a masked comorbid condition rather than the primary diagnosis responsible for hospitalization.

Keywords: mortality, morbidity, cardiovascular diseases, climate, hot spells

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

A New One Health Training –Adressing the Needs of Preventive Medicine Doctors in Vietnam

LE, Huong Thi (1); LE, Xuan Thi Thanh (1); NGUYEN, Hinh Duc (1); FENWICK, Stanley (2); KIM, Oanh Thuy (3)

1: Hanoi Medical University, Vietnam; 2: Tufts University; 3: USAID

Presenting author: LE, Huong Thi lethihiuong@hmu.edu.vn

Although communicable diseases have shown a downward trend in Vietnam in past decades, infectious diseases continue to remain a major public health concern, with new epidemics and outbreaks of new and re-emerging infectious diseases. Doctors thus need to be equipped not only with knowledge, but also the skills to deal with such diseases in a continuously changing society. Recognizing the needs, Hanoi Medical University has taken the lead in developing a training curriculum and training program in One Health (OH) for Preventive Medicine (PM) students in all medical universities in Vietnam.

A multidisciplinary team from selected medical universities, Public Health and Agriculture Universities were involved in the curriculum development process. A program of training modules with 3 credits for 6th year PM doctor students in Vietnam was developed based on the OH core competencies and a OH modular curriculum designed by the South East Asia One Health University Network.

The course using participatory approach teaching skill will be used for future PM practitioners in order to help them to understand the basic concepts of OH, human health, animal health and ecohealth, explain the relevance of OH to Preventive Medicine, identify some core health problems related to OH and have ability to propose transdisciplinary solutions to solve the disease problems in Vietnam.

One Health Training Curriculum for Preventive Medicine Doctors is highly relevant for future PM practitioners, addressing the needs of One Health workforces in Vietnam, thus will strengthen the health workers’ capacities in diseases prevention and control.

Keywords: One Health training Preventive Medicine

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen
Impact of Livestock Intensification on Community Health in Vietnam
LE, Thi Phuong Mai (1); FROEHLICH, Yves (2)
1: National Institute of Hygiene and Epidemiology, Vietnam; 2: Institut Pasteur, Paris
Presenting author: LE, Thi Phuong Mai lepmai@yahoo.com

The frenzied economic development of South East Asia has brought damaging changes to ecosystems that are only beginning to become evident. It is essential that these changes are studied, measured and documented so that strategies can be devised to minimize health risks for resident populations caught up in this rapid expansion.

The core of the ECOMORE project is to better understand the anthropogenic and ecological changes responsible for the emergence of infectious diseases and to measure the health risks for local communities. It is a one health project being implemented in four South East Asian countries: Cambodia, Lao PDR, Myanmar and Vietnam. In each the Institut Pasteur has linked with the appropriate national health authority to design an anthropogenic project devised by that country.

In 2008 the government of Vietnam introduced a twelve year livestock development strategy which promotes intensification of the sector to match the increase in demand for livestock products but the potential health impacts had not been studied and are only now beginning to be unearthed by the ECOMORE project.

In Vietnam ECOMORE is describing health events and diseases in human and animal populations living in areas with intensive livestock farming by comparing populations that have adopted the new strategy with those that are continuing with the traditional system. The survey that forms the basis of the research is coupled with two cross-sectional studies being implemented six months apart in humans, animals and in the environment. The environmental survey in 60 gardens to assess contamination by E.Coli of natural fertilizer, irrigation water and vegetables uses an innovative technique of biological markers to identify the origin of the pollution. Specimens are collected in 1,000 people and 70 pig and poultry farms in each village to detect the circulation of Salmonella, Campylobacter, Leptospirosis, Hepatitis E and Avian Influenza.

Keywords: economic development, ecosystem modifications, emerging infectious diseases, risk evaluation

Session: MON3.1 Poster Session
Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

A One Health Approach for Studying on Emerging Infectious Diseases, in Guangdong
LU, JiaHai; GUO, Xiaoqin; LIU, Kangkang; LIU, Lanlan
Sen Yat-sen University
Presenting author: LU, JiaHai lujiahai@mail.sysu.edu.cn

