CISTM13 Program Schedule

All sessions held in the Maastricht Exhibition and Conference Centre (MECC).

Time	Program	Location
	Sunday 19 May 2013	
14.00-16.30	**Pre CISTM Course 1** Psychological Issues in International Travel: All you Need to Know	**Athens, Level 0 Room 0.9**
	Pre CISTM Course 2 Responsible Travel: A Travel Health Concern?	**Rome, Level 0 Room 0.8**
15.00-16.30	**Nurses Reception**	**Brussels/Paris, Level 0 Rooms 0.4/0.5**
15.00-16.30	**Pharmacists Reception**	**Pressroom, Level 0 Room 0.11**
17.00-18.00	**Opening Ceremony**	**Auditorium, Level 1**
18.00-20.00	**Welcome Reception**	**Exhibition, Level 1**

Time	Program	Location
	Monday 20 May 2013	
MTH1 08.00-08.45	Meet The History 1 **From House of God to Academic Hospital: The History of Medicine in Maastricht** H.F.P Hillen, The Netherlands	**Paris, Level 0** **Room 0.5**
COD1 08.00-08.45	Case of the Day 1 Vanessa Field, United Kingdom	**Rome, Level 0** **Room 0.8**
MTP1 08.00-08.45	Meet the Professor 1 **Mentorship** Michele Barry, United States of America	**Athens, Level 0** **Room 0.9**

Time	Program	Location
	Monday 20 May 2013, continued	
PL1 09.00-10.30	**Plenary 1** **Antibiotic Resistance: Mobile Bugs in a Connected World** *Chairs:* **Leo G. Visser,** The Netherlands **Mary E. Wilson,** United States of America **PL1.1** *Overview, Mechanisms, Example of Delhi NDM1 Spread* **Timothy Walsh,** United Kingdom • Understand three ways bacteria can become resistant to antibiotics, and how the movement of genetic elements confers resistance among bacteria. • Learn two factors that have enabled the spread of bacteria with NDM-1. **PL1.2** *Travelling Golden Staphylococci* **Li Yang Hsu,** Singapore • Understand three consequences of staphylococcal infections by travellers. • Learn the role of travellers in the movement of staphylococci and resistance elements across populations. • Learn the drivers of resistance, including the use of antimicrobials in animals. **PL1.3** *Acquisition, Colonization and Spread by Unsuspecting Travellers* **Antoine Andremont,** France • Understand the three ways to reduce the development and spread of resistant bacteria. • Understand the ecology of resistance. • Learn the identification, monitoring, and control of resistance. • Learn about the persistence and movement of elements conferring resistance in colonizing bacteria.	**Auditorium, Level 1**
10.30-11.15	**Morning Break**	**Exhibition, Level 1**

Time	Program	Location
	Monday 20 May 2013, continued	
SY1 11.15-12.45	**Symposium 1** **Jet Lag Chronobiology, Travel and Treatment** *Chairs:* **Lin H. Chen,** United States of America **Louis Loutan,** Switzerland SY1.1 *The Circadian Clock and Time Zone Travel* **Irina V. Zhdanova,** United States of America • Review circadian system and how it responds to time shift. • Review why we develop jet lag syndrome and how it differs from other forms of desynchrony. SY1.2 *Maximizing Performance Across Time Zones* **Jim Waterhouse,** United Kingdom • Review pros and cons of light therapy, behaviour modifications, diet and exercise, napping and other actions that individual travellers could initiate as non-pharmacologic interventions. SY1.3 *Pharmacotherapy* **Robert Sack,** United States of America • Review evidence that various pharmacologic agents work for jet lag syndrome. • Review pros and cons of melatonin, caffeine, hypnotics.	**Auditorium, Level 1**
FC1 11.15-12.45	**Free Communication 1** **All About Malaria** *Chairs:* **Jeff Goad,** United States of America **Pieter van Theil,** The Netherlands	**Paris, Level 0, Room 0.5**
11.15-11.30	FC1.1 *Malaria Knowledge and Use of Malaria Prevention in the UK Population and in UK Passengers Departing to Malaria Endemic Areas.* **Ron H. Behrens,** United Kingdom	
11.30-11.45	FC1.2 *Eye Disorders Reported with the Use of Mefloquine Chemoprophylaxis – a Drug Safety Database Analysis* **Patricia Schlagenhauf,** Switzerland	

Time	Program	Location
	Monday 20 May 2013, continued	
11.45-12.00	FC1.3 *Acute Malaria Infections Despite a Complete or Abbreviated Chemoprophylactic Regimen of Atovaquone-proguanil* **Paul M. Arguin,** United States of America	
12.00-12.15	FC1.4 *How did Travellers Use During their Trip Rapid Diagnostic Test for Malaria Provided by a Travel-clinic?* **Delphine Berthod,** Switzerland	
12.15-12.30	FC1.5 *Artemether-Lumefantrine Compared to Atovaquone-Proguanil as a Treatment for Plasmodium falciparum Malaria in Travelers* **Tamar Lachish,** Israel	
12.30-12.45	FC1.6 *Safety of Antimalarials in the Treatment of Severe Imported Malaria - a Single-centre Retrospective Study.* **Thierry Rolling,** Germany	
WS1 11.15-12.45	**Workshop 1** **Would You Vaccinate this Traveller: Yellow Fever Vaccine Cases** **Mark Gershman,** United States of America **Christoph Hatz,** Switzerland • 3-4 case studies will be discussed and essential criteria to consider in deciding on the appropriateness of prescribing yellow fever vaccination will be highlighted. Case studies will address yellow fever vaccination recommendations and country entry requirements, as well as medical contraindications and precautions to vaccination.	**Rome, Level 0** **Room 0.8**

Time	Program	Location
	Monday 20 May 2013, continued	
SY2 11.15-12.45	**Symposium 2** **One World: Migrants and Health** *Chairs:* **Francesco Castelli,** Italy **Jose Flores-Figueroa,** Mexico **SY2.1** *BioMosaic* **Martin Cetron,** United States of America • Review the magnitude and growth of global migration and its impact on human health. • Describe The BioMosaic Project and present its objectives and application to public health and travel medicine. **SY2.2** *Accessing VFR Populations for Public Health Messages* **Peter A. Leggat,** Australia • Review the travel health risks related to VFR travel. • Describe novel approaches to engaging immigrant communities to access and promote pre-travel advice in the VFR population. **SY2.3** *Approach to Migrants Upon Arrival* **Anne McCarthy,** Canada • Review the health status of migrants and predictors for poor health outcomes. • Present an overview of the recently published Canadian Collaboration for Immigrant and Refugee Health (CCIRH) guidelines as an example of an approach to health promotion post-arrival and describe applications of this to travel health.	**Brussels, Level 0** **Room 0.4**

Time	Program	Location
	Monday 20 May 2013, continued	
WS2 11.15-12.45	**Workshop 2** **The Anticoagulated Traveller: Issues and Answers** **Michael Libman,** Canada **Susan Kahn,** Canada **Perry van Genderen,** The Netherlands • Review the risk and associated challenges of travel while taking anticoagulants. • Discuss practical strategies of how to manage anticoagulation medications during travel including adjusting doses, avoid drug interactions, etc.	**Athens, Level 0** **Room 0.9**
12.45-14.45	**Lunch Break**	**Exhibition, Level 1**
SY3 14.45-16.15	**Symposium 3** **Risk: Perceived vs. Real, and Communication Tools** *Chairs:* **Charles D. Ericsson,** United States of America **Annelies Wilder-Smith,** Singapore **SY3.1** *Perceived verus Actual Risk* **Ron H. Behrens,** United Kingdom • Review estimated risk for different diseases and different destination according to travel information. • Discuss the perceived risk for the same diseases and destination. • Explain the reasons for these differences. **SY3.2** *Helping the Professional Understand Risk Concepts* **Karin Leder,** Australia • Review the determinants of risk and how it is calculated. • Describe the pitfalls to estimate risk in travel medicine. • Give examples on how health professionals can better understand risk. **SY3.3** *Helping the Professional Communicate Risk* **Jane Chiodini,** United Kingdom • Describe how actual risk can be appropriately communicated to a lay person and give examples. • Illustrate how different means can lead to different uptake of preventive measures.	**Auditorium, Level 1**

Time	Program	Location
	Monday 20 May 2013, continued	
SY4 14.45-16.15	**Symposium 4** **New and Emerging Bugs and Travel: Tryps, TB, and Fungi** *Chairs:* **Christoph Hatz,** Switzerland **Shuzo Kanagawa,** Japan **SY4.1** *Trypanosomiasis* **Joannes Clerinx,** Belgium • Review briefly the epidemiology, clinical manifestations and diagnostic criteria for trypanosomiasis. • Illustrate by the description of cases of imported trypanosomiasis and why it has been (or not been) suspected. **SY4.2** *MDR, XDR,TDR-TB* **Martin P. Grobusch,** The Netherlands • Review briefly the epidemiology, risk factors and criteria to diagnose MDR, XDR,TDR-TB. • Describe the different therapies available and their effectiveness. • Assess the risk for the traveller. **SY4.3** *Fungal Infections in Travellers* **Eli Schwartz,** Israel • Review briefly the epidemiology, risk factors and procedures to diagnose the most prevalent. • Give some examples of these with pictures and review the treatment.	**Brussels, Level 0** **Room 0.4**
WS3 14.45-16.15	**Workshop 3** **High Altitude Travel** **Buddha Basnyat,** Nepal **Alan J. Magill,** United States of America • Discuss health problems at high altitude and pathophysiology. • Discuss pharmacological and behavioural interventions. • Discuss high risk travellers and itineraries.	**Paris, Level 0** **Room 0.5**

Time	Program	Location
	Monday 20 May 2013, continued	
WS4 14.45-16.15	Workshop 4 **Seeking Answers: Resources for Travel Medicine (ABC)** David Hamer, United States of America Claudine Leuthold, Switzerland • Know where to find background information on country, security, maps, disability, and evacuation. • Use surveillance and epidemiological data. • Apply different sources of travel medicine recommendations. • Appraise travel warnings and consular information. • Use vaccine resources.	**Rome, Level 0** **Room 0.8**
FC2 14.45-16.15	Free Communication 2 **Special Needs (Mental Health and Immunosuppression)** *Chairs:* Michael E. Jones, United Kingdom Thomas Valk, United States of America	**Athens, Level 0** **Room 0.9**
14.45-15.00	FC2.1 *Mental Health and Study Abroad: Incidence and Mitigation Strategies* Ryan Copeland, United States of America	
15.00-15.15	FC2.2 *Japanese Encephalitis Vaccine Administration Practices Among U.S. Travel Medicine Practices in Global TravEpiNet* Regina C. LaRocque, United States of America	
15.15-15.30	FC2.3 *The Traveling-Travel Clinic: Improving Access for Visiting Friends and Relative Travelers, Hajj Clinic Pilot Project.* Gregory Carlson, United States of America	
15.30-15.45	FC2.4 *Immune Response to Combined Hepatitis A and B Vaccine in HIV-infected Children or Children on Immunosuppressive Medication in Juvenile Idiopathic Arthritis in Contrast to Healthy Children: A Substantial Proportion Not Immune for Hepatitis A after First Vaccination* Gerard JB Sonder, The Netherlands	

Time	Program	Location
	Monday 20 May 2013, continued	
15.45-16.00	FC2.5 *International Travel Patterns and Travel Risks of Stem Cell Transplant Recipients* **Tarek Mikati,** United States of America	
16.00-16.15	FC2.6 *Epidemiology and Treatment of Hydatid Cyst in the AMC* **Cornelis Stijnis,** The Netherlands	
16.15-17.00	**Afternoon Break**	**Exhibition, Level 1**
SY5 17.00-18.30	**Symposium 5** **Who Should be Vaccinated? Difficult Vaccine Decisions: Yellow Fever, Rabies, and Influenza** *Chairs:* **Marc Mendelson,** South Africa **Gary Brunette,** United States of America SY5.1 *Rabies* **Philippe Gautret,** France • Review current controversies about the use of rabies vaccine. • Understand the pros and cons of using vaccine (or RIG or a specific dose or route) in each situation. SY5.2 *Yellow Fever* **Elizabeth D. Barnett,** United States of America • Review the current controversies about the use of yellow fever vaccine. • Understand the data to support use or non-use of vaccine in each situation. SY5.3 *Influenza* **Margot Mütsch,** Switzerland • Current controversies about use of influenza vaccine in individuals and populations.	**Auditorium, Level 1**

Time	Program	Location
	Monday 20 May 2013, continued	
17.00-18.30	Panel Discussion **Filling the Gaps in the Knowledge Base: Research Priorities in Travel Medicine** *Chairs:* Michele Barry, United States of America Ron H. Behrens, United Kingdom *Panelists:* Nancy Piper Jenks, United States of America Kevin Kain, Canada Annelies Wilder-Smith, Singapore • Each presenter will present her (his) own view on the two main gaps in knowledge in the travel medicine field and the best study design to address those. • A discussion with presenters and audience will follow.	**Brussels, Level 0** **Room 0.4**
WS5 17.00-18.30	Workshop 5 **Refresh! What's New in Travel and Tropical Medicine Literature** Gerd Burchard, Germany Mary-Louise Scully, United States of America • Describe the results of new studies or observations within the past two years that affect recommendations in travel medicine. • Explain how these new findings can be integrated into the practice of travel medicine.	**Paris, Level 0** **Room 0.5**
WS6 17.00-18.30	Workshop 6 **Safe and Intact: Safety, Security, and Injury During Travel** Stephen W. Hargarten, United States of America Marc Shaw, New Zealand • Review the safety, security and injury risks related to travel. • Discuss practical strategies to decrease risk and to remain safe and secure during travel.	**Rome, Level 0** **Room 0.8**
FC3 17.00-18.30	Free Communication 3 **Health Problems in Returning Travellers** *Chairs:* Kenneth Dardick, United States of America Alfons van Gompel, Belgium	**Athens, Level 0** **Room 0.9**

Time	Program	Location
	Monday 20 May 2013, continued	
17.00-17.15	FC3.1 *Health Problems During and After Travel among Boston-Area International Travellers* **Lin H. Chen,** United States of America	
17.15-17.30	FC3.2 *Travel Acquired Infections and Illnesses in Canadians: Surveillance Report from CanTravNet Surveillance Data, 2009—2011* **Andrea K. Boggild,** Canada	
17.30-17.45	FC3.3 *High Acquisition Rates of Extended Spectrum ß-Lactamase Producing Enterobacteriaceae among Dutch Travelers* **Jessica A. Vlot,** The Netherlands	
17.45-18.00	FC3.4 *The Changing Epidemiology of Human African Trypanosomiasis among Patients from Non-Endemic Countries, 1902-2012* **Ami Neuberger,** Israel	
18.00-18.15	FC3.5 *Acute Hepatitis in Israeli Travellers* **Tamar Lachish,** Israel	
18.15-18.30	FC3.6 *Different Etiologies of Creeping Dermatitis in 70 Consecutive Patients* **Eric Caumes,** France	
18.30-19.15	**Special Update** **Highlights from the New Editions, WHO and CDC** **Gilles Poumerol,** WHO, Switzerland **Gary Brunette,** CDC, United States of America	**Brussels, Level 0 Room 0.4**
18.30-19.15	**ISTM Pediatric Interest Group General Assembly**	**Paris, Level 0 Room 0.5**
18.30-19.15	**ISTM Destination Communities Support Interest Group General Assembly**	**Rome, Level 0 Room 0.8**
18.30-19.15	**ISTM Psychological Health of Travellers Interest Group General Assembly**	**Athens, Level 0 Room 0.9**

Time	Program	Location
	Tuesday, 21 May 2013	
MTH2 08.00-08.45	Meet the History 2 **Malaria in Belgium, The Netherlands, and Elsewhere in Europe: A Forgotten History!** Marc Coosemans, Belgium	**Paris, Level 0** **Room 0.5**
COD2 08.00-08.45	Case of the Day 2 Prativa Pandey, Nepal	**Rome, Level 0** **Room 0.8**
MTP2 08.00-08.45	Meet the Professor 2 **Abstract Writing** Charles D. Ericsson, United States of America Anu Kantele, Finland	**Athens, Level 0** **Room 0.9**

Time	Program	Location
	Tuesday, 21 May 2013, continued	
PL2 09.00-10.30	**Plenary 2** **Malaria: From Research to Recommendation** Chairs: **Blaise Genton,** Switzerland **Peter A. Leggat,** Australia PL2.1 *Malaria Maps: Relevance for Travel Recommendations* **Abdisalan Mohamed Noor,** Kenya • Description of the process to build malaria maps and the dynamics of update. • Give examples of malaria maps freely available on the internet. • Discussion of which kind of malaria maps and how they could be useful to update travel recommendations (EIR, Pf prevalence etc.). PL2.2 *Artemisinin Derivatives for all Malaria* **Quique Bassat,** Spain • Description of the results of efficacy and effectiveness trials of ACT for species other than Plasmodium falciparum in endemic areas of Asia and Oceania. • Discussion of the comparative advantages of the different ACT marketed in the US and Europe for species other than falciparum. • Description of the procedures in practice (including the use of primaquine.) PL2.3 *Diagnosis of Imported Malaria: Beyond Microscopy* **Valérie D'Acremont,** Switzerland • Review the results of meta-analyses and studies that assessed performance of RDT in endemic and non-endemic areas and explain the pitfalls in these evaluations. • Description of the safety and usefulness of RDT in non-endemic settings. • Description of the procedures for RDT selection and implementation in non-endemic settings.	**Auditorium, Level 1**

Time	Program	Location
	Tuesday, 21 May 2013, continued	
10.30-11.15	**Morning Break** **Poster Tours** *(Meet Tour Leaders at Entrance of Exhibition)* **Enteric Infections** Edward T. Ryan, United States of America **Malaria** William Stauffer, United States of America **Pre-Travel Advice** Carolyn Driver, United Kingdom	**Exhibition, Level 1**
SY6 11.15-12.45	**Symposium 6** **Immunosuppressed Travellers: Safe Preparation** Chairs: Bradley Connor, United States of America Karin Leder, Australia SY6.1 *Standard Immunosuppressive Drugs* V.A.S.H. Dalm, The Netherlands • Classify immunosuppressive therapies commonly used in organ transplantation according to their site of action. • Outline the effect of immunosuppressive therapies on primary and secondary immune responses to vaccines. SY6.2 *Biologic Agents* Helena Hervius Askling, Sweden • Explain the effect of structure and composition of monoclonal antibodies on half life. • Distinguish between depleting (cytotoxic) and non-depleting monoclonal antibodies. • Predict the effect anti-TNF monoclonal antibodies on primary and secondary immune response to (travel) vaccines. • Predict the effect of rituximab on primary and secondary immune response to (travel) vaccines. SY6.3 *Immunosuppressive Disease* Brian S. Schwartz, United States of America • Describe types of immunosuppressive diseases. • Outline implications for susceptibility to travel-related diseases. • Outline implication for response to vaccines (safety and effectiveness).	**Auditorium, Level 1**

Time	Program	Location
	Tuesday, 21 May 2013, continued	
SY7 11.15-12.45	**Symposium 7** **Keeping Kids Healthy During Travel** *Chairs:* **Philip R. Fischer,** United States of America **Eli Schwartz,** Israel **SY7.1** *High Risk Itineraries in Under 5s (includes VFR)* **Susan Kuhn,** Canada • Review the health risks of young infants and children travelling to high-altitude destinations, malaria-endemic regions etc. • Discuss the approach to and efficacy of decreasing health risks in these young travellers. **SY7.2** *Diarrhoea in Child Travellers* **Eyal Leshem,** Israel • Discuss the epidemiology and specific risk factors for travel associated diarrhoea in young children. • Discuss the approach to prevention and management of diarrhoea in young children. • Discuss the pros and cons of empiric antibiotic use and the different choices of antibiotics in young children. **SY7.3** *Use of Newer Vaccines in Children* **Stefan Hagmann,** United States of America • Review the epidemiology of specific travel vaccine preventable disease in young children including meningococcus, hepatitis A, yellow fever and Japanese encephalitis. • Review which young travellers should receive these vaccines and under what circumstances. • Highlight the specific challenges, limitations and controversies in providing these vaccines to young children.	**Brussels, Level 0** **Room 0.4**
FC4 11.15-12.45	**Free Communication 4** **Pre-Travel Practice** *Chairs:* **Nancy Piper Jenks,** United States of America **Joseph Torresi,** Australia	**Paris, Level 0,** **Room 0.5**

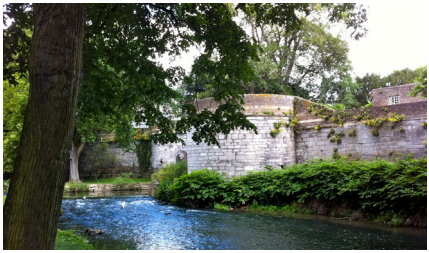
Time	Program	Location
	Tuesday, 21 May 2013, continued	
11.15-11.30	FC4.1 *Knowledge, Attitudes and Practices of U.S. Practitioners Who Provide Pre-Travel Advice: Differences between Primary Care Providers and Travel Medicine Specialists* **David Hamer,** United States of America	
11.30-11.45	FC4.2 **Malaria:** *Are Pharmacists Sufficiently Prepared to Assess and Manage Prevention Strategies?* **Adrienne Willcox,** United Kingdom	
11.45-12.00	FC4.3 *Pre-Travel Health Care of Immigrants Returning Home to Visit Friends and Relatives* **Regina C. LaRocque,** United States of America	
12.00-12.15	FC4.4 *Characteristics, Preferences and Decision Needs of Travellers to Countries with Risk of Yellow Fever: Implications for Healthcare Providers* **Lin H. Chen,** United States of America	
12.15-12.30	FC4.5 *Evaluation of Vaccination Coverage in Travellers to a Yellow Fever Endemic Area (Senegal) for a Stay* **Christophe Rapp,** France	
12.30-12.45	FC4.6 *Malaria and Yellow Fever Prevention Advice Provided by Travel Agency Employees in Cusco – Peru* **Miguel M. Cabada,** Peru	
WS7 11.15-12.45	**Workshop 7** **Exotic Asia: Mekong Delta/Burma (Destination)** **Trish Batchelor,** Australia **Watcharapong Piyaphanee,** Thailand • Describe of features of the region, including environment and the people. • Describe the major health and security threats to travellers.	**Rome, Level 0** **Room 0.8**

Time	Program	Location
	Tuesday, 21 May 2013, continued	
WS8 11.15-12.45	**Workshop 8** **How to Start a Travel Clinic (ABC)** John Bosch, The Netherlands Gail Rosselot, United States of America • Review of strategic planning for travel clinic development, international differences to consider when establishing a travel clinic, suggestions for marketing, and promoting best practices in your clinic. • Review of text and internet resources for clinic start-up: CDC, ISTM, IAC, Dutch, other international resources and selected travel medical texts.	**Athens, Level 0** **Room 0.9**
12.45-14.45	**Lunch Break**	**Exhibition** **Level 1**

