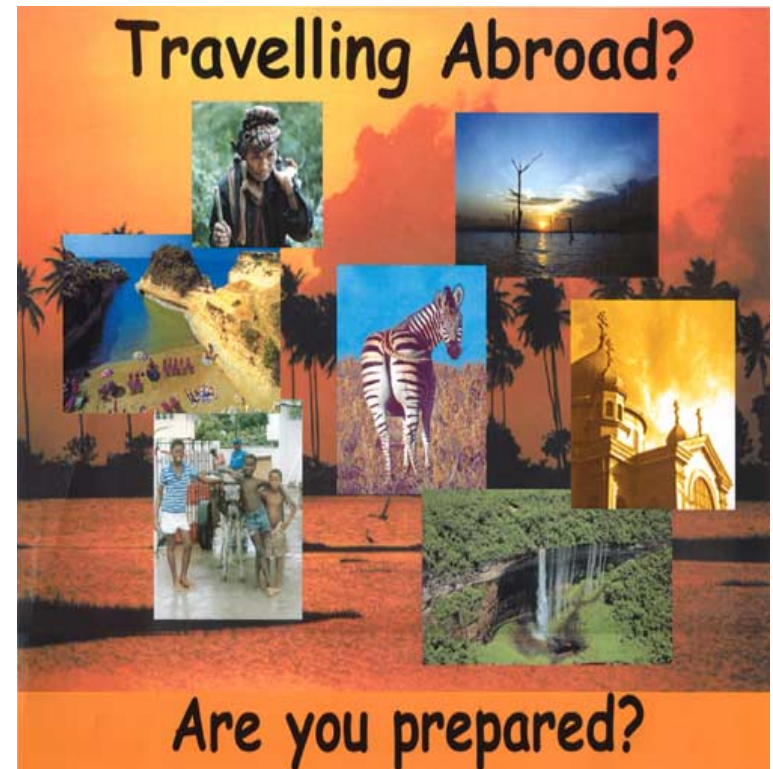


The emerging interest for travel medicine



Adriana Hristea

*National Institute for Infectious Diseases "Prof Dr Matei Bals"
University of Medicine and Pharmacy Carol Davila*

Types of travellers

- Business men
- Tourists
 - Visiting friends and relatives (VFR)
 - Non VFR
- Humanitarian/ army missions

They often travel by air or railways (The records of which are available)

Documented



- Immigrants,
- Refugees, and
- Migrant laborers

Who frequently travel by other means

Undocumented

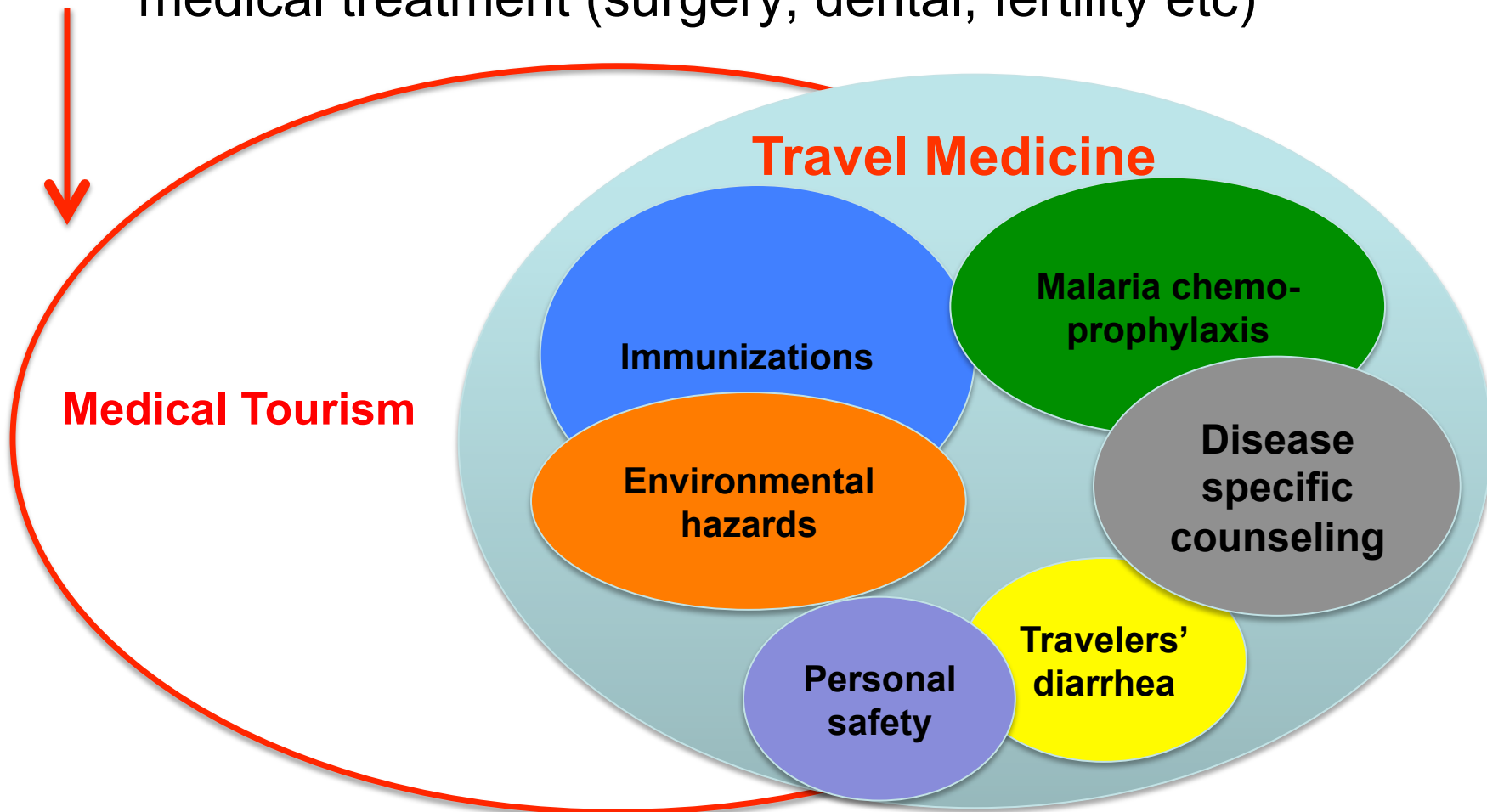


Humanitarian Mission Trip to Guatemala, 2016



Medical tourism travel medicine

Medical tourism = people traveling to a country to obtain medical treatment (surgery, dental, fertility etc)