Recently, the emerging infectious diseases, such as SARS, H5N1, H7N9, H1H1 and dengue fever, occurred in China, and most of these diseases first emerged in Guangdong Province, where is located at the southeast of China and was the first province opened to the world in 1978. Guangzhou is the capital of Guangdong Province. The city is the financial, industrial, transportation and trade center of South China, and has large demographic exchange coupled with business, tourism and labor service. The following examples demonstrate this situation. Firstly, in November 2002, the first cases of SARS were retrospectively identified in Guangdong Province. Then the infection spread rapidly within Guangdong Province and to other provinces and municipalities of China, which led to the largest local SARS epidemic of the world. The disease also spread rapidly from Hong Kong to other areas of world, up to 29 countries and regions on five continents. It is reported that 5327 cases with 349 deaths occurred in mainland China during the 2003 worldwide SARS epidemic. SARS had significantly negative impacts on China’s economy. It is estimated that SARS epidemic resulted in a total loss of US$25.3 billion to China’s economy and a 1-2% drop in the growth rate of China’s gross domestic product (GDP) in 2003. One Health is an emerging concept
Aims to establish collaborations, and to cut across the boundaries of human, animal and environmental health, then achieve harmonized approaches for disease detection and prevention. One Health approach has great potential for reducing threats to public health from emerging infectious diseases.

**Keywords:** One Health Approach; Emerging Infectious Diseases; Guangdong

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

Atopic Diseases – An Increasingly Important Issue of One Health?

MAIBACH, Sereina; LUETHI, Hannes; SCHAEPPI, Georg

*aha! Swiss Allergy Centre, Switzerland*

Presenting author: MAIBACH, Sereina, sereina.maibach@aha.ch

Atopic diseases like allergies, asthma and atopic eczema are major health problems in most industrialized countries. In Switzerland, around 35 percent of the population are sensitized to allergens, mainly aeroallergens like proteins from pollen, house dust mite dander, moulds or animal saliva. A fourth of the Swiss population suffer from clinically manifest allergic symptoms which are closely correlated to medication use, emergency visits and prescription of medical therapies.

There are several hypotheses for the increase in prevalence of atopic diseases over the last decades. Genetic susceptibility, decreased stimulation of the immune system («hygiene hypothesis»), as well as air pollution, climate changes and Western lifestyle are important influencing factors on the incidence of affected people.

With regard to these complex interactions influencing the prevalence of atopic diseases, this major public health issue must be focussed. Neither the causes nor the discussed solutions are monocausal. Public health awareness and close partnerships between multidisciplinary experts, supported by up to date communication management technologies are needed to improve the situation of people suffering from allergies.

*aha! Swiss Allergy Centre offers patient education programs for anaphylaxis or atopic eczema for parents as well as holiday camps for children with interdisciplinary teams regarding to professional background. Before and/or after the programs, parents were asked to fill out a questionnaire. The results showed an improved feeling of safety for parents and more self-confident behaviour of children. These positive conclusions support the importance of individual empowerment in relation to an interdisciplinary approach of therapy of atopic diseases.*

**Keywords:** atopic disease, patient education, interdisciplinary

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

One Welfare - Aligning Animal Welfare And The Human Condition

RUSK, Richard Craig (1); DOUMA, Dale Peter (2)

1: Manitoba Health and Healthy Living and Seniors, Canada; 2: Manitoba Agriculture, Food and Rural Development

Presenting author: DOUMA, Dale Peter, dale.douma@gov.mb.ca

The One Welfare (OW) concept builds on the international One World One Health Expert Consultation held in Winnipeg in 2009. OW takes the next step recognizing the connection that exists between the welfare of animals and the humans that they coexist with. This will expand previous One health accomplishments into the OW sphere, engaging issues such as animal welfare and related disparities of human health.

OW is based on the core pillars of prevention, detection and response and focuses on the problem of hoarding. These pillars each house additional jurisdictional sections that all should be considered when developing policy for each pillar. The sectors for prevention include government standards and codes of practice, industry proactive interest, professional association interest and ongoing aca-
demic research; for detection – government leadership in surveillance, public education and professional reporting systems; for response – animal welfare enforcement regulations, clinical mental health management capacity, inter-jurisdictional collaborative policy and multisource funding. Underlying all these pillars are the cultural considerations that should be included in different settings. Each pillar would therefore engage in multiple stakeholders and without a universal framework, this leads to inefficiencies and potential failures in outcomes. OW intends to fully develop and describe this framework for a cohesive policy to manage the emerging burden of rural and urban hoarding.

This poster will describe the OW framework and concept as it relates to hoarding and other complex welfare situations. This will offer additional opportunity, in conjunction with the conference presentation, to engage in conversation and debate about this issue and increase awareness of the options for developing successful policy. We invite the international community to engage in this initiative through engagement in the presentation, with representatives at the poster and through attendance at the upcoming conference.