Time	Program	Location
	Tuesday, 21 May 2013, continued	
SY8 14.45-16.15	**Symposium 8** **Easy to Prevent But Still Here: Measles, Pertussis, Polio** *Chairs:* **Elizabeth D. Barnett,** United States of America **Poh Lian Lim,** Singapore **SY8.1** *The Spread of Measles to and from Europe and Beyond: Implications for Global Travel* **David R. Hill,** United States of America • Describe the recent resurgence and outbreaks of measles and the role of travel in its spread. • Review the implications of the changing epidemiology of measles for the traveller and for prevention. **SY8.2** *Worldwide Resurgence of Bordetella Pertussis – Addressing a Public Health Concern* **Mike Starr,** Australia • Describe the recent resurgence and outbreaks of pertussis and efforts that have been made to control its spread. • Review the implications of the changing epidemiology of pertussis for the traveller and opportunities for prevention. **SY8.3** *Polio* **David L. Heymann,** United Kingdom • Describe the past and present history of the polio eradication program and highlight the successes achieved and the challenges encountered. • Review the implications of global travel in the eradication efforts for polio.	**Auditorium, Level 1**

Time	Program	Location
	Tuesday, 21 May 2013, continued	
WS9 14.45-16.15	Workshop 9 **How to Prevent and Manage Acute and Chronic Diarrhoea in Travellers** **David R. Shlim,** United States of America **Darius Soonawala,** The Netherlands • Recognize the clinical presentation of new causative agents of traveller's diarrhoea. • Translate knowledge on increasing resistance to anti-microbial treatment of traveller's diarrhoea into practice. • Critically appraise the need for stand-by treatment. • Discuss the diagnostic work-up of chronic diarrhoea.	**Paris, Level 0** **Room 0.5**
SY9 14.45-16.15	Symposium 9 **Virtual Tools in Travel Medicine** *Chairs:* **Peter A. Leggat,** Australia **Anne McCarthy,** Canada **SY9.1** *Social Media in the Practice of Travel Medicine* **Deborah Mills,** Australia • Available and possible platforms for interaction with the traveller including twitter, facebook, linkedin. • The learner will be able to instruct travellers on social modalities that are accessible during travel. **SY9.2** *Development of In-Travel Surveillance Methods* **Emily S. Jentes,** United States of America • Review existing tools for monitoring travel morbidity while on a trip. • Discuss web-based, cell phone based and tablet based methodologies in development to monitor travellers for trip associated illness. **SY9.3** *Support for Travellers Abroad by the Travel Clinic* **Kerryann Cope,** United Kingdom • Discuss and review pros and cons of e-mail, telephone, web-based support for acute and chronic medical problems while overseas. • Modalities for ongoing delivery of wellness messages for the traveller. • Online personal health spaces to support resilience during overseas travel and postings.	**Brussels, Level 0** **Room 0.5**

Time	Program	Location
	Tuesday, 21 May 2013, continued	
FC5 14.45-16.15	Free Communication 5 **Chronic Infections in Migrants** *Chairs:* **Masatoki Adachi,** Japan **Rogelio López-Vélez,** Spain	**Rome, Level 0** **Room 0.8**
14.45-15.00	FC5.1 *Barriers to the Provision of Pre-Travel Preventative Health Advice in Primary Care to Australian Travellers Visiting Friends and Relatives* **Bradley L. Forssman,** Australia	
15.00-15.15	FC5.2 *Situational Analysis of HIV Travel Restrictions for Migrants* **Annelies Wilder-Smith,** Singapore	
15.15-15.30	FC5.3 *Clinical and Epidemiological Profile of HIV Infection among Migrant vs Italian Patients in Seven Italian Centers between 2000 and 2011* **Giorgia Sulis,** Italy	
15.30-15.45	FC5.4 *Prevalence of Chronic Hepatitis B Virus Infection in African Immigrants seen at a U.S. Urban Travel Health Center* **Stefan Hagmann,** United States of America	
15.45-16.00	FC5.5 *Hepatitis B and Migrants: Should We Do Better?* **Manon Jaboyedoff,** Switzerland	
16.00-16.15	FC5.6 *Screening for Chagas Disease in Switzerland: One Size Fits All?* **Valérie D'Acremont,** Switzerland	



Time	Program	Location
	Tuesday, 21 May 2013, continued	
WS10 14.45-16.15	Workshop 10 **Safe Transport: Carrying Meds and Needles and Accessing Medications Abroad** Jeff Goad, United States of America Larry Goodyer, United Kingdom • Formulate recommendations how to keep drugs cool during travel. • Outline rules and regulations on travelling with medication. • Explain how to carry sharps safely with you. • Discuss access of medication abroad.	**Athens, Level 0** **Room 0.9**
16.15-17.00	Afternoon Break **Poster Tours** *(Meet Tour Leaders at Entrance of Exhibition)* **Migrants** Louis Loutan, Switzerland **Returning Travellers** Christina Greenaway, Canada **Vaccines** Ursula Wiedermann, Austria	**Exhibition,** **Level 1**
SY10 17.00-18.30	Symposium 10 **Who Is Giving Travel Advice? An International, Multi-Professional Perspective** *Chairs:* Lee Baker, South Africa Fiona Genasi, United Kingdom SY10.1 *Physician Perspective* Gerard JB Sonder, The Netherlands SY10.2 *Nurse Perspective* Sheila C. K. Hall, United Kingdom SY10.3 *Pharmacist Perspective* Karl M. Hess, United States of America • Review travel health care provision internationally from the perspective of 3 different professional groups. • Debate the relative strengths, weaknesses, opportunities, and threats that these 3 groups face when providing travel health services.	**Auditorium,** **Level 1**

Time	Program	Location
	Tuesday, 21 May 2013, continued	
WS11 17.00-18.30	Workshop 11 **Preventing Malaria: Common Problems, Possible Solutions** Lin H. Chen, United States of America Patricia Schlagenhauf, Switzerland • 3-4 case studies will be discussed. Malaria prevention in infants (repellents and chemoprophylaxis), in long-term residents (+LLIN), and pregnant women will be discussed.	**Brussels, Level 0** **Room 0.4**
FC6 17.00-18.30	Free Communication 6 **Immunizations: Safety, Immunogenicity and Availability** *Chairs:* Anthony Gherardin, Australia Elaine Rosenblatt, United States of America	**Paris, Level 0** **Room 0.5**
17.00-17.15	FC6.1 *Safety and Efficacy of a Patch Containing Heat-labile Toxin from Enterototoxigenic Escherichia coli (ETEC) Against Diarrhoea in Traveler's to Mexico / Guatemala: A Randomized, Double-blind, Placebo-Controlled Phase 3 Trial* Ron H. Behrens, United Kingdom	
17.15-17.30	FC6.2 *Tick-borne Encephalitis: Long-term Follow-up and Effect of Immunity against Japanese Encephalitis and Yellow Fever* Herwig Kollaritsch, Austria	
17.30-17.45	FC6.3 *Immunity after Yellow Fever Vaccination in Travellers Using Immunosuppressive Medication* Rosanne W. Wieten, The Netherlands	
17.45-18.00	FC6.4 *Seroconversion after Fendrix Hepatitis B Vaccination in 60 Non-responders* Rosanne W. Wieten, The Netherlands	

Time	Program	Location
	Tuesday, 21 May 2013, continued	
18.00-18.15	FC6.5 *Initial Neutralising Antibody Response on Day 35 after Two Different Intradermal Rabies Pre-exposure Vaccination Schedules: Preliminary Unpooled Data of a Large Prospective Clinical Trial on Rabies Boostability* **Patrick Soentjen,** Belgium	
18.15-18.30	FC6.6 *The Global Availability of Rabies Immune Globulin and Rabies Vaccine: A Survey of U.S. Embassy Medical Personnel* **Emily S. Jentes,** United States of America	
17.00-18.30	**Debate** **Clots or Shots: Heparin for Travellers, Pro and Con** Pro: **Susan Kahn,** Canada Con: **Benjamin Brenner,** Israel Moderator: **Alan J. Magill,** United States of America • Review the epidemiology and risk factors for clotting during travel and different therapeutic options for prevention. • Present the pros and cons of providing heparin pre-travel to prevent thrombosis and embolism.	**Rome, Level 0 Room 0.8**
WS12 17.00-18.30	**Workshop 12** **Safe Shots: Practical Aspects of Vaccine Administration (ABC)** **Julie Richards,** United States of America **Hilary Simons,** United Kingdom • Review basic information about vaccine storage, handling and administration, including length of needles; simultaneous injections; administration to special populations (e.g., post mastectomy; anticoagulated); avoiding syncope after injections.	**Athens, Level 0 Room 0.9**
18.30-19.15	**ISTM Migrant and Refugee Special Interest Group General Assembly**	**Paris, Level 0, Room 0.5**
18.30-19.15	**ISTM Nursing Professional Group General Assembly**	**Rome, Level 0 Room 0.8**
18.30-19.15	**ISTM Pharmacist Professional Group General Assembly**	**Athens, Level 0 Room 0.9**

Time	Program	Location
	Wednesday, 22 May 2013	
MTH3 08.00-08.45	Meet the History 3 **History of Verenigde Oostindische Compagnie (VOC) or The Dutch East India Company** Otto Bleker, The Netherlands • The VOC or Dutch East India Company, established in 1602 by the States General of Holland, had a monopoly to carry out commercial, political and military activities in Asia. Between 1602 and 1796 it sent almost a million Europeans on 4785 ships and netted more than 2.5 million tons of Asian trade goods. • The medical service of the VOC will be discussed; especially the ship's surgeons in the eighteenth century.	**Paris, Level 0, Room 0.5**
COD3 08.00-08.45	Case of the Day 3 Philip R. Fischer, United States of America	**Rome, Level 0 Room 0.8**
MTP3 08.00-08.45	Meet the Professor **Session Cancelled**	**Athens, Level 0 Room 0.9**

Time	Program	Location
	Wednesday, 22 May 2013, continued	
PL3 09.00-10.30	**Plenary 3** **One Health: Travellers and Zoonoses** *Chairs:* **David O. Freedman,** United States of America **Christina Greenaway,** Canada PL3.1 *Zoonoses in a Global World* **Roel Coutinho,** The Netherlands • Describe how emerging infections are linked to increasing contact between humans and wildlife. • Describe how global trade/travel exacerbates the problem of zoonotic disease emergence: SARS etc. PL3.2 *One Health: Clinical Implications for Travel Medicine* **Peter M. Rabinowitz,** United States of America • Review the origin and objectives of the One Health Initiative. • Review how the animals and the environment that human contact can affect their heath and vice versa. • Discuss the human health risks related to contact with animals while traveling including: Direct contact with wildlife and wildlife souvenirs; Direct contact with companion animals; and Contact with high risk environments. • Learn how illnesses in animals can be a sentinel for disease in humans. PL3.3 *Travelling Humans and Travelling Animals: Health Risks from an Animal Perspective* **Corrie C. Brown,** United States of America • Review the connections between human, animal and environmental health with a focus on diseases from an animal perspective: reverse zoonoses due to ecotourism. • Describe pre-travel and post-travel evaluation of pets. • Review diseases that travelling pets can import home and spread to the human community.	**Auditorium, Level 1**
10.30-11.15	**Morning Break**	**Exhibition Level 1**

Time	Program	Location
	Wednesday, 22 May 2013, continued	
LBSY 11.15-12.45	**Late Breaker Symposium** **Changing Viral Infections in Europe and Africa (Emerging Viral Pathogens)** *Chairs:* **Garth Brink,** South Africa **Thomas Löscher,** Germany **LB1.1** *Novel Respiratory Pathogens* **Ron Fouchier,** The Netherlands **LB1.2** *Medically Important Arboviruses in Europe* **Natalie Cleton,** The Netherlands **LB1.3** *Haemorrhagic Fever in Africa* **Daniel Bausch,** United States of America	**Auditorium, Level 1**
SY11 11.15-12.45	**Symposium 11** **Expatriate Health Issues: Preparation and Living Abroad** *Chairs:* **Prativa Pandey,** Nepal **Frank von Sonnenburg,** Germany **SY11.1** *Mental Health in Expats* **Sarah Borwein,** Hong Kong • Review epidemiology of mental health problems in expats. • Review interventions that can be applied before or during travel to try to minimize mental health problems. **SY11.2** *Health Problems and Preparing* **Poh Lian Lim,** Singapore • Review health problems that are most common in expats and how they vary by type of expat. • Review interventions that are effective. **SY11.3** *Family Cycle Abroad* **Michael E. Jones,** United Kingdom • Review practical challenges of dealing with health, social, educational, political, emergency, and other issues while living abroad.	**Brussels, Level 0 Room 0.4**

Time	Program	Location
	Wednesday, 22 May 2013, continued	
WS13 11.15-12.45	Workshop 13 **Sex Tourism: What Travel Medicine Practitioners Need to Know** **Irmgard Bauer,** Australia **Alberto Matteelli,** Italy • Describe the range of activities that fall within the definition of sexual tourism. • Describe origin of and trends in sexual tourism and regional variations.	**Paris, Level 0** **Room 0.5**
WS14 11.15-12.45	Workshop 14 **Brazil and High Altitude Destinations in South America (Destination)** **Jesse Alves,** Brazil **Cecilia Perret,** Chile • Describe characteristics and risks of common destinations in Brazil and Latin America, including high altitude destinations. • Describe characteristics of locations for the World Cup and Summer Olympics.	**Rome, Level 0** **Room 0.8**
FC7 11.15-12.45	Free Communication 7 **Airlines, Altitude and Study Methods** *Chairs:* **Yves Van Laethem,** Belgium **Christopher Van Tilburg,** United States of America	**Athens, Level 0** **Room 0.9**
11.15-11.30	FC7.1 *In-flight Medical Incidents, Deaths and Flight Diversions of South African Airways Flights from 2009 till 2011* **Salim Parker,** South Africa	
11.30-11.45	FC7.2 *Incidence of Serious Altitude Sickness in Travellers who Consulted a Pre-travel Clinic* **Mieke Croughs,** The Netherlands	
11.45-12.00	FC7.3 *The Diagnosis of Juvenile Acute Mountain Sickness (AMS)* **Tadashi Shinozuka,** Japan	

Time	Program	Location
	Wednesday, 22 May 2013, continued	
12.00-12.15	FC7.4 *The Role of Travellers from South East Asia on Dengue Activity in Singapore* **Eduardo Massad,** Brazil	
12.15-12.30	FC7.5 *Analyzing GeoSentinel Surveillance Data: A Comparison of Methods to Explore Acute Gastrointestinal Illness among International Travellers* **Katherine E. Mues,** United States of America	
12.30-12.45	FC7.6 *Pilot Randomised Controlled Trial to Testing Facemasks Effectiveness in Preventing Influenza-like Illness Transmission among Hajj Pilgrims* **Ohsamah Barasheed,** Australia	
12.45-14.45	**Lunch Break**	**Exhibition, Level 1**
13.15-14.30	**ISTM GeoSentinel/EuroTravNet/CanTravNet Network Member Meeting** • Open to all	**Rome, Level 0 Room 0.8**

Time	Program	Location
	Wednesday, 22 May 2013, continued	
SY12 14.45-16.15	**Symposium 12** **What Is the Diagnosis? Tests in Travellers** *Chairs:* **Martin Haditsch,** Austria and Germany **Mary-Louise Scully,** United States of America **SY12.1** *Use of IGRAs in Travellers and Immigrants* **Kevin Schwartzman,** Canada • Describe the principles and limitations of interferon-gamma release assays for the diagnosis of (latent) tuberculosis. • Interpret the findings of Mantoux testing and IGRA in returning travellers and immigrants. • Determine when to use Mantoux testing or IGRA in returning travellers and immigrants for screening of latent TB. **SY12.2** *Usefulness of Molecular Diagnosis in PCR Stools* **Lisette van Lieshout,** The Netherlands • Discussion on the limitations of microscopy for diagnosis of parasitic diseases has a limited sensitivity (microsporidium, strongyloides), specificity (E. histolytica vs E. dispar). • Presentation of study results demonstrating the usefulness of PCR for diagnosis of parasitic diseases. **SY12.3** *Pitfalls and Practice with Rapid Diagnostic Tests* **Emmanuel Bottieau,** Belgium • Short introduction about diagnostic tests and sensitivity, specificity and likelihood ratio's. • Presentation of study results demonstrating usefulness of RDT for malaria, dengue fever, leptospirosis, others.	**Auditorium, Level 1**

Time	Program	Location
	Wednesday, 22 May 2013, continued	
LBS 14.45-16.15	Late Breaker Special Session **Updates on JE Vaccines and Ongoing Outbreak of Sarcocystosis** *Chairs:* **David Hamer,** United States of America **Gerard JB Sonder,** The Netherlands **LBS1.1** *Japanese Encephalitis* **Marc Fischer,** United States of America **LBS1.2** *Japanese Encephalitis Vaccine* **Katrin Dubischar-Kastner,** Austria **LBS1.3** *Sarcosystosis* **Douglas Esposito,** United States of America **LBS1.4** *A Family Cluster of Sarcocystosis in Travelers returning from Tioman Island, Malaysia, including a Histologically Proven Case with Results of Treatment* **Loïc Epelboin,** France **LBS1.5** *Cluster of Acute Muscular Sarcocystis-like Infection in 12 Travelers Returning from Peninsular Malaysia, 2012, Bordeaux, France* **Duc Nguyen,** France	**Brussels, Level 0** **Room 0.4**
WS15 14.45-16.15	Workshop 15 **Pox, Pustules and Lumps: Skin Lesions in Returned Travellers** **Eric Caumes,** France **Jay Keystone,** Canada • In a case based format review the most common skin lesions acquired during travel and provide a practical approach to diagnosis and management.	**Paris, Level 0** **Room 0.5**

Time	Program	Location
	Wednesday, 22 May 2013, continued	
WS16 14.45-16.15	Workshop 16 **On the Road with HIV** Francesco Castelli, Italy Marc Mendelson, South Africa • 3-4 case studies will be discussed. Susceptibility for specific infections will be debated. Examples of possible interactions between antimalarials and antiretroviral therapies will be given. Useful websites addresses to predict drug-drug interactions will be provided.	**Rome, Level 0** **Room 0.8**
WS17 14.45-16.15	Workshop 17 **Babes on the Road: Pregnant and Infant Travellers** I. Dale Carroll, United States of America Catherine Riley, United Kingdom • In a case based format review a practical approach to providing pre-travel advice for commonly encountered issues of prevention, prophylaxis and treatment specific to pregnant and infant travellers.	**Athens, Level 0** **Room 0.9**
16.15-17.15	**Afternoon Break and Poster Session**	**Exhibition, Level 1**
17.15-18.45	ISTM Membership Assembly	**Auditorium, Level 1**
18.45-19.30	Cocktail Reception for ISTM Members	**Auditorium, Level 1**

Time	Program	Location
	Thursday, 23 May 2013	
COD4 08.00-08.45	**Case of the Day 4** **Philippe Parola,** France	**Paris, Level 0** **Room 0.5**
SY13 09.00-10.30	**Symposium 13** **Fit for Travel: Trip Prep for Older Travellers** *Chairs:* **Eric Caumes,** France **Mary-Louise Scully,** United States of America SY13.1 *Polypharmacy and Travel Medicines* **Caroline Zeind,** United States of America • Review of changed pharmacokinetics and pharmacodynamics of frequently used drugs in elderly. • Judge frequently used drugs in elderly on possible side effects due to anticholinergic activity. • Describe how to prevent potential severe adverse events of diuretics, NSAID, ACE-inhibitors and statins during dehydration. • Apply tools to tackle polypharmacy in elderly travelers. SY13.2 *Evaluation of Fitness for Travel* **Jan Hindrik Ravesloot,** The Netherlands • Give examples of age-related physiological changes and explain their clinical significance. • Name tests for physical activity, fitness and longevity in elderly. • Assess fitness for travel in elderly traveller. SY13.3 *Immunosenescence and Vaccines* **Brian Ward,** Canada • List changes in innate and adaptive immunity during old age. • Give examples of increased infectious risks due to immunosenescence. • Discuss consequences of immunosenescence for secondary immune response to travel vaccines. • Discuss consequences of immunosenescence for primary immune response to travel vaccines.	**Auditorium,** **Level 1**

Time	Program	Location
	Thursday, 23 May 2013, continued	
WS18 09.00-10.30	**Workshop 18** **Leish Basics: Diagnosis and Treatment of Leishmaniasis** Johannes Blum, Switzerland Andrea K. Boggild, Canada • 3 case studies discussed will provide a review of diagnostic tests available and their indication as well as a review of treatments available for the most frequent Leish species.	**Brussels, Level 0** **Room 0.4**
WS19 09.00-10.30	**Workshop 19** **The Humanitarian Aid Worker: Ethics and Preparation** Ted Lankester, United Kingdom Christopher Van Tilburg, United States of America • Review specific risks and situations related to the provision of humanitarian care. • Explain how to prepare for these specific risk and situations such as: exposure to the specific environment, such as in a natural disaster or conflict; working long hours under adverse or extreme conditions; damaged or absent infrastructure; reduced levels of security. • Discuss how to appraise stress, ethical, and moral challenges related to the event and the resource capacities of the situation.	**Paris, Level 0** **Room 0.5**
10.30-10.45	**Morning Break**	**Auditorium Foyer, Level 1**

Time	Program	Location
	Thursday, 23 May 2013, continued	
PL4 10.45-12.15	**Plenary 4** **Mass Gatherings: Local and Global Consequences** *Chairs:* **Fiona Genasi,** United Kingdom **David R. Shlim,** United States of America PL4.1 *Non-communicable Health Risks During Mass Gatherings* **Robert Steffen,** Switzerland • Describe the leading causes of mortality and morbidity during mass gatherings; human stampedes and heat-related illnesses are the leading causes of mortality; warm weather, extreme weather conditions and emotional stress of morbidity. • Recognize traveller's characteristics associated with increased risk of illness or injury. • Women, very young and very old are more vulnerable during mass gatherings. • Formulate health advice to reduce illness and injury; effective strategies to prevent heat stroke, cardiovascular accidents. PL4.2 *Maha Kumbh Mela, Largest Public Gathering in the World* **Satchit Balsari,** United States of America • Discuss the public health risks and how these health risks were met. • Review implications for global health security. • New aspects of surveillance that have been put in place for 2012 and as part of our legacy will be covered. PL4.3 *Lessons Learned from the 2012 Summer Olympics: London's Preparations for the Global Visitor* **Brian McCloskey,** United Kingdom • Lessons learned for the global traveller: exchange of experience between organisers and hosts of mass gathering provide the opportunity to formulate guidelines generally applicable in all countries of the world. • Discussion on the international collaboration with WHO and ECDC and the role of the WHO Collaborating Centre here.	**Auditorium, Level 1**
12.15-12.45	**Closing Ceremony**	**Auditorium, Level 1**

BACK FC1 All About Malaria

FC1.1

Malaria Knowledge and Use of Malaria Prevention in the UK Population and in UK Passengers Departing to Malaria Endemic Areas

R.H. Behrens[1], N. Alexander[2]
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Background: The impact of previous and current travel on knowledge and use of preventative measures is unknown, as is malaria knowledge in the general population. The study was designed to compare and identify the differences in malaria knowledge and practices of departing passengers and those held by a representative sample of the general UK population and factors that might impove knowledge.
Methods: Adults' knowledge of malaria, and utilisation of anti-malarials was assessed using a single questionnaire in 1) a representative random sample of British adults in a survey whose sampling was designed and executed by MORI and 2) in passengers in departure areas of Heathrow airport bound for malaria endemic areas, undertaken by the Civil Aviation authority (CAA).
Results: A total of 1991 adults were interviewed in the MORI survey of whom 548 (27%) had previously visited a malaria endemic country.
Of the 500 departing passengers, 42% had destination in West Africa and 40% S.E Asia; 80% travelled for leisure of which 61% were travelling to visit friends and relatives. 51% were Caucasian and 39% were black African. 60% declared taking chemoprophylaxis for their journey the lowest compliance seen in Nigerians (48%) and highest by Ghanians' (81%).
A knowledge score (max 100) was calculated based on respondents' understanding of transmission, symptoms, seriousness and curability of malaria. In the MORI survey the mean knowledge score, by use of chemoprophylaxis was very similar (62 v 65) and lower than the CAA survey (72 v 70). A second score summarized the source and quality of travel advice received. Surprisingly the source of advice was not associated with improved passengers' malaria knowledge (quality source 70 v poor source 73) or MORI (64 v 62). We will present adjusted analyses.
Conclusion: Comparing departing passengers and the general population by both experience of travel and source of professional advice there was little difference in knowledge of malaria and its transmission. Level of knowledge on malaria and its prevention was generally high. The data suggest that professional advice adds little to existing knowledge of travellers. Use of chemoprophylaxis in departing passengers was variable and Nigerian travellers had lowest utilisation whilst Ghanians are compliant to chemoprophylaxis regimes.

