Dr Robert Bester

General Practitioner

Invercargill

Saturday, August 10, 2019

(Room 7)

11:00 - 11:55 WS #94: Case Studies in Travel Medicine

12:05 - 13:00 WS #104: Case Studies in Travel Medicine (Repeated)

Cases in Travel Medicine

Dr Robert Bester
The Travel Doctor - Invercargill
Bester McKay Family Doctors Ltd
Invercargill

Four cases

Case 1: Family of 4 – Philippines

Case 2: Backpacker – South America

Case 3: Couple – “just Europe”

Case 4: Honeymooners – Samoa

- All based around real cases
- Cases used to illustrate common issues
- Probably only get through 2
- Available on GPCE website after conference

Case 1: Family of 4 - Philippines

Mum aged 35 (from Philippines, in NZ 10 years)
Dad aged 34 (Kiwi)
Son 4, Daughter 2

Leave in 25 days
Manila 3 days – hotel, seeing friends
Palawan Island – El Nido, resort, 7 days
Mindanao Island – outskirts Davao City – staying with Mum's family for 3 weeks

Family of 4 - Philippines

- Dad is a patient of the practice
- Mum / children are not

- What do you need to know about family?
- What do you need to know about trip?
- What do you need to cover?

➢ Pre - travel consultation

Pre-travel consultation

About the family

- Travel experience
- Health
- Recent illnesses/operations/ hospitalisations
- Ongoing medical conditions
- Regular, PRN, OTC medications
- Allergies
- Past DVT/VTE
- Pregnancy/Contraception
- Previous vaccinations
  - Routine and travel

Pre-travel consultation

About the family

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About the trip

- How soon do they leave
- Duration of travel
- Details of destination/s
- Fixed or flexible itinerary
- Who are they travelling with
- Mode of transport
- Independent or Tour group
- Accommodation
- Planned activities
- Purpose of travel (VFR, medical tourism, volunteering, etc.)

Pre-travel consultation –potential topics to cover

- Traveller's concerns
- Flight safety / fitness to fly / risks VTE
- Food & water borne illness / diarrhoea prevention & management
- Vector borne illness - insects /animals
- Safety / Security / Accident / injury / insurance
- Sexual safety / Women's health
- Psychological preparedness / risks
- Managing pre-existing health problems – diabetes, asthma, etc
- Environment / climate
- Special activities (e.g. cycling, diving, caving, trekking, volunteering)
- Special groups - children; elderly; disabled; VFR, immuno-compromised….
- Vaccine preventable infections (routine, recommended, required)
- Medical kits

Information retention……?

‘pre-travel consultations …. perceived to have only little impact because travelers are “flooded” with…. advice, and choosing two or three priority elements with regard to the specific traveler or travel type might have greater efficiency’

Leder K, Bouchaud O, Chen L; Training in Travel Medicine and General Practitioners: A Long-Haul Journey! ; JTM 2015; 22:357-360

<u>Most travellers will remember a maximum of 10 points</u>

- Assess greatest risks
- Keep it simple
- Reinforce with written information / links

Bauer I, Educational Issues and Concerns in Travel Health Advice: Is All the Effort a Waste of Time?; JTM 2005; 12

Pre-travel consultation –potential topics to cover

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International Journal of Epidemiology
© International Epidemiological Association 1985

Vol. 14, No. 1
Printed in Great Britain

'Boil it, Cook it, Peel it or Forget it': Does this Rule Prevent Travellers' Diarrhoea?

MARKUS KOZICKI, ROBERT STEFFEN AND MEINRAD SCHÄR

Kozicki M (Institute of Social and Preventive Medicine of the University, Gloriastrasse 30, CH-8006 Zurich, Switzerland),
Steffen R and Schär M. 'Boil it, cook it, peel it or forget it: Does this rule prevent travellers' diarrhoea? *International Journal of Epidemiology* 1985, **14**: 169–172.
A total of 688 out of 2240 air charter passengers in flight to Kenya, West Africa or Sri Lanka/Maldives volunteered to participate in a follow-up study investigating the influence of various food and beverage items on the incidence of travellers' diarrhoea. Within the first three days of their stay abroad, 98% accepted food or beverages whose avoidance is traditionally recommended. The incidence of diarrhoea, which was 19.5%, was proportionate to the number of dietary mistakes committed. The most dangerous items were those whose avoidance was traditionally recommended.

Study of 2240 travellers to Kenya and Sri Lanka

During first 3 days of travel 98% had made 1 or more dietary mistakes

5 most frequently made mistakes:

- 71% salads/uncooked vegetables
- 70% unpeelable fruit
- 54% ice cubes

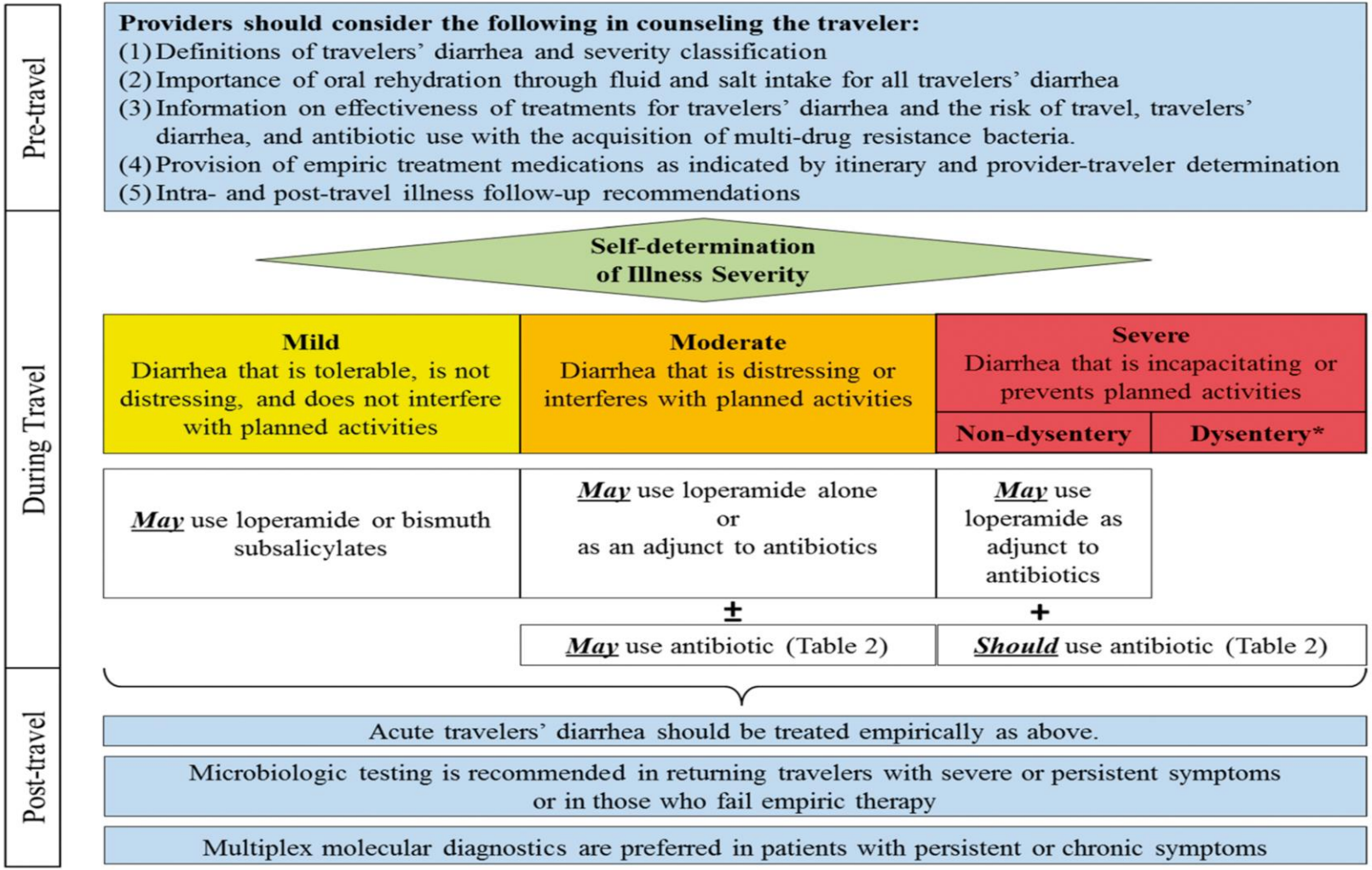
Number of mistakes correlated with risk diarrhoea

Guidelines for the prevention and treatment of travelers' diarrhea: a graded expert panel report

Mark S. Riddle ✉, Bradley A. Connor ✉, Nicholas J. Beeching, Herbert L. DuPont, Davidson H. Hamer, Phyllis Kozarsky, Michael Libman, Robert Steffen, David Taylor, David R. Tribble ... Show more

Author Notes

Journal of Travel Medicine, Volume 24, Issue suppl_1, April 2017, Pages S63–S80,
https://doi.org/10.1093/jtm/tax026



Journal of Travel Medicine, Volume 24, Issue suppl_1, 29 April 2017, Pages S63–S80, https://doi.org/10.1093/jtm/tax026

DIARRHOEA Rx – ADULTS

Fluid replacement – electrolyte sachets with clean water
Diluted lemonade 1:5-6
Aiming dilute urine

Loperamide 2mg: Two stat and one after each loose motion to maximum 8/day
Often all that is required for mild diarrhoea
Caution max dose/prolonged use – megacolon/perforation

Antibiotics: Stop if symptoms resolve!