Keywords: Animal welfare, mental health, hoarding

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

Emerging Innovators Councils for One Health
SCHAFER, Jacob
International Medical Corps, United States of America
Presenting author: SCHAFER, Jacob
jschafer@internationalmedicalcorps.org

One Health approaches to current, emerging, and future threats require the interdisciplinary collaboration and brainpower of individuals rooted in human health, animal health, and environment health, but also those in disciplines such as law, communication and social marketing, community mobilization and politics, engineering, finance, entertainment and the arts. As witnessed by the HIV pandemic and the 2014 Ebola Virus Disease (EVD) outbreak, initial response efforts experienced many missed opportunities resulting from authorities siloed within individual disciplines and influenced by “what worked in the past”. In a rapidly changing and dynamically interconnected world, modern solutions require innovation and out-of-the-box thinking which can prove challenging when relegated to the traditional experts; experiences of what worked in the past can tint the paradigm of what will work in the future.

To compliment the creative process of innovating better solutions for prevention, detection, and response of infectious disease, International Medical Corps advocates harnessing the power of youth. We propose that fresh ideas be injected into the conversation by the “best and brightest” young emerging leaders from a range of professions including human health, animal health, and environment health, law, communication and social marketing, community mobilization and politics, engineering, finance, entertainment and the arts. Groups of 15-25 handpicked individuals should be organized into Councils representing their respective home region (North Africa, Sub-Saharan Africa, Central Asia, Southeast Asia, etc.) and be assigned to freely discuss, debate, and generate novel approaches to One Health behind closed doors in a retreat-like setting. The ideas generated by each Emerging Leaders Council are collective and attributed to the group as a whole to prevent any political or personal agendas. The best new ideas or innovations can be presented to government, business, and civil society stakeholders in the respective region, as well as delivered at the 4th GRF One Health Summit.

Keywords: One Health, Leaders, Youth, Innovation

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen
Dust Mitigation Measures and Health Surveillance in Stone Crushing Plant
SITTITOON, Nalin (1); HONGRATHANAKORN, Jirathon (2); EKA, Wasana (2)
1: Suranaree University of Technology, Thailand; 2: Sila Sakol Pattana Co. Ltd, Pak Chong, Nakhon Ratchasima, Thailand
Presenting author: SITTITOON, Nalin
pinnalin@g.sut.ac.th

One of the most common particles in air pollution from processes of stone crushing plant is particle that size less than 10 micrometers (PM10). The size of particle is directly potential cause of health problems. The objectives of this study are; to investigate the concentration of ambient total suspended particulate (TSP) and PM10 at sensitive areas around the site from EIA, to investigate dust mitigation measures and to observe health impacts on worker. TSP and PM10 samples were collected from four sites of sensitive areas during the rainy season, August to September and during the winter, January to March (2005-2013) using high volume air samplers. We found that concentration levels of TSP in the rainy season and the winter varied from 20 - 252 and 35.8 - 302 µg/m³, respectively. Whilst levels of PM10 in the rainy season and the winter varied from 3-66 and 3-117 µg/m³, respectively. The results showed that all samples of 24-hour average concentrations of TSP and PM10 lower than Thailand’s ambient air quality standards. In dust mitigation we measured by using hood for screening and crusher, water spray system, covered conveyor belts and plantation around the site. Moreover, collected dust from bag filter was brought to improve soil quality in increasing cassava productivity and old conveyor was used for covering dust emission sources. Health effects on 154 workers were also observed through pulmonary function test such as, forced vital capacity (FVC), forced expiratory volume in one second (FEV1) and a ratio of FEV1 to FVC, and chest X-ray examination. Eight workers who had pulmonary function with low FVC were recommended to exercise regularly whereas a worker abnormal chest X-ray was further checked with doctor. Taken together, continuous improvement of dust mitigation measures and health surveillance would be good practice for other plants in the future.

Keywords: Dust mitigation measures, Health surveillance, Stone crushing plant

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

One World-One Health and neglected zoonotic disease: Elimination, emergence and emergency in Uganda
SMITH, James; TAYLOR, Emma Michelle; KINGSLEY, Pete
University of Edinburgh, United Kingdom
Presenting author: KINGSLEY, Pete
pete.kingsley@ed.ac.uk