BACK FC1.2

Eye Disorders Reported with the Use of Mefloquine Chemoprophylaxis - a Drug Safety Database Analysis

M. Adamcova[1], M.T. Schaerer[1], I. Bercaru[1], I. Cockburn[1], H.-G. Rhein[1], P. Schlagenhauf[2]
[1]F. Hoffmann-La Roche, Basel, Switzerland, [2]University of Zürich, Centre for Travel Medicine, Zürich, Switzerland

Background: There are few data on eye disorders associated with the use of mefloquine chemoprophylaxis.
Objectives: Characterization of the risk and nature of eye disorders occurring during the use of malaria chemoprophylaxis is relevant information needed for travel medicine advisors. To provide this information, a drug safety data base analysis on eye disorder adverse events reported for mefloquine (as Lariam®) was performed and in parallel, an extensive literature search on this topic was conducted.
Methods: All spontaneous reports of adverse events concerning mefloquine chemoprophylaxis (as Lariam®) and all serious adverse events from clinical trials are entered into the F. Hoffmann-La Roche global drug safety database. A multi-axial, cumulative search under MedDRA version 14.0 for the period February 1984- January 18th, 2011 was carried out using the System Organ Class (SOC): Eye disorder. The analysis focused on 3 categories of eye disorders (category 1: visual acuity; category 2: anatomical parts of the eye and category 3: neuro-ophthalmic events. These three main categories were subdivided into a total of 11 groups. Reports were evaluated for risk factors such as relevant medical history, co-medication and associated conditions. The temporal relationship to the use of mefloquine chemoprophylaxis was ascertained where possible
Results: The manufacturer's drug safety database search identified a total of 591 cases with 695 events assigned to the "eye disorder" SOC in individuals exposed to mefloquine chemoprophylaxis. The cases were reported mainly in women (55.8 %) and 82.4% were adult users. In total, 92.9% of these events were reported spontaneously, mainly by health professionals (51.5%) and regulatory authorities (24%), and from consumers (14.5%). Other sources of case reporting included studies (7.0%).
The highest number of events (n=493) was in Category 1 (focused on visual acuity), followed by Category 3 neuro-ophthalmic events (n=124).
Conclusions: Prescribers of mefloquine and other anti-malarials should inform travellers regarding potential ocular side effects. Users of chemoprophylaxis who experience visual disorders should be referred to a physician.

BACK FC1.3

Acute Malaria Infections despite a Complete or Abbreviated Chemoprophylactic Regimen of Atovaquone-Proguanil

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[1]*Centers for Disease Control and Prevention, Center for Global Health, Atlanta, United States*

Background: Atovaquone proguanil (AP) is a widely recommended and used chemoprophylactic regimen for the prevention of malaria among travelers. The standard course starts the day before travel, daily while in the endemic area, and for 7 days after leaving. Deye, *et al*. reported results from a randomized controlled clinical trial in which malaria infections were prevented among 6/6 persons who received a single dose of AP the day before exposure; suggesting that abbreviated chemoprophylaxis regimens might be possible. Subsequently, Leshem, *et al*. reported that 0/371 patients who stopped taking AP 1 day after exiting a malaria-endemic area developed malaria. Additionally, their malaria surveillance data for 2005-2007 showed no malaria cases who reported using AP for malaria chemoprophylaxis.
Objective: Describe malaria cases that occurred among persons who used complete or abbreviated courses of AP.
Methods: Cases of malaria reported to the United States' National Malaria Surveillance System from 2006-2010 were reviewed. Cases were selected if a full or partial course of AP for malaria chemoprophylaxis was reported. Cases were summarized using descriptive statistics.
Results: 129 malaria cases were identified for whom it was reported that a complete or partial course of AP was used for prevention. Based on the dates of travel and onset of symptom as well as the species of malaria, 38 cases were characterized as relapses of *Plasmodium vivax* or *P. ovale*, which would not be expected to have been prevented by primary chemoprophylaxis. 62 cases were acute malaria infections and 29 cases could not be characterized based on the available data. The 62 cases included persons who reported missing no doses, missing doses while in the endemic area, and stopping before completing 7 daily doses after leaving the endemic area.
Conclusion: Despite the optimism surrounding the potential alternative dosing strategies for AP, these data demonstrate that acute cases of malaria can occur after complete or abbreviated courses of AP. While the results of the earlier small studies appear promising, there is still insufficient data to recommend changes to preventive guidelines. Larger trials are needed to demonstrate the effectiveness of alternative regimens and better characterize how AP should be used.

BACK FC1.4

How Did Travellers Use during their Trip Rapid Diagnostic Test for Malaria Provided by a Travel-clinic?

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Background: Highly performing and easy to use Rapid Diagnostic Tests (RDT) for malaria are available. Several studies have now shown that community workers with no medical background are able to perform RDT reliably. RDTs could thus be provided to travellers for self-diagnosis (or by a health worker on site) during their trip to an endemic country.
Objective: to assess how travellers used during their trip RDTs for malaria provided with training and written instructions during a pre-travel consultation
Methods: During the consultation, provision of malaria RDTs was proposed to certain pre-defined categories of travellers. Their ability to perform the test on themselves in presence of the health provider was assessed. If this dry run was done correctly, they were given the written procedure on how to perform the test and act upon its result, and proposed to buy a kit including 2 RDTs and related material. Travellers were then contacted after their return to know if and how they had used the tests.
Results: 80 travellers have been recruited since February 2012 so far. The 28 travellers who already returned (preliminary results) were provided RDTs because of travel to remote places (14), health care profession (9), humanitarian work (5), long-term travelling (> 3months) (3), refusing prophylaxis although recommended (1), other (pregnancy) (2). 21 were travelling to a low (stand-by treatment recommended) and 7 to a high risk area (prophylaxis recommended). 2/28 used one RDT, one during and one after coming back to Switzerland, because of occurrence of fever. Both test results were negative. One traveller consulted a health center afterwards because of persisting fever, diarrhea and vomiting and received antibiotics. Both found the test easy to use. None of them repeated the test after 24h because fever had stopped and because of alternate diagnosis. 25/28 travellers would take again RDTs for a next similar trip because they found it reassuring, especially when travelling with children. 3 would not because they found that health infrastructures were good enough on site. None of the 26 travellers who did not use the RDTs got sick during travel.
Conclusion: Travellers provided with malaria RDTs used them according to the oral and written instructions given during the pre-travel consultation. Carrying RDTs made them feel more secure, especially when travelling with children, and has the advantage to avoid overdiagnosis and inappropriate treatment for malaria on site.

BACK FC1.5

Artemether-Lumefantrine Compared to Atovaquone-Proguanil as a Treatment for *Plasmodium falciparum Malaria in Travelers*

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Background: Plasmodium falciparum is the major cause of severe malaria and its treatment is complicated by the emergence of resistant strains. In the last decade two new drugs have become available for treating P.falciparum malaria in Western countries , atovaquone - proguanil (AP) and artemether - lumefantrine (AL). Both drugs are considered to be safe and effective and indicated for uncomplicated falciparum malaria, but to date, no study has been conducted comparing the effectiveness of these two drugs. In this study we compared the effectiveness of these drugs in non-immune Israeli travelers infected by P. falciparum malaria.
Methods: A retrospective analysis comparing the outcome of patients treated with AP vs. AL in our center. Included were patients with P. falciparum who were treated by either AL or AP as a single drug, during the years 2001 to 2012. Exclusion criteria - Patients with severe malaria that received IV medication, immigrants from malaria endemic countries and patients who did not receive their treatment in Israel.
The major end-points were treatment failure (recrudescence) and fever clearance time.
Results: In total, 63 patients were included, 45 in the AP group and 18 in the AL group. 59 of the patients acquired the disease in Africa (93% in AP vs. 94% in AL group). Almost all were males (93%). The patients mean age was 43 years (42 in the AP and 47 in the AL).
Outcome: Treatment failure was observed in 6 of the 45 (13%) of the AP group, 5 cases were from West Africa (17% from the West Africa infection in the AP group). No treatment failures were recorded in the AL group. Furthermore, the average fever clearance time was significantly lower in the AL group compared to the AP group, 46±20.0 vs. 81.2 ± 27.1 hours (P< 0.001).
Conclusion: Our results showed that AL is more effective than AP in treating P.falciparum in a traveler population. The high failure rate of AP treatment (especially in West Africa) is alarming. AL should probably be the drug of choice for treating this population.

BACK FC1.6

Safety of Antimalarials in the Treatment of Severe Imported Malaria - a Single-Centre Retrospective Study

T. Rolling[1,2], D. Wichmann[3], S. Schmiedel[1], G.D. Burchard[1,2], S. Kluge[3], J.P. Cramer[1,2]
[1]University Medical Center Hamburg-Eppendorf (UKE), I. Department of Internal Medicine, Section Tropical Medicine, Hamburg, Germany, [2]Bernhard Nocht Institute for Tropical Medicine, Section Clinical Research, Hamburg, Germany, [3]University Medical Center Hamburg-Eppendorf (UKE), Department of Intensive Care, Hamburg, Germany

Background: Artesunate is the first-line treatment for severe imported malaria due to its superior efficacy. Data on adverse events, however, are scarce. Recently, delayed haemolysis has been reported in hyperparasitaemic travellers treated with parenteral artesunate. It is not known whether this complication occurs after treatment with quinine as well. The aim of this retrospective study was to comparatively assess adverse events after treatment with either quinine or artesunate for severe imported malaria - focussing on delayed haemolysis.
Methods: All adult patients treated for severe *P. falciparum* malaria in the University Medical Center Hamburg-Eppendorf between 2006 and 2012 were included. The outcome measure was the proportion of patients with adverse events during antimalarial medication. To specifically detect delayed haemolysis, a case definition of a decrease in median haemoglobin in combination with a rise in median LDH between weeks 2 (days 7 to 13) and 3 (days 14 to 20) was selected.
Results: We included 36 patients in our analysis; 31 (86%) received quinine and 5 (14%) artesunate, 5 patients in the quinine group had received intrarectal artesunate as an adjunct treatment. Data necessary to assess delayed haemolysis were available in 16 patients (12 in the quinine group and 4 in the artesunate group). A total of five cases with delayed haemolysis could be detected - two in patients treated with quinine and three in patients treated with artesunate. Noteworthy, both patients with haemolysis in the quinine group had received additional intrarectal artesunate. In patients treated with quinine, common adverse events observed were hypoglycaemia in 10 patients (32%), hearing disturbances in 12 (37%), deterioration in renal function in 8 (25%) and cardiotoxicity in 3 patients (14%).
Conclusion: Clinically relevant delayed haemolysis seems to be an adverse event associated with the use of intravenous artesunate but not with the use of quinine alone. Apart from haemolysis, quinine has a comparatively unfavourable safety profile compared to artesunate. Regular haematological surveillance after treatment with parenteral artesunate should be mandatory.

BACK FC2 Special Needs (Mental Health and Immunosuppression)

FC2.1

Mental Health and Study Abroad: Incidence and Mitigation Strategies

R.L. Quigley[1], R. Copeland[1]
[1]*International SOS Assistance, Inc., Medical Assistance, Trevose, United States*

Background: The transition from high school to college/university is associated with a variety of developmental challenges which can impact student mental health. Students traveling and studying overseas in a foreign environment with different cultures and customs can only serve to heighten this impact.
Objective: In this report we quantify the incidence of study abroad student repatriations, qualify the common underlying clinical (behavioral) diagnoses, and propose mitigation strategies for students and institutions alike.
Methods: Between 01/01/2010 and 01/01/2012 we compared the repatriation rate of students to that seen with American corporate business travelers/expatriates. Using the coding system of the International Classification of Diseases (ICD-9) we identified the closing behavioral diagnosis of each student repatriation.
Results: The incidence of student repatriation for behavioral health events was 23 times higher than that documented for American corporate business travelers/expatriates. The clinical diagnosis in >80% of the student cases was either a personality disorder or intellectual disability with contributing psychosocial/environmental factors. Major mental/learning disorders and substance abuse accounted for < 20%.
Conclusion: The success of study abroad is predicated on a preemptive, transparent, supportive and confidential environment (at home and abroad) established by the institution in the spirit of scholastic duty of care. Incorporation of e-learning tools as a component of the mandatory pre-trip health evaluation/education can further limit exposure for all. Although this study is limited to American students traveling overseas, behavioral health is an issue with students globally. Any institution, around the world, hosting foreign students should therefore reevaluate their existing domestic resources to accommodate the psychological needs of their visiting students.

BACK FC2.2

Japanese Encephalitis Vaccine Administration Practices among U.S. Travel Medicine Practices in Global TravEpiNet

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Background: There are limited data on the use of Japanese encephalitis (JE) vaccine in travelers to Asia.
Objective: To characterize the demographics, destinations, and health care of travelers to JE-endemic regions, and to identify areas in which the pre-travel care of this population could be improved.
Methods: Global TravEpiNet (GTEN) is a consortium of 25 U.S. practices that provide pre-travel health care. We analyzed data on GTEN travelers aged ≥17 years who were: 1) traveling to JE-endemic countries for ≥30 days during peak transmission season (higher JE risk travelers) or 2) traveling outside the transmission season, visiting only urban areas, or traveling < 30 days (lower JE risk travelers). All travelers were seen from September 2009 - August 2012, when the JE vaccine IXIARO was in use. We performed multivariable logistic regression analyses to examine the effect of variables on the likelihood of a clinician not offering the JE vaccine to a traveler.
Results: We included 671 higher JE risk travelers and 7,587 lower JE risk travelers. Compared with lower JE risk travelers, higher JE risk travelers were younger (median age 29 vs. 40 years, p< 0.001) and were more likely to be traveling to visit friends and relatives (VFR) (16% vs. 9%, p=0.002), for humanitarian service work (12% vs. 7%, p=0.003), or for research/education (13% vs. 5%, p< 0.001). Only 187 (28%) higher JE risk travelers received a JE vaccine or were previously vaccinated against JE. For 272 (41%) higher JE risk travelers, the clinician noted that the vaccine was not indicated. In multivariable analysis, being a VFR traveler and traveling to India were independent predictors of the clinician indicating that the JE vaccine was not indicated for higher JE risk travelers.
Conclusions: GTEN clinicians frequently did not offer JE vaccine to higher JE risk travelers and were particularly likely to not vaccinate VFR travelers and travelers to India. The rationale behind these clinical decisions is unknown, but these practices are discordant with current recommendations of the U.S. Advisory Committee on Immunization Practices. An enhanced understanding of clinical decision-making around JE vaccine in U.S. travel medicine practices is needed.

BACK FC2.3

The Traveling-Travel Clinic: Improving Access for Visiting Friends and Relative Travelers, Hajj Clinic Pilot Project

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Background: Visiting friends and relative (VFR) travelers seeking pre-travel services face challenges including accessibility, financial, language and cultural barriers - creating a “disenfranchised traveler”. The “traveling-travel clinic” concept is an innovative model bringing culturally competent and affordable travel services to the community. Hajj travelers from the Twin Cities East African community were chosen to pilot this model. Unlike traditional travelers, the American Hajj traveler tends to be more socioeconomically diverse, older with more comorbidities and limited English proficiency.
Objective: To increase awareness of and access to culturally competent and affordable pre-travel services for VFR travelers using a unique pilot clinic model.
Method: Volunteer health care professionals, medical trainees, and travel clinic staff organized the clinics. To overcome barriers identified by community leaders, clinics were held in a predominantly East African neighborhood, with trained interpreters, at a reduced clinic rate, and Ramadan friendly walk-in appointments. Each appointment included an interactive group education session and an individual consultation. Before and after travel, patients were surveyed regarding their knowledge, attitudes and practices (KAP) about travel health and their health during travel.
Results: Despite heavy community engagement, only 19 patients attended three Hajj clinics. The majority lived within two miles of the clinic and were referred by travel agents. Separating the general education and individualized visit created a more productive model. Anticipated challenges of providing offsite care included scheduling, vaccine storage, providing culturally competent interpreters, and providing affordable care. Unanticipated challenges included gaining community trust, medical billing at an off-site address, aligning scheduling needs, timing the clinics to meet visa and Ramadan demands.
Conclusions: Albeit challenging, the “traveling-travel clinic” is an achievable and innovative model for increasing access to travel medicine services for disenfranchised populations. Areas for improvement include: partnerships with travel agents, fostering trust amongst the community, and providing affordable care. Our experience can inform further investigation on extending travel services to disenfranchised populations such as VFR’s who frequently suffer the greatest travel-related morbidity.

BACK FC2.4

Immune Response to Combined Hepatitis A and B Vaccine in HIV-Infected Children or Children on Immunosuppressive Medication in Juvenile Idiopathic Arthritis in Contrast to Healthy Children: A Substantial Proportion Not Immune for Hepatitis A after First Vaccination

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Objective: We conducted a phase IV interventional study with a combined hepatitis A and B vaccine in HIV-infected children and children using immunosuppressive medication for treatment of juvenile idiopathic arthritis (JIA) to evaluate their immune response.
Methods: Children in both study groups (1 up to 16 years of age) received the combined (inactivated) hepatitis A and hepatitis B vaccine Ambirix® at month 0 and 6. Serum samples were taken four times and tested for anti-HAV and anti-HBs antibodies. An anti-HAV titer ≥20 mIU/mL or an anti-HBs titer ≥10 mIU/mL were considered protective. Seropositivity percentages were calculated, and Geometric Mean Titers (GMT's) were compared by using a non-parametric Mann-Whitney U-test or Kruskal-Wallis one-way analysis of variance.
Results: 80 HIV-infected children completed the study, of whom 67 were HAV-susceptible and 68 HBV-susceptible. 79 JIA- children completed the study, of whom 65 HAV-susceptible and 73 HBV-susceptible.
The immune response to hepatitis A after the first vaccination in both study groups was low: 71% and 55% respectively responded, whereas after second vaccination the immune response was 99% and 100% respectively. The immune response to hepatitis B after the first vaccination was also low in both study groups: 27% and 17% respectively responded; however, after the second vaccination the immune response was 97% and 93% respectively. A larger proportion of children on c-ART and of children with a viral load < 50 copies/mL were responders to hepatitis B, and also showed a significantly higher GMT.
Conclusions: The immune response after a full series of combined hepatitis A and B vaccine in both study groups is excellent and comparable to healthy children. A substantial proportion of both study groups are not protected for hepatitis A after the first vaccination. Especially in travel health and post exposure prophylactic treatment for hepatitis A this has implications: HIV-infected children and children on immunosuppressive medication for JIA should be serologically tested for anti-HAV prior to travel to ensure protection if there is no time to await the second vaccination. Children who cannot be protected before travel, and those who need post exposure prophylactic treatment for hepatitis A, should receive immunoglobulines.

BACK FC2.5

International Travel Patterns and Travel Risks of Stem Cell Transplant Recipients

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Background: Immunocompromised international travelers are at a higher risk of travel related illnesses. Stem cell transplantation (SCT) is increasingly utilized for multiple medical illnesses. Stem cell transplant recipients (SCTR) are typically immunocompromised during the first two years post SCT. There is limited knowledge about international travel patterns and travel related illnesses of SCTR.
Objectives: Primary aims of this study were to calculate the incidence of early international travel post SCT and the incidence of travel-related illnesses. Variables associated with each of the primary outcomes were identified. A secondary aim of this study was to profile the travelers with respect to their pre-travel health preparations.
Methods: A mailed survey was conducted among 979 SCTR at MSKCC who received SCT between January 1, 2005 and Dec 31, 2010 using a standardized and validated questionnaire.
Results: Five hundred sixteen (55%) SCTR responded among which 40% had allogeneic SCT. The incidence of international travel was 32% (95% CI 28-36) within two years after SCT. Using multivariable Cox regression analysis, variables significantly associated with increased rate of early international travel were history of international travel prior to SCT (HR=5.3,95%CI 2.3-12.0), autologous SCT (HR=2.6, 95%CI 1.6-2.9), foreign birth (HR=2.3, 95%CI 1.5-3.3), and high socioeconomic status (HR=2.0,95%CI 1.8-3.7). During their first trip, sixty-four travelers (28%) traveled to destinations that required vaccination or malaria chemoprophylaxis; only 56% reported seeking pre-travel health advice. Around 25% of SCTR frequented destinations where Hepatitis A and/or typhoid is endemic; only 7% reported receiving hepatitis A vaccine and 1.4% reported receiving typhoid vaccine. Among those who traveled, sixteen travelers (7%) became ill enough to require medical attention during their first trip after SCT. The incidence of travel related illnesses was higher among those who traveled to high-risk areas (14% vs. 4%, p= 0.005) and who visited friends and relatives (20% vs. 3%, p< . 0001). Ill travelers had longer mean trip duration (24 vs. 12 days, p= 0.0002).
Conclusions: International travel is common among SCTR within two years after SCT. The incidence of travel related illnesses was higher among certain subgroups of travelers. Pre-travel health counseling and interventions were suboptimal.