- Azithromycin: 500mg daily for max three days
  (first dose could be 1g stat, but risk of nausea)
- Ciprofloxacin 1000mg followed by 500mg BD up to 3 days
- Norfloxacin 800mg followed by 400mg BD up to 3 days

DIARRHOEA Rx – CHILDREN

- **Oral rehydration** remains mainstay of treatment
- **Anti-emetic**: **Ondansetron** oral dispersible tablets:
  - > 15kg 4mg stat dose
  - > 30kg 8mg stat dose
- **Loperamide**: Current brands Nodia® & Diamide®: Licensed for use ≥ 12 years
  - Previous brand (Imodium®) licensed ≥ 6 years & over.
  - Meta- analysis suggest safe/effective ≥ 3 years of age[1]
- **Azithromycin**: Good option for children
  - powder for reconstitution when needed
  - **10mg/kg/day** split into doses/day: for up to 3 days
  - stop earlier if improved
  - Requires good instructions
  - On script specify “do not reconstitute at time of dispensing”

1.Li et al (2007). Loperamide therapy for acute diarrhea in children: Systematic review and meta- analysis. PLoS Medicine, 4(3), e98. doi:http://dx.doi.org/10.1371/journal.pmed.0040098

Vector illness – mosquitoes

- Dengue
- Chikungunya
- Zika
- Malaria
- JE

Dengue, Chikungunya, Zika

- All three transmitted by day biting, urban dwelling *Aedes aegypti* mosquito
- All three assumed to be wide spread in tropics
- Although outbreak surveillance is good in many countries, best to assume potential for infection on all trips
- All can present with non specific flu-like symptoms
- Dengue is the one most likely to cause severe disease
- Zika infection in pregnancy potential foetal abnormalities

➢ Bite avoidance is only preventive strategy

Insect repellents

DEET vs Picaridin

- DEET previously considered gold standard
- Current evidence suggests equal, based on choice
- High risk areas and DEET > 50% available – possibly superior to Picaridin
- Otherwise DEET 30-50% = Picaridin 20%

- Repellents only work if:
  - Applied!
  - Often
  - Generously

1. Larry Goodyer, Steven Schofield, Mosquito repellents for the traveller: does picaridin provide longer protection than DEET?, *Journal of Travel Medicine*, Volume 25, Issue suppl_1, May 2018, Pages S10–S15
2. Hasler T, Fehr J et al, Travel Medicine and Infectious Disease 28 (2019) 27-33

Mum has heard she can get a Dengue vaccine in the Philippines

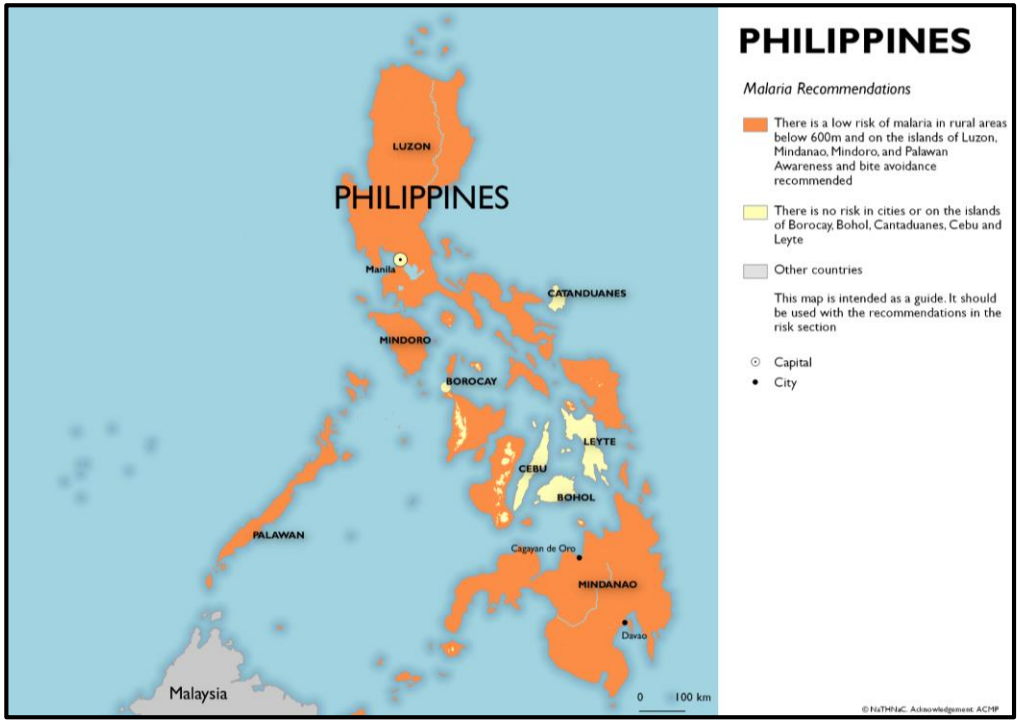
- Dengvaxia® - tetravalent live attenuated vaccine
- Licensed 20 countries.
- Age 9-45 yrs.
- Recommended in high seroprevalence countries (>70%).
- Efficacy 76% in seropositive vaccinees, 38.8% in seronegative vaccinees.
- In seronegative vaccinees cumulative incidence severe dengue 0.4% (compared to 0.17% in controls) – vaccine acts as a 'primary-like' infection, and subsequent infection with wild-type dengue is then a 'secondary-like' clinically more severe infection.

➢ Safe/effective in seropositive individuals

➢ Not recommended for travellers as most are seronegative.

Wilder-Smith, A Journal of Travel Medicine, 2018, 1–3

MALARIA



LOW RISK

NaTHNaC / Fit For Travel

Philippines	Present in Palawan and Mindanao Islands. None in metropolitan Manila and other urban areas. **"RISK PRESENT"** CDC/ IAMAT	Chloroquine	*P. falciparum* 70-80%, *P. vivax* 20-30%, *P. knowlesi* rare	Atovaquone-proguanil, doxycycline, mefloquine, or tafenoquine[6]

Risk is generally low in rural areas except in the provinces of Apayo, Zambales and Mindóro Occidental as well as the islands of Mindanao, Palawan and the Sulu Archipelago (Tawi Tawi).

- They make informed decision on bite prevention only for Palawan

JAPANESE ENCEPHALITIS

- Flavivirus TBE, Dengue, YF, Zika, WNV, Saint Louis
- Transmitted mosquito, esp *Culex spp*, nocturnal
- Zoonotic – circulates in wading birds, pigs (& other domestic animals) amplifying hosts, humans dead-end hosts
- Asia (E, SE, S), Western Pacific
- Subtropical/temperate areas May-Oct[3]
- Tropics – year round especially after rainy season
- Incubation 5-15 days
- 75% infection in children, but symptomatic infection in adults (7:1)[3]
- Most asymptomatic, 1% symptomatic – 30% fatal, 50% sequelae
- Risk 1:5,000/month rural travel[1] to < 1:10,000,000[2]

1. Centers for Disease Control and Prevention (CDC). Inactivated Japanese encephalitis virus vaccine recommendations of the advisory committee in immunization practices (ACIP). MMWR. 1993
2. Schofield S. Public Health Agency of Canada. CATMAT. Free Comminication 6.6: Guidance on Prevention of Japanese Encephalitis in Canadian Travellers. CISTM; 2017; Barcelona.
3. James C Pearce, Tristan P Learoyd, Benjamin J Langendorf, James G Logan, Japanese encephalitis: the vectors, ecology and potential for expansion, *Journal of Travel Medicine*, Volume 25, Issue suppl_1, May 2018, Pages S16–S26,

Geographical distribution of Japanese encephalitis (2018)

https://www.cdc.gov/travel-static/yellowbook/2018/map_3-08.pdf

COUNTRY RISK FOR JAPANESE ENCEPHALITIS

https://wwwnc.cdc.gov/travel/yellowbook/2018/infectious-diseases-related-to-travel/japanese-encephalitis

Table 3-07. Risk for Japanese encephalitis (JE), by country[1]