This paper traces the emergence and tensions of an internationally constructed and framed One World- One Health (OWOH) approach to control and attempt to eliminate African Trypanosomiasis in Uganda. In many respects Trypanosomiasis is a disease that an OWOH approach is perfectly designed to treat, requiring an integrated approach built on effective surveillance in animals and humans, quick diagnosis and targeting of the vector. The reality appears to be that the translation of global notions of OWOH down to national and district levels generates problems, primarily due to interactions between: a) international, external actors not engaging with the Ugandan state; b) actors setting up structures and activities parallel to those of the state; c) actors deciding when emergencies begin and end without consultation; d) weak Ugandan state capacity to coordinate its own integrated response to disease; e) limited collaboration between core Ugandan planning activities and a weak, increasingly devolved district health system. These interrelated dynamics result in the global, international interventionalist mode of OWOH undermining the Coordinating Office for Control of Trypanosomiasis in Uganda (COCTU), the body within the Ugandan state mandated expressly with managing a sustainable One Health response to trypanosomiasis outbreaks in Uganda. This does two things, firstly it suggests we need a more grounded, national perspective of OWOH,
where states and health systems are acknowledged and engaged with by international actors and initiatives. Secondly, it suggests that more support needs to be given to core coordinating capacity in resource-poor contexts. Supporting national coordinating bodies, focused around One Health, and ensuring that external actors engage with and through those bodies can help develop a sustained, effective OWOH presence in resource-poor countries, where after all most zoonotic disease burden remains.

*Keywords: Uganda, Trypanosomiasis, Health governance, Neglected Tropical Diseases*

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen

---

**Noise-induced Hearing Loss Among Quarry Workers in Nakhon Ratchasima, Thailand**

THEPPITAK, Calermsiri (1); LIMMONGKON, Yuparat (1); SITTITOON, Nalin (2); CHAUCHOT, Piluntha (1); E-KA, Wasana (3); HONGRATHANAKORN, Jirathon (3)

1: School of Occupational Health and Safety, Institute of Medicine, Suranaree University of Technology, Nakhon Ratchasima, Thailand; 2: School of Environmental Health, Institute of Medicine, Suranaree University of Technology, Nakhon Ratchasima, Thailand; 3: SilaSakol Pattana Co. Ltd, Pak Chong, Nakhon Ratchasima, Thailand

Presenting author: THEPPITAK, Calermsiri chaerem@sut.ac.th

Noise is one of the most important occupation and environmental hazard, causing hearing loss, annoyance, sleep disturbance, fatigue, and hypertension. Quarry workers have a high risk of hearing loss due to excessive noise levels in the workplace environment. The purposes of this study were to evaluate noise exposure and its effects on the hearing ability of exposed workers in quarry workers. Noise exposure among quarry workers was measured by using a sound level meter in the workplace areas. There were four sampling points in the quarry operation areas for monitoring noises using a sound level meter. The results showed that the average noise levels at quarry point (near drilling area) was 87.7 dB(A) Leq that exceeded the Thailand occupational health safety and environment standards at 85 dB (A) for eight working hours. The other were 77.7 dBA Leq at resting point while hydraulic rock drill was working, 76.2 dBA Leq at resting point while backhoe was working and 73.7 dBA Leq at quarry point (far from drilling area). The hearing impairment among 28 quarry and related work workers was evaluated by audiometer. The audiometric data revealed that there were 71.43 % of all noise exposure workers suffered from hearing loss. The two first order of worker groups who suffered from hearing loss are workers in drilling work (28.57%) and maintenance workers (14.29%). Although this industry already has the criteria for a selection and use of hearing protection devices and a periodic audiometric evaluation program for workers, less number of workers used the hearing protective devices. Therefore, the hearing conservation program including training and encouragement workers for using the hearing protective devices are still needs to be promoted. Moreover engineering and administrative controls such as using sound absorption materials, modifying work rotation system should be conducted.