BACK FC2.6

Epidemiology and Treatment of Hydatid Cyst in the AMC

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Background: *Echinoccosis granulosus*, also referred to as hydatid cyst, is an emerging imported disease in the Netherlands. It is caused by a tapeworm that normally uses cattle as intermediate host and dogs as a definite host. In this lifecycle, cysts are formed in the viscera of the intermediate host. Humans can become intermediate hosts themselves, with cysts growing for many years by the formation of so called daughter cysts that may disseminate, either by spontaneous rupture or iatrogenic perforation. Left untreated, this infection can lead to serious morbidity and mortality, although spontaneous regression is not uncommon.
Historically, the permanent treatment of hydatid disease has been surgical removal of the cyst. In the last decade of the 20th century percutaneous techniques were developed. In our hospital, JSL developed the PEVAC (Percutaneous EVACuation) technique to aspirate the cyst, thus removing the helminth content as definite as possible. This treatment is preceded by at least 6 weeks, and followed up by 6 months of albendazol treatment.
Objective: To analyse ecchinococcosis cases and treatment in the AMC from 2002 to 2012.
Results: In the last decade, 127 patients (56% female, 44% male) with hydatid cysts have been followed-up in our department of Tropical Disease and Travel Medicine. In the Netherlands, hydatid disease is most frequently seen in immigrants from Morocco (58) and Turkey (39), usually from small communities where cattle and dogs live in close contact with humans. The majority of hydatid cysts are unilocular and located in the liver (76%). Other affected organs are the lungs (8%), spleen (4%) and muscle/soft tissue (3%). 45% of our patients underwent percutaneous treatment. Although complications were frequent in the early years of PEVAC treatment, this technique has proven very safe over the last years. Hospital stay is often limited to 3 days and there is little relapse.
Conclusion: Hydatid cyst is predominantly seen in immigrants. In the AMC treatment experience has developed, with PEVAC playing a central role. In the near future, these results will be compared to those of other referral centers worldwide, where surgery is still the prevailing treatment.

BACK FC3 Health Problems in Returning Travellers

FC3.1

Health Problems during and after Travel among Boston-Area International Travelers

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Objective: To assess the types, frequency, and effect of health problems occurring during and after travel among Boston-area international travelers.
Methods: Surveys were conducted from 2009-2011 among travelers ≥18 years attending 3 travel clinics for pre-travel consultations in the Boston area. Travelers were asked to complete a pre-travel survey, at least one weekly during-travel survey, and a post-travel survey within 2-4 weeks after return. A health problem was defined as ³1 reported symptom in a patient. Traveler demographics, trip characteristics, health problems during and after travel, and effect of illness were evaluated by Wilcoxon rank sum test for continuous variables.
Results: Of 987 participants, 628 (64%) completed all 3 surveys and were analyzed. More travelers were male (59%), tourists (67%), and US-born (82%). Median age was 47 years (range, 19-83) and median trip duration was 12 days (range, 3-207). Top destinations were India (12%), South Africa (5%), and Tanzania (5%). Of the 628 travelers, 64% reported experiencing a health problem during and/or after travel. During travel, 305 (49%) of 628 experienced a health problem. Among those 305, 18% stopped their planned activities, 7% saw a doctor, and 1% were hospitalized. The most frequent symptoms experienced during travel were diarrhea (27%), headache (12%), and fatigue (12%). Three percent experienced an injury. After travel, 249 (40%) of 628 reported a health problem. Among those 249, 21% stopped planned activities, 13% saw a primary care provider, and 1 person was hospitalized. The most frequent symptoms experienced after travel were runny/stuffy nose (15%), diarrhea (12%), and cough (11%). Bivariate analysis showed that only longer trip duration was associated with becoming sick during and/or after travel (median 13 vs. 11 days for ill vs. well travelers, respectively; p=0.0003).
Conclusions: A high proportion of travelers report health problems during or after travel; illness was more common than injuries. Approximately 1 in 5 travelers who reported health problems altered activities, although a relatively low percentage sought medical care, especially during travel. Travelers experienced more gastrointestinal symptoms during travel and more respiratory symptoms after travel. In spite of patients seeking pretravel care at travel medicine clinics, the high prevalence of health problems indicates that new strategies are needed to address these trip-interrupting events.

BACK FC3.2

Travel Acquired Infections and Illnesses in Canadians: Surveillance Report from CanTravNet Surveillance Data, 2009—2011

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Background: Important knowledge gaps exist in our understanding of migration medicine practice and the impact of imported pathogens by Canadian travellers. We herein provide a comprehensive, Canada-specific surveillance summary of illness in a cohort of returned Canadian travellers and new immigrants.
Methods: Data on ill returned Canadian travellers and new immigrants presenting to a CanTravNet site between September 2009 and September 2011 were extracted and analyzed.
Results: During the study period, 4365 travellers and immigrants presented to a CanTravNet site, 90% of whom were assigned a travel-related diagnosis. Latent tuberculosis (6.9%), chronic hepatitis B virus (4.4%), strongyloidiasis (2.5%), giardiasis (2.2%), and malaria (2.2%) were the most common specific etiologic diagnoses issued. Other potentially serious infections such as dengue fever and enteric fever (due to *Salmonella enterica* serotype Typhi or Paratyphi) were common, occurring in 61 and 36 travellers, respectively. Individuals travelling for the purpose of "visiting friends and relatives" (VFR) were over-represented among those diagnosed with malaria and enteric fever ($p < 0.001$). Malaria was also over-represented among business travellers and males ($p < 0.001$). Malaria was most likely acquired in Sub-Saharan Africa ($p < 0.001$), while dengue was most likely imported from the Caribbean and southeast Asia ($p=0.003$), and enteric fever from South Central Asia ($p < 0.001$).
Conclusions: Our analysis of surveillance data on ill returned Canadian travellers has detailed the spectrum of imported illness among this cohort and provides an epidemiologic framework for Canadian practitioners encountering ill returned travellers. We confirmed that VFR travel confers particularly high risks, underscoring the need to improve pre-travel intervention. Potentially serious and fatal illnesses such as malaria and enteric fever were common, as were illnesses of public health importance such as tuberculosis and hepatitis B.

BACK FC3.3

High Acquisition Rates of Extended Spectrum ß-Lactamase Producing Enterobacteriaceae among Dutch Travelers

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Background: In recent years, multidrug resistant Enterobacteriaceae (MDR-E) through extended spectrum β-lactamase (ESBL) or carbapenemase production (CP) have become an increasing public health threat worldwide. The impact of international travel on the spread of MDR-E is becoming more evident.
Objectives: To investigate acquisition and persistence of carriage of ESBL- and CP-producing Enterobacteriaceae after foreign travel and associated risk factors among Dutch travelers.
To document the occurrence of transmission of these acquired strains to household contacts.
Methods: Prospective cohort study. 521 adults who had the intention to travel for < 3 months to areas outside Europe, Northern America and Australia were invited to participate. 370 travelers were included for analysis. Rectal swabs were taken before, upon return from and, if appropriate, six months after the trip and questionnaires were filled in concurrently. Eleven household contacts of 4 travelers with prolonged carriage of an ESBL-E after six months agreed to provide a rectal swab and questionnaire. ESBLs were characterized using a micro-array (Checkpoints). Multi-locus sequence typing (MLST) was performed on E. coli isolates.
Results: ESBL-E acquisition among Dutch travelers was high (33%). No CPE were found. Of 370 travelers, 32 were colonized with ESBL-E before the trip, 113 acquired ESBL-E during the trip, and 26 of them were still colonized after 6 months. Co-resistance to other antibiotic classes was common. Independent risk factors for ESBL-E acquisition were travel to South (OR 3.9; 1.8 - 8.7) and Eastern (OR 5.1; 2 - 12.9) Asia. CTX-M enzymes were the predominant ESBLs. MLST showed extensive genetic diversity among E. coli.Transmission among household contacts could not be demonstrated.
Conclusion: Based on the results of this study, active surveillance of CP-E and ESBL-E and at least temporary contact isolation precautions may be recommended for patients on admission to hospitals, who traveled to Asia in the last 6 months.

BACK FC3.4

The Changing Epidemiology of Human African Trypanosomiasis among Patients from Non-endemic Countries, 1902-2012

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Background: Although human African trypanosomiasis (HAT) is considered rare among patients from non-endemic countries (NEC), there has been an increase in the number of cases reported in recent years.
Objectives: To describe the changes in the epidemiology of HAT in patients from NEC between 1902 and 2012.
Methods: A systematic review of the literature was performed. All HAT cases diagnosed in patients from NEC were included. Data regarding the number of travelers were obtained from the United Nations World Tourism Organization. We compared the epidemiologic data of patients during and after the colonial period (using 1966 as a cutoff), and analyzed the relationship between the number of tourists and the number of HAT cases.
Results: Between 1902 and 2012, HAT was reported in 244 patients. In the colonial era most cases were reported between 1902 and 1920, while in the postcolonial era a sharp increase occurred after the year 2000. In the colonial era the average age of patients was lower (32.5±7.8 vs. 43.0±16.1 years, $p< 0.001$). The proportion of females was 10% vs. 23.8% in the colonial and postcolonial eras, respectively ($p< 0.001$).
In the colonial era most HAT cases were diagnosed in expatriates, missionaries and soldiers (74%), and Gambian trypanosomiasis accounted for 84/109 (77.1%) of cases. In the post-colonial era most patients (72.8%) were tourists to East-African game parks (mainly in Tanzania); Rhodesian trypanosomiasis accounted for 94/123 (76.4%) of cases. Between 1995 and 2010 there has been a constant, nearly linear, increase in the number of incoming tourists to Africa. During the same time more HAT cases were reported, occurring in small outbreaks, rather than following a similar linear pattern.
Conclusions: The epidemiology of HAT among patients from NEC has changed. In recent decades patients are older, more likely to be tourists, and to have acquired the disease while visiting game-parks. Rhodesiense trypanosomiasis, which is an acute febrile disease, now accounts for the majority of HAT cases. Any febrile patient with a compatible travel history and without an alternative diagnosis should be evaluated for HAT. Cases among returning travellers may serve as sentinels for disease “hot spots” in Africa.

BACK FC3.5

Acute Hepatitis in Israeli Travelers

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Background: Acute hepatitis is a well described cause of morbidity and sporadic mortality in travelers. Data regarding the epidemiology of hepatitis in travelers are lacking. The aim of this study is to describe the epidemiology of acute viral hepatitis among travelers returning from tropical countries, with particular attention to enetrically-transmitted hepatitis.
Methods: This study is a prospective observational study of ill-returned travelers who presented at two travel medicine clinics in Israel between the years 1997 to 2012. Data of patients with acute hepatitis were summarized. Only travelers were included, immigrants and foreign workers were excluded.
Results: Among 4970 Israeli travelers who were seen during this period, 49 (1 %) were diagnosed with acute hepatitis. Among them, hepatitis E virus (HEV) was the etiology in 19 (39%) cases and Hepatitis A virus (HAV) was the etiology in 13(27%) cases, demonstrating that 65 % of all cases were due to enterically-transmited hepatitis. Acquiring acute hepatitis B (2 cases) or acute hepatitis C (1 case) were uncommon (6.1%). In 27% percent of the cases, no diagnosis was determined. Fifty five percent of all cases were imported from the Indian subcontinent, with a predominance of HEV infection (84%). A significant male predominance was seen in all groups regardless of etiology. Pretravel consultation was documented in only 7% of those with vaccine preventable hepatitis (hepatitis A &B) compared to 89% in those with Hepatitis E.
Conclusion: Enterically-transmited hepatitis is the main causes of viral hepatitis among travelers. Hepatitis E virus is an emerging disease and has become the most common hepatitis among Israeli travelers. Although an efficacious vaccine has been developed, no licensed HEV vaccine is yet available. Although hepatitis A vaccine is highly efficacious, safe and easily available, there is a steady prevalence of HAV cases. Further follow-up is needed to determine whether the Israeli national program for HAV vaccination in infancy will affect the epidemiology of hepatitis among travelers.

BACK FC3.6

Different Etiologies of Creeping Dermatitis in 70 Consecutive Patients

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Background: Creeping dermatitis is a common cause of consultation in returning travellers. This is a cutaneous sign defined as a linear or serpiginous mobile track. Creeping dermatitis and cutaneous larva migrans (CLM) have been used to term the disease hookworm related cutaneous larva migrans (HrCLM). However other diseases can be revealed by creeping dermatitis.
Objective : The aim of this study was to report the different etiologies of creeping dermatitis in the setting of a tropical diseases unit.
Method: All the consecutive patients with creeping dermatitis presenting to our unit in Pitié Salpêtrière Hospital in Paris between 1st March 2008 and 31 March 2012 were included. We reported the different etiologies.
The diagnoses were based on microscopic data when possible (hookworm folliculitis, strongyloidiasis) or the association of epidemiological, clinical and biological features as well as good outcome after specific treatment (HrCLM, loiasis, gnathostomiasis,…).
Results: Seventy patients were included. 66 patients (94%) presented with HrCLM, all had traveled in tropical countries with the exception of one returning from Greece. South America was the most frequently visited continent (40%), followed by Africa (30%), South Asia (17%) and Caribbean's (12%). All presented with creeping dermatitis. The mean duration of symptom was 25 ±31 days. Seven of these 66 patients (11%) also presented with hookworm folliculitis. Skin scrapings from follicular skin lesions lead to the identification of a hookworm larva by microscopic examination in 3 cases and of *Ancylostoma braziliensis* by molecular techniques (PCR) in 1 case. Two patients (3%) presented with cutaneous gnathostomiasis, after returning from Bali and Japan, respectively. One patient (1.5%) native from Cameroun and living in France for more than 20 years presented with loiasis whereas a non-traveling patient (1.5%) presented with "creeping hair", a rare cause of creeping dermatitis.
Conclusion: We showed that HrCLM is the cause of more than 90% of the cases of creeping dermatitis but other diseases such as gnathostomiasis, loiasis and cutaneous pili migrans can also give rise to this cutaneous sign. They can be distinguished on epidemiological, clinical and biological backgrounds and sometimes confirmed by more specific microbiological tests.

BACK FC4 Pre Travel Practice

FC4.1

Knowledge, Attitudes and Practices of U.S. Practitioners Who Provide Pre-travel Advice: Differences between Primary Care Providers and Travel Medicine Specialists

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Background: As international travel increases, many US healthcare practitioners are asked to provide pre-travel advice but may not be adequately trained for this.
Objective: To assess how often US primary care practitioners (PCPs) provide pre-travel advice and compare their understanding, delivery of itinerary-specific advice, and training with that of travel medicine (TM) specialists.
Methods: We conducted an anonymous e-mail survey among randomly selected PCPs from the pmiCME database and US-based TM specialists from the International Society of Travel Medicine (ISTM) and American Society of Tropical Medicine and Hygiene (ASTMH). Analyses were done by using t-tests to compare continuous and chi-square tests to compare categorical outcomes.
Results: Of 14,932 e-mails, 902 (6%) yielded complete or partially completed surveys. Eighty percent of respondents personally provided pre-travel consultations: 95% of TM specialists and 73% of PCPs. Most PCPs (68%) providing pre-travel consultations saw < 50 travelers/year, whereas 30% of TM specialists saw < 50/year; 59% of TM specialists saw >500/year vs. 18% of PCPs ($p < 0.001$).
TM specialists, compared with PCPs, reported being very familiar with yellow fever vaccine (94% vs. 19%; $p < 0.0001$), Japanese encephalitis vaccine (74% vs. 10%; $p < 0.001$), mefloquine side effects (84% vs. 22%; $p < 0.0001$), and chloroquine-resistant areas (84% vs. 17%; $p < 0.0001$), and provided more educational materials (91% vs. 64%; $p < 0.0001$). TM specialists were more likely than PCPs to hold ASTMH CTropMed® (28% vs. 1%; $p < 0.0001$) or ISTM CTH® (72% vs. 3%; $p < 0.0001$) certificates. Most PCPs (94%) indicated interest in a short TM course. Knowledge scores based on brief pre-travel scenarios were significantly lower in PCPs than TM specialists (score ≥3: 52% for PCP vs. 89% for TM specialist, $p < 0.0001$).
Most PCPs (248/358, 69%) knew of TM specialists, to whom they referred 22% of their traveling patients; top referral reasons were lack of vaccines in their office (74%), need for yellow fever vaccine (68%), complex itineraries (61%), and travelers with underlying medical co-morbidities (56.7%).
Conclusions: PCPs provided pre-travel advice, but most saw few travelers. TM specialists reported greater understanding and delivery of itinerary-specific advice, and had higher scores in knowledge of travel vaccines and malaria. An easily accessible TM education program for US PCPs is needed to improve management of travelers.

BACK FC4.2

Malaria: Are Pharmacists Sufficiently Prepared to Assess and Manage Prevention Strategies?

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Background: Queries relating to travel health increased for pharmacists working in a small independent high street pharmacy chain. A review of the literature revealed the potential for pharmacists to contribute to this specialised area of health promotion and disease prevention.[1]
Objective: To assess the current level of knowledge and to inform the future development of in-pharmacy travel health services.
Method: The total population of pharmacists were surveyed using a case study of a family travelling to Gambia, with questions designed to elicit knowledge and actions on managing the family's malaria prevention within the pharmacy. Analysis was undertaken using descriptive statistics and constant comparative techniques. Responses were compared with Health Protection Agency guidelines.[2]
Results: The response rate was 80% (n.12). 92% correctly identified the malaria risk. 75% correctly identified suitable chemoprophylaxis. 58% referred client to their family doctor for prescription; 8% were able to prescribe for the client. Of those pharmacists who assessed clients, all questions were appropriate but no phamacist asked all the questions necessary to provide comprehensive clinical decision-making on anti-bite strategies or chemoprophylaxis. A wide range of resources were used to check for information with 25% directly using Health Protection Agency or official resources. 83% said the average time spent dealing with a travel-related query in pharmacy was 10 minutes or less.

Q	Pharmacists´ responses	%
1	Correctly identified a risk of malaria	92
2a 2b	Would initiate discussion on malaria risk. Would refer patient elsewhere.	83 8
3	Of those pharmacists who discussed malaria, what questions were asked? All questions were appropriate but no pharmacist asked all the questions necessary to provide comprehensive clinical decision-making on anti-bite strategies or chemoprophylaxis.	
4	Correctly identified chemoprophylaxis for the destination.	75
5a 5b 5c 5d	Prescribed Referred to GP Referred to private travel clinic Referred to specialist hospital service	8 58 8 8
6	Resources used to answer malaria questions: NPA malaria guide 58%; BNF 33%; Leaflet from supplier 25%; evidence-based resources for the UK 25%; Other 50%	
7	75% self-rated their expertise in travel health as moderate/competent; 0% considered themselves expert.	
8	Average time spent dealing with a travel-related query in pharmacy was under 10 minutes.	83
9	Opinions on increasing role pharmacists have in travel health: Keen to continue and expand: Only provide advice on holiday medicines:	92 8

[Pharmacists' responses]
Conclusions: Pharmacists' ability to risk-assess is stronger than their ability to manage that risk. There is a need for easier, quicker, more expedient access to UK-recognised evidence-based guidance. Pharmacists are keen to offer a comprehensive malaria-prevention service and expand to provide a 'one-stop shop' for travellers, which would require additional specific training. Therefore the next phase of development for this pharmacy chain is to act on these research findings by trialling an innovative online tool to aid safe and effective clinical decision-making.
References:
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[2] ACMP (2007) Guidelines for malaria prevention in travellers from the UK. London: HPA.

BACK FC4.3

Pre-travel Health Care of Immigrants Returning Home to Visit Friends and Relatives

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Background: Immigrants returning home to visit friends and relatives ("VFR" travelers) are at higher risk of travel-associated illness than other international travelers.
Objective: To evaluate the demographics, itineraries, and pre-travel health care of VFR travelers who sought pre-travel health advice, and to identify areas in which the care of this population could be improved.
Method(s): Global TravEpiNet is a U.S. CDC-sponsored consortium of U.S. practices that provide pre-travel health advice. We analyzed data on all travelers going to resource-poor destinations seen for pre-travel consultation at participating sites from January 2009 through December 2011. We used Kruskal-Wallis equality of proportions test, Somers' *D* test, and separate random intercept logistic regressions with clinical site as the random effect to evaluate measures of association and statistical significance in the data. We also performed multivariable logistic regression analyses to examine the effect of individual variables on the likelihood of declining a vaccine.
Results: We included 3,707 VFR and 17,507 non-VFR travelers in our analysis. VFR travelers more commonly visited urban destinations than non-VFR travelers (42% vs. 30%, $p< 0.0001$). Fifty-four percent of VFR travelers were female, and 18% of VFR travelers were under six years old. VFR travelers sought health advice closer to their departure than non-VFR travelers (median days before departure 17 vs. 26, $p< 0.0001$). In multivariable analysis, being a VFR traveler was an independent predictor of declining a recommended vaccine.
Conclusions: Declining of recommended vaccines was remarkably common among VFR travelers in this cohort, especially considering that these individuals had sought pre-travel health care. This declination of vaccines may relate to cost, concerns about vaccine safety, the delayed timing of the pre-travel visit, or lack of perceived risk. Making pre-travel health care available in primary care settings may be one means of improving the timing of pre-travel health care and increasing the acceptance of vaccines. Our findings, in conjunction with geographic data from the U.S. census, could help target these efforts to appropriate immigrant communities.

BACK FC4.4

Characteristics, Preferences and Decision Needs of Travelers to Countries with Risk of Yellow Fever: Implications for Healthcare Providers

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Objectives: To assess (1) the reason for this pre-travel health consultation, (2) information travelers considered important regarding yellow fever (YF) disease and vaccination, (3) whether travelers recalled receiving this information and (4) were involved in YF vaccine decision-making to their desired extent.
Methods: Travelers ≥18 years were surveyed after consultations at three Boston-area travel clinics; those making YF vaccination decisions were included for analyses. Bivariate analyses were performed using the chi-square and McNemar tests. A p-value < 0.05 was considered statistically significant.
Results: Of 831 travelers completing the survey, 589 (70%) indicated the travel clinic visit included a need to address YF immunization. Fifty eight percent (347/589) attended the clinic because they perceived that they were required to receive a vaccine. Of the 589, peak age groups were 21-29 years and >60 years (20% each), and 82% had college/graduate education. Most were traveling for tourism (55%).
Travel medicine providers reportedly recommended YF vaccination to 91% (537/589), of whom 92% (494/537) received vaccine. Age ≥50 years was associated with declination of recommended YF vaccine compared with < 50 years (68% versus 32%, p< 0.01). Of 589 travelers, most (83%) agreed they needed to understand YF risk at their destination and 88% YF vaccine risks; 87% felt they were involved in making YF vaccine decisions. Absence of an influence of cost on decisions to receive YF vaccine was associated with older age (p=0.02) and post-graduate education (p=0.03). More participants were inclined to accept providers' recommendations about vaccines than they were to accept recommendations about general health choices (57% versus 44%, p< 0.01). A minority of travelers recalled discussing opinions and priorities about risks and benefits of YF vaccine (32%) or YF vaccine concerns (42%) with the provider.
Conclusion: Perception of requirement for vaccination was the most common reason for this pre-travel consultation. Most of these predominately well-educated travelers sought YF disease and vaccine risk information, and wanted to be involved in decision-making, but less than half recalled discussing their opinions and concerns. Providers should be aware that many travelers would welcome a more detailed discussion about their personal risk perceptions and vaccine concerns.