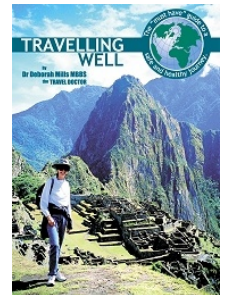
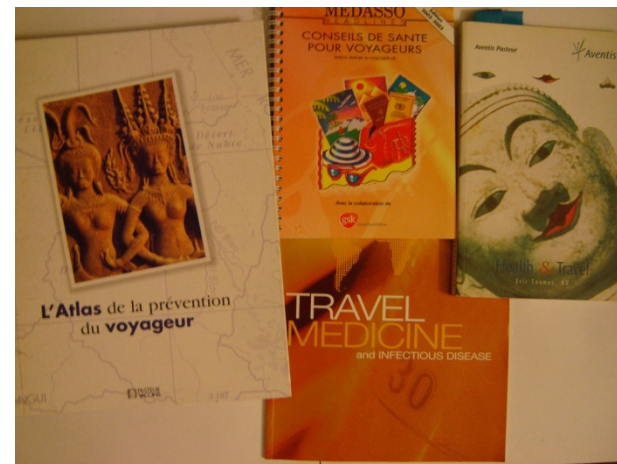
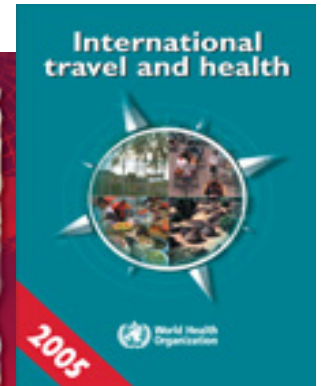
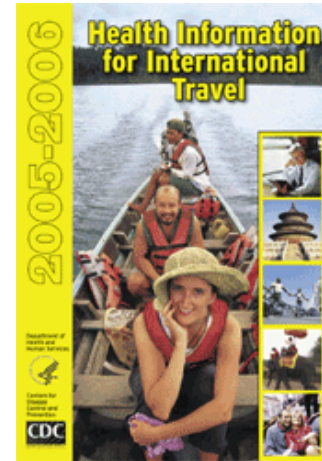


Objectives

- Briefly introduce travel medicine
- Overview the main functions of the pre-travel health consultation

Travel medicine

- Relatively new discipline, a growing multidisciplinary domain
- In Europe travel medicine is of interest for different professions and specialties:
 - from public health to infectious diseases specialists,
 - from general practitioners to tropical diseases specialists,
 - from private practice to vaccine manufacturers.



Travel medicine/ Emporiatrics



Greek origin

“emporos”: One who goes on shipboard as a
passenger

+

“iatrike”: medicine

The term describe the science of **the health of travellers**

Travel medicine/Emporiiatrics

branch of medicine that deals with the **prevention** and **management of health problems** of international travelers

- Providing them the **advice** related to the **travel** they are **about to undertake**.
- Primarily involved in **risk management**
- Strong overlap with public health and occupational health and general practice
- **Rapid development over the last 25 years**
- A fast developing specialty as the international travel is fast increasing.



Why a special branch for travelers' health?

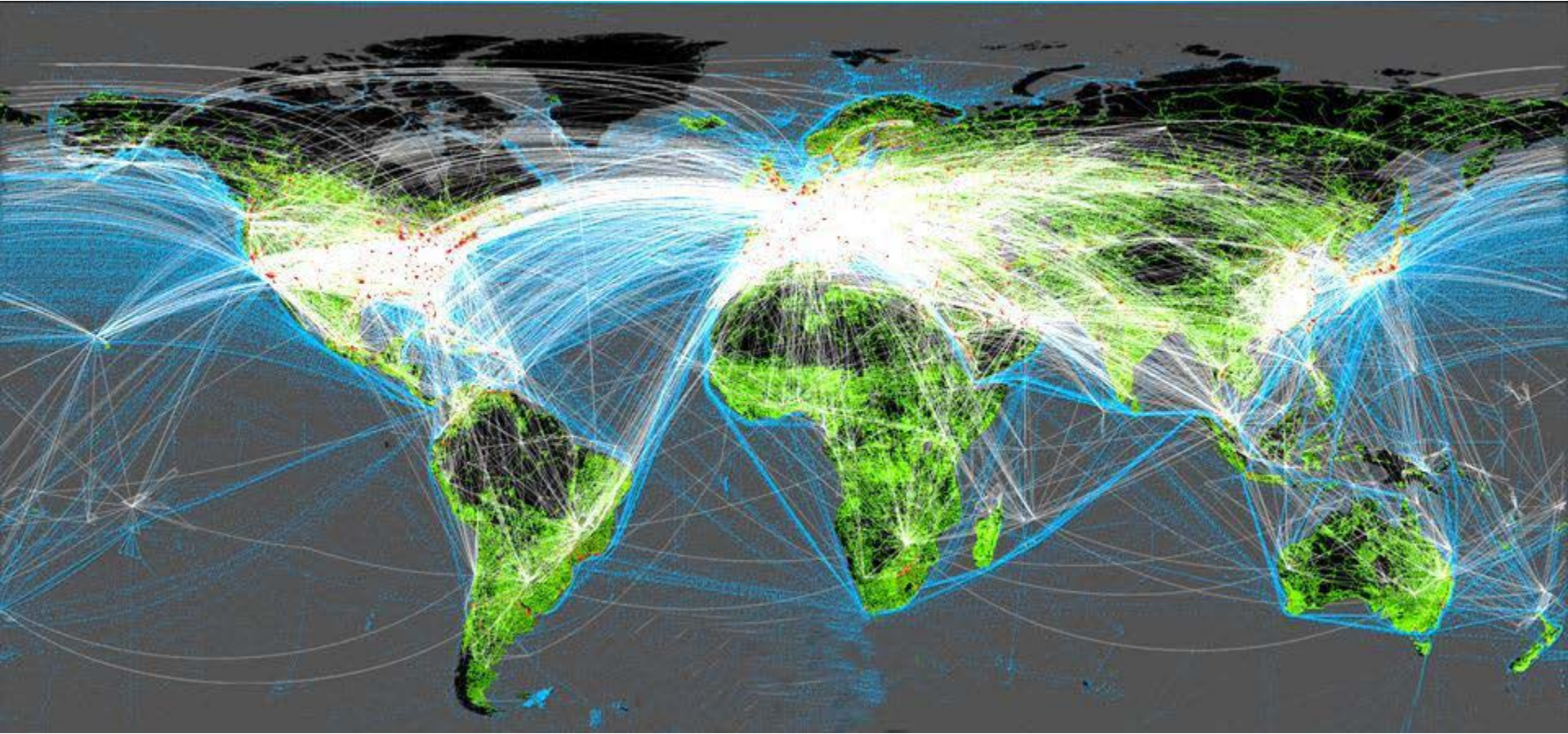
Travellers face special health risks:

- They are subject to disorders induced by **rapid changes of environment** such as upsets in the circadian rhythms, motion sickness, and diarrhea;
- In developing countries they are exposed to **infectious diseases** that do not exist in their home countries such as malaria, giardiasis, and dengue;
- They are **separated from familiar and accessible sources of medical care**.