*Keywords: Noise effect, Hearing loss, Quarry, Hearing impairment, Audiometry*

Session: MON3.1 Poster Session

Mon 05.10.2015 • 12:30-13:30 • Location: Foyer Aspen
# Authors index

<table>
<thead>
<tr>
<th>Author Name</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABBASI, Farha</td>
<td>70</td>
</tr>
<tr>
<td>ACHARYA, Resham Prasad</td>
<td>68</td>
</tr>
<tr>
<td>ALDERS, Robyn</td>
<td>48, 55, 61</td>
</tr>
<tr>
<td>ALLEN, John</td>
<td>77</td>
</tr>
<tr>
<td>ALMATRAFI, Mohammed Hamoud</td>
<td>97</td>
</tr>
<tr>
<td>AMMANN, Walter</td>
<td>63</td>
</tr>
<tr>
<td>ANTHONY, Simon J</td>
<td>72</td>
</tr>
<tr>
<td>ARABASADI, Ashley</td>
<td>99</td>
</tr>
<tr>
<td>ARAGRADE, Maurizio</td>
<td>47</td>
</tr>
<tr>
<td>ASUKE, Sunday</td>
<td>98</td>
</tr>
<tr>
<td>ATKINSON, Peter M</td>
<td>95</td>
</tr>
<tr>
<td>BAGNOL, Brigitte</td>
<td>48, 55, 61</td>
</tr>
<tr>
<td>BANDEIRA, Antonio Carlos</td>
<td>80</td>
</tr>
<tr>
<td>BANKHEAD, Troy</td>
<td>80</td>
</tr>
<tr>
<td>BARDOSH, Kevin</td>
<td>48-49</td>
</tr>
<tr>
<td>BECK, Namseon</td>
<td>98</td>
</tr>
<tr>
<td>BITEK, Austine</td>
<td>78</td>
</tr>
<tr>
<td>BLACKMAN, Camille</td>
<td>99</td>
</tr>
<tr>
<td>BLASZAK, Kate</td>
<td>77</td>
</tr>
<tr>
<td>BODAL, Huzeifa</td>
<td>78</td>
</tr>
<tr>
<td>BOM BARA, Courtenay</td>
<td>58</td>
</tr>
<tr>
<td>BOO, Gianluca</td>
<td>82</td>
</tr>
<tr>
<td>BORIANI, Elena</td>
<td>50</td>
</tr>
<tr>
<td>BOWEN, Gary L</td>
<td>70</td>
</tr>
<tr>
<td>BRECHOT, Christian</td>
<td>92</td>
</tr>
<tr>
<td>Brey, Paul</td>
<td>89</td>
</tr>
<tr>
<td>BURDAKOV, Alexey</td>
<td>50, 59</td>
</tr>
<tr>
<td>CALDERON, Jaime de Jesus</td>
<td>97</td>
</tr>
<tr>
<td>CANALI, Massimo</td>
<td>47, 51</td>
</tr>
<tr>
<td>CASEY, Sean</td>
<td>99</td>
</tr>
<tr>
<td>CHAUCHOT, Pilunthana</td>
<td>108</td>
</tr>
<tr>
<td>CHERBLANC, Fanny</td>
<td>58</td>
</tr>
<tr>
<td>COLSTON, Angie</td>
<td>53</td>
</tr>
<tr>
<td>CONN, David Bruce</td>
<td>52</td>
</tr>
<tr>
<td>COOK, Elizabeth A</td>
<td>95</td>
</tr>
<tr>
<td>CORDEL, Claudia</td>
<td>53</td>
</tr>
<tr>
<td>Name</td>
<td>Page</td>
</tr>
<tr>
<td>---------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Daniels, Peter Wallace</td>
<td>54</td>
</tr>
<tr>
<td>Daszak, Peter</td>
<td>72</td>
</tr>
<tr>
<td>De Bruyn, Julia</td>
<td>55</td>
</tr>
<tr>
<td>De Clerck, Silvia</td>
<td>58</td>
</tr>
<tr>
<td>De Glanville, Will</td>
<td>96</td>
</tr>
<tr>
<td>De Glanville, William</td>