COUNTRY	AFFECTED AREAS	TRANSMISSION SEASON	COMMENTS
Philippines	Human, animal, and mosquito studies have indicated transmission in 32 provinces located in all regions of the country; presumed to be endemic countrywide	Year-round, with peak season April–August	Several traveler cases recently reported

JE Vaccines

Inactivated, vero cell derived JE vaccines

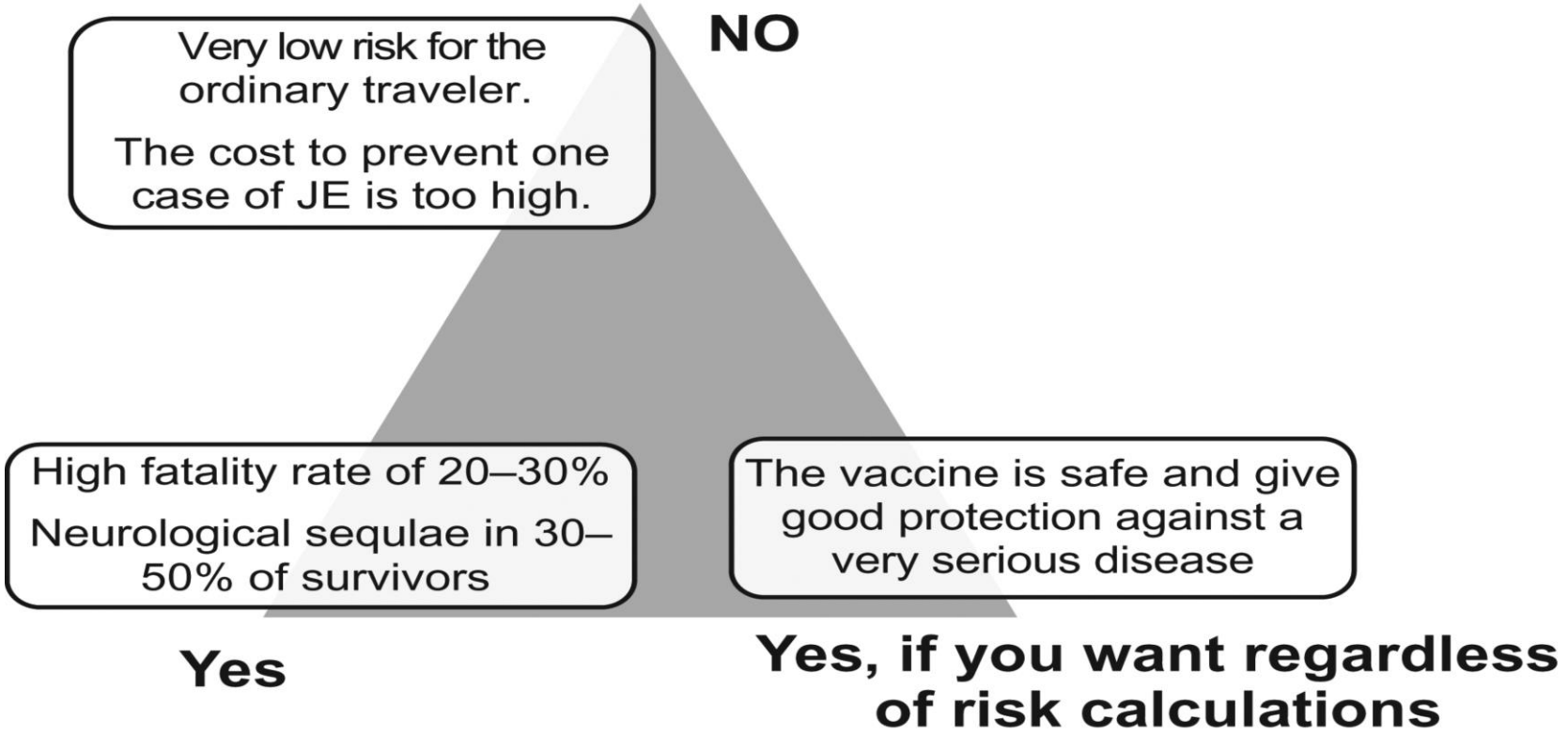
- Licensed as JESPECT® in Australia and NZ
- Licensed as IXIARO® elsewhere. Produced UK.
- Licensed over age 18yrs NZ (over 2 months other countries)
- 2 doses 0.5ml IM 28 days apart (0.25ml < 3yrs)
- Accelerated schedule days 0 & 7 licensed Europe 2017[1]
- Booster 1 yr, then ? (CDC/NZ), 10yrly (European data 2015[1])

Live attenuated recombinant (chimeric) JE vaccine

- Licensed in Australia and Thailand (since 2012) and IMOJEV®
- Produced Australia, *genetically modified vaccine* on backbone of YF vaccine
- Licensed over age 2 months
- 1 dose, 0.5ml SC

1. European Medicines Agency. Ixiaro: EPAR-Product Information. 2016; http://www.ema.europa.eu/docs/en_GB/document_library/EPAR_-_Product_Information/human/000963/WC500037287.pdf

COMMON ARGUMENTS FOR AND AGAINST VACCINATION OF TRAVELLERS AGAINST JAPANESE ENCEPHALITIS



Journal of Travel Medicine, Volume 25, Issue suppl_1, 01 May 2018, Pages S3–S9, https://doi.org/10.1093/jtm/tay006

JE Vaccination

Vaccination not recommended:

- short-term travelers whose visits will be restricted to urban areas or times outside a well-defined JE virus transmission season.

Vaccination recommended:

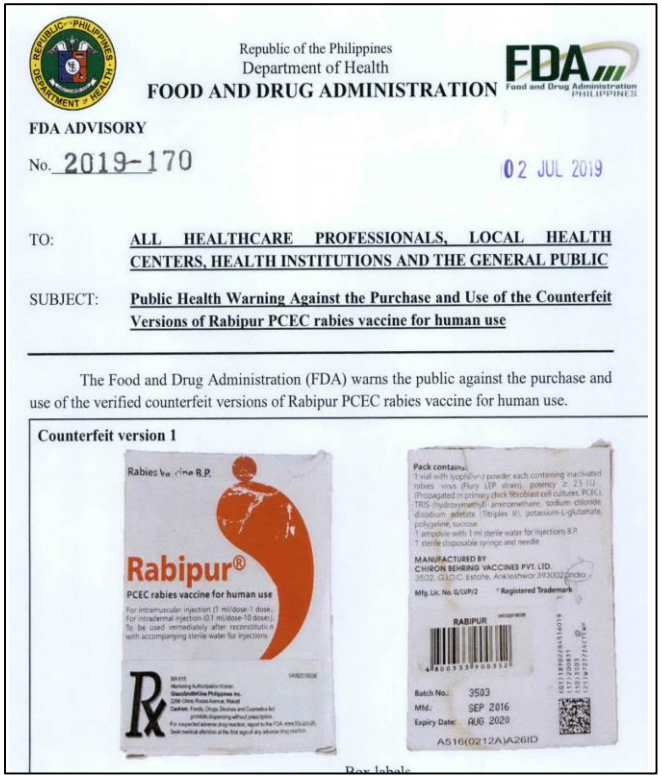
- travellers spending ≥1 month in endemic areas during the JE virus transmission season.
- long-term travelers,
- recurrent travelers to endemic areas,
- Expatriates in urban areas but visiting rural or agricultural areas

This family – JE vaccine too expensive, will get vaccinations on arrival in Philippines…..

In country vaccination:

- Sounds practical/cheaper but
- May change mind on arrival
- Family/friends may talk them out of it
- Have difficulty accessing clinic – transport/time/distraction
- May be exposed to disease before vaccinated or before vaccine effective
- May be vaccine of lesser quality

Two alerts so far in 2019 for counterfeit rabies vaccinations in Philippines…..



Republic of the Philippines
Department of Health
FOOD AND DRUG ADMINISTRATION

FDA ADVISORY

No. 2019-170 02 JUL 2019

TO: **ALL HEALTHCARE PROFESSIONALS, LOCAL HEALTH CENTERS, HEALTH INSTITUTIONS AND THE GENERAL PUBLIC**

SUBJECT: **Public Health Warning Against the Purchase and Use of the Counterfeit Versions of Rabipur PCEC rabies vaccine for human use**

The Food and Drug Administration (FDA) warns the public against the purchase and use of the verified counterfeit versions of Rabipur PCEC rabies vaccine for human use.

Counterfeit version 1

Rabies Vaccine B.P.

Rabipur®

PCEC rabies vaccine for human use

Pack contains:

MANUFACTURED BY
CHIRON BEHRING VACCINES PVT. LTD.