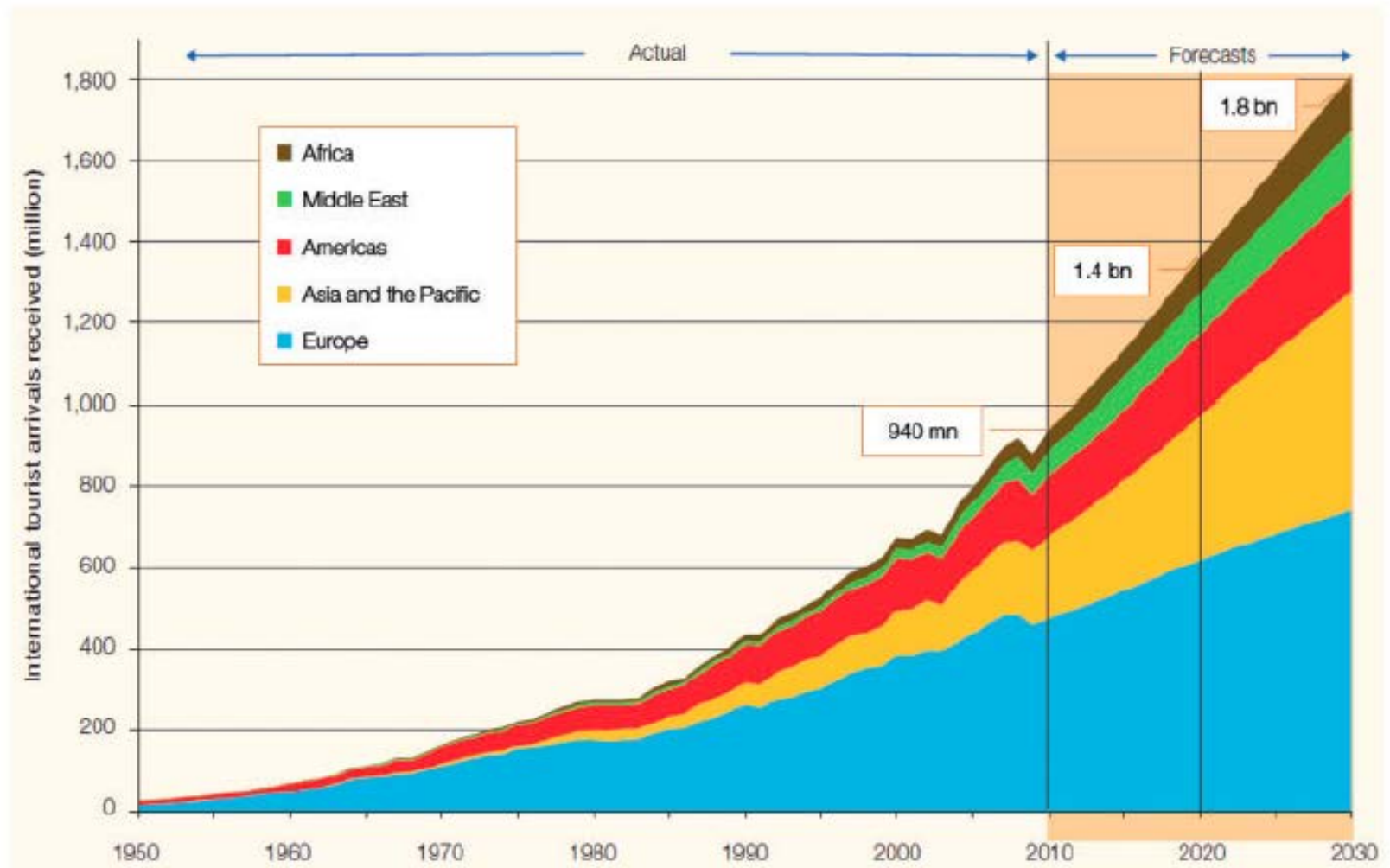
Never before in history have so many
people travelled and have people
travelled so far or so fast.



The global human movement enhances the opportunities for disease spread



International traveling trends



Source: UNWTO (2016a)

Top tourist destinations by international arrival

Rank	1950	1970	2015
1	United States	Italy	France
2	Canada	Canada	United States
3	Italy	France	Spain
4	France	Spain	China
5	Switzerland	United States	Italy
6	Ireland	Austria	Turkey
7	Austria	Germany	Germany
8	Spain	Switzerland	United Kingdom
9	Germany	Yugoslavia	Mexico
10	United Kingdom	United Kingdom	Russian Federation
11	Norway	Hungary	Thailand
12	Argentina	Czechoslovakia	Austria
13	Mexico	Belgium	Hong Kong (China)
14	Netherlands	Bulgaria	Malaysia
15	Denmark	Romania	Greece
	Others	Others	Others
Total	25 million	166 million	1186 million

54%

97%

Travelers are an epidemiologically important population



- their mobility
- the potential for exposure to diseases
- the possibility to import non-endemic diseases into their country of origin
- the possibility to export non-endemic diseases to the country they visit

Why travel epidemiology?

Changes in global disease epidemiology and emerging infections



Acute threats:

- New flu strains
- SARS
- MERS Co-V
- Ebola



Longer term:

Geographical spread of dengue, chikungunya, West Nile, Zika etc.



Objectives

- Briefly introduce travel medicine
- **Overview the main functions of the pre-travel health consultation**

Traveler's risks management

Risks are related to:

- **People and their activities:** way of transport, wars, recreational activities (associated with water-leptospirosis, schistosomiasis, sexual behavior-HIV, hepatitis, syphilis)
- **Food, water** (cholera, typhoid fever, shigellosis, and other bacterial food infections, amebiasis, giardiasis, hepatitis A, E, poliomyelitis)
- **Contact with animals** (rabies, brucellosis, tularemia, Q fever) or **ill people** (meningococchemia, tuberculosis, hemorrhagic fevers)
- **Vectors** (mosquitoes, flies, ticks, phlebotomines...) which can transmit malaria, dengue fever, rickettsiosis...