BACK FC4.5

Evaluation of Vaccination Coverage in Travelers to a Yellow Fever Endemic Area (Senegal) for a Stay

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Background: Data quantifying the proportion of travelers going to yellow fever (YF) risk areas without vaccination are lacking.
Objectives:
- Evaluate YF vaccination coverage among French travelers living in France and potentially exposed to YF risk in Senegal.
- Determine factors associated with vaccination coverage
Methods: A prospective study was conducted between August 2011 and May 2012 in Dakar international airport. French travelers returning to France from Dakar were asked about their attitudes towards YF and whether they had received YF immunization on this or previous trips. Adequate YF immunization was evaluated by a valid vaccination certificate. A multivariate analysis was used to determine factors associated with vaccination coverage.
Results: Overall, 10298 questionnaires were completed. Sixty percent of travelers were male. Mean age was 48 years. Seventy six percent were traveling to tropical areas for the first time. The main reason for traveling was tourism (52%), business (22%) and visiting friends and relatives (15 %). 65 % looked for information, of which 57 % and 24% were respectively advised by a general practitioner (GP) or travel clinic. 47 % of travelers had adapted knowledge regarding YF transmission. The reported YF vaccination coverage was estimated at 88 %. The substantiated YF vaccination coverage (according to valid certificate) was 39.3 %. In multivariate analysis, appropriate YF immunization was statistically associated with the first trip to a tropical area (OR 1.8), business trip (OR 1.8, 95% CI 1.2 to 2), GP advice (OR 1.2), good awareness of YF (OR 1.2), and adequate risk perception of YF lethality
Conclusion: More than 60% of travelers to Senegal did not receive YF vaccination before the trip. YF vaccination coverage was influenced by the level of knowledge and risk perception about YF as well as the type of counseling before travel.

BACK FC4.6

Malaria and Yellow Fever Prevention Advice Provided by Travel Agency Employees in Cusco - Peru

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Background: Risk assessment and advice for malaria and yellow fever prevention is an important part of travel medicine consultation. Nonetheless, few travelers seek pre-travel medical consultation. Travel agencies play a significant role in informing and referring travelers to health services. Little is known about the role of travel agencies in traveler´s health advice at destination countries.
Objective: Describe the advice on malaria and yellow fever prevention provided by travel agency employees in Cusco.
Methods: Travel agencies in Cusco - Peru, registered in the city´s Chamber of Commerce, with verifiable addresses, and offering trips to the South Peruvian jungle were surveyed during May - June 2012. Medical students posed as travelers interested in booking trips to Tambopata or Manu rain forest. They conducted structured encounters with agency employees at the front desk without disclosing their identities. Encounters started with an open question to record any spontaneously provided advice, directed questions explored knowledge in specific topics.
Results: 163 travel agencies were included. Most (56.4%) had visible jungle trip advertisement, median duration of trips was 7 days (IQR 5-8 days), median minimum group size was 4 travelers (IQR 3-7 travelers), and median trip cost was 805 USD (IQR 580-1095 USD). The median minimum time to departure was 3 days (IQR 1-7 days). Risk for at least one illness in the jungle was mentioned by 44.8%, while 41.7% did not mention risk for any illness, 10.4% mention one illness but referred travelers to another person for advice, and 3.1% did not mention an illness and/or referred travelers to another person. From 90 (55.2%) subjects who mentioned risk for illnesses, 18.9% mentioned malaria and 84.4% mentioned yellow fever spontaneously. An extra 15.5% acknowledge some malaria risk when asked directly, but 65.5% denied malaria risk in the area. Another 11.1% acknowledge some yellow fever risk in the area when asked directly and 4.4% denied the risk for yellow fever. Recommendations for preventing malaria and yellow fever provided by the subjects are shown in the table.
Conclusions: Few travel agency employees were able to provide information on malaria and yellow fever prevention. More subjects knew about the yellow fever risk than about malaria risk in the Southern Peruvian jungle. Nonetheless, time to departure would not allow proper yellow fever protection in unvaccinated travelers.

BACK FC5 Chronic Infections in Migrants

FC5.1

Barriers to the Provision of Pre-travel Preventative Health Advice in Primary Care to Australian Travellers Visiting Friends and Relatives

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Background: Travellers visiting friends and relatives (VFRs) are at greater risk of infectious diseases than others for a number of underlying reasons. Although general practitioners (GPs) are an important source of pre-travel medical advice, few studies have been published investigating provider-related barriers to the provision of pre-travel medical care to VFRs.
Objectives: To understand the knowledge, attitudes and practices of travel medicine of Australian GPs, particularly their perception of risk for VFRs, and to investigate the barriers preventing GPs from providing pre-travel preventative care to VFRs.
Methods: 2000 questionnaires were sent to a random sample of GPs practicing in areas with large migrant populations in Sydney, Australia, in November-December 2012. Chi-square, t-test, ANOVA and Kruskal-Wallis test were used for univariate analysis, and multivariate logistic regression analysis was undertaken.
Results: Of 538 returned questionnaires (response rate 26.9%), 521 were at least partially completed and included in the analysis. Overall, 59% of respondents were males, with a mean age of 52.7 years, with males significantly older ($p< 0.001$) with a longer time in practice ($p< 0.001$) than females. GPs saw a median of 150 patients and three travel patients per week. Three-quarters (392/517, 75.8%) of GPs spoke a language other than English (LOTE). Only 39% (203/517) of respondents stated that the overall risk for VFRs is higher than for holiday travellers with 40% reporting no difference in risk and 21% stating that VFRs had a lower risk. The belief that VFRs have the same or lower risk than holiday travellers was associated with older age ($p=0.013$), LOTE ($p=0.001$), longer time in practice ($p=0.015$) and higher number of patients seen per week ($p=0.006$). Only LOTE remained significant on multivariate analysis (adjusted OR 2.1, 95%CI 1.3-3.3). The most common stated barriers to providing pre-travel care to VFRs were late presentation by VFRs (90%), low perception of risk by VFRs (84%), and cost of vaccines (82%).
Conclusions: VFRs are reportedly more likely to see GPs from their own cultural background, however our results demonstrate that these GPs are less likely to consider VFRs at greater risk of infectious diseases. In addition to the need to raise awareness in VFRs, targeted education of GPs from culturally diverse backgrounds is required to reduce the overall risk of disease in this unique group of travellers.

BACK FC5.2

Situational Analysis of HIV Travel Restrictions for Migrants

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Introduction: Increasingly, HIV seropositive individuals cross international borders. Country imposed HIV related restrictions on entry, stay and residence have important consequences for this mobile population. Our aim was to describe the geographical distribution of countries with restrictions and to examine the trends and characteristics of countries with such restrictions.
Methods: In 2011 information from UNAIDS was used to establish a list of countries with and without HIV restrictions on entry, stay and residence and to describe their geographical distribution. Relevant indicators were chosen using data from the Joint United Nations Programme on HIV/AIDS (UNAIDS), United Nations Development Programme (UNDP), United Nations Department of Economic and Social Affairs (UNDESA), World Health Organization (WHO), World Bank, International Labour Organization (ILO), Transparency International and Ministries of Health. We performed uni-and multivariable analysis to identify factors associated with countries that have implemented such HIV restrictions for travelers and migrants.
Results: HIV related restrictions exist in 45 of 193 WHO countries (23%) in all regions of the world. We found that the Eastern Mediterranean and Western Pacific Regions have the highest proportions of countries with these restrictions. Countries with restrictions tend to have smaller populations, higher proportions of migrants in the population, lower HIV prevalence rates and lack legislation protecting people living with HIV from screening for employment purposes, than countries without restrictions. Higher proportion of international migrants and lower HIV prevalence were associated with HIV related restrictions in multivariable analysis.
Discussion: Despite international pressure to remove travel restrictions, many countries continue to implement these restrictions for HIV positive individuals on entry and stay. Countries with a high proportion of international migrants tend to have travel restrictions - a finding that is relevant to migrant populations and travel medicine providers alike. Since 2010, the USA and China have engaged in high profile removals. This may be indicative of an increasing trend, facilitated by factors including international advocacy and the setting of a UNAIDS goal to halve the number of countries with restrictions by 2015.

BACK FC5.3

Clinical and Epidemiological Profile of HIV Infection among Migrant *vs Italian Patients in Seven Italian Centers between 2000 and 2011*

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Background: The prevalence of foreigners varies widely throughout Italy with an average percentage of 8.2% according to the most recent estimates referring to regular migrants. Immigration status has a notable impact on healthcare access as well as on preventive strategies thus influencing HIV/AIDS burden.
Objective: We investigated the socio-demographical, clinical and epidemiological features of HIV-infected migrants over an 11 years period to establish the main differences with Italians.
Method: We conducted an observational retrospective study on 1506 migrants and 4230 Italians over 18 who have been followed for HIV/AIDS in seven Italian collaborating centers between 01/01/2000 and 31/12/2011. Statistical analysis was performed at the Italian National Institute of Health through SPSS Statistics 17.0 software.
Results: Patients lost to follow-up within 12 months since admission were excluded from analysis because of imbalance. Among included patients, 37.1% of migrants and 41.8% of Italians were enrolled in Brescia (where the highest immigration rate is registered). Males strongly predominated in the Italian cohort (M:F=3.6:1) while almost no gender iniquity was found among migrants. The latters were generally younger than the indigenous ones (37.1% aged 18-29) and nearly half of them came from Sub-Saharan Africa. HIV infection was usually acquired through heterosexual contacts. IDUs were considerably more frequent among Italians (26%*vs*3.5%). A high proportion of patients from both cohorts were severely immunocompromised at baseline (41.1% of migrants and 36.9% of Italians were classified as late presenters). Migrants showed lower adherence to care program with a median follow-up of 53 months (IQR:30-83) *vs* 66 [IQR:38-96(P< 0.001)]. Syphilis (either active or formerly acquired) was more likely in migrants (≈50% homo/bisexuals); among Latin Americans 52.7% were TPHA+ and 34.8% VDRL+. No relevant differences emerged for HBV infection, while HCV was significantly more frequent among Italians (23.4%*vs*5.2%). Most patients received HAART with comparable efficacy in both cohorts. However the foreign-born showed a higher propensity to treatment discontinuation (20.1%*vs*13%).
Conclusion: Important socio-demographical and clinical differences emerged between migrant and Italian HIV-infected patients. Our findings highlight the need to strengthen educational and preventive strategies towards at risk populations to reduce the burden of late presenters.

BACK FC5.4

Prevalence of Chronic Hepatitis B Virus Infection in African Immigrants Seen At a U.S. Urban Travel Health Center

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Background: Chronic hepatitis B virus (HBV) infection is the most common worldwide cause of chronic liver disease accounting for up to half of all cases of cirrhosis and hepatocellular carcinoma. The majority of cases occur in regions of Asia and Africa where the virus is endemic. There is a lack of public health awareness of the burden of disease in the African immigrant population living in the United States.
Objectives: To examine the prevalence of chronic HBV infection among African immigrants attending a travel clinic in the Bronx, New York.
Methods: Retrospective electronic medical record review and analysis of demographic and HBV serologic data of travelers born in Africa who presented for a pre-travel consultation between Jan. 2010 and Nov. 2012. Chronic HBV infection was defined as one-time identification of hepatitis B surface antigen (HBsAg+) in serum in the absence of any clinical data suggesting acute hepatitis. Demographic and travel characteristics between HBsAg+ and HBsAg- travelers were compared by bivariate analysis.
Summary of results: Among 258 travelers born in Africa (43% male, mean age [SD] of 38 [12] years), West Africa was the predominant region of origin (n=241 [93%]). Most (n=232 [90%]) prepared for travel to Africa to visit friends and relatives. HBV serologic data was available for 196 (76%) travelers. Almost half (84/196 [43%]) had serologic evidence of prior exposure to HBV (anti-HBcAb+). Chronic HBV infection (HBsAg+), resolved HBV infection (anti-HBcAb+, anti-HBsAb+), and the isolated anti-HBcAb+ profile were noted in 37/196 (19%), 32/196 (16%), and 15/196 (8%) travelers, respectively. Vaccine-induced immunity (anti-HBcAb-, anti-HBsAb+) was found in 88/196 (45%) travelers, and 24/196 (9%) were susceptible (anti-HBcAb-, anti-HBsAb-). HBV vaccine was initiated in 13/24 (54%) susceptible travelers. HBsAg+ travelers (17/37 [46%] male) were mostly from Ghana, Guinea and Cote d´Ivoire (22/37 [60%]). Compared to HBsAg- travelers, HBsAg+ travelers were older (mean age [SD] of 41 [9] years vs 37 [13] years, $p < 0.05$).
Conclusions: Prevalence rate of chronic HBV infection among African immigrants living in the Bronx is similar to reported rates in Africa. Pre-travel clinic encounters present a unique opportunity to screen, identify, educate and link to care African immigrants in the Bronx unaware of their chronic HBV infection, and provide vaccination to those found to be still susceptible.

BACK FC5.5

Hepatitis B and Migrants: Should We Do Better?

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Background: More than 5% of the world's population lives with chronic hepatitis B (CHB), and is at risk for liver cirrhosis and hepatocellular carcinoma. In Switzerland, asylum seekers are mostly from endemic regions but no systematic screening is proposed to them. In a resolution of 2010, the WHO encouraged not only vaccination but also screening of people at risk.
Objectives: 1) To investigate the screening policies for CHB of Swiss cantons and Western countries in the migrant population, 2) To estimate the prevalence of CHB among asylum seekers in the canton of Vaud, Switzerland, 3) To discuss possible screening strategies in this population.
Method: Public health services of the Swiss cantons and some Western countries were contacted to enquire about policies regarding screening of migrants for CHB. To assess the prevalence of anti-HBc Ab among asylum seekers, a retrospective review of health charts was conducted among 501 adult asylum seekers (canton of Vaud, 2009 - 2011). Prevalence of HBsAg was estimated by testing for HBsAg 115 anti-HBc positive adult asylum seekers (canton of Vaud, 2012). Based on these data, we developed CHB screening strategies.
Results: None of the contacted Western countries or Swiss cantons offers migrants a systematic screening of CHB, although some recommend it. 42% of asylum seekers had positive anti-HBc Ab, indicating they were or had been infected by the hepatitis B virus. 7,8% had positive HBsAg, indicating they were infected. We developed two HBsAg screening strategies that could be performed during the initial health screening: 1) Anti-HBc Ab testing, followed by vaccination when negative, by HBsAg testing when positive. 2) Rapid anti-HBs testing, followed by rapid HBsAg testing when negative, and by vaccination when negative HBsAg.
Conclusion: Knowing the high prevalence of hepatitis B in migrants, systematic screening is needed to give infected migrants access to medical care. Simple and reasonably priced screening strategies are possible. Their implementation would lower the rate of complications, as well as the transmission of the virus between migrants and to the local population. It would respond to the call of the WHO for wider implementation of screening and management of CHB.

BACK FC5.6

Screening for Chagas Disease in Switzerland: "One Size Fits All"?

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Background: Migration and travel has spread Chagas disease to most of the countries in the world. This led WHO to recommend screening of Latin-American migrants living in non-endemic countries to reduce morbidity and mortality and increase the chance for eradicating the disease.
Objectives: To assess the feasibility and acceptability of a screening strategy for Chagas disease for Latin-Americans living in Canton de Vaud; to estimate the number needed to test according to demographic and clinical characteristics.
Methods: From 2011 to 2012, Latin-American attending 5 outpatient facilities were proposed a rapid diagnostic test for Chagas disease, if they were or their mother was of Latin-American origin. At the blood donation center, persons who had traveled for ≥1 year to Latin-America were tested in addition. People were also tested in the community at events gathering Latin-Americans, in particular Bolivians. Age, sex, country of origin/travel, screening criteria, 9 symptoms/signs predictive of symptomatic Chagas disease and test result were collected prospectively.
Results: 887 persons were tested for Chagas disease: 24%, 9% and 67% in outpatient facilities, community and blood center respectively. 53%, 15% and 29% respectively were Latin-American, had a Latino-American mother and were travelers. The global prevalence of Chagas disease was 1.7% (2.5% among migrants, none of the travellers being affected) but as high as 15.5% in the community. It was 18.7%, 0.5% and 0% among Bolivians, Brazilians and other countries respectively. The 2 positive cases coming for a consultation had symptoms of Chagas disease. Testing rates at 3 of 5 facilities were only 15%, 11% and 6%.
Conclusions: The 1.7% global prevalence found was lower than that of other European countries, mostly because the proportion of Bolivians was only 10% in our study. The prevalence among Bolivians (19%) was very high which means that all of them should be tested. Regarding people from other countries, to have a symptom/sign predictive of Chagas disease could be added as criteria to decrease the number needed to test. Most of the positive cases were found in the community where efforts should thus be deployed. Strategies should also be put in place to improve testing rates, such as better targeting of people at risk, selection of people for testing by receptionists, and sensitization meetings to explain health staff the importance of Chagas disease screening, especially in pregnant women.

BACK FC6 Immunizations: Safety, Immunogenicity and Availability

FC6.1

Safety and Efficacy of a Patch Containing Heat-labile Toxin from *Enterototoxigenic Escherichia coli (ETEC) against Diarrhoea in Traveler's to Mexico / Guatemala: A Randomized, Double-Blind, Placebo-Controlled Phase 3 Trial*

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Background: A novel dermal antigen delivery system delivering LT toxin has been developed to elicit immunity against ETEC and other causes of travellers diarrhoea(TD). Phase 2 studies suggested the system was effective at preventing TD.
Objectives: A randomized, double-blind, placebo controlled study was conducted in 20 sites, 11 in Germany and the remainder in the UK on subjects travelling to Mexico and Guatemala for a week or longer. Primary outcome was the efficacy in the preventing moderate to severe ETEC diarrhoea and secondary outcomes included identifying eriology of and assessing the safety, tolerability, and severity of diarrhoea.
Methods: 2034 European travellers to Mexico or Guatemala were vaccinated with either 37.5 µg of heat-labile toxin from *E. coli* (LT) or a placebo patch in a 1:1 ratio. A second patch was administered 14 days later. In the destination country, subjects tracked stool output and adverse events in diaries and provided stool samples if diarrhoea occurred which were analysed for the presence of pathogens and parasites. The subjects were followed for 6 months after return. The primary end point was moderate/severe (≥4 unformed stools) diarrhoea in which LT, LT and ST or ST toxins (ETEC) were detected from diarrhoeal stool samples.
Results: Moderate/severe ETEC diarrhoea was very low in treatment and placebo arms, (all cause 12.4% & 12.3%, mod/severe ETEC 3.7% & 5.6%). The vaccine efficacy was -1.24% against all cause moderate/severe diarrhoea, 34.6 % against ETEC diarrhoea and 61 % (p=0.04) against LT+ alone secreting ETEC. Of the secondary endpoints, significant differences were seen in stool frequency (2.2 episodes p=0.037) and duration (days) of all-cause diarrheal episodes 0.8days (p=0.008). Overall, local adverse reactions occurred in 93% of vaccine and 56% of placebo recipients. Rash and erythema (80%) and pruritus (68.5%)) were the most common reactions. Hyperpigmentation persisted in 23% of the LT group at 6 month review..
Conclusion: There was a surprisingly low attack rate of TD in the cohort. Despite good immunogenicity, the vaccine failed to protect travellers against ETEC and all cause TD but some impact against LT+ ETEC diarrhoea, with a small but significant reduction in stool frequency and duration of TD from 3 days to 2.2 days. The dermal LT antigen delivery resulted in frequent local rash with some local events persisting for up to 6 months.

BACK FC6.2

Tick-borne Encephalitis: Long-Term Follow-up and Effect of Immunity against Japanese Encephalitis and Yellow Fever

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Background: In the present study, long-term immunogenicity in terms of antibody titers against tick-borne encephalitis (TBE) is evaluated up to ten years after the last TBE booster dose. Furthermore, the question is addressed whether contact to any flaviviral antigen other than TBE, for example vaccination against Japanese Encephalitis of Yellow Fever, has an impact on levels of TBE antibody titers.
Methods: In 2002, 430 subjects were re-vaccinated with a single booster dose of Encepur®. The volunteers had a documented basic immunization against TBE consisting of three doses, and the interval to the last booster dose was a minimum of three years. Antibody titers were measured via neutralization test. Titers of 10 were assumed as a surrogate parameter of safe protection. Blood samples were drawn at years two, three, four, five, six, eight and ten after the TBE booster dose. In a separate analysis, antibody levels were evaluated in subjects with and without exposure to flaviviral antigen other than TBE (i.e. vaccination against Japanese Encephalitis, Yellow fever). Volunteers with antibody levels below the protective level ten years post-booster received a single booster dose against TBE.
Results: Antibody titers were measured in 178 volunteers at year 8 and cumulative seroprotection rates were 86.8%. At year ten, 183 subjects returned for blood draws and cumulative seroprotection rates were 77.3%. Antibody titers were significantly higher in subjects below 50 years of age. In volunteers with antibody levels below the protective level a single booster dose against TBE re-established protective antibody titers. Antibody levels were not influenced by previous exposure to any flaviviral antigen other than TBE.
Conculsion: Between year eight and ten, the decline of seroprotection rates against TBE was disproportionately high. However, in subjects with low antibody titers, a single TBE booster dose is highly effective. Vaccination against Japanese Encephalitis or Yellow Fever did not influence levels of antibody titers.

BACK FC6.3

Immunity after Yellow Fever Vaccination in Travelers Using Immunosuppressive Medication

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Background: The 17D-Yellow Fever vaccine is a live attenuated vaccine. The vaccine has been proven safe and effective; however, current guidelines advise against the vaccination of immune-compromised patients due to potential severe adverse events (SAEs). In spite of current guidelines, the 17D yellow fever vaccine is sometimes administered to individuals using immune-suppressive medication. In these patients, apart from the risk of SAEs, the immune response following yellow fever vaccinations may be suboptimal. Possibly, this population has a less durable and lower immunologic response compared to healthy controls, and more frequent revaccination might be required.
Objectives: To compare the rates of adverse events reported by immune-compromised and healthy volunteers. To compare the height and duration of antibody presence using the plaque reduction neutralization test (PRNT) and the presence and functionality of yellow fever specific T cells in peripheral blood mononuclear cells (PBMCs) in patients using various types of immune suppressive medication.
Method: Patients who had been vaccinated while using immunosuppressive medication and vaccinated healthy controls were included. We asked all volunteers about adverse events during or after yellow fever vaccination. We measured virus neutralizing antibodies in sera 1-3 months after vaccination in patients, and collected sera and harvested PBMC's after inclusion in all volunteers for T cell analysis.
Results: Fifteen immune-compromised and 36 healthy persons (38.5% male, median age 45, interquartile range 32-58) vaccinated with the 17D yellow fever vaccine were included. Forty-four volunteers (86.2%) were primo vaccinees. Out of 15 immune-compromised vaccinees, 10 (66.7%) were using methotrexate, 2 (13.3%) were using azathioprine, and 3 (20%) were using other immunosuppressive medication.
All immune-compromised vaccinees had neutralising antibodies 1-3 months after vaccination. Mild adverse events were reported in 4/15 (26.7%) of patients and in 4/36 (11.1%) of healthy controls (OR 2.9, 95%CI [0.6-13.7], p=0.23). The events did not cause any limitation to daily activities.
Conclusion: The 17D yellow fever vaccine was administered without any severe adverse events in our group of 51 persons that included 15 immune-compromised patients. The immune response following vaccination in patients using immunosuppressive medication may be hampered, therefore alterations in guidelines should be considered.