Mfg.Lic. No. G/LVP/2 ® Registered Trademark

RABIPUR

Batch No.: 3503
Mfd.: SEP 2016
Expiry Date: AUG 2020

A516(0212A)A26ID

Box labels

Medical Product Alert N° 1/2019

Falsified Rabies Vaccines circulating in the Philippines

Falsified Rabies Vaccines circulating in the Philippines

This Medical Product Alert relates to falsified Verorab® vaccines that have been identified in the Philippines and reported to WHO. This vaccine is used for the prevention of rabies in children and adults. It can be used to protect those who are at risk of exposure to rabies (pre-exposure vaccination) or to prevent the development of rabies after exposure has occurred, usually following the bite of an animal suspected of having rabies (post-exposure prophylaxis). Its genuine version is manufactured by Sanofi Pasteur.

Children's issues

At increased risk:

- diarrhoeal illness & dehydration
- Severe malaria, VFR highest risk.
- animal bites
- Accidents
- drownings

➢ Hospitalisation (for all of above)

Children's issues

Good resources for travel with children include:

- "Paediatric Travel Medicine" - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3690101
- https://wwwnc.cdc.gov/travel/yellowbook/2018/international-travel-with-infants-children/traveling-safely-with-infants-children
- New Zealand immunisation Handbook

Lower age licensing: Travel Vaccines

Vaccine	Lower Age Licensed
Hepatitis A vaccine	Havrix Jnr® 12 months / Avaxim® 2 yrs
Hepatitis A immunoglobulin	Birth (but not routinely used pre-travel in NZ)
Typhoid (polysaccharide)	2 years
Typhoid (oral)	6 yrs
Rabies Pre-Exposure	12 months (NZ licensing)
Rabies Post-Exposure	Birth
Meningococcal-B (Bexsero®)	2 months
Meningococcal conjugate quadrivalent	9 months
Meningococcal conjugate C (Neisvac®)	8 weeks (see Immunisation Handbook)
Yellow Fever	9 months (but 6 months if risk justifies)
Japanese encephalitis-Jespect	18 years in NZ 2 m in Europe and USA
Influenza (inactivated)	6 months
BCG	Birth

VFR travellers

- *any* traveller whose intended purpose of travel is to *visit friends and relatives* in a country where the *health risk is different* from their current country
- A first generation VFR traveller is one born overseas but now residing in NZ (immigrant VFR)
- A second (or subsequent) generation VFR will have been born in NZ, with immigrant parents or grandparents, returning to the country of origin of their parents/grandparents (Traveller VFR)

VFR TRAVELLERS

NZ 2013 Census 25.2% population born overseas[1]

NZ 2015 departures for < 12 months identified as VFR: 37%[2]

VFR travellers who do seek travel advice, do so from primary care in 75% cases[3]

1. http://www.stats.govt.nz/Census/2013-census
2. http://www.stats.govt.nz/
3. Heywood et al. J Travel Med 2015; 22: 368–374

2016 - VFR Travellers Account for 65% Of Notified Cases Of:

- Hepatitis A (62%)
- Hepatitis E (77%)
- Typhoid (97%)
- Paratyphoid (72%)
- Malaria (54%)
- Measles (44%)
- Chikungunya (45%)

Children < 18 accounted for 35%, suggesting increased risk

Heywood et al. J Travel Med 2015; 22: 368–374

Hepatitis A

- Immigrant VFRs may have life-long immunity from naturally acquired infection as children
- Their NZ born children are unlikely to be immune
- Traveller VFR (usually children) more at risk (Geosentinel study)
- VFR children particularly at risk (Quebec study)
- Depending on the VFR traveller they might be at less or greater risk than tourist traveller – don't assume immunity!
- Be aware that Hepatitis A epidemiology is changing
  - E.g. In India[1] naturally acquired immunity rates dropping as socioeconomic status improves for many

1. Das et al. European Journal of Epidemiology. 2000;16(6):507-10.

This family – Children - hepatitis A vaccine

- may have asymptomatic illness and prior to their next trip you won't know whether to vaccinate or not.
- Those under 3 yrs may be are a risk to others on their return because of faecal shedding and the need to have nappies changed

➢ Ideally vaccinate the 4 year old and 2 year old.

TYPHOID in VFRs

Geosentinel : Odds ratio 7x for VFR travellers[1]

Canada: 95% imported typhoid in VFR travellers[2]

Australia 2016: 97% imported typhoid was in VFR travellers

85% in NSW VFR (0% pre-travel immunisation)[3]

USA: 2008-2012: 85% in VFR travellers (mostly S Asia)[6]

NZ 2014: 69% typhoid in VFR travellers[4]

NZ 2015: Typhoid 72.1% in travellers (mostly India, Samoa)[5]

Paratyphoid 82.4% in travellers (Indonesia, India)[5]

1 Leder et al, CID. 2006;43(9):1185-93 – Geosentinel data
2 http://www.phac-aspc.gc.ca/tmp-pmv/catmat-ccmtmv/friends-amis-eng.php
3 http://http://www.health.gov.au/ 2015
4 Surveillance Report – Notifiable Diseases in NZ 2015 – www.surv.esr.cri.nz
5 *Lane et al. Intern Med J. 2015;45(2):148-55.*
6 www.cdc.gov/nationalsurveillance/pdfs/typhi

Typhoid Vi Polysaccharide (Vi-PS)

- protective efficacy of the Vi-PS vaccine[1]
  - 67% after 1 year
  - 60% after 2 years
  - 50% after 3 years

- Revaccination recommended every 3 years (WHO)
- and every 2 years when continuous exposure is expected (CDC)

- Vi-PS is a capsular polysaccharide vaccine, which directly stimulates B-cells and is not dependent on T-helper cells so no memory cells are formed[2]

- Frequent revaccination might be harmful, because of the possibility of inducing immunotolerance[2]

1.Engels EA, Falagas ME, Lau J, Bennish ML. Typhoid fever vaccines: a meta-analysis of studies on efficacy and toxicity. BMJ 1998; 316: 110–6.
2. Von Asmuth EG, Brockhoff HJ et al. S. typhi Vi capsular polysaccharide vaccine-induced humoral immunity in travellers with immunosuppressive therapy for rheumatoid disease . JTM, 2019, 1–6

Typhoid Live Attenuated Oral Vaccine Ty21a

Age	Adults Children > 6 yrs	Not recommended < 6 yrs due to lack of data
Schedule	3 capsules on alternate days e.g. Days 1, 3 & 5	NZ/Australia 3 dose pack Other countries 4 dose option Swallow with cold/lukewarm water
Effective	From 1 week after completion course	
Duration of cover	3 years for 3 dose schedule 5 years for 4 dose schedule	
Booster	If ongoing significant risk 3 yearly for 3 dose schedule 5 yearly for 4 dose schedule	
Contraindications	Immunodeficiency, acute febrile illness, acute intestinal infection (No issue with live attenuated vaccines or OPV)	
Interactions	Antibiotics (3 day interval) Chloroquine / Mefloquine (3 day interval) Proguanil (10 day interval), but none Atovaquone/Proguanil	
Side-effects	Usually mild but common – constipation, diarrhoea, cramps, N & V, LOA, fever, headache, urticaria	

Typhoid- Who to vaccinate ?

- ALWAYS reinforce personal hygiene, food and water precautions
- Discuss with all travellers to endemic areas
- Vaccination only partial protection S typhi, minimal S paratyphi

Recommend:

- traveller risk > 1/10,000 = South Asia[1]
- All travel to South Asia (India, Nepal, Pakistan, Bangladesh)
- VFR travel irrespective of length of travel (esp. Samoa)
- Long-term travel (> 1/12)
- Short-term travel if risk factors (poor sanitation exposure):
  - HCW, emergency relief work, post disasters
  - Volunteer work
  - remote/rural travel
  - intend taking risks with food/water

1.Commitee to advise on Tropical Medicine and Travel (CAMAT). Summary of the Statement on International Travellers and Typhoid by the Committee to Advise on Tropical Medicine and Travel CATMAT. Canada Communicable Disease Report. 40: 4 2014

Hepatitis B

- Children have been vaccinated.
- Mother will have been screened for carriage in her pregnancies but may not be immune.
- Ideally vaccinate her as she may partake of health care there, will keep returning over the years, so cumulative risk.
- Father best to be vaccinated for same reasons
- Reinforce transmission of blood borne disease – medical facilities, tattoos, piercings, sexual contact

Rabies

Latest News

VIEW ALL OUR NEWS

Rabies Awareness Month: Encouraging Philippine communities in the fight against rabies

22 April 2019

RABIES: THE FACTS

World Health Organization

VIRUS TRANSMISSION

Saliva of infected animals

99% of human cases are caused by **dog bites**

The virus attacks the brain

Rabies is **fatal** once symptoms appear

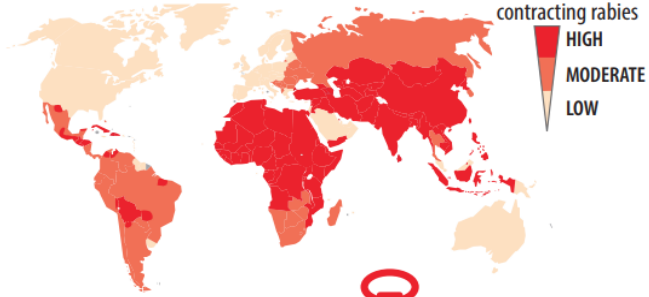
TREATMENT

Thorough washing of the wound with soap, and, vaccine injections can avoid symptoms and **save lives**.