Risk reduction interventions

- Vaccinations
- Medications (including antimalarials)
- Information enabling behaviour modification
- Other: travel insurance, pre existing medical problems, nets, syringes, medical kits



The main elements of a consultation prior to departing on a trip (1)

- evaluating the **ability to travel**

Evaluating the ability to travel

- **altitude**
- subjects with **psychiatric disorders** are required to be accompanied
- during **pregnancy**, international flights are not authorized after 35 weeks of pregnancy. Airplane traveling is not authorized before day 7 after birth;
- **newborns** cannot travel by airplane during the first 48 hours of life, and problems related to the risk of barotraumatic otitis can be avoided by using bottle feeding during takeoff and landing;
- **gastric ulcer complicated with recent hemorrhage** (within 3 prior weeks) is, as well, a contraindication;
- disorders caused by airplane traveling/conditions:
phlebothrombosis, pacemakers, hygrothermia, leg edema

The main elements of a consult prior to departing on a trip (2)

- evaluating the ability to travel,
- immunizations

Travelers vaccinations

- Immunization is one of the best ways to protect the people from vaccine-preventable diseases when traveling all the world
- The risk of becoming ill while traveling depends on factors related to: the trip, traveler, disease, vaccine

The most frequent infectious diseases risks in travelers

- Malaria
- Infectious diarrhea
- Influenza
- Hepatitis A
- Typhoid fever
- Leishmaniasis
- Rabies
- Dengue fever
- Meningococcal meningitis
- Schistosomiasis
- Tuberculosis
- Leptospirosis
- Poliomyelitis
- Yellow fever
- Measles
- Japanese encephalitis

Traveler' s vaccinations

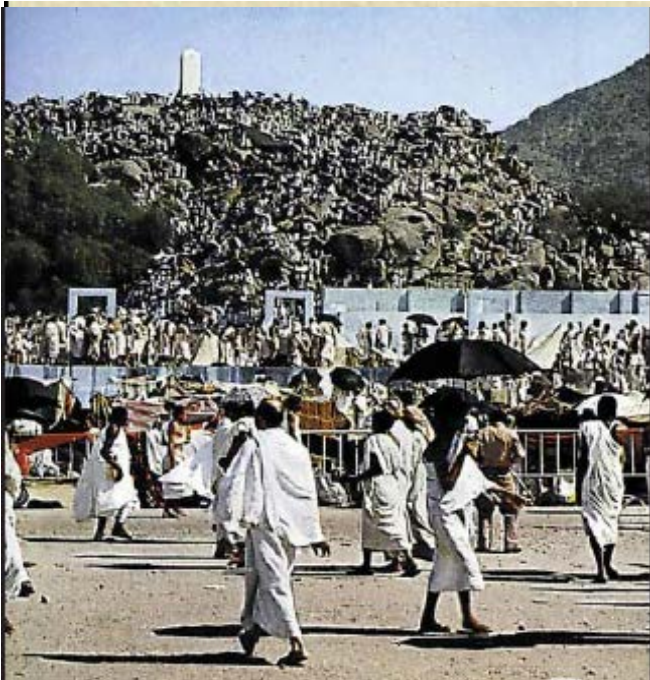
- Vaccinations recommended regardless of destination (universal, routine)
- Vaccination for travelers to countries with risk for digestive transmitted ID
- Vaccination for travelers with special risks

Vaccinations for international travelers

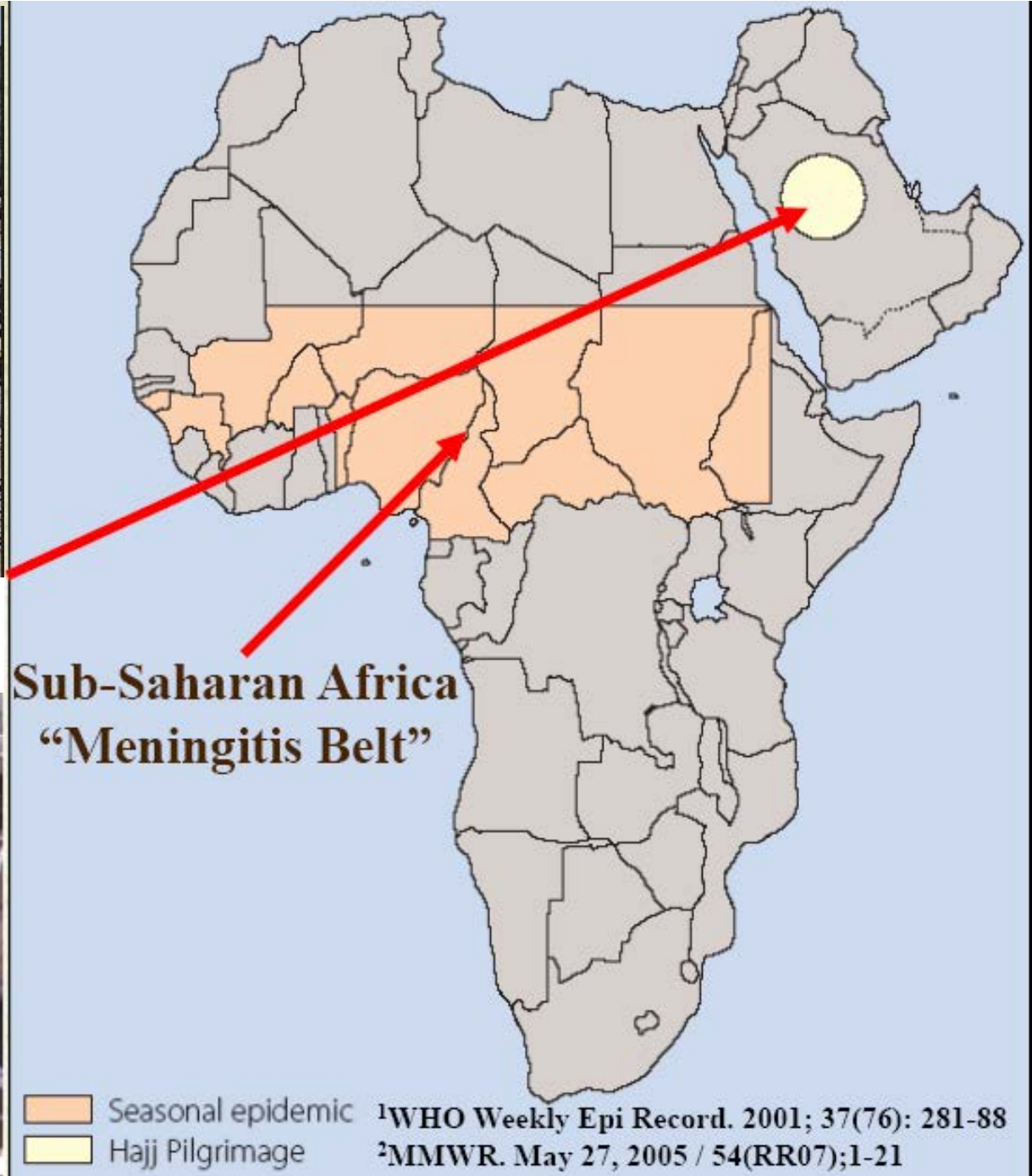
„The art of travel medicine, is not to give all available vaccines to travellers, resulting in unnecessary costs and a risk of adverse effects, but to prioritise these vaccines for the individual traveller so that adequate protection is provided.”