BACK FC6.4

Seroconversion after Fendrix Hepatitis B Vaccination in 60 Non-responders

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Background: Risk groups for infection with hepatitis B are, amongst others, those at risk through sexual exposure, haemodialysis patients, drug users and those travelling to endemic regions.
For these groups, an effective recombinant DNA hepatitis B vaccine is available. However, 4 to 10 percent of the vaccinees do not respond with an antibody titer above the threshold of protection (anti-HBs ≥ 10 IU/ml). Known risk groups for non-response are elderly vaccinees and those with an immune compromising condition. Previously it has been shown that in these non-responders, conventional hepatitis B revaccination series with Engerix® leads to seroconversion in around 50%. This demands alternative revaccination schemes. Recently, Fendrix®, a vaccine with an immune enhancer, has been described to be effective in healthy individuals and haemodialysis patients not responding to initial hepatitis B vaccination schemes. Therefore, in 2008, our department started vaccination with Fendrix® in non-responders.
Objectives: Analysis of the results of a maximum of three Fendrix® vaccinations in those who did not respond to conventional hepatitis B vaccination series in the AMC.
Method: Collection of clinical and demographic data of 77 non-responders, with and without immune-compromising conditions, vaccinated from 2008 to 2012 In the AMC department of tropical and travel medicine.
Results: Sixty individuals vaccinated with Fendrix®, who had a documented antibody response were included. Twenty-nine (48.3%) were HIV positive; four (6.7%) had another immune-compromising condition. Seroconversion after 1 Fendrix® vaccination occurred in 22/25 (88.0%) healthy and 12/32 (37.5%) immune-compromised persons (p= < 0.001). In 3 individuals the response was not measured. In 17 of these non-responders, second Fendrix® administration leaded to seroconversion in 5/7 (71.4%) healthy and 5/10 (50.0%) immune-compromised persons (p=0.48). Of 6 remaining non-responders (2 healthy, 4 immune-compromised) 1 healthy seroconverted (16.7%) after a third gift. Additional (>3) vaccinations did not result in seroconversion in 3 tested vaccinees.
Conclusion: Overall, the seroconversion rate after vaccination with Fendrix® was higher in healthy vaccinees compared to immune-compromised vaccinees. In those with an immune-compromising condition one Fendrix® vaccination gave protection in at least one third. Administration of Fendrix® needs to be considered in every non-responder.

BACK FC6.5

Initial Neutralising Antibody Response on Day 35 after Two Different Intradermal Rabies Pre-exposure Vaccination Schedules: Preliminary Unpooled Data of a Large Prospective Clinical Trial on Rabies Boostability

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Background: Rabies, a viral infection endemic in several resource-limited settings, causes almost invariably fatal encephalitis.
Objective: To investigate the serological response after primary vaccination on day 35 with 2 different intradermal rabies HDCV vaccination schedules.
Method: Belgian soldiers needing rabies vaccination pre-deployment were recruited if giving informed consent to participate. Subjects were randomized into 2 groups: a classical 28-days intradermal schedule (day 0: 1 x 0.1 ml, day 7: 1 x 0,1 ml, day 28: 1 x 0,1 ml) or an abbreviated 7-days intradermal schedule (day 0: 2 x 0.1 ml, day 7: 2 x 0,1 ml). Boostability on day 7 after intradermal booster vaccination (0,1 ml) was defined as the primary endpoint of the clinical trial (analysed at the end of the trial in 2016). Neutralizing antibody titers Rapid Fluorescent Focus Inhibition Test (RFFIT) against rabies were tested on day 0 and 35 days after the first vaccination in both groups. A titer ≥ 0,5 IU/ml is considered to be protective. A titer > 10 IU/ml is considered to give long-lasting immunity. This open-label study is registered at clinicaltrial.gov NCT 013889885 and EUDRACT 2011-001612-62.
Results: 411 subjects, out of 480 planned,are recruited so far. Preliminary results of 285 subjects are available (age range: 18-47 yrs, gender: 95 % male, N = 285) from October 2011 until December 2012. Preliminary Unpooled Data on day 35 showed:
- 285 of 285 subjects (100%) have RFFIT above 0,5 IU/ml;
- 216/285 subjects (76%) have a long-lasting immunity whith RFFIT above 10 IU/ml;
- 65/285 subjects (23%) have a RFFIT between 3.0 IU/ml and 10 IU/ml;
- 4/285 subjects (1%) have a RFFIT between 0.5 IU/ml and 2,9 IU/ml.
Conclusion: Preliminary Unpooled Data show that 100% of subjects had a sufficient initial antibody response on day 35: a surrogate marker for rabies protection. We hypothesize after evaluation of preliminary unpooled data that both intradermal regimens could have a similar effect on the Initial Neutralising Antibody Response on day 35.

BACK FC6.6

The Global Availability of Rabies Immune Globulin and Rabies Vaccine: A Survey of U.S. Embassy Medical Personnel

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Background and Objective: Rabies is globally endemic and poses a risk to international travelers. To better advise travelers, we assessed the global availability of rabies vaccine (RV) and rabies immune globulin (RIG) by querying medical personnel at U.S. embassies worldwide.
Methods: We distributed a 20-question online survey to approximately 200 U.S. Embassy medical personnel from February 1 to March 30, 2011. Respondents were asked to provide information for 2010, and results were compiled by region.
Results: One hundred twelve responses were analyzed; responses primarily came from West, Central, and East Africa (23%), Eastern Europe/Northern Asia (16%), East/Southeast Asia (14%), and Western Europe (13%). The average annual number of traveler inquiries to responding embassies for any health issue was 99; however, the average number for rabies-specific inquiries was 2. Rabies-specific inquiries varied by region [e.g., Mexico/Central America/Caribbean responses ranged from 0 to 35 and West, Central, and East Africa from 0 to 12]. RIG was reported as often/always accessible for 7 (70%) of 10 respondents in Eastern Europe/Northern Asia, 7 (58%) of 12 in East/Southeast Asia, and 1 (8%) of 12 in West, Central, and East Africa. Of 66 total respondents, 37 (56%) reported human RIG, 8 (12%) reported equine RIG, and 23 (35%) did not know the type of RIG used locally. RV was often/always accessible for 11 (73%) of 15 respondents in Eastern Europe/Northern Asia, 9 (75%) of 12 in East/Southeast Asia, 5 (83%) of 6 in Middle East/North Africa, and 8 (42%) of 19 in West, Central, and East Africa. The most commonly reported RV was Vero cell (30%), followed by purified chick embryo cell (28%) and human diploid cell (24%).
Conclusions: U.S. Embassy medical staff report that availability of RV and RIG for travelers potentially exposed to rabies varied by geographic region. All travelers should be informed that RIG and RV might not be readily available at their destination and that they should purchase travel medical evacuation insurance before departure. Travelers should be educated to avoid animals; clean all animal bites, licks, and scratches thoroughly with soap and water; and seek medical care immediately, even if overseas.

BACK FC7 Airline, Altitude and Study Methods

FC7.1

In-flight Medical Incidents, Deaths and Flight Diversions of South African Airways Flights from 2009 till 2011

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Aim: Modern aircrafts can carry up to 800 passengers and fly more than 18 hours. The travel industry projects 3.3 billion air travellers by 2014, of whom 1.3 billion will undertake international journeys. In-flight emergencies are reported to occur in 1:10 000 to 1:40 000 passengers, which equates to 25-100 per million passengers, though figures of up to 867/million have been reported. Diversions are costly and extremely inconvenient. Appropriate measures can be undertaken when the nature of emergencies and causes of diversions are known.
Methods: The data of South African Airways (SAA), the country's national carrier, for the three year period 2009-2011 was reviewed. Comparisons with other airlines were problematic as data was either not obtainable or differently presented. It was noted that SAA has well stocked emergency medical kits and well automated external defibrillators on all its aircrafts.
Results: In-flight medical events were documented as: 139 events/million passengers (1008 cases) for 2009; 159/million (1130) for 2010 and 165/million (1141) for 2011, averaging 154/million per year. Cathay Pacific had figures of 163/million for 2005 and an Oceania airline documented 159/million for the period 1996-2004. Cardiovascular cases accounted for 1124 (34%) of cases, followed by 727 (22%) gastrointestinal, 302 (9%) musculo-skeletal, 223 (7%) respiratory, 202 (6%) central nervous system and 98 (3%) metabolic of the 3279 cases encountered on SAA flights 2009-2011.
SAA cabin crew handled 74% of incidents. Medical passenger volunteers assisted in 26% of cases in 2009 and 2010, and in 22% of cases in 2011.
One medical diversion occurs per 20 000 flights globally, with 40% being unjustified. SAA had one flight per 33 313 flights rerouted for the three year period. Five of the 3279 medical incidents on SAA flights for the three years led to diversions (0.15%); Cathay Pacific had 0.35% of events leading to diversions in 2005, with other airlines reporting figures of between 2.8% to 13%.
There were 3 deaths on SAA flights in 2009 (0.55/million passengers), 2 in 2010 (0.56/million) and one in 2011 (0.14/million). Cathay Pacific had figures of 0.24/million and 0.58/million for 2002 and 2005 respectively.
Conclusion: Medical emergencies are rare events and the vast majority are competently handled by cabin crews. SAA avails its medical kit to volunteer medical passengers who assist in a quarter of medical events.

BACK FC7.2

Incidence of Serious Altitude Sickness in Travelers who Consulted a Pre-travel Clinic

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Background: In a previous study was found that 25% of clients of a travel clinic, who climbed ≥ 2500m, suffered from acute mountain sickness. But it was unknown which part of them suffer from serious forms of altitude sickness. In the same study it appeared that not more than half of these travelers adhered to the received advice regarding altitude sickness. Following the results of this study the national guidelines regarding altitude advice in Belgium and The Netherlands were revised. For instance the advised preventive dosage was increased to 250 mg two times a day (or 7 mg/kg/day).
Objective: We intended to study the incidence of serious altitude sickness and its relation with the adherence to the current preventive and curative advice.
Method: Travelers who consulted a pre-travel clinic from November 2011 until December 2012 and who planned to stay at an altitude of 3000 meter or more were asked to keep a diary at altitude. Serious altitude sickness was defined as serious acute mountain sickness with a score ≥ 6 and/or high altitude cerebral edema according to the Lake Louis Consensus and/or threatening high altitude pulmonary edema. The latter was defined as the presence of dyspnoea at rest and cough or weakness.
Results: In the preliminary analysis of the first 101 diaries the incidence of serious acute mountain sickness with a score ≥ 6 was 19%, of high altitude cerebral edema 20% and of threatening high altitude pulmonary edema 5%. In total 31% of these travelers suffered from serious altitude sickness. The final analysis on incidence of serious altitude sickness and its relation with the adherence to our travel advice will be performed in April 2013 when the sample will have enough power.
Conclusion: Serious altitude sickness is a very common problem in travelers who consult a pre-travel clinic. Its relation with the adherence of pre-travel advice, including the use of acetazolamide, will be analyzed in April 2013.

BACK FC7.3

The Diagnosis of Juvenile Acute Mountain Sickness (AMS)

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Few surveys on Acute Mountain Sickness (AMS) in children have been conducted. This paper reports on a recent survey of AMS conducted in the field in August 2012 on 113 children who were attempting to climb to the summit of Mt. Fuji, 3,776.24 meters above sea level, The children, ranging in age from 5 to 12, had just completed a hiking trip on Mt. Fuji and were surveyed for symptoms of AMS using a Lake Louise Consensus Scoring System. The relationship between the children's sleeping points (altitude) before attempting to reach the summit and the incidence of AMS was also studied. From the test group of 113 children, 55 children (49%) surveyed tested positive for AMS. Relatively high percent of the investigated children who stayed at high altitude reported varying degrees of sleep disorder. Furthermore, the results of the survey indicated that the occurrence of AMS rates among the 113 children varied according to their sleeping points (altitude), peaking at 2,305m, 2,750m and 3,350m with an AMS rate of 9%, 25% and 56% respectively. From the survey we can conclude 1) there is a relationship between the relatively low percentage of children reaching the summit and incidence of AMS, and 2) the sleeping point (altitude) played a significant role in the incidence of AMS.

BACK FC7.4

The Role of Travelers from South East Asia on Dengue Activity in Singapore

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Background: Singapore, an island state in South East Asia with a population of about 5 million, is endemic for dengue. This country experienced a pronounced series of dengue outbreaks from 2002 to the present, the worst of which was in 2005 with more than 14,000 cases. Singapore receives about 10 million visitors per year, of which about 3 million come from South East Asia countries, a higlhy endemic dengue area. Despite good vector control in Singapore, dengue outbreaks are increasing in size and frequency. Climate change/global warming is often blamed for the rise in dengue activity. We investigated the association between the annual incidence of dengue in Singapore and weather factors as well as incoming travelers.
Method: We used a Poisson Regression Model that considered the annual number of dengue cases as dependent variable and premisses index, rainfall, mean, maximum and minimum temperature, and the number of visitors from Southeast Asia as independent variables. The univariate Poisson Regression Model (PRM) were based on the following model:
where, is the dependent variable, represents the range of the independent variables and and are estimated coefficients. The period of time analysed was from 1974 until 2011.
Results: The only variable significantly associated with the annual incidence of dengue was the number of visitors from South East Asia countries.
Conclusion: Climate change/weather does not play a significant role in Singapore, at least not in the last decade. The number of visitors from dengue endemic South East Asia countries is associated with dengue activity which suggest that at least a fraction of the incidence of dengue can be due to the continuous introduction of imported viruses strains from endemic countries.

BACK FC7.5

Analyzing GeoSentinel Surveillance Data: A Comparison of Methods to Explore Acute Gastrointestinal Illness among International Travelers

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Background: GeoSentinel is a provider-based network of travel medicine clinics that conducts global morbidity surveillance among ill international travelers. Because of the lack of a proper denominator, GeoSentinel analyses have relied on proportionate morbidity (PM) calculations, but PM cannot estimate disease risk and is prone to distortion by the numerator's influence on the denominator. Furthermore, the proportionate morbidity ratio (PMR) requires stringent assumptions to be an estimate of the risk ratio (RR). Using a case-control design to analyze GeoSentinel surveillance data and to calculate the reporting odds ratio (ROR) may have advantages over past approaches.
Objective: To compare case-control and PM analysis methods of GeoSentinel surveillance data.
Methods: A matched case-control design was used to calculate the ROR exploring associations between regions of travel and acute gastrointestinal illness (AGI) among international travelers who visited a GeoSentinel site during 1997 to 2011. To represent the base population's exposure distribution, controls were sampled from other ill persons who were in one of the following 3 syndrome groups: respiratory illness, febrile illness, and dermatologic conditions. Cases were matched to controls by GeoSentinel site and diagnosis date. The PM analysis used all GeoSentinel diagnoses in the denominator who met inclusion criteria.
Results: There were 9,847 AGI case-patients and 33,516 non-AGI patients. Our control definition resulted in 17,521 controls. Matching resulted in 8,486 pairs. All analyses found that the association with AGI diagnoses was greatest among those who traveled to middle-income regions (matched ROR=3.38 [2.94, 3.88], PMR =2.30 [2.10, 2.52]) compared with high-income regions. The association was highest among those who traveled to North Africa (matched ROR=7.89 [6.19, 10.06], PMR=3.23 [2.82, 3.69]) and South Central Asia (matched ROR=6.06 [4.95, 7.42], PMR=3.02 [2.66, 3.42]) compared with North America and Western Europe.
Conclusions: RORs from the matched case-control analyses were farther from the null than PMRs, suggesting the PMRs may underestimate the measure of association. Steps are needed to define the base population, with controls selected to best represent the exposure distribution in the base population. We conclude that matched case-control RORs offer advantages and may be preferred for single-disease analytical studies using GeoSentinel surveillance data.

BACK FC7.6

Pilot Randomised Controlled Trial to Testing Facemasks Effectiveness in Preventing Influenza-like Illness Transmission among Hajj Pilgrims

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Background: Trials using facemasks to prevent influenza have been inconclusive because of small sample sizes. The Hajj pilgrimage in Mecca provides an excellent opportunity to test the effectiveness of masks against laboratory-proven influenza and other viruses, where the incidence of these infections is high.
Objectives: To assess the effectiveness of face masks in the prevention of transmission of influenza-like illness (ILI) among Australian Hajj pilgrims a pilot trial was conducted at the Hajj 2011.
Methods: During the first day of Hajj (4 November 2011), tents were randomly assigned to 'mask' or 'control' (no mask). Pilgrims who developed symptoms of ILI for ≤3 days were recruited as 'index cases'; healthy pilgrims who slept closely to them were recruited as 'close contacts'. Simple surgical facemasks were provided to the index cases and their close contacts in the 'mask' tents, whereas no masks were provided to the 'control tents'. Pilgrims in both groups were provided diaries to record their respiratory symptoms. Nasal or pharyngeal swabs were collected from the index cases and close contacts who developed symptoms suggestive of ILI for point-of-care and molecular tests.
Results: Twenty two tents were randomized to 'mask' (n=12) or 'control' (n=10). A total of 164 pilgrims were recruited: 75 in 'mask' and 89 in 'control' group. In the 'mask' group 25 (33.3%) were males with the median age being 48 (range 19-80) years. In the 'control' tents 46 (51.7%) were males with the median age being 42 (range 17-72) years. Mask use compliance was 76% in the 'mask' group and 12.4% in the 'control' group. Based on ILI criteria, less number of contacts were symptomatic in the 'mask' tents compared to the 'control' tents (13.9% [5/36] versus 32.15% [17/53], p= 0.07). However, laboratory results show that only 4 contacts in 'mask' tents had proven viral infection (rhinovirus in 3, both influenza and rhinovirus in one) while only 2 contacts in 'control' tents had viral infection (rhinovirus in both).
Conclusion: Not surprisingly, the result of this pilot trial is inconclusive, but it shows that a large trial to assess the effectiveness of mask use at Hajj is feasible.

BACK ## Late Breaker Special Session: Updates on JE Vaccines and Ongoing Outbreak of Sarcocystosis

LBS1.4

A Family Cluster of Sarcocystosis in Travelers Returning from Tioman Island, Malaysia, Including a Histologically Proven Case with Results of Treatment

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Background: Sarcocystosis is mainly described in travelers returning from Tioman Island, Malaysia. However reports are scarce or poorly documented without clear proof of the diagnosis or idea about the response to treatment.
Objective: We describe a cluster of 3 travelers including a case proven by muscular biopsy and describe the response to various antiparasitic treatments.
Cases report: Two brothers, 1 sister-in-law and 2 sisters (23 to 37 years old) travelled for 3 weeks in Malaysia in June 2012. The journey on Tioman Island lasted 5 days in a beach hut in the village of Juara where they all ate the same food alternatively.
Four days after leaving Tioman, one sister presented aqueous diarrhoea, nausea and fever followed 2 days later by high fever, myalgias and asthenia. When she consulted one month later for persistence and worsening of symptoms, the eosinophil count was 0.7 10^9/L, whereas CPK and ASAT were normal. All the biological diagnosis tests were negative. The diagnosis of occult strongyloidiasis was raised and she received ivermectin (12 mg once) without effect. Nine days later, the eosinophil count rose to 1.35 G/L whereas muscular enzymes increased to 226 IU/L for CPK, 10.9 IU/L for aldolase and 46 IU/L for ASAT. A muscular biopsy showed myositis with focal myofiber necrosis, mild interstitial eosinophilic, lymphohistiocytic infiltrates and intramuscular *Sarcocystis* sp. cysts. Fever disappeared but myalgias, diarrhea and asthenia continued during more than 3 months, with eosinophil count, CPK and aldolase rising up to 1.574 G/L, 628 IU/L and 12.8 IU/L respectively. Meanwhile she received albendazole (800 mg/d, 1 week) followed by trimethoprim-sulfamethoxazole (400/80 mg twice a day, 1 week) without efficacy. A colonoscopy was normal. On day 150, all the symptoms had almost completely improved except mild myalgias and asthenia.
Her two brothers presented similar but milder symptoms lasting 3 months and 10 days respectively. The two other family members were not symptomatic.
Conclusion: This family cluster includes a biopsy-proven case. It shows the large clinical spectrum of sarcocystosis in humans. The incubation period varied from 4 to 30 days. None of the 3 antiparasitic treatments (ivermectin, albendazole and trimethoprim/sulfamethoxazole) was efficient. The patients recovered spontaneously.

BACK LBS1.5

Cluster of Acute Muscular S*arcocystis-like Infection in 12 Travelers Returning from Peninsular Malaysia, 2012, Bordeaux, France*

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Background: An outbreak of muscular *Sarcocystis*-like illness has been evidenced since summer 2011 among travelers after visiting Tioman Island, Malaysia. As of November 2012, GeoSentinel, working with TropNet, has been notified of 100 reported patients. A cluster of 12 patients returning since summer 2012 were seen in Bordeaux, France.
Objective: We describe the cluster of diseased travelers seen in Bordeaux, France and highlight the clinical insights and treatment issues of the disease.
Methods: Cases were defined as travelers returning from Malaysia with persisting myalgia, unexplained blood eosinophilia, elevated CPK levels and negative trichinellosis serology.
Results: In the period of September-October 2012, a cluster of 12 cases (7 male, 5 female; aged 11-46 years) were referred. All spent their vacation from 28 July to 25 August 2012 on the east coast of peninsular Malaysia and belonged to a tourist group from south western France. The group was composed of 4 families. Of note, the 3 members of one family declined the optional 4-day stay on Tioman Island and were instead moving on the neighbouring Perhentian place. Almost all patients presented high-grade fever, fatigue, headache, moderate-to-severe myalgia and arthralgia. Three cases experienced febrile illness for more than 14 days. Two patients had suffered from diarrhoea and maculopapular rash. A muscle biopsy from one patient revealed intense myositis, but no intramuscular cysts. Half of patients healed using usual antalgic treatments. Six patients were given empirically albendazole 400 mg b.i.d for 7 days and oral prednisone (0.5 mg/Kg/day) for 3 days tapered over 2 days. Six weeks later, four patients were still unrecovered. Prolonged manifestations were mainly asthenia and myalgia. The patients were effectively treated with additional prednisone 0.5 mg/Kg/day for 5 days and decreasing dosage over 14 days. All patients were reported to GeoSentinel and TropNet was informed.
Conclusion: The cluster of 12 diseased travelers living in south western France mainly contributed to the 65 patients returning from Malaysia who represent the second wave of an outbreak of acute muscular *Sarcocystis*-like illness. With little known about this disease, our experience suggests that late manifestations may occur and short term corticosteroid course could benefit symptomatic patients.