Seek immediate medical care if bitten.

FATALITIES

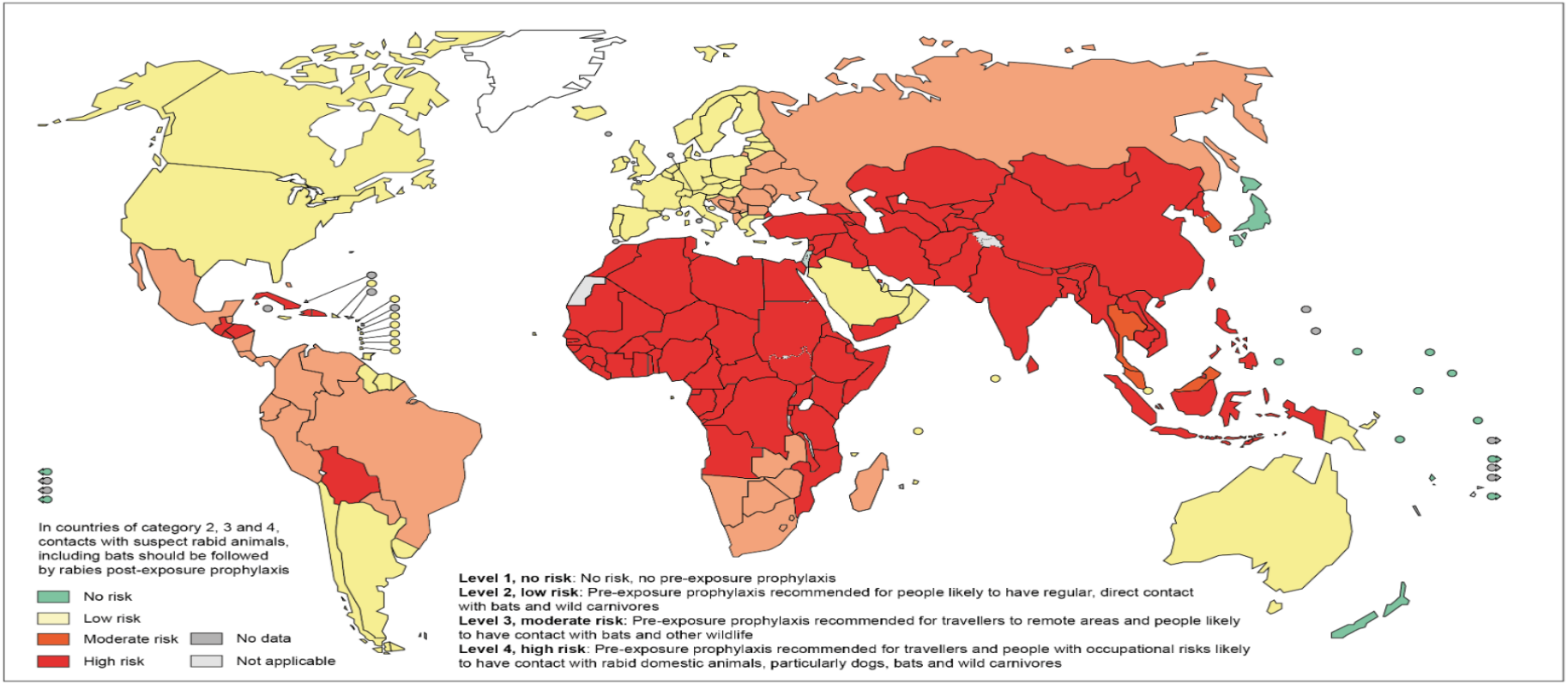
Rabies affects **poor rural communities** mostly in Asia and Africa



About **One death** every **9 mins**

40% of the victimes are children younger than 15

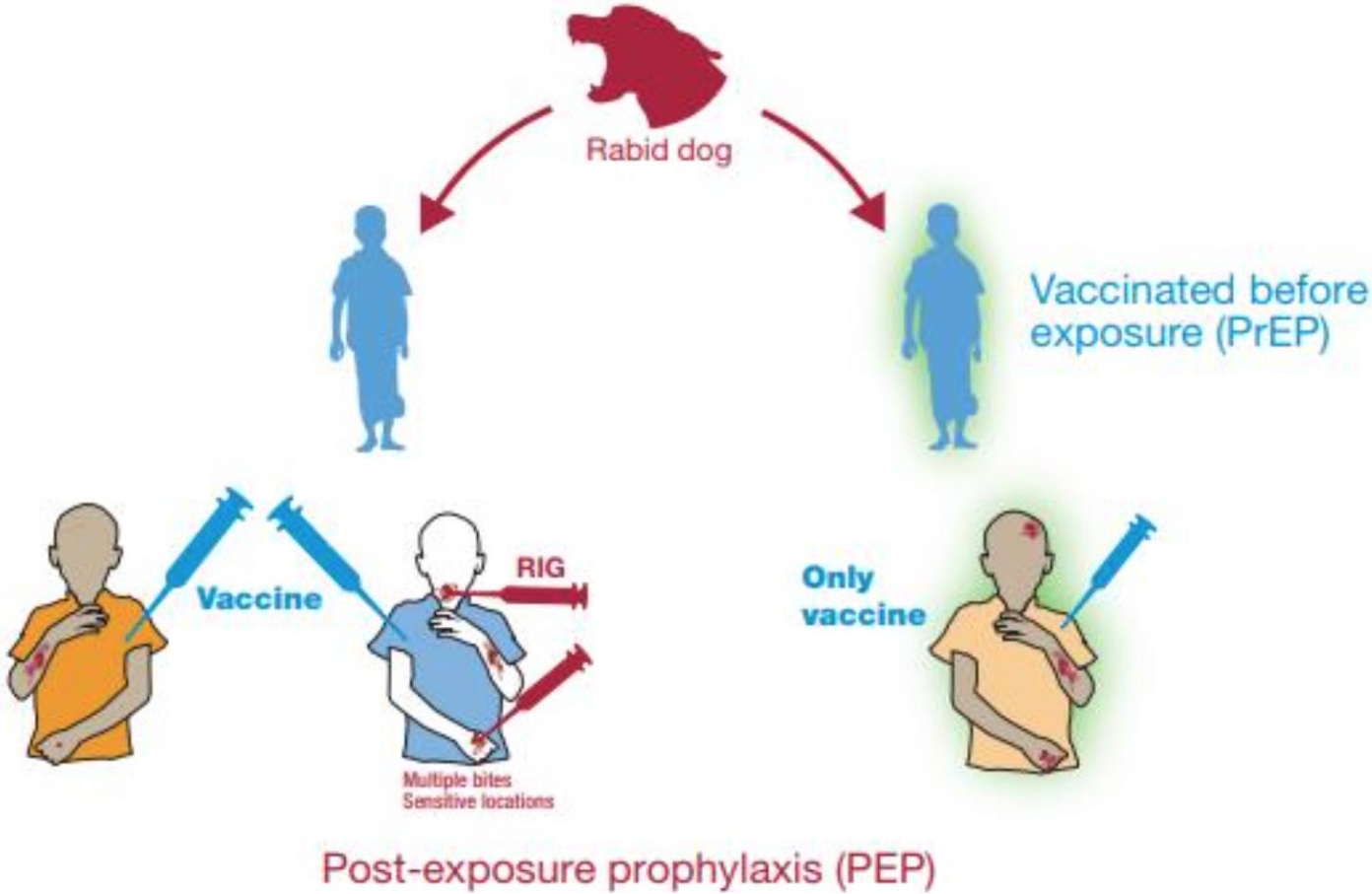
Distribution of risk levels for humans contacting rabies, worldwide, 2018



Data Source: World Health Organization
Map Production: Control of Neglected Tropical Diseases (NTD)
World Health Organization

World Health Organization

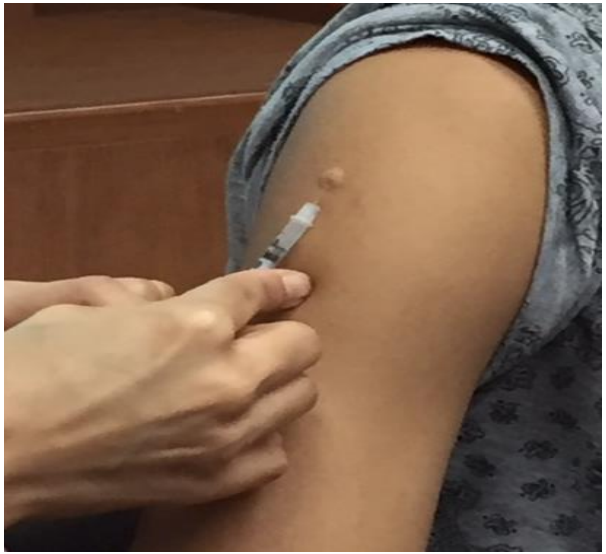
Rabies Post-exposure prophylaxis PEP



RABIES Pre-Exposure (PrEP)