Prof. Jane N. Zuckerman

*Academic Centre for Travel Medicine
and Vaccines,
University College London,
London, UK*

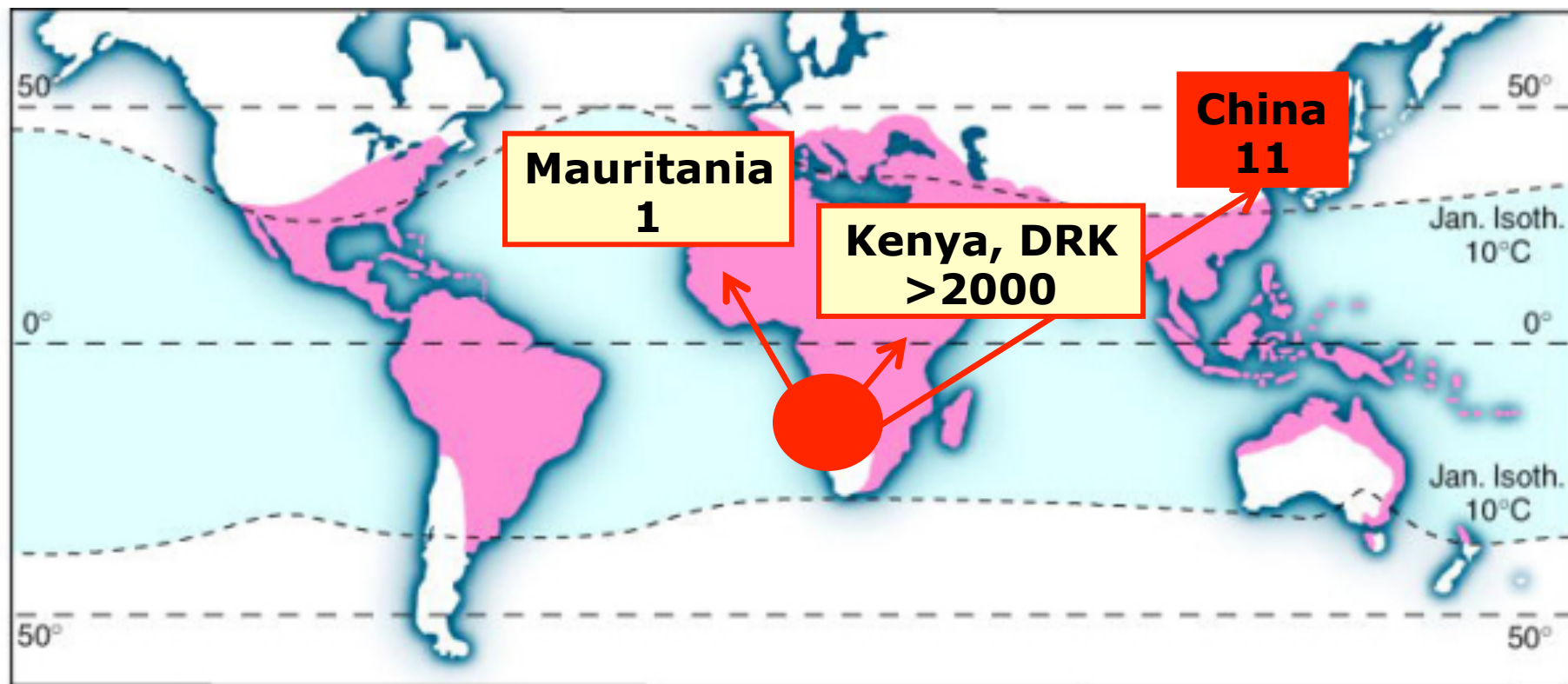


**2 mil muslims per year
Hajj - pilgrimage to Mecca**



Yellow fever outbreak in Angola 2015–2016

- ✓ 12.2015-09.2016 >3800 YF cases, >400 deaths
- ✓ Since 02.2016 mass vaccination campaign (6,7 mln vaccine doses used)
- ✓ Travellers – vaccination required from all arriving to Angola (age > 1 year old)
- ✓ **11 yellow fever infections imported to China!**



The main elements of a consult prior to departing on a trip (3)

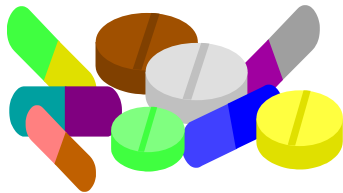
- evaluating the **ability to travel**,
- administering **the required vaccines**,
- **malaria chemoprophylaxis** for travelers to endemic areas (i.e. where the disease is frequent),

Preventing malaria



Protection against mosquito bites:

- Anti-mosquito nets impregnated with pyrethroid insecticides,
- Insecticide spray or electric insecticide diffusers used over night,
- Air conditioning with $T < 22^{\circ}\text{C}$,
- Use of repellents: DEET (diethyl methylbenzamide) ethyl hexanediol, permethrin, DMT (dimethyl phthalate),



Chemoprophylaxis

Chemoprophylaxis includes strategies for malaria prevention through the use of medication.