<td>95</td>
</tr>
<tr>
<td>Dent, Maria Grazia</td>
<td>58</td>
</tr>
<tr>
<td>De Quincey, Ed</td>
<td>52</td>
</tr>
<tr>
<td>Dhond, Navneet</td>
<td>58, 90</td>
</tr>
<tr>
<td>Dominy-Hoves, Dale</td>
<td>56</td>
</tr>
<tr>
<td>Douma, Dale Peter</td>
<td>56, 105</td>
</tr>
<tr>
<td>Dreiselt, Herbert</td>
<td>57</td>
</tr>
<tr>
<td>Dreiselt, Bettina</td>
<td>57</td>
</tr>
<tr>
<td>Durr, Salome</td>
<td>94</td>
</tr>
<tr>
<td>Dürr, Salome</td>
<td>58</td>
</tr>
<tr>
<td>Dyment, Wendy</td>
<td>98</td>
</tr>
<tr>
<td>Ebola Task Force, Pasteur</td>
<td>92</td>
</tr>
<tr>
<td>Eda-Assuke, Uregwu Agnes</td>
<td>98</td>
</tr>
<tr>
<td>Eka, Wasana</td>
<td>69, 107, 108</td>
</tr>
<tr>
<td>Ella, Elijah Ekah</td>
<td>98</td>
</tr>
<tr>
<td>Escadafal, Camille</td>
<td>58</td>
</tr>
<tr>
<td>Esmagambetova, Aizhan</td>
<td>50, 59</td>
</tr>
<tr>
<td>Faber, Michael Havbro</td>
<td>75</td>
</tr>
<tr>
<td>Fabrikant, Sara Irina</td>
<td>82</td>
</tr>
<tr>
<td>Fänder, Gabriele</td>
<td>98</td>
</tr>
<tr>
<td>Fearnley, Lyle</td>
<td>71</td>
</tr>
<tr>
<td>Fenwick, Stanley</td>
<td>103</td>
</tr>
<tr>
<td>Feuchte, Friederike</td>
<td>99</td>
</tr>
<tr>
<td>Fievre, Eric M</td>
<td>95-96</td>
</tr>
<tr>
<td>Field, Hume</td>
<td>90</td>
</tr>
<tr>
<td>Fogelberg, Emelie</td>
<td>74</td>
</tr>
<tr>
<td>Folkers, Gerd</td>
<td>82</td>
</tr>
<tr>
<td>Fontanet, Amaud</td>
<td>92</td>
</tr>
<tr>
<td>Foster, John</td>
<td>52</td>
</tr>
<tr>
<td>Froehlich, Yves</td>
<td>104</td>
</tr>
<tr>
<td>Gabriel, Sarah</td>
<td>91</td>
</tr>
<tr>
<td>Ganzeleben, Catherine</td>
<td>65</td>
</tr>
<tr>
<td>Gardin, Yannick, Charles</td>
<td>60</td>
</tr>
<tr>
<td>Generaux, Melissa</td>
<td>86</td>
</tr>
<tr>
<td>Ghazanchaei, Elham</td>
<td>99-101</td>
</tr>
<tr>
<td>Ghazi, Ira</td>
<td>60, 99-101</td>
</tr>
<tr>
<td>Global Health, Center for</td>
<td>92</td>
</tr>
<tr>
<td>Goldstein, Tracey</td>
<td>72</td>
</tr>
<tr>
<td>Gongora, Jaime</td>
<td>58</td>
</tr>
<tr>
<td>Graf, Ramona</td>
<td>82</td>
</tr>
<tr>
<td>Grünzig, Katrin</td>
<td>82</td>
</tr>
<tr>
<td>Gunasagar, Vinomarlinil</td>
<td>102</td>
</tr>
<tr>
<td>Guo, Xiaomin</td>
<td>104</td>
</tr>
<tr>
<td>Guyonnet, Vincent</td>
<td>55</td>
</tr>
<tr>
<td>G.Varathara, Puspa Rani</td>
<td>87, 102</td>
</tr>
<tr>
<td>Hald, Tine</td>
<td>50</td>
</tr>
<tr>
<td>Hali, David C.</td>
<td>62</td>
</tr>
<tr>
<td>Hamed, Mohadeseh</td>
<td>60</td>
</tr>
<tr>
<td>Han, Guoyi</td>
<td>66</td>
</tr>