- Standard (licensed) IM PrEP — 1-site IM 3-dose regimen day 0, 7, and 21 or 28

- Alternative Intradermal (ID) PrEP



- not licensed in NZ
- requires informed consent
- requires training in administration
- Operator dependent
- widely used (NZ/Australia/elsewhere)
- Serology ideal, informed discussion
- reduces cost
- uses less vaccine
- WHO endorses ID route as ≥ IM route

RABIES - NZ LICENSED VACCINATION

Pre-travel education and rabies awareness and animal avoidance during travel to a rabies endemic country

PrEP	No PrEP
Pre-exposure prophylaxis (PrEP) with Rabies vaccine • **IM** 1 vial days 0,7,21 or 28	No Pre-exposure prophylaxis

Animal exposure – breach of skin or dermal barrier

Wound care – irrigation for 15 minutes with soap and water, treat with iodine or 70% alcohol and seek medical attention for Post-exposure prophylaxis (PEP)

Had PrEP	No PrEP
Rabies vaccine IM 1 vial days 0 & 3	• Rabies Immunoglobulin (RIG) 20IU/kg at same time as commencing Rabies Vaccine • If RIG not available, start Rabies Vaccine • RIG can be given up to 7 days after starting rabies vaccination • Rabies vaccine IM 1 vial days 0,3,7,14 &28 (CDC recommends only 4 doses if immuno-competent)

RABIES **PrEP** OFF LICENSE IN NZ

REQUIRES DISCUSSION, INFORMED CONSENT

	DOSE	NOTES
PrEP ID	0.1ml ID Day 0, 7, 21 or 28 Test or boost as recommended	Irrespective of brand Good evidence, incl. NZ/Aus WHO recognised Recommend serology > 3/52 Antibody level > 0.5IU/ml
PrEP IM/ID (WHO)	1-site IM day 0 & 7 OR 2-site (each deltoid) ID day 0&7	Recommend 3rd dose at 6 or 12 months Option - last minute traveller - vaccine shortage
PrEP IM PHE rapid[2]	1 dose IM Day 0, 3, 7 and complete series at 1 year	Option - last minute traveller

2. Vaccine update, Issue 282, August 2018, Public Health England

RABIES: MAIN MESSAGE FOR TRAVELLERS

- Awareness of rabies risk

- PrEP (vaccination) if can afford/have time
- Tourists usually “life-time” vaccine

- Animal avoidance
- (no matter how cute!)

- If bitten/licked
  - wound irrigation
  - seek medical help promptly
  - PEP awareness
    - if PrEP ➔ 2 doses
    - no PrEP ➔ RIG + 4 (or 5) doses

Rabies – This family…..

- Rabies is a significant risk in Philippines
- Children are more likely to be bitten than adults and bites are more likely to be high risk bites
- Ideally vaccinate children - long term investment for future trips
- Reduce/spread cost with “off license” vaccination (informed consent):
  - ID 3 doses on days 0,7,21
  - ID 2 site on days 0 & 7 (2 doses each arm)
  - IM 2 doses on days 0 & 7 (and 3rd dose 6-12 months)
- Reinforce:
  - avoid dogs and other mammals,
  - wash a bite well
  - seek medical care.

Davao City (Mindanao) - Safety

SAFETRAVEL

Official advice for New Zealanders living and travelling overseas

Before you go | Travel advisories | News features | When things go wrong | Family issues | Our services | Contact us

Home / Philippines

Print page

Philippines

https://www.safetravel.govt.nz/

Register/update your travel plans

Section pages:

- Travel advisories
- By destination
- By region
- About our advisories
- Travel advisory risk levels
- Subscribe to travel advisories

Reviewed: 15 August 2018, 10:40 NZST Still current at: 22 June 2019

Get updates by RSS | Get updates by email

Do not travel

Do not travel to central and western Mindanao (including the Sulu Archipelago) due to the very high threat of terrorist activity, kidnapping and violent clashes between the military/police and terrorist or rebel groups.

Avoid non-essential travel

Share this page:

Related News features

- Advice for New Zealanders overseas
  Posted: 20 03 2019, 15:18 NZDT
- Measles - check you are protected before you travel
  Reviewed: 3 April 2019, 14:35 NZDT

Vaccinations

Dad NZ immunised and current born 1985
Mum had everything in Philippines
Children current with NZ schedule

Mum and Dad

TD/TDaP - decline
Influenza - decline
Hep A – Mum decline
Hep B – Dad Twinrix rapid
Typhoid – Mum decline
Dad accepts
Rabies – ID, decline serology
JE – decline
Measles - decline

Children (aged 4 and 2 yrs)

BCG - decline
Influenza - decline
MMR – accepts 4yr, decline 2 yr
Varicella - declined
Hep A - accepted
Typhoid - accepted
Rabies – ID, decline serology
JE – in country

Possible schedule (leave in 25 days)

Vaccine	Day 0	Day 7	Day 21/28	1 year
Hep A/B Dad (? Mum)	Twinrix® 1ml IM	Twinrix® 1ml IM	Twinrix® 1ml IM	Twinrix® 1ml IM
Rabies ID Whole family	Rabipur®0.1ml ID	Rabipur®0.1ml ID	Rabipur®0.1ml ID	
Typhoid IM Dad, kids	Typhim Vi® 0.5ml IM			
Hep A kids	Avaxim® 0.5ml IM			Avaxim® 0.5ml IM

Case 2: Backpacker – South America

24 yr old female, finished Masters, yeehah!
Travelling solo, 6 months, leaves in 4 weeks
Flying into Santiago, and out of Santiago
At this stage thinking……

- Across Chile to Argentina
- Maybe Patagonia trekking
- Salta -> Bolivia… Potosi…Sucre…. Animal sanctuary volunteering…..La Paz….?? Peru
- …? Lares or Inca Trail……Ecuador
- Amazon somewhere ? Northern Peru or Ecuador

Looking for unique experiences

Coeliac Disease

Sickly as child, failure to thrive, diarrhoea

- IgA deficiency
- Coeliac disease eventually diagnosed

➢ Healthy since strictly gluten free

Fully immunised including:

MMR x 2 and a third dose last year after media reports

MeNZ B + Menactra® (ACWY)

HPV x 3

Pre-travel consultation –potential topics to cover

- Traveller's concerns
- Flight safety / fitness to fly / risks VTE
- Food & water borne illness / diarrhoea prevention & management
- Vector borne illness - insects /animals – Yellow Fever
- Safety / Security / Accident / injury / insurance
- Sexual safety / Women's health
- Psychological preparedness / risks
- Managing pre-existing health problems – diabetes, asthma, etc
- Environment / climate / altitude
- Special activities (e.g. cycling, diving, caving, trekking, volunteering)
- Special groups - children; elderly; disabled; VFR, immuno-compromised….
- Vaccine preventable infections (routine, recommended, required)
- Medical kits

Resources for traveller with vague plans

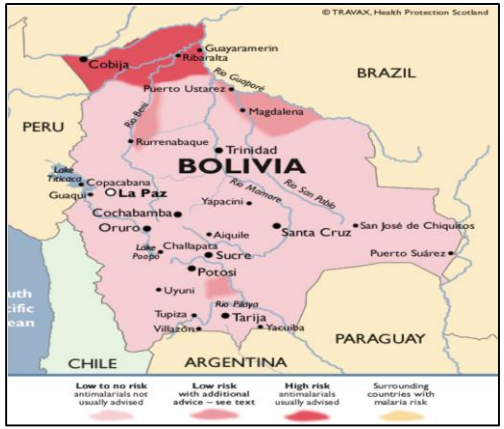
1. CDC https://wwwnc.cdc.gov/travel/
2. Travel Health Pro https://travelhealthpro.org.uk
3. Fit for Travel http://www.fitfortravel.nhs.uk

- Show them the site and give the link
- Encourage being familiar with one

Malaria with vague plans

- Understand malaria risk, maps, precautions.
- Try to avoid risk areas.
- Try to link areas with risk to avoid on/off.
- Chemoprophylaxis – carry to use if plans change - Doxy, Mefloquine, A-P.
- Rapid Diagnostic Test + Emergency Standby Rx

MALARIA MAPS Understand the differences



Fit for Travel

Scotland

Travel Health Pro

a.k.a. NaTHNac / UK

CDC

USA

I like Fit for Travel because it grades risk into :