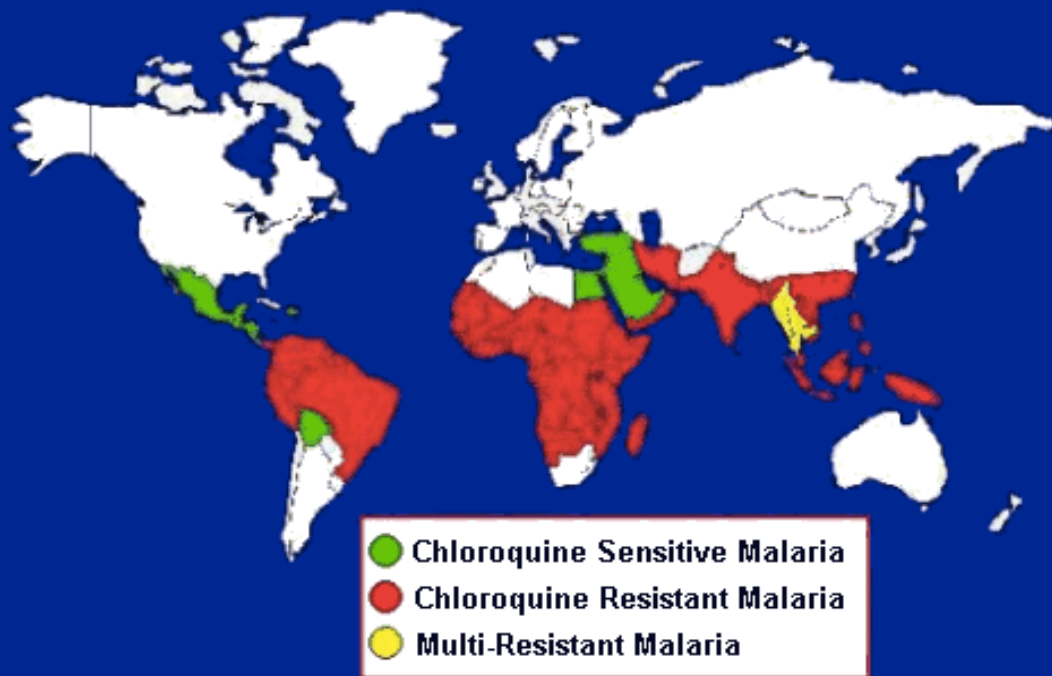
Malaria-endemic countries in the Western hemisphere



Malaria-endemic countries in the Eastern hemisphere



Malaria Endemic Areas



Resistant malaria



Chloroquine: 1945 - 1957

Sulfa-Pyri: 1967 - 1967

Mefloquine: 1977 - 1982

Artemisinin: 1991-?1998

Single, Subtherapeutic, Substandard, Smuggled

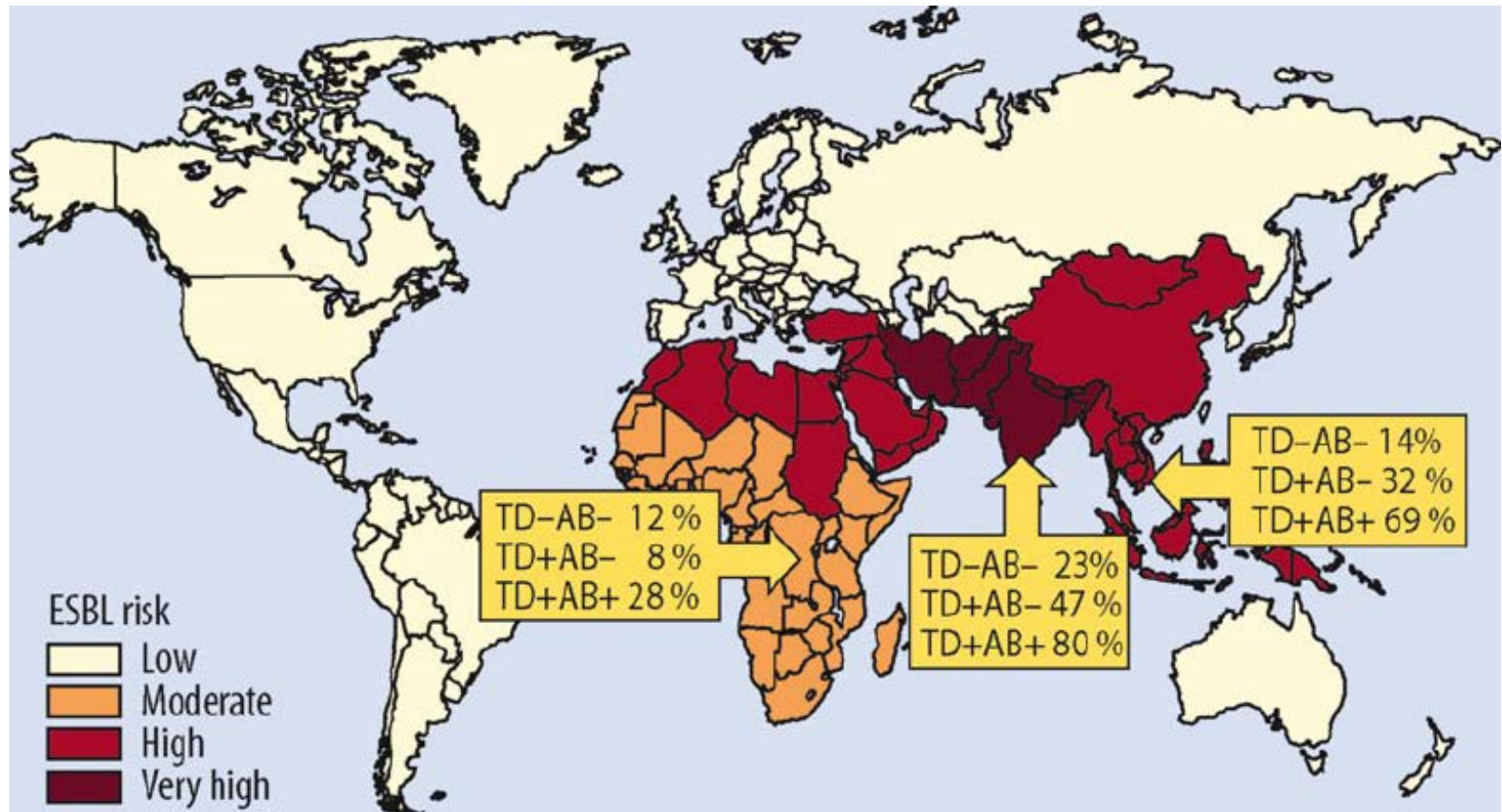
The main elements of a consult prior to departing on a trip (4)

- evaluating the **ability to travel**,
- administering **the required vaccines**,
- **malaria chemoprophylaxis** for travelers to endemic areas (i.e. where the disease is frequent),
- **explaining and prescribing treatment(s)**
 - for traveler's diarrhea,
 - for any cutaneous wounds or other self-treatable pathologies.

Traveler's diarrhea epidemiology

- 100-300 million international travelers to “high-risk” areas: tropical/subtropical areas of Latin America, the Caribbean, southern Asia and Africa;
- 335/1000 medical visits by returned travelers;
- **10%-40% incidence for a 2-week stay**
- The incidence rate has markedly **decreased in all Southern European** countries and is **now below 8%** (except for Portugal)
- Rates have also **decreased in Jamaica** by 72%
- Rates have **dropped to 10 and 20%, respectively, in Chiangmai and Phuket (Thailand)**

World map indicating the risk levels of contracting extended-spectrum beta-lactamase (ESBL) – producing *Enterobacteriaceae*



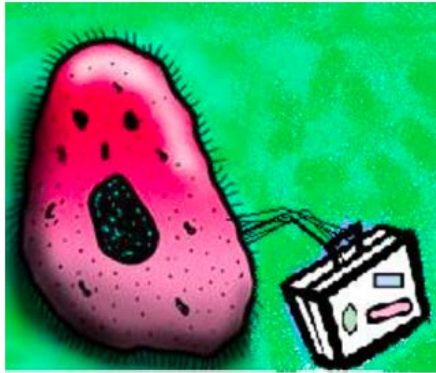
Tourists on holiday “pick up” antibiotic resistant genes

Related Stories

Back from vacation? Your gut bacteria picked up souvenirs, too

Meredith Knight | July 31, 2016 | Genetic Literacy Project

The dreaded **traveler's diarrhea** is the most common illness associated with vacationing or working abroad.