<tr>
<td>Hanzlikova, Hana</td>
<td>102</td>
</tr>
<tr>
<td>Hasanzadeh, Samira</td>
<td>60</td>
</tr>
<tr>
<td>Haussmann, Roger</td>
<td>66</td>
</tr>
<tr>
<td>Heffernan, Claire</td>
<td>62</td>
</tr>
<tr>
<td>Herold, Annika</td>
<td>63</td>
</tr>
<tr>
<td>Hoang, Nam</td>
<td>69</td>
</tr>
<tr>
<td>Hoeve, Johan B. ten</td>
<td>98</td>
</tr>
<tr>
<td>Hongrathanan, Jirathon</td>
<td>92</td>
</tr>
<tr>
<td>Hoogevan, Y bele</td>
<td>65</td>
</tr>
<tr>
<td>Inabo, Helen</td>
<td>98</td>
</tr>
<tr>
<td>International Direction, Pasteur</td>
<td>92</td>
</tr>
<tr>
<td>Intavong, Phouth</td>
<td>48-49, 76</td>
</tr>
<tr>
<td>Islam, Khaleda</td>
<td>63</td>
</tr>
<tr>
<td>Ismail, Abdulmalik Mwaran</td>
<td>97</td>
</tr>
<tr>
<td>Jarosinska, Dorota</td>
<td>65</td>
</tr>
<tr>
<td>Jellalli, Beheshteh</td>
<td>99-101</td>
</tr>
<tr>
<td>Jimenez Clavero, Miguel A</td>
<td>58</td>
</tr>
<tr>
<td>Johannesen, Åse</td>
<td>66</td>
</tr>
<tr>
<td>Johnsson, Karelle</td>
<td>66</td>
</tr>
<tr>
<td>Joly, Damien</td>
<td>72</td>
</tr>
<tr>
<td>Jouan, M arc.</td>
<td>92</td>
</tr>
<tr>
<td>Kairu-Wanyoke, Salome</td>
<td>78</td>
</tr>
<tr>
<td>Kares, William B.</td>
<td>72</td>
</tr>
<tr>
<td>Kazakov, Stanislav</td>
<td>50, 59</td>
</tr>
<tr>
<td>KC, Pankaj</td>
<td>74</td>
</tr>
<tr>
<td>Keonouchan, Soukah</td>
<td>76</td>
</tr>
<tr>
<td>Khalmole, Boualam</td>
<td>76</td>
</tr>
<tr>
<td>Khan, Javed</td>
<td>68</td>
</tr>
<tr>
<td>Khosravi, Elham</td>
<td>101</td>
</tr>
<tr>
<td>Kiambi, Stella</td>
<td>78</td>
</tr>
<tr>
<td>Kiani, Reza</td>
<td>101</td>
</tr>
<tr>
<td>Kibo, Maurice</td>
<td>78</td>
</tr>
<tr>
<td>Kim, Oanh Thuy</td>
<td>103</td>
</tr>
<tr>
<td>Kingsley, Pete</td>
<td>68, 107</td>
</tr>
<tr>
<td>Knobel, Darryn</td>
<td>91</td>
</tr>
<tr>
<td>Kopzhasarov, Damir</td>
<td>50</td>
</tr>
<tr>
<td>Kreuder-Johnson, Christine</td>
<td>72</td>
</tr>
<tr>
<td>Kriz, Bohumir</td>
<td>102</td>
</tr>
<tr>
<td>Kung, Nina</td>
<td>90</td>
</tr>
<tr>
<td>Kwanchak, Sompan</td>
<td>89</td>
</tr>
<tr>
<td>Kyuncl, Jan</td>
<td>102</td>
</tr>
<tr>
<td>Labbate, Maurizio</td>
<td>56</td>
</tr>
<tr>
<td>Lalouschek, Wolfgang</td>
<td>57</td>
</tr>
<tr>
<td>Lefevre, Pierre</td>
<td>91</td>
</tr>
<tr>
<td>Le, Quynh Ba.</td>
<td>62</td>
</tr>
<tr>
<td>Le, Thi Phuong Mai</td>
<td>104</td>
</tr>
<tr>
<td>Le, Xuan Thi Thanh</td>
<td>103</td>
</tr>
<tr>
<td>Limmongkon, Yuparat</td>
<td>69, 108</td>
</tr>
</tbody>
</table>
Authors Index