- Low to no risk
- Low risk
- High risk

…… And you can engage the traveller about risk tolerance

MALARIA UPDATE

WHO reports global decline in malaria since 2000

Malaria risk declined - globally 37%

- SE Asia 78%
- Americas 46%
- Western Pacific 65%

<u>With declining rates</u>:

- risk estimates less accurate
- More travellers reading about asking about SBET

Ron H Behrens, Christoph Hatz, Leo Visser, Defining malaria risk: it is not only about epidemiology but also about perception and risk threshold of travellers and policy makers, *Journal of Travel Medicine*, Volume 25, Issue 1, 20183

STANDBY EMERGENCY TREATMENT

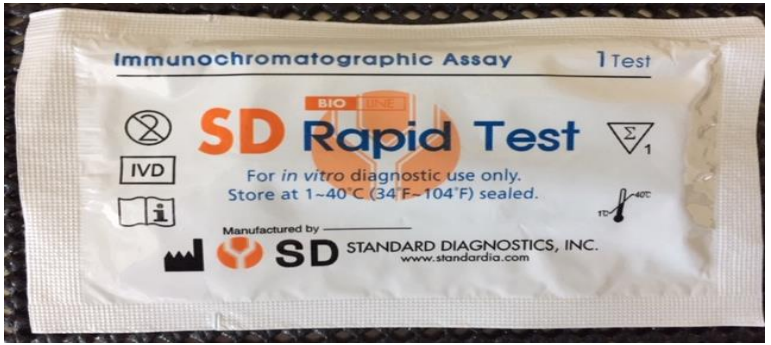
SBET – popular in Europe

– Swiss, Germans, Austrians, Italians, Dutch

Aimed at areas of low P. falciparum transmission:

- SE Asia and South America
- areas where P. vivax more likely

Not aimed at Sub-Saharan areas or high risk trips/destinations



<u>Goal is to use SBET when</u>:

- malaria suspected
- health care unavailable/inadequate/delay > 24hrs
- supported by Rapid Diagnostic Tests (RDTs)

Ron Behrens, Standby emergency treatment of malaria for travellers to low transmission destinations. Does it make sense or save lives?, *Journal of Travel Medicine*, Volume 24, Issue 5, September-October 2017

DOXYCYCLINE

Not licensed for malaria chemoprophylaxis in NZ – consent!
Widely used in NZ/elsewhere

100mg daily, starting 1-2 days before entering risk area
Daily in risk area, and for 4 weeks after leaving risk area

Side-effects:
Dyspepsia / indigestion / oesophagitis / oesophageal perforation
Photosensitivity / Candidiasis

Insufficient data on Minocycline – switch to Doxycycline[1]

Avoid during pregnancy
Children > 12[2] yrs NZ, or 8[1] yrs USA

1. https://wwwnc.cdc.gov/travel/yellowbook/2018/infectious-diseases-related-to-travel/malaria
2. https://nzf.org.nz

ATOVAQUONE-PROGUANIL / MALARONE[1]®

- Fixed dose combination
  - Adult - Atovaquone 250mg/Proguanil 100mg tabs
  - Paediatric - Atovaquone 62.5mg/Proguanil 25mg tabs

- Started 1 day prior to entering risk area, daily while there, and for 7 days after leaving
- Taken same time each day, with food/milk
- Side-effects “rare” 1/200-300 – abdominal pain, nausea, vomiting, headache
- Not recommended < 5kg, pregnancy, CrCl ≤ 30ml/min
- Generics available elsewhere
- Worldwide use

1. https://nzf.org.nz/nzf_3549

MEFLOQUINE

- Mefloquine (Lariam®) is back in stock in NZ
- Imported by CDC Pharmaceuticals from UK
- Price will vary between pharmacies
- Approx $15/tab
- In general it is more expensive than previously

- C/I epilepsy, neuropsychiatric disease, QTc

- Long $t^{1/2}$ of 3 weeks

- Can be used in pregnancy, breastfeeding, children over 5kg

https://medsafe.govt.nz/profs/datasheet/l/lariamtab.pdf

MEFLOQUINE

Mefloquine 250mg tab[1,2]

Malaria chemoprophylaxis:

- Standard: 1 weekly, starting 2-4 weeks before risk area
  Then weekly while in malaria risk area and for 4 weeks after leaving
- Loading: daily for 3 days then weekly thereafter – caution on s/e!

Therapy: for Pf, Pv, mixed infections 20-25mg/kg

Stand-by treatment: 15mg/kg, rpt in 6-8 hrs if care delayed

1. https://medsafe.govt.nz/profs/datasheet/l/lariamtab.pdf
2. https://wwwnc.cdc.gov/travel/yellowbook/2018/infectious-diseases-related-to-travel/malaria

MEFLOQUINE Pf RESISTANCE

- Borders of Thailand with Myanmar and Cambodia.
- Western Cambodia.
- Eastern states of Myanmar on the Chinese border.
- Laos /Myanmar/Thai border.
- Thai/Cambodia border.
- Southern Vietnam.

➢ USE MEFLOQUINE WITH CAUTION IN SOUTH-EAST ASIA!

https://wwwnc.cdc.gov/travel/yellowbook/2018/infectious-diseases-related-to-travel/malaria

Coeliac disease - diarrhoea ? Infective/gluten

http://www.celiactravel.com/

CELIACTRAVEL.COM

Free Gluten-Free Restaurant Cards

Gluten-Free Tips, Tools & Articles

Gluten Free Recipes

Gluten Test Kits

Celiacs (Coeliacs)! - Get Gluten Free Food Safely At Home Or Away

If you have Celiac (coeliac) disease or need gluten free food for any reason, use CeliacTravel.com to get essential facts, tips and tales to help maintain your special diet anywhere in the world - plus our super-popular (free) gluten free restaurant cards in 54 languages.

www.celiactravel.com

Spanish Gluten Free Restaurant Card

Tengo una enfermedad que se llama celiaquía y necesito seguir una dieta rigurosa libre de gluten.

Como consecuencia me podría poner muy enfermo en el caso de que comiera alimentos que contuvieran harinas o granos de trigo, centeno, cebada y avena.

¿Contiene esta comida harinas o granos de trigo, centeno, cebada o de avena? Si tuviera alguna duda sobre el contenido de la comida, por favor dígamelo.

Puedo comer alimentos que contienen arroz, maíz, patata, todo tipo de verdura y fruta, huevos, queso, leche, carne y pescado - **siempre que no hayan sido preparados con harina de trigo, rebozo, pan rallado o con salsas. Sin salsa, por favor.**

Muchas Gracias por su ayuda.

Contraception/periods

Depo Provera - amenorrhoea, 3m
Mirena – painful/heavier periods, expulsion, 5y
Jadelle – convenient, 4-5yrs but risk bleeding
Combined OC – can skip periods, adherence, D&V
+ Condoms regardless
Personal supplies of toiletries
Really deserves a consult on its own!

Altitude

WILDERNESS MEDICAL SOCIETY PRACTICE GUIDELINES

Wilderness Medical Society Practice Guidelines for the Prevention and Treatment of Acute Altitude Illness: 2019 Update

Andrew M. Luks, MD[1]; Paul S. Auerbach, MD, MS[2]; Luanne Freer, MD[3,4,5]; Colin K. Grissom, MD[6,7]; Linda E. Keyes, MD[8,9]; Scott E. McIntosh, MD, MPH[10]; George W. Rodway, PhD, APRN[11]; Robert B. Schoene, MD[12]; Ken Zafren, MD[2,13]; Peter H. Hackett, MD[14]