It's so common the [CDC estimates](#) 30 to 70 percent of travelers are affected, depending on where they go. Most cases are caused from food or water contaminated with locale-specific bacteria. Those bacteria cause the adverse reaction in our guts. They can also carry antibiotic resistance genes. And it turns out we can pick up those bugs very quickly—just 48 hours according to new research presented at the [American Society for Microbiology](#) meeting.

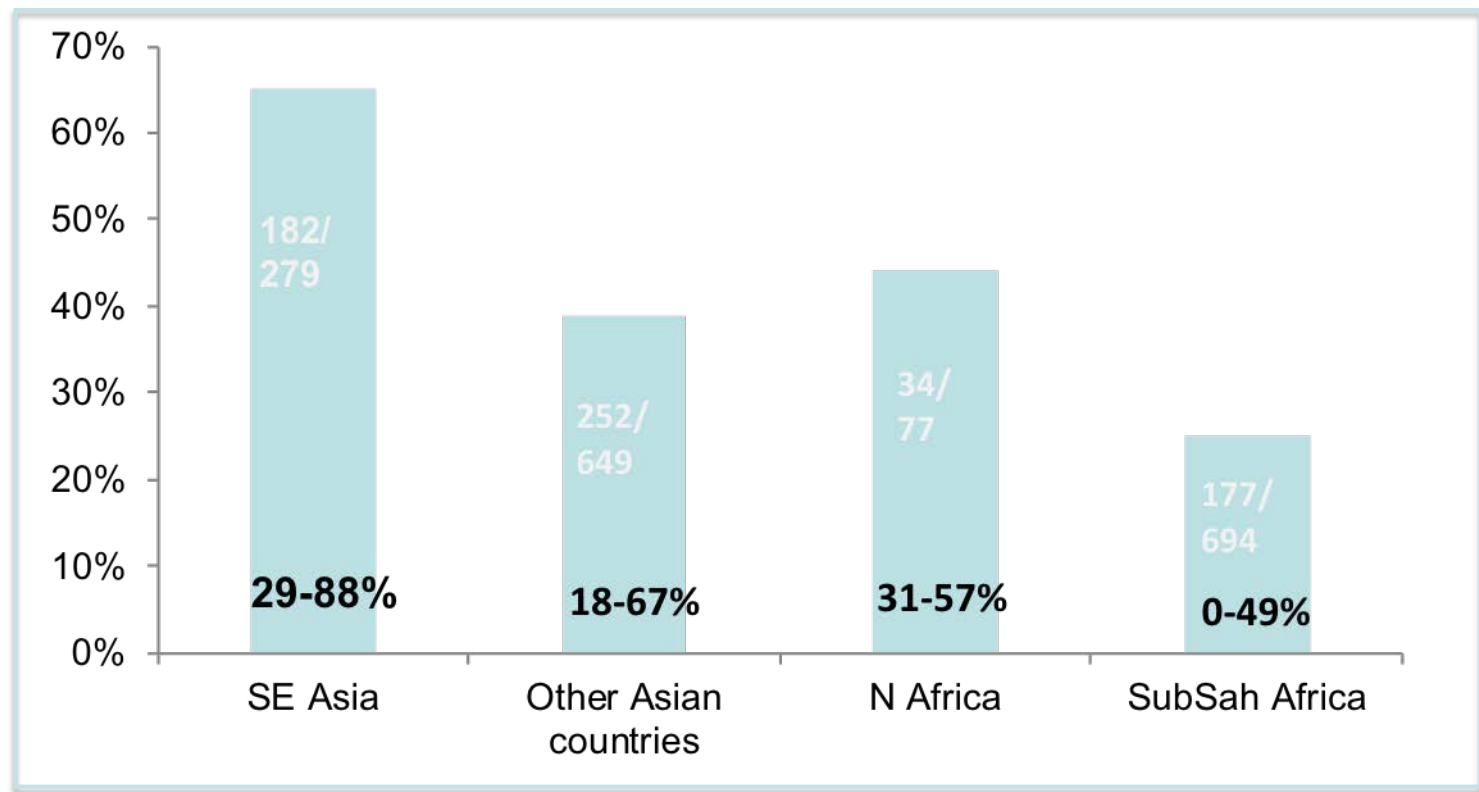
CDC: 30 to 70 percent of travelers are affected, depending on where they go.

Back from vacation? Your gut bacteria picked up souvenirs, too



Genes picked up by the bacteria in the traveler's guts depended on **where** they went on vacation