BACK Debate

Clots or Shots: Heparin for Travelers, Pro and Con

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Venous thromboembolism (VTE) is a serious, potentially lethal complication of long-haul flights. A direct relation between VTE incidence and long-distance flights was documented in multiple epidemiological studies. The risk for asymptomatic deep vein thrombosis (DVT) is 3-12%, while symptomatic VTE occurs in 0.2% of adults over 50 years of age, following a long-haul flight (≥ 12 hours). Considering the number of travelers, millions of passengers are exposed annually to the risk of VTE development.
The pathophysiologic changes increasing VTE risk at flight are: stasis (sitting in crowded condition), hypoxia and dehydration in the airplane cabin. Individual risk factors for air travel related VTE include: age over 40, female gender, hormonal therapy, varicose veins, obesity and genetic thrombophilia. Risk assessment is based on the combination of individual risk factors and the length and frequency of long-haul travel.
Preventive measures against VTE during flights are:
1. **Environmental protection** - keeping the inside cabin air pressure at minimal hypobaric conditions; avoiding dehydration by supplying adequate humidity via the air conditioning units and encouraging passengers to drink water or light non-alcoholic drinks; improving sitting position and space between rows, so that leg stretching, movements and easy walking in the aisles are possible. Likewise, oxygen support may be useful in patients with chronic lung disease or heart failure.
2. **Venous stasis prevention** - wearing graduated elastic stockings, which have been demonstrated to reduce VTE incidence by almost 90% in standard risk patients.
3. **Thromboprophylaxis** - based on the efficacy of anti-thrombotic prophylaxis, documented in medical patients, it is likely that such interventions would be beneficial in long-haul adult travelers. However, data on pharmacological prophylaxis in this setting are scanty. Anti-aggregating agents [aspirin, clopidogrel) have not been proven to reduce VTE incidence in high-risk patients. Enoxaparin, an LMWH, at a dose of 1 mg/kg 2-4 hours prior to long haul flights significantly decreased VTE incidence.
Conclusion: As air travel is becoming more accessible and flight duration is increasing, the burden of air travel-induced risk of VTE is expected to increase, Prospective randomized studies on thromboprophylaxis are highly warranted to optimize management of the population at risk.

BACK LB1.2

Arboviruses in Europe, an Increasing Threat

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Background: Globally the number of travelers has risen from 450 million in 1990 to nearly 950 million in 2010. 90% of Dutch travelers remain within Europe for vacation and work; 5-10% of travelers report to a medical caretaker after travel. Consequently, doctors are increasingly confronted with travel-related diseases, stressing the need for awareness within the medical profession and general population.
Objective: The magnitude of travel within Europe and beyond and the constantly changing dynamics of arbovirus diseases across the globe demands up-to-date information about arbovirus threats to travelers and the countries they visit.
Method: Establishing a solid differential diagnosis involves not only the evolution of the patient's symptoms, travel history, specific background information on possible exposures and test results, but also the latest information on current medical (arboviral) threats. We systematically reviewed current knowledge on medically important travel-related arboviruses in Europe, and ranked the arboviruses by geographic region, clinical syndrome, and probability of occurrence.
Results: The majority of clinically important arboviruses belong to the *Flaviviridae*, *Bunyaviridae* or *Togaviridae* families. In Northern and Eastern Europe, tick-borne encephalitis is one of the most important endemic arboviruses, but West Nile virus and Sandfly fever viruses may produce comparable clinical symptoms. For Southern and Eastern Europe, Sandfly fevers (including Toscana fever) are the most commonly diagnosed arboviruses that cause febrile disease and meningitis/encephalitis, but West Nile is being detected in an expanding geographic area. Febrile disease, arthritis and rash may be caused by a range of arboviruses, including Sindbis in Northern and Eastern Europe, Tahyna and - rarely - Chikungunya and Dengue in Southern Europe. Additionally, outside of Europe there are a large variety of clinically important arboviruses that overlap in geographical region as well as primary clinical syndrome with European arboviruses.
Conclusion: Diagnosing endemic or travel-associated arboviral disease requires knowledge about geographic distribution, travel- and exposure history. Differential diagnosis requires testing for multiple arboviruses as clinical syndromes and geographic distributions are largely overlapping.

BACK MTH1

From House of God to Academic Hospital: History of Medicine in Maastricht

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The history tells about pilgrims, garrisons, public anatomy lessons, nuns and monks, the first X-rays in the Netherlands, brave surgeons, and the ideas underpinning the eighth Dutch faculty of medicine in the Netherlands. The history is also the story of saints and the statutes of the Sint-Servaas hospice, the oldest hospice in the Netherlands dating back as far as the tenth century. For centuries travel has been an important driving force for the history of medicine in Maastricht.

BACK MTH2

Malaria in Belgium, the Netherlands and Elsewhere in Europe: A Forgotten History!

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Malaria had a long history in southern Europe and the occurrence of thalassaemia and G-6-PD deficiency in people of Mediterranean origin is a scar of high burden rate in the past. However, northern European countries were not spared of the disease particularly during the Little Ice Age (16th to 18th centuries). Increased land exploitation around brackish water swamps (polders) was responsible for this malaria upsurge. Moreover micro-environments, such as overcrowded poor housing habitats close to animal sheds, were in favor of the parasite development in the vector and this even during the winter months. Burial rates (1551-1750) reported by parishes in Kent and Essex were two to three times higher in villages surrounded by brackish water, the breeding site of Anopheles atroparvus, vector of Plasmodium vivax. Descriptions of the marsh inhabitants resemble those of stable malaria area populations in the tropics today. Between 1846 and 1847 crude mortality in Belgium was the highest in East and West Flanders' Polder areas. In the Flanders malaria started to decrease in the second half of the 19 century as consequence of swamp draining (sanitation) and new agriculture practices. Malaria became than epidemic, instead of endemic, after coming generations fail to develop immunity. In The Netherlands, the last indigenous case of malaria was observed in 1961 and the country was officially declared free of malaria in 1970! In Finland, malaria strongly declined in the 30ties but a brief recrudescence of malaria was observed in 1941 among soldiers and transmission occurred indoors during the winter period. Environmental changes (i.e. drainage, new agronomic practices), improved housing conditions, separate cattle sheds, urbanization and improved medical care eliminate malaria in Europe in the late 1950s. Nowadays malaria vectors are still present and autochthonous malaria transmission can not be excluded. An. atroparvus is nowadays not common and generally not in close contact with humans. Moreover this vector can only transmit Plasmodium vivax. However An. plumbeus, a potential vector of P. falciparum, is nowadays very abundant in tire stocks and abandoned piggeries and can be a real risk for autochthonous malaria transmission in specific settings. Under current economic circumstances it is unlikely that endemic malaria will be reintroduced in Europe.

BACK PL2.1

Malaria Maps: Relevance for Travel Recommendations

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Background: Almost a billion international journeys were made globally in 2012. Approximately 20% of these were to the 87 countries where malaria transmission occurs. Current travel recommendations, such as the use of malaria chemoprophylaxis, are based on maps developed from national surveillance reports of varying quality and for most countries contain assessments of endemicity at national or regional level. High-resolution empirical global maps of malaria have, however, recently become available. The resolution of maps that describe the seasonality of malaria transmission is also improving.
Objectives: Here we explore the potential and limitations of using these maps in formulating travel recommendations to malaria endemic countries.
Methods: The main malaria maps currently used to provide travel recommendations are reviewed. Recently developed, and more accurate, high-resolution empirical malaria endemicity and seasonality maps are assembled. Travel recommendation scenarios based on these empirical maps are compared to those that rely on main map applications presently is use. The potential and limitations of the empirical high-resolution malaria endemicity and seasonality maps are explored.
Summary of results: The analysis shows that, based on various thresholds of endemicity, the empirical high-resolution maps define fewer areas in malaria endemic countries as having no or very low malaria risk compared to main maps currently used for travel recommendations. For such areas malaria chemoprophylaxis during travel is not recommended.
Conclusion: The high-resolution empirical maps enhance our understanding of micro-level variations in transmission and have the potential to improve current malaria travel recommendations. However, they require careful interpretation, especially in areas where reductions of malaria transmission has been achieved due to recent extensive malaria control and which, if interrupted, may suffer resurgence of transmission.

BACK PL3.1

Animals as Origins for Human Disease in a Rapidly Changing World

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Our ancestors originally were hunters and gatherers but this lifestyle changed about 13 000 years ago with a transition to farming. As a result, contacts between animals and men became more intense and the population density increased. This domestication is generally considered as an accelerating factor in the transmission of microorganisms from animals to men. Phylogenetic studies using molecular clock analysis have not always confirmed this theory. A molecular study showed that measles virus diverted from rinderpestvirus - a pathogen of cattle - about 1000 years ago which corresponds well with the first clinical description of measles in the 9th century. And genetic studies indicate that Bordetella pertussis which is closely related to B. bronchoseptica - a pathogen of dogs, cats and pigs - was transmitted from animals to men several hundred thousand years ago. Apparently, the emergence of zoonotic infections is more complex and influenced by many different factors.
In the past decades hundreds of zoonotic infections emerged and there is good evidence that these events increase in recent times. Socio-economic, environmental and ecological changes appear to drive this acceleration. There is also evidence that reduced biodiversity may increase pathogen transmission as has been shown for Hanta virus and Lyme disease in the US. The emergence of Ebola virus and other hemorrhagic fevers in the seventies of 20th century sparked a discussion on the role of travelers in the importation and spread of these infections with high mortality in industrialized countries but this fear appeared to be unfounded. On the other hand travel and migration did play an important role in the spread of HIV throughout the world and more recently with SARS .
Most of emerging zoonotic infections came as a surprise and were not predicted. HIV/AIDS which originated from chimpanzees in the beginning of the 20th century in central Africa and spread silently for many decades before it was recognized as a clinical entity is a well-known example. Early detection of emerging (zoonotic) infections is crucial for control and necessitates worldwide surveillance and open reporting. Such surveillance should be done worldwide but concentrate on hotspots for emerging infections originating from wildlife and intensive livestock farming.

BACK PL3.2

Travelers and Zoonoses: What Does One Health Have to Do With It?

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Travelers represent an at risk group for zoonotic disease. Such zoonotic infections can lead to both acute and chronic illnesses, and for some agents there is potential for a traveler to spread a disease to others.

The One Health Concept stresses the interdependence of humans, animals, and environments.
Travelers experience the nexus of these spheres:
Co-dependence on water
Vectors
Changes in agriculture,
Since animals travel too, we can learn from how they control disease.
Likewise, vets can learn from travel medicine docs
In addition, animals that travel may serve as "sentinels" for risks in the environment, such as leishmaniasis.

Bacterial zoonoses of concern include leptospirosis and rickettsial diseases especially R, africae. Less common rickettsioses include Q fever and murine and scrub typhus. Other bacterial zoonoses to consider in a febrile traveler include brucellosis.

Viral zoonoses of concern include rabies and animal influenza, as well as herpes B and simian viruses after contact with non-human primates.

Zoonotic parasitic disease of travelers include Giardia and cutaneous larva migrans

Risk factors for zoonoses in travelers include:
1) Exposures:
Travel to farms- agro tourism
Live animal markets
Stray dogs
Temple monkeys
Bites: ticks and others
Fresh water
Walking barefoot on beaches

2) Vulnerabilities:
Immune compromise
Children
Ignorance about animals

The Pre- travel consultation should include preventive education about zoonoses. Finding good information about zoonotic risks in a particular area may be difficult. Travelers with immune compromise may require extra counseling.

The evaluation of a returning traveler with fever or diarrhea should include a good history of zoonotic exposures.

BACK

PL3.3

One Health in Traveling: Disease Concerns from the Four-legged or Winged Perspective

C. Brown[1]
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One Health involves working to ensure the well-being of humans, animals and the environment. Travelers are often advised of One Health regarding the potential dangers they could be exposed to that would harm the health of themselves or their communities. But what about the other two parts of the One Health equation? In recent years, human travelers have moved diseases around the world to negatively impact animals and the environment. Chytridiomycosis, a fungal disease affecting the skin of frogs, has been taken to many new locations, probably on the gumboots of dedicated adventurers and ecotourists. The result has been drastically dwindling frog populations, and outright extinction of at least a dozen different species of frogs. White nose syndrome of bats is decimating bats in North America, and the disease came from Europe, carried on a spelunker's clothing or equipment. And for primate populations, ecotourists and other well-meaning humans have been responsible for numerous anthroponotic disease agent events, including respiratory syncytial virus, metapneumovirus, Giardia, and measles, which have caused serious illness and death in monkeys and apes. And what about animals themselves moving around the world to bring disease to their conspecific partners in other lands? For our domestic species, both food and companion animals, there are multiple rules and regulations followed to help prevent introduction of disease to a new country or continent. But occasionally a disease will slip through anyway. Pets traveling to the Mediterranean have been known to return with an undiagnosed Leishmania infection, endangering both animal and human health back home. A new strain or emerging disease may not be recognized prior to exportation of an affected animal. Bovine spongiform encephalopathy is a case in point, which was globally disseminated before recognition of the disease occurred. As for imported wildlife, the control often rests with multiple national and international agencies making effective screening complicated. As a result agents can slip undetected into a new area, maybe even a new species, and possibly even create a zoonotic problem. Monkeypox from prairie dogs which got the virus from Gambian giant rats has demonstrated this concept well.

BACK PL4.1

Non-communicable Health Risks during Mass Gatherings

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Mass gatherings (MG) are events attended by at least 1,000, usually over 25,000 people in a specific location for a variety of purposes. Among the largest were the Kumbh Mela 2013 in Allahabad for 55 days with 120 million of devotees, the World Expo 2010 in Shanghai, which welcomed 73 million visitors in 6 months, while up to 3 million pilgrims join the annual Hajj to Mecca. Unplanned MG, e.g. funerals or political rallies are of concern, as the infrastructure is ill prepared for millions who gather.
Usually there are no major public health incidents at MG, but there is a higher incidence of injury and illness as compared to the general population. During the last Olympic Games and the European Football Champions League UEFA 2012 medical interventions were required by 0.1% of visitors. Non-communicable health problems accounted for 70 to 99% of those consultations. Among the non-communicable health problems accidents tend to be more frequent than illnesses. Since no standard definitions have been used in the past, comparison is often difficult. Although the vast majority of these problems are trivial, the sheer numbers result in stress for the health facilities.
The identified risk factors for visitors can be divided into
- Personal: Age, gender; particularly pregnancy, pre-existing diseases
- Emotional / psychological: Type of event, duration, supply with alcohol, drugs; aggressions may develop
- Environmental: Temperature, air pollution; infrastructure

The most frequent disasters at MG are stampedes; they are often associated with excessive crowd density at an ‘eye of the needle’, but sudden panic may also result in such tragedies.
The conceptual MG model developed by the WHO bases on health security and health promotion; there should not only be a legacy for the event, but also one for the host population. Planning includes risk analysis, surveillance, and response. Risk factor calculation allows the calculation of a score to conclude on the health infrastructure needed at a specific site. There are many unusual challenges in the health sector to be prepared for — an interdisciplinary approach is essential. International visitors need to be informed about ‘clever behavior’ at MG.

BACK SY1.1

Jet Lag: Chronobiology, Travel, and Treatment - Part I. The Circadian Clock

I. Zhdanova[1]
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This is the first presentation in a symposium on the chronobiology of jet lag and will provide basic understanding of the biological clock system and its functions. The audience will learn about the principal components of the intrinsic circadian clock, their sophisticated interactions within the organism and entrainment to periodically changing environment. We will discuss the role of the light-entrainable and food-entrainable clock counterparts in normal physiology and impact that alterations in these oscillators have on sleep, cognitive, immune and metabolic processes. To allow for better understanding of the other two lectures of the symposium, addressing therapeutic interventions attenuating the effects of jet lag, the role of the circadian phase at which a therapeutic stimulus is administered will be detailed. This phenomenon, known as “phase-response curve”, is critical to jet lag therapy, especially when several concurrent therapeutic strategies are used, including behavioral, light and pharmacological interventions.

BACK SY1.2

Jet Lag: Chronobiology, Travel, and Treatment - Part II. Behavioural Interventions

J.M. Waterhouse[1]
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This is the second presentation in the symposium and will address the use of behavioural methods to counteract the symptoms of jet lag and accelerate resetting of the biological clock.
All long journeys produce “travel fatigue”. This is due to changes in routine, the hassles of travel and dehydration. Appropriate planning of the journey, together with drinking sufficient fluid, can alleviate the problems. Travel fatigue is substantially over by the following day.
By contrast, jet lag is longer lasting and ways to reduce it have been sought. Three main behavioural approaches have been: altering the composition of meals; taking exercise at specific times of the day; and light exposure/avoidance at specific times of the day. None of these has been fully tested in the field; most studies have employed a mixture of interventions (so making scientific assessment of an individual intervention impossible). Therefore, advice must be based upon laboratory-based studies of a single intervention.
Light exposure/avoidance has a firm scientific rationale. The intensity and timing of light exposure after arrival at a new destination is presumed to be critical in determining the speed and direction of re-entrainment. Unplanned exposure to natural daylight in the new location generally facilitates circadian adaptation to local time after flights to the west. A motivated traveller can accelerate re-entrainment after both westward and eastward flights by intentionally seeking out (and/or avoiding) bright light at the optimal times of the day but the regimen can be inconvenient to implement - both with regard to finding bright light (at night or when the person needs to be indoors) and being able to avoid it (in the daytime or when the person needs to be outdoors).

BACK SY1.3

Jet Lag: Chronobiology, Travel, and Treatment - Part III. Pharmacological Interventions

R.L. Sack[1]
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This is the third presentation in a symposium that will address the use of hypnotic medications (sleeping pills) to counteract jet lag induced insomnia, as well as melatonin administration to accelerate resetting of the biological clock. Hypnotics can be justified for jet lag related insomnia as the condition is transient, efficacy has been demonstrated in double-blind trials, and the newer hypnotic drugs are relatively safe (although some important cautions need to be taken into account). Guidelines for the appropriate prescription of hypnotic medications will be discussed.
Melatonin is a hormone secreted nightly by the pineal gland. Melatonin tablets are widely available in the U.S. as “nutritional supplements,” and available in many other countries by prescription. Although melatonin has not undergone the rigorous testing required for FDA approval as a drug, it has been proven to have biological clock-resetting effects in humans, and has been shown in some double-blind trials to ameliorate symptoms of jet lag. Because melatonin can have an opposite effect if taken at the “wrong” time of the 24-cycle, the timing of administration is very important.
The presentation will conclude with examples of treatment strategies that take into account the direction, distance, and timing of travel.

BACK

SY3.3

Helping the Professional Communicate Risk

J. Chiodini[1]
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'Gut feelings about risk work most of the time, but individuals sometimes need to weigh things up carefully and it is hoped that policy-makers do this for populations' (Spiegelhalter 2011). The positive impact of an effective consultation and its outcomes, plus the components of effective communication are well documented. However, in the field of travel medicine, guidelines available can at times be inconsistent. Although evidence is increasing on the knowledge of travel related risks and adherence to preventative strategies (Nobel et al 2012), there is a paucity of information and research about means of communicating risk and methods that are the most effective. This presentation will address the barriers to effective communication within a travel health consultation, consider styles and techniques from the effective communication skills literature that may be adapted to the field of travel medicine and demonstrate some methods the author personally uses within her own travel medicine practice.

BACK SY5.1

Pre-travel Vaccination against Rabies Who Should Be Vaccinated? - Difficult Vaccine Decisions

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Rabies vaccine is an excellent vaccine, but paradoxically, few travelers are vaccinated before travel although exposure to potentially rabid animal in frequent during travel. On the basis of global data, the incidence of injuries to travelers caused by potentially rabid animals is approximately 0.4% per month of stay which is more than the estimated risk for hepatitis A and typhoid fever. The main reason provided by travelers for not getting vaccinated is the high coast of vaccination.
Intra-dermal (ID) route is safe, immunogenic and economical and has been used in Asia among local population for decades and more recently among travelers in clinics in Australia, New Zealand and Europe. It is urgently needed that large scale trials in travelers, be conducted. Pharmaceutical industries should make available ampoules of 0.1 mL for direct ID injection, with special ID needles.
Several studies have been conducted during the last decade to investigate the efficacy of abbreviated schedules, including 3 in the setting of travel clinics. Adequate response to booster administered 6 to 12 years after pre-exposure prophylaxis was demonstrated both IM and ID, even after a single dose. Abbreviated schedules allows fewer clinical visits, lower dose and therefore lower cost and could be useful for last-minute travelers.
Immunologic memory is long-lasting after the full primary series of the modern tissue culture vaccines. Therefore, especially for those travelers who are going to be making repeated trips to rabies endemic regions, giving a primary series at an early age could be considered a good investment for future travel.

BACK SY6.2

Immunosuppressed Travellers: Safe Preparation

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Background: Over the past decade, remarkable drug developments have lead to the availability of highly effective therapies for prevention of rejection following organ transplantation and for the treatment of chronic inflammatory disorders and autoimmune diseases. As international travel becomes more commonplace, patients being treated with these medications will be more regularly seeking evaluation for pre-travel care by travel medicine providers. These immunosuppressed travelers are potentially at higher risk for complications of travel-related infections, reduced efficacy of immunization, and for vaccine-related complications.
Summary of the presentation: We will review the current knowledge of basic immunology in relation to immunosuppressive drugs, both traditional medications used in organ transplantation and immune-mediated disease and monoclonal antibodies used for treating chronic inflammatory conditions. Then, we will focus this knowledge on how vaccine response may be altered by different diseases and therapies. These scientific findings will ultimately be incorporated into case presentations that include discussion of vaccine safety, vaccine efficacy, and the risk for infection. The symposium will focus on available studies with the aim to provide, when it is possible, recommendations for travel vaccinations in this growing group of patients.

BACK

SY7.2

Diarrhea in Child Travelers

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Diarrhea is a major cause of morbidity and the second most common cause of childhood deaths worldwide. Travelers' diarrhea is considered the most common condition affecting individuals from industrialized countries traveling to developing countries. Among children < 2 years old traveling to the tropics, the 14 days incidence rate of diarrhea reaches 40% and among children traveling to India and North Africa 14 days incidence rates exceed 60%. Geosentinel data showed that compared with adult travelers, children suffering from travel related illness lack pre travel health advice, more often travel for the purpose of visiting friends and relatives and more frequently require hospitalization.

Contrary to adult travelers in whom acute diarrhea is a relatively mild self-limited condition, infants and young children suffering from acute diarrhea may be at risk for severe disease. In young children diarrhea rapidly causes dehydration and in remote destinations with limited healthcare resources complicated disease may not be uncommon.

Despite the high incidence of travelers' diarrhea among children traveling to developing countries there is little data regarding the etiology and epidemiology of pediatric travelers' diarrhea. Most recommendations for prevention and treatment of pediatric travelers' diarrhea are based on expert opinion and evidence derived from adult travelers' diarrhea studies.