LINDSAY, Steve William ........................................ 89
LIU, Kangkang .................................................. 104
LIU, Lanlan ......................................................... 104
LUETHI, Hannes .................................................. 105
LU, Jiahai .......................................................... 104
MAGEN, Jed Gary .................................................. 70
MAHMoudzaDEH, Amir ............................................. 60, 99-101
MAIBACH, Serena .................................................. 105
MALTAIS, Danielle ............................................... 86
MANCINI, Jay A .................................................... 70
MANUGUERRA, Jean-Claude ...................................... 58
MARCOTTY, Tanguy ................................................. 91
MARTIN, Vincent .................................................. 71
MAZET, Jonna A ..................................................... 72
MAZURIK, Laurie ................................................... 86
MBAU, Murithi ........................................................ 78
MCConchie, Robyn ............................................... 48
MCGregor, Ombelline ............................................... 55
MEJIA, Monica Pamela ............................................ 73
MIRAGLIA, Simona ................................................ 50
MOLONEY, Barbara ............................................... 90
MOSEDALE, Jan ..................................................... 63
MUDOGA, Emily ..................................................... 74
MUKARATIRWA, Samson ........................................... 98
MUTONO-WATKISS, Beryl ........................................ 74
MUTURU, Mathew ................................................. 78
MWAPE, Evans K .................................................... 91
NADIRADZE, Kakhia ................................................. 74
NARKHEDE, Raju Kashinath ..................................... 79
NASRI, Athareh ..................................................... 99
NAVRUD, Stale ....................................................... 75
NERO, Luis Augusto ................................................. 80
NEWBY, Jonathan ................................................... 77
NGUYEN, Hinh Duc ............................................... 103
NGUYEN-VIET, Hung ............................................... 80
NIELSEN, Linda ...................................................... 75
Njeru, Ian .............................................................. 78
NORMATOV, Parviz ............................................... 76
ODERMATT, Peter .................................................. 80
OKELLO, Anna ........................................................ 48-49, 76
OKELLO, Walter ..................................................... 76
ONYANGO, Esther Achieng ........................................ 77
OSORO, Eric .......................................................... 78
OSPANOv, Kenes .................................................... 59
OTTO, Vivianne ...................................................... 82
PAIS, Anthony Victor .............................................. 72
PARRAVANI, Ellie .................................................... 74
PATIL, Manish Dattatray .......................................... 78
PATRICK, Ian ........................................................ 69
PATWARI, Jayprakash Manoharao ............................... 79
PEREZ RAMIREZ, Elisa ............................................ 58
PERRY, Kathryn .................................................... 99
PETTTAN-BREWER, Klaisy Christina .......................... 80
PHAM-DUC, Phuc .................................................... 80
PHENGVILAY SOUK, Ammaly ..................................... 76
PHIRI, Andrew ..................................................... 91
PHIROSMANASHVILI, Nana ....................................... 74
PICARD, Marie ..................................................... 58
PIERCE, Bess Janine ............................................... 81
PITROU, Isabelle .................................................... 92
PLAVCOVA, Eva ..................................................... 102
Pospischil, Andreas ............................................... 82
RAHALI, Tarik ....................................................... 91
RAtree, Khongpolpan ............................................... 89
R. De Paula, Tarcizio Antonio ................................... 80
REED, Florence Leanne ........................................... 83
RESCH, Kristin ..................................................... 78
RHALEM, Abdelkhir ............................................... 91
RICARDO, Flavia .................................................... 58
RICHER, Carsten .................................................... 71
RivA MoraLes, Stefano ............................................. 51
ROBERT, Vincent ................................................... 58
RODRIgues, Patricia ............................................... 80
ROGERS, Barbara ................................................... 83
ROY, Mathieu ........................................................ 86
RUEGG, Simon ....................................................... 84
RUSK, Richard Craig ................................................. 56, 105
SAHIBI, Hamid ....................................................... 91
SCAtAMBURLO MOREIRA, Maria Aparecida ................ 80
SCHAEPPI, Georg .................................................. 105
SCHLUNDT, Jørgen .................................................. 75
SCHREMBI, Nicole .................................................. 90
SHultz, James Michael ............................................. 85-86
SIMPSON, Greg ..................................................... 91
SITHAMPARAM, Sumitra ....................................... 87-88, 102
SITLHOU, Lhoukhokai ............................................. 67
SITTITOON, Nalin ................................................... 69, 107-108
Si, Wei ................................................................. 66
SMITH, James ........................................................ 107
SMITH, Woutrina .................................................... 72
SOHAIL, Kamran .................................................... 88
STAMHUIS, Ellen ..................................................... 98
SUMALEE, Buensanteai ............................................. 89
SUPASINEE, Petburi ................................................ 89
TANGENA, Julie-Aanne Akiko .................................... 89
TAYLOR, Emma Michelle ......................................... 107
TAYLOR, Melanie Rose ............................................. 90
THAM MAVONG, Phoutmany ..................................... 89
THIPPITAK, Calermisiri ............................................ 108
THIEME, Olaf ......................................................... 55, 61
THOMALLA, Frank ................................................... 66
THOMAS, Lian ..................... 95
THYS, Séverine ..................... 91
TIEMANN, Tassilo ..................... 76
TORIBIO, Jenny-Anne ................. 90
UKHAROV, Andrey ..................... 50, 59
UMOH, Veronica ..................... 98
VAN DER WERF, Sylvie ................. 91
VAN KERKHOVE, Maria ................. 92
VAN ROOYEN, Jacques ................. 91
VICTOIR, Kathleen ..................... 92
VROEGINDEWEY, Gary A ............... 93-94
WAMAE, Claire N ..................... 95-96
WARD, Michael P ................. 58, 94
WARDROP, Nicola A ..................... 95
WHONG, Clement ..................... 98
WIETHOELTER, Anke ..................... 90
WILCOX, Bruce ..................... 71
WOLFE, Nathan ..................... 72
WRIGHT, Therese ..................... 90
XAYAHEUANG, Sivilai ............... 48, 49
ZINSSTAG, Jakob ..................... 80
Get in Touch

Global Risk Forum GRF Davos
Promenade 35
CH-7270 Davos Platz
Switzerland

Tel. +41 81 414 16 00
Fax. +41 81 414 16 10

E-Mail: onehealth@grforum.org

SAVE THE DATE

6th International Disaster and Risk Conference
IDRC Davos 2016
28 August – 01 September 2016
Davos • Switzerland
www.idrc.info

Follow us
www.facebook.com/GRFDavos
www.twitter.com/GRFDavos