Proportion of travelers who acquired MDR Enterobacteria by travel destination

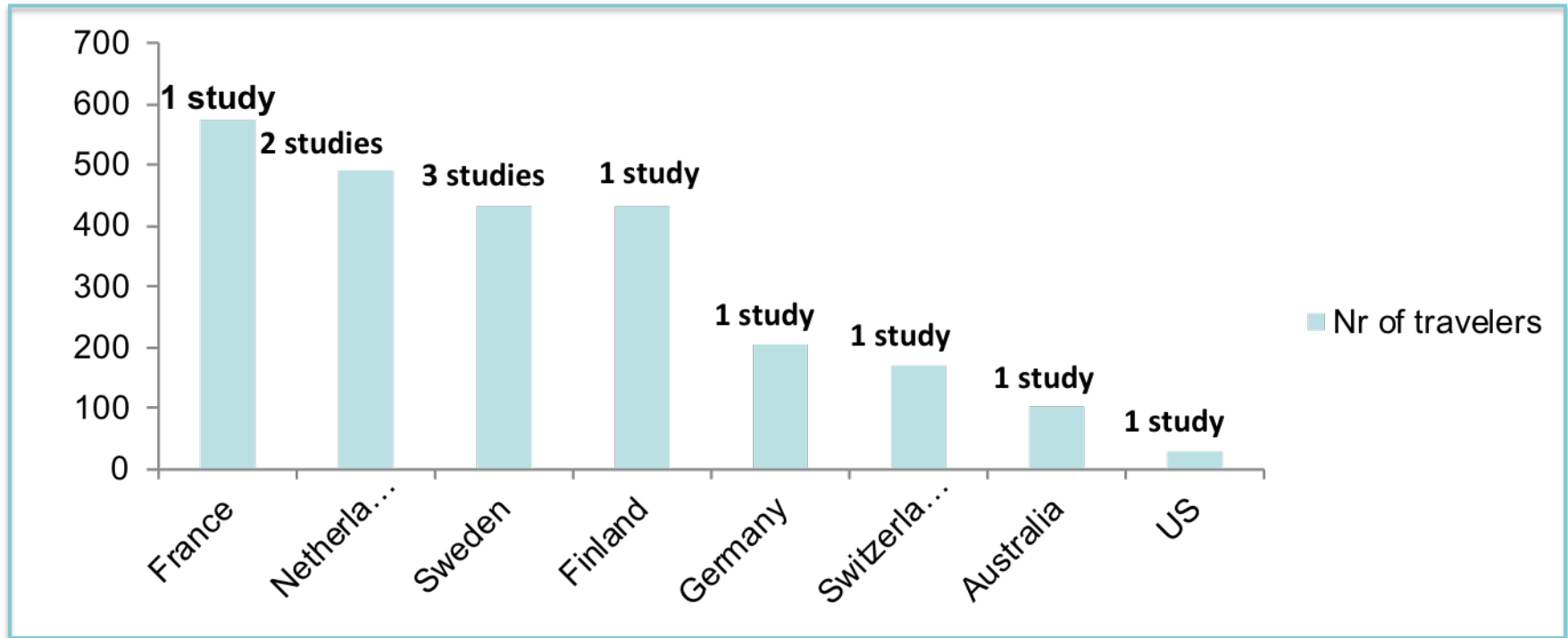


South and Central America (0–33%)

North America, Europe and Oceania was rare.

International travel and acquisition of multidrug-resistant *Enterobacteriaceae*: a systematic review

RJ Hassing¹²³, J Alsma³⁴, MS Arcilla⁵, PJ van Genderen⁶, BH Stricker¹⁷, A Verbon⁴⁵



- Faecal carriage of multidrug resistant *Enterobacteria* (MRE): 1 - 12% before travel
- **Acquisition of MRE: 21% - 51%**

The main elements of a consultation prior to departing on a trip (5)

- evaluating the **ability to travel**,
- administering **the required vaccines**,
- **malaria chemoprophylaxis** for travelers to endemic areas (i.e. where the disease is frequent),
- **explaining and prescribing treatment(s)**
 - for traveler' s diarrhea,
 - for any cutaneous wounds or other self-treatable pathologies.
- **recommendations on**
 - preventing diseases which are:
 - sexually transmitted,
 - with digestive transmission
 - protection measures against insect bites.

Educational Resources

- Books
- Travel industry guides
- Pharmaceutical companies
- Travel Medicine on line

- International Society of Travel Medicine

<http://www.istm.org>

- World Health Organization International Travel and Health

<http://who.int>

- Centers for Disease Control and Prevention

<http://www.cdc.gov>

- International Association for Medical Assistance to Travellers

<http://www.iamat.org>

- ProMed-mail

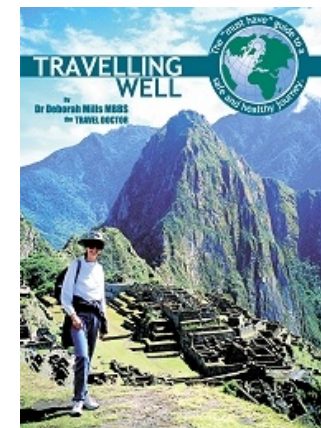
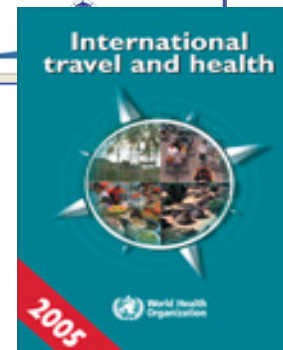
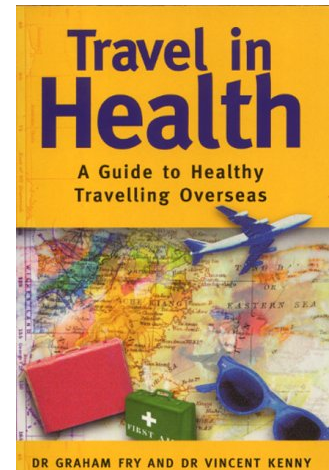
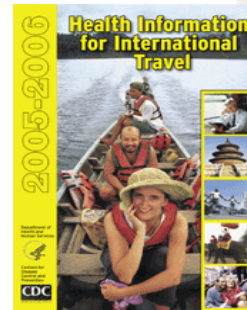
<http://www.promedmail.org>

- Pubmed

<http://www.pubmed.gov>

- The Cochrane Collaboration

<http://www.cochrane.org>



New Textbooks



Ed. Zuckerman J (2013) Principles and Practice of Travel Medicine – 2nd Edition. www.wiley.com/go/infectiousdiseases
 Keystone J (2013) Travel Medicine: expert consult. www.elsevierhealth.com – 3rd Edition
 Dawood R (2013) Travellers' Health www.oup.com – 5th Edition

We do not live in an ideal world

Travel health advice will be moderated by:

- Availability of vaccines
- Availability of educational resources
- Availability of drugs for chemoprophylaxis
- Cost of interventions

Conclusion



TRAVEL

*It's the only thing
you can spend
money on that
will make you
richer.*

The risk of acquiring a disease while
traveling

=

hazard x **ignorance**

Conclusion

The care providers in the 21st century must

- **Be culturally competent**
 - Having attitude, knowledge and skills necessary to **provide high quality care to diverse population**
- **Know how geography plays a role in health assessment**
 - Have you traveled?
 - Where were you born?



**St Christopher
the Patron Saint
of Travelers**

Website: Societatea Română de Medicină de Voiaj



SOCIETATEA ROMÂNĂ
MEDICINĂ DE VOIAJ

<http://srmv.ro/>



SOCIETATEA ROMÂNĂ
MEDICINĂ DE VOIAJ

Acasa

Despre noi ▾

Informatii medicale ▾

Intrebari frecvente

Stiri

Sfatu



Află cum să te pregătești pentru **CĂLĂTORIE**

SRMV va informa: Primul caz de Zika in Romania. Care sunt simptomele si cat de mari sunt riscurile pentru cei infectati

CAUTARE

Cauta...

CONFERINȚA DE MEDICINĂ DE CĂLĂTORIE- Ediția a IV-a

Constanta, 20-22 septembrie 2018