Discussion will focus on current evidence regarding the epidemiology, prevention and treatment of pediatric travelers' diarrhea. Highlighted issues include: population at risk, the role of viral gastroenteritis, prevention of diarrhea in pediatric travelers, antibiotic treatment and possible risks associated with empiric treatment. Possible areas for future research will be mentioned.

BACK SY7.3

Use of Newer Vaccines in Children

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Background: With an increasing number of children traveling internationally the administration of travel-related vaccines are frequently considered. Beside geographic and seasonal criteria, clinical questions of safety and efficacy arise when vaccinating young travelers.
Methods: The specific controversies related to providing hepatitis A, meningococcal, typhoid fever, Japanese Encephalitis, and yellow fever vaccine to traveling children are being reviewed.
Summary of the results: Hepatitis A vaccine is considered useful to avoid the disease in both the vaccinee and contacts. In addition to routine immunization with hepatitis A vaccine at age 1 year in many countries, hepatitis A vaccine is recommended to children traveling to countries with lesser hygiene standards. Use of hepatitis A vaccine in children < 1 year old is commonly discouraged because its efficacy may be compromised in the presence of maternal anti-hepatitis A antibodies. Several quadrivalent, bivalent and monovalent meningococcal conjugate vaccines for most disease-relevant serogroups except serogroup B are available in various countries. The ultimate goal is to develop a vaccine to protect infants that carry the greatest burden of meningococcal disease. In addition to the live attenuated oral Ty21a vaccine (as capsules for children >6 years, or as lyophilized preparation for children >3 years), the injectable killed Vi polysaccharide vaccine is poorly immunogenic in children < 2 years old. The development of a conjugated Vi antigen vaccine promising improved immunogenicity to infants is ongoing. Japanese encephalitis vaccination may be considered in children with plans for long-term travel in endemic Asian countries. A new inactivated vero-cell based vaccine (IC-51) with good efficacy and safety data is undergoing evaluation to be licensed for use in children. The live attenuated yellow fever vaccine (17D) is an important vaccine for children traveling to tropical Africa and South America. With the vaccine-associated encephalitis syndrome predominantly described in young infants, this vaccine is contra-indicated in infants < 6 months old, and may be given to infants 6-9 months old only after a thorough risk-benefit assessment.
Conclusions: Questions of both safety and efficacy need to be considered when providing young children with travel vaccines.

BACK SY9.2

Virtual Tools in Travel Medicine

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Background: International travel has steadily trended upward, with over one billion international arrivals recorded in 2012 [1]. Research has found that more than half of international travelers will experience some illness or injury during travel [2]. Virtual tools in travel medicine may assist in the prevention or monitoring of illness during travel. Further, they may assist clinicians in supporting patients during travel.
Social Media in the Practice of Travel Medicine: Presentation about the history, popularity and use of some popular social media platforms; Twitter, Facebook, Linkedin, Tumblr, Wordpress, Youtube, SurveyMonkey, ProProfs, Odesk, Bitly, etc. - as relevant to a travel medicine clinic setting. Examples will be given of their successes and failures. Also a brief overview of the logistics of app development for a travel medicine clinic.
Development of In-Travel Surveillance Methods: Past and present studies monitoring traveler morbidity were reviewed, including provider-, hotel-, and clinic-based data collection. In addition, current travel health smart phone and tablet applications were examined. Survey tools and smart phone/tablet applications are being developed that address a number of travel-related illnesses. New approaches for epidemiologically assessing conditions and behaviors of travelers during their trips may include such applications. However, there may be challenges in data collection, privacy, and traveler use of these tools.
Support for Travelers Abroad by the Travel Clinic: Healthcare providers are currently challenged with finding efficient and effective ways of providing care to individuals traveling overseas. The advantages and disadvantages of email, telephone, and web-based support for acute and chronic medical problems for travelers was examined. In addition, methods for delivering ongoing health messages for the traveler and the development of online personal health spaces to support resilience during overseas travel and postings were explored.

References

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BACK SY10.3

Who Is Giving Travel Advice? An International, Multi-professional Perspective

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Background: The provision of travel health advice and vaccination is an area of health care that has grown and developed internationally over the past two decades. Travellers are now actively encouraged to consult with a health care provider prior to their departure to an international destination. While standards, recommendations and guidelines have been developed to facilitate the provision of travel health care, the responsibility for giving basic care and advice to the traveller varies from country to country.
Objectives: To discuss international variations in the provision of travel health care services and to discuss the different contributions physicians, nurses and pharmacists make to this field of health care
Methods: This session has been designed to illustrate international variations and to discuss why they may occur. Three short presentations will be made to summarise the findings of the authors in response to a questionnaire that was sent to representatives from several countries, examining the roles taken by pharmacists, nurses and physicians. These presentations will be followed by an open debate and discussion designed to share information, views and concerns.
Results: to be presented
Conclusions: to be presented
Discussion:
· Do your travellers have a choice of travel health care providers?
· Why is the majority of travel health care in the UK provided by nurses?
· Are pharmacists more accessible to travellers seeking advice?
· Do economics play a part in the decision to provide vaccines and advice?
Please join us to share your thoughts, views and information.

BACK

SY11.1

Mental Health in Expatriates

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Expatriates are a heterogeneous group with diverse health risks. Nonetheless they face some common issues and are known to be at risk for mental health problems. Internalizing problems (depression, anxiety, sleep issues, PTSD, suicide), externalizing problems (conduct disorders, impulsivity, gambling, promiscuity) and substance abuse are all more common among expatriates. Issues around “expat failure”, culture shock, reverse culture shock and third culture kids will be explored. Practical suggestions for prevention and management of expatriate mental health problems include pre-travel assessment, pre-travel preparation, ensuring adequate access to resources while overseas, and post-travel assessment and debriefing.

BACK SY11.2

Preparing Expatriates for Health Problems Abroad

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Background: An estimated 50 million individuals reside abroad for work, volunteer or other reasons, usually long-term (defined as over 6 months). Expatriates may become acutely ill during their stay abroad with implications for those with co-morbidities and vulnerable populations including pregnant women and young children, especiallyin settings with suboptimal access to medical care. Expatriates who become ill after returning to their home countries may encounter clinicians less familiar with the management of conditions acquired during residence abroad, due to epidemiologic differences. It is therefore important for travel medicine practitioners to gain experience with common health problems expatriates will be exposed to, in order to better prepare them before travel, and to adequately manage them after return from travel.
Objective: We will review the most common health problems expatriates may be exposed to during or after their residence abroad, and how these may vary by the type of expatriate. We will also review specific interventions to minimize the risk or mitigate the impact of these health problems acquired abroad.
Method: Findings from the medical literature of the past 10 years will be covered to provide a sound evidence base for the advice presented, in addition to expert reviews & guidelines.
Discussion: We will discuss clinical problems by destination (Africa, Asia-Pacific, Latin America, others), and type of expatriate (business expatriates versus volunteers or missionaries or diplomats versus others), which are the predominant determinants of exposure. We will also cover pre-travel consultation to prepare expatriates before travel for issues ranging from malaria to recommended vaccines, with practical advice for common and challenging clinical scenarios.

BACK SY11.3

The Family Cycle Abroad

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Background: Expatriates often travel after developing long term partnerships, are planning pregnancy, or already have young children.
Long term partnerships: Both partners may not have a defined role at appointment although agencies now often recognise the importance of this. Low overlap relationships become high overlap relationships, increasing the area in which conflict can occur, and where work roles intermingle, role conflict may add to relationship stress.
Pregnancy: Planning is essential. All couples anticipating pregnancy whilst abroad should know their blood groups, be aware of whether anti-D will be required, take advice about which anti-malarial prophylactics carry the least risk and be appropriately immunized. Their choice of place of residence should take account of the location and quality of obstetric services. Couples should carefully consider the risks of local birth versus return to home country.
Children abroad: Developing countries are often excellent places in which to bring up young families, exposing their children to a wide range of cultural and geographical stimulus. Young children however are particularly at risk of rapid development of acute illness after the onset of malaria, and gastro-enteritis and are as prone to serious injury as a result of motor vehicle accidents as adults. Protection against sunburn can be achieved with potent sunscreen. Young mobile children are at risk of infections from pet animals and should be rabies protected. As children move into teenage, risk taking behaviour sometimes becomes an issue and this includes substance misuse, and the risk of exposure to blood borne viruses associated with sex and body piercing.
Education: Many expatriate parents decide on location of residence having already made decisions about the availability of schooling. Those particularly committed to rural locations may face role conflict as they become teachers for home schooled children or face painful decisions about boarding school. Strategic survival personalities have been described in some boarding school students.
Final return: Most children reared in a different cultural environment being third culture kids (TCKs) a privilege, but return may be a painful experience as they integrate into the alien culture of their parents. TCKs can be prepared for return and supported by TCK peers and understanding adults during adaptation into the parental culture.

BACK SY12.1

Interferon-Gamma Release Assays for Latent Tuberculosis Infection in Travelers and Migrants

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Background: Interferon-gamma release assays (IGRAs) are increasingly used to diagnose latent tuberculosis (TB) infection, as an alternative or supplement to the tuberculin skin test (TST).
Objectives:
1) To review the potential advantages and disadvantages of IGRAs for the diagnosis of latent TB infection, and those of the TST;
2) To review indications for testing for latent TB infection in travelers and migrants;
3) To discuss the potential application of IGRAs in this context.
Method: Review of primary literature and guidelines addressing these topics.
Results: As compared with the TST, IGRAs appear to have enhanced specificity for the diagnosis of latent TB infection when used once. This is particularly relevant in individuals with a high probability of sensitization to mycobacteria other than *Mycobacterium tuberculosis*, or to the bacille Calmette-Guérin vaccine. Positive IGRA results also correlate with risk of subsequent TB disease in contacts of contagious cases. However, the IGRAs have demonstrated substantial test-retest variability, and unexpectedly high rates of apparent “conversions” on serial testing of low-risk health care workers. These findings raise concern about the suitability of IGRAs for serial testing of travelers. In addition, before recommending any test for latent TB infection, travel health providers must carefully consider the risks of baseline and newly acquired infection, according to country of origin, travel destination, length and type of trip (e.g. health care work). For migrants, testing for latent TB infection should be part of a coherent TB control program with appropriate priorities.
Conclusions: For travelers for whom testing is indicated, providers may consider a single post-travel test (e.g. an IGRA) if the baseline risk of infection is low, and/or if the distinction between baseline and newly acquired infection is not important for treatment decisions. Conversely, providers may recommend testing before and after travel, in situations where the distinction between baseline and new infection is important, or where repeated future testing is anticipated (e.g. health care workers). For serial testing, the TST may be preferable. Finally, when a single test is used to identify migrants with latent TB infection, IGRAs may be preferred when there is concern about the potential for false-positive TSTs.

BACK SY12.3

Pitfalls and Practice of Rapid Diagnostic Tests in Travelers

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In returning travelers, several infectious diseases need to be timely diagnosed to prevent serious morbidity and mortality. Conventional microbiology and classic serological testing often provide etiological results within days or weeks, and empirical treatment has to be initiated meanwhile. This strategy requires comprehensive epidemiological information, good clinical skills, adequate laboratory facilities and leads unavoidably to missed diagnosis on one hand and unnecessary prescription on the other hand. In the past decade major efforts have been undertaken by the scientific community and the industry to bring diagnostics closer to the care provider and to the patient. The concept of point-of-care (POC) testing has emerged, referring to any diagnostic technique providing results “during the same clinical encounter” to allow immediate decision-making. POC testing may therefore comprise diverse technologies, but for the time being refers mostly to lateral-flow immunochromatographic assays in tropical medicine. Indeed, the so-called “rapid diagnostic tests” (RDTs) should fulfil the stringent “ASSURED” criteria (affordable, sensitive, specific, user-friendly, rapid and robust, equipment-free and delivered) in order to be deployed in low-resource tropical settings. In the past decade, RDTs have been developed for major conditions such as HIV and malaria and have greatly simplified patient care in remote settings. In parallel, other RDTs have emerged for general and emergency practice in high resource settings as well, and new RDTs are continuously evaluated or entering clinical care for various cosmopolitan and tropical infections such as influenza, syphilis or dengue to name a few.
This lecture aims at reviewing the recent advances of RDTs which may be useful for travel practitioners and travelers (for screening, referral, targeted therapy or treatment withholding). Beyond the undeniable progresses, many pitfalls and challenges persist in terms of pathogen detection, clinical use and operational implementation. For travel physicians, it will be important to continuously integrate new RDTs in well-validated diagnosis-treatment pathways. For travelers, major educative efforts will be required to avoid oversimplification and misinterpretation of RDT results for self or peer diagnosis. It is however expected that the pertinent use of relevant quality RDTs should help improving clinical care for the whole travel community in the next future.

BACK SY13.1

Polypharmacy and Travel Medications

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Background: Most of the leading causes of death in older adults are due to chronic conditions, such as diabetes, cardiovascular disease, and cancer. Over 50% of older adults have three or more chronic diseases (e.g. multi-morbidity). In the context of travel, those with advancing age will experience greater risks based on their underlying chronic conditions.
As a result of the increased use of medications in the older population for disease prevention and management, drug-related problems, such as adverse drug events, have become more prevalent. Inappropriate medication use and polypharmacy are particularly problematic in older persons, and pose challenges in preparing older travelers. To add to this dilemma, evidence-based prescribing guidelines utilized by clinicians are mainly based on results of clinical trials that exclude older persons with multiple co-morbidities.
Objectives: This session will address four key areas that are essential in preparing the older traveller:
1) Pharmacokinetic/Pharmacodynamic changes related to ageing;
2) Medication-related risk factors that should be considered such as anticholinergic activity of drugs;
3) Strategies to reduce the risk of dehydration and approaches to prevent severe adverse events of diuretics, NSAID, ACE-inhibitors and statins during dehydration;
4) Applying tools to tackle polypharmacy.
Summary: Overall, there is a progressive reduction in homeostatic mechanisms as a consequence of ageing. Physiologic changes due to ageing result in pharmacokinetic changes; in addition, pharmacodynamics changes in older persons tend to alter sensitivity to drugs. Key pharmacokinetic changes including drug absorption, drug distribution, renal drug excretion, and drug metabolism, will be discussed with a focus on travel-related considerations. Decisions regarding prescription and over-the-counter drugs must be made with careful understanding of the specific agent, drug classes, and the impact of combinations of drugs, which can be particularly hazardous in frail older persons. Strategies and tools to tackle polypharmacy in the older traveler will be emphasized. Criteria including STOPP/START and Beers, as well as the Anticholinergic Risk Scale are available to assist clinicians. Resources including databases and electronic tools will be discussed with pragmatic strategies to best prepare the older traveller.

BACK WS5

Refresh! What´s New in Travel and Tropical Medicine Literature

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The goal of this workshop is to present several important publications in the field of travel and tropical medicine published within the last 12 months. Articles will include new scientific research as well as relevant publications on pertinent clinical topics. These articles will cover a broad range of topics such as meningococcal disease in Africa, viral hemorrhagic fevers, and updates on insect transmitted pathogens such as Dengue. In addition, several publications on the role of international travel in the development of antibiotic drug resistance will also be discussed, as well as, some novel innovations in diagnosis of *M. tuberculosis* and *C. difficile*.

BACK WS9

How to Prevent and Manage Acute and Chronic Diarrhea in Travellers

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There is a decreasing trend in the incidence of travelers' diarrhea. Nevertheless, it remains a common travel-related illness, which affects approximately 30% per two-weeks stay. Bacterial infection is the most common cause. Pathogen- and host-related factors are responsible for the fact that some travelers are severely affected, whereas others experience only minor inconvenience.
Treatment has become more complex, due to increasing resistance to antimicrobial agents. Examples are fluoroquinolon-resistant *Campylobacter jejuni* and metronidazole-resistant *Giardia lamblia*. Knowledge of the basic mechanism of antimicrobial resistance and of the geographical distribution of resistance is essential to guide treatment. Antimicrobial resistance is also relevant for the discussion on the need for stand-by treatment.
In this workshop, the speakers discuss how the clinical presentation of travelers' diarrhea may differ, depending on the causative agent. They focus on epidemiological trends and "new" causative agents of acute- and chronic diarrhea, such as norovirus genogroup 2 genotype 4 , Enteroaggregative *E. coli* and community acquired *Clostridium difficile*. Furthermore, they discuss the background- and the practical implications of antimicrobial resistance and provide an appraisal on the need for stand-by treatment. The last part of the workshop is on the diagnostic work-up of chronic diarrhea, and includes a discussion on the value of modern laboratory methods such as PCR.

BACK WS10

Safe Transport: Carrying Meds and Needles and Accessing Medications Abroad

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Objectives:
(1) Review the problems associated with carrying and acquiring medications abroad;
(2) Discuss ways in which travel medicine professionals can adequately prepare a traveler who takes chronic medications;
(3) Using a case-based approach, create a plan to ensure a patient with diabetes minimizes possible disruptions in treatment while traveling abroad. When people travel abroad, they often need to carry their chronic medications as well as various non-prescription products. For someone being treated with insulin for diabetes, it is critical that they are able to have their medication with them at all times. However, airlines and destination country customs may present challenges in the form of transport issues as well as unfamiliar rules for importation. Some countries may impose special regulations or ban controlled substances, such as opiates and psychotropics, ever those contained in non-prescription products. Long stay travelers and those who lose their medication while traveling, can discover new challenges in acquiring medications. Problems related to legality of mailing medications, where to acquire medications, variable similarity of available medications and unknown counterfeit products leave travelers struggling to acquire their often critical medications.
Travel medicine professionals need to educate their patients on how to prepare their medications for safe transport, such as appropriate labeling, letters of authority and storage. Travelers should also be aware of what to expect at the destination country customs and how to minimize having their medications confiscated; and what are more reliable ways to acquire medications abroad to avoid non-equivalent or dangerous replacement drugs.
This work shop will explore the published and unpublished literature related to the problem of transiting and acquiring necessary medications while traveling abroad and present expert opinion on the preparation of the traveler with a medical condition, such as diabetes that requires chronic medication.

BACK WS11

Workshop: Malaria: Common Problems, Possible Solutions Advising Special Travelers on Malaria Chemoprophylaxis

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Background: Caused by the protozoan *Plasmodium* and transmitted by the bite of the female *Anopheles* mosquito, malaria poses a major threat to travellers´ health. Despite a trend of declining malaria incidence, more than 200 million cases of malaria still occur worldwide every year, recent data show increasing levels of imported malaria in travelers. In the US, about 1500 cases are reported annually, where the highest risk is associated with travel to sub-Saharan Africa. The WHO, CDC and many national health authorities have published malaria chemoprophylaxis recommendations, and some specify recommendations for special travelers. However, these recommendations are often general and can be difficult to apply to special groups such as infants, pregnant women and long-term residents.
Objective: We review malaria prevention strategies in infants (repellents and chemoprophylaxis), in long-term residents (practices of long-term travelers and their chemoprophylaxis approaches), in pregnant women (safety of chemoprophylaxis agents during pregnancy), and focus on a variety of chemoprophylaxis issues.
Method: We will discuss case scenarios with the afore-mentioned special risk groups. We highlight the problems, the knowledge gaps and propose evidence based solutions. We aim to have an interactive session and welcome participation by attendees to the workshop.
Results: Chemoprophylaxis in infants is challenging, especially those under 5 kg. Long-term travelers may adhere poorly to continuous chemoprophylaxis. Limited data exist regarding the safety of chemoprophylaxis agents during pregnancy.
Conclusion: Chemoprophylaxis choices in special travelers should be individualized, taking into consideration the particular traveler, the feasibility of possible options and the likelihood of safety, tolerability, and adherence to the medication.

BACK WS12

ABC Workshop Safe Shots: Practical Aspects of Vaccine Administration

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Ever wanted reassurance about your injection technique? Are you confident about what to do if your vaccine storage system is compromised? Would you like to better understand the types of vaccines available and their indications for use in the uncomplicated traveler, and those with more complex medical histories? Need to share some thoughts on how to avoid or deal with vaccine administration errors?
Aimed at those new to travel medicine (but not exclusively so), we invite you to listen and contribute to discussion and share experiences in an interactive workshop. Clinical scenarios will be presented, chosen to illustrate some challenging situations that can arise when providing vaccines. Best practice and practical strategies to increase patient safety and reduce health care errors will be our focus.

BACK WS13

Sex Tourism: What Travel Medicine Practitioners Need to Know

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Sex during travel is a frequent event. Casual sex with fellow travelers or local people often happens unexpectedly. In contrast, sex tourists travel for the express purpose of engaging in sexual activities with local women, men and children.
The overall aim of this workshop is to offer some insight into the highly complex and multi-facetted issue of sex tourism and its implications for tourists and their sex partners at home and on location. By the end of the session, participants should be able to
- Describe the phenomenon sex tourism, including social and health impacts on the local population;
- Discuss sexually transmitted infections as they relate to sex tourism; and
- Design appropriate health advice for travelers to sex tourism destination.

After introducing some historical background of travel for sex, the often invisible context and implications will be explored. Selected scenarios will form the basis for discussions on a number of relevant issues. We encourage participants to contribute to this session with their comments, questions, suggestions and expertise to make this workshop a valuable learning opportunity for all present. A reference list for further reading will be available at the end of this session.

BACK WS15

Pox, Pustules and Lumps: Skin Lesions in Returned Travellers

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Skin problems in returned travelers are the 3rd most common cause of illness in a returned traveller. These “exotic conditions” may be as innocuous as the migration of a dog/cat hookworm larva under the skin of a lounging beach bunny/bum in Jamaica, or the extrusion of a live maggot from its breathing hole on the arm of an adventurous traveler in Belize. On the other hand, more serious infections such as cutaneous leishmaniasis, typhus are being recognized increasingly among eco-tourists to Central and South America and game park voyeurs to Southern Africa, respectively. STI‘s are a risk in all locations of the tropics. This interactive, non-threatening, somewhat fun-filled session on the approach to skin problems in returned travelers will feature a variety of excellent, yet unpleasant and occasionally disgusting photographs of common skin disorders seen in returned travellers and immigrants. In addition, key diagnostic features and management approaches will be emphasized. According to most clinicians , dermatologists excepted, you don’t have to be smart to know tropical dermatology, you only have to recognize the condition and look up the treatment.

BACK WS17

Babes on the Road: Pregnant and Infant Travellers

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Background: Travel medicine providers are often unsure or uncomfortable in making recommendations regarding infants, pregnant women and breastfeeding mothers.
Objective: To give practitioners some basic guidelines to follow when advising these patients by illustrating the principles with some specific examples.
Format: This is an interactive workshop where input and opinions will be requested from the audience regarding the management of specific cases. Case presentations will involve pregnant patients, breastfeeding mothers, and infants up to one year of age. Discussion will include such matters as contraindications to travel, pretravel preparation, the use of vaccines and travel-related medicines, traveler's diarrhea, environmental hazards, other non-infectious risks, expatriate health and medical evacuation