https://www.wemjournal.org/article/S1080-6032(19)30090-0/fulltext

Altitude - Prevention

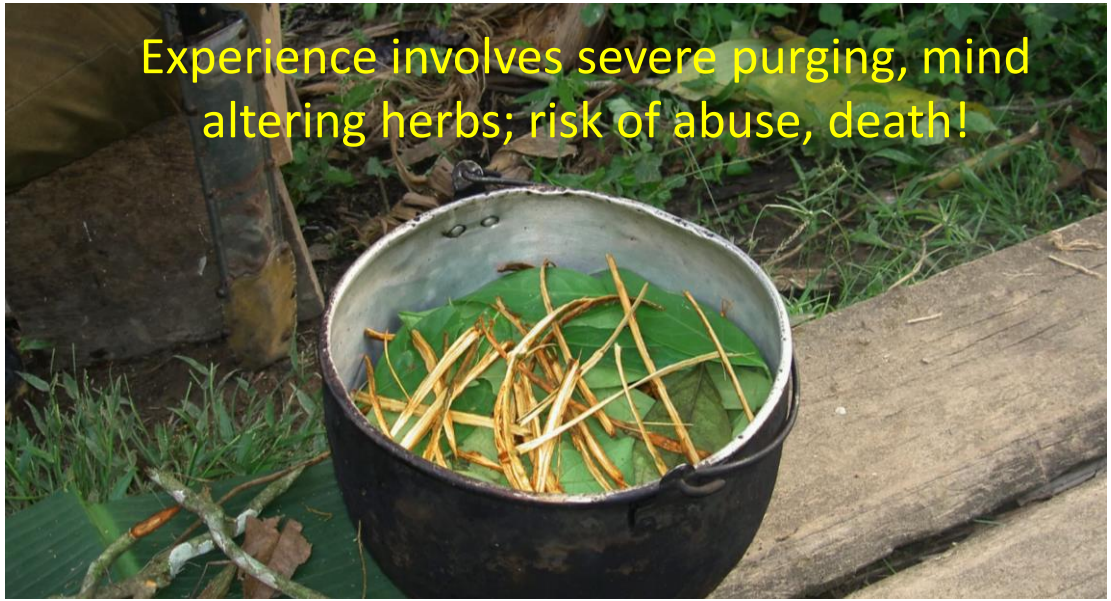
- Risk unacclimatised travellers > 2500m
- Consider prior history AMS (? lower threshold of risk to 2000m)
- Rate of ascent – slower is better: incr sleeping level < 500m/day over 3000m
- Rest days every 3-4 days or if exceeding above
- Medication for moderate/high risk individuals (see next slide)
  - Acetazolamide adults 125mg BD
  - childen 2.5mg/kg/dose 12 hourly
  - Dexamethasone 2mg q6h or 4mg q12h (*only if Diamox c/i*)
  - Ginko biloba – conflicting evidence. Acetazolamide far superior
  - Ibuprofen 600mg TDS > placebo. No comparison Acetazolamide / Dex

Altitude – Prevention
Consider medication for mod/high risk

Risk category	*Description*
Low	• Individuals with no prior history of altitude illness and ascending to ≤2800 m • Individuals taking ≥2 days to arrive at 2500–3000 m with subsequent increases in sleeping elevation <500 m/d and an extra day for acclimatization every 1000 m
Moderate	• Individuals with prior history of AMS and ascending to 2500–2800 m in 1 day • No history of AMS and ascending to >2800 m in 1 day • All individuals ascending >500 m/d (increase in sleeping elevation) at altitudes above 3000 m but with an extra day for acclimatization every 1000 m
High	• Individuals with a history of AMS and ascending to >2800 m in 1 day • All individuals with a prior history of HACE • All individuals ascending to >3500 m in 1 day • All individuals ascending >500 m/d (increase in sleeping elevation) above >3000 m without extra days for acclimatization • Very rapid ascents (eg, <7-day ascents of Mt Kilimanjaro)

Unique experiences - Ayahuasca

- Pounded stems of a flowering *Banisteriosis* vine combined with leaves of a *Psychotria* shrub, made into a tea
- https://adf.org.au/drug-facts/ayahuasca/



Vaccinations (24 yr old)

Routine

- Polio – discussed/declined
- *MMR*
- *Varicella - infection*
- ADT/DTaP – 10 yrs
- Influenza
- *Hep B*
- *HPV*

Recommended

- Hep A
- Typhoid -> Vivaxim®Typh + HepA
- Rabies IMx3
- Meningitis ACWY/B
- ?Chol era/ETEC

Required

- Yellow Fever

YELLOW FEVER

RNA virus Flavivirus
Mosquito vector *Aedes* and *Haemagogus spp*
Live attenuated vaccine
Given 4 weeks from other live vaccines, or same day
Contraindicated if immunosuppression

<u>Vaccination is given to travellers</u>:

- Risk of Yellow Fever disease
- Require it for entry to a country

- ➢ For our traveller recommended because vague plans
- ➢ ? Contraindicated because of IgA immunodeficiency

YELLOW FEVER – use latest country list!

INTERNATIONAL TRAVEL AND HEALTH – 01 JULY 2019

Country list[1]

Vaccination requirements and recommendations for international travellers; and malaria situation per country

https://www.who.int/ith/ith-country-list-new.pdf?ua=1

LIVE VACCINES

Diseases and medications when live vaccines may be contraindicated (Immune system dysfunction and live attenuated viral vaccines)

The Immunisation Advisory Centre

Table 1. Conditions associated with primary or secondary immunodeficiency

Primary immunodeficiencies	Examples	Live attenuated viral vaccines
B-lymphocyte deficiency (humoral)	X-linked agammaglobulinaemia Common variable immune deficiency	CONTRAINDICATED
	Selective IgA	Can be given
	IgG subclass deficiency (IgG2, IgG3)	Can be given in most cases but confirm with patient's specialist

Table 2. Immunosuppressive or immunostimulatory treatment – alphabetical list by generic name

Generic name	Safe dose*	Vaccination BEFORE treatment initiation	Vaccination AFTER treatment cessation*
5-ASA/Mesalazine	Any dose	Any time before, during or after treatment	
6-Mercaptopurine	≤1.5 mg/kg/day	1 month before	3 months after
Abatacept	NONE	1 month before	12 months after
Adalimumab	NONE	1 month before	12 months after

https://www.immune.org.nz/sites/default/files/resources/Written%20Resources/AdministrationImmunecompLiveVac20180507V02Final.pdf

LIVE VACCINES
– same day or 28 days apart

- MMR
- Varicella
- BCG
- Herpes Zoster *Zostavax®*
- Yellow Fever *Stamaril®*
- Oral typhoid *Vivotif®* 4 week rule n/a
- Oral Cholera/ETEC *Dukoral®* 4 week rule n/a

Possible schedule

Vaccine	Day 0	Day 7	Day 21/28	6-12 months
Hep A / typhoid		Vivaxim® 1ml IM		
Hepatitis A				Avaxim® 0.5ml IM
Rabies	Rabipur® 0.5ml IM	Rabipur® 0.5ml IM	Rabipur® 0.5ml IM	
DTaP			Adacel® 0.5ml IM	
Influenza				
Yellow Fever	Stamaril® 0.5ml SC/IM			

Case 3: Couple – “just Europe”

68 yr old male
72 yr old female
Frequent travellers to Europe
Auckland – Doha – Amsterdam
Amsterdam 3 days
14 day cruise – Amsterdam - Budapest
5 days Hungary bird watching Kiskunság (grasslands, wetlands, woodlands)
10 days Scotland/Highlands – fishing Glen Affric Edinburgh – Doha - Auckland


NETHERLANDS
AMSTERDAM
GERMANY
COLOGNE
MAINZ
WERTHEIM
BAMBERG
KOBLENZ
NÜREMBERG
MILTENBERG
WÜRZBURG
REGENSBURG
SLOVAKIA
MELK
VIENNA
BRATISLAVA
PASSAU
SALZBURG
BUDAPEST
AUSTRIA
HUNGARY

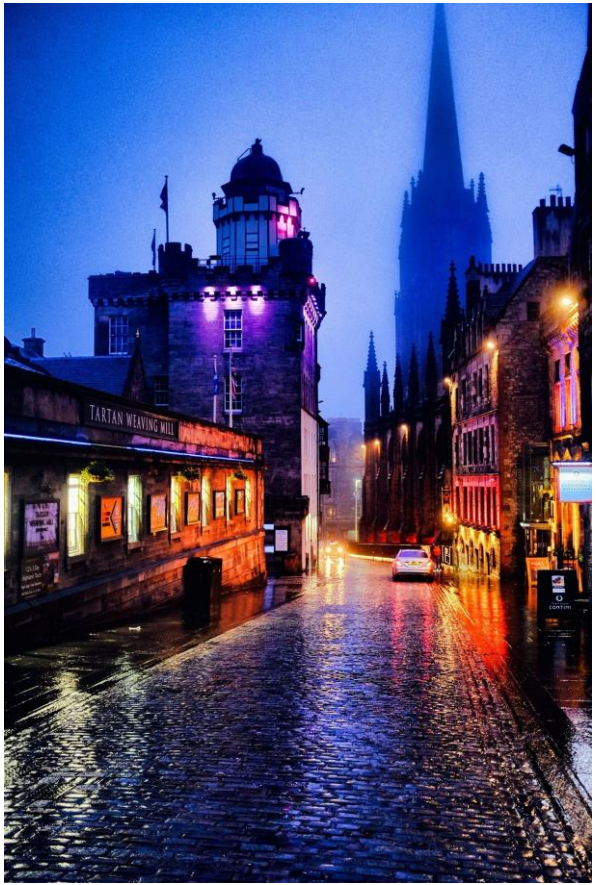
Couple – “just Europe”

68 yr old male:

- Total knee replacement 2 wks ago,
- Had Rivaroxaban 10mg daily 2wks
  - (stopped y’day)
- leave in 3 wks (5 weeks post Sx)
- Hates flying, requests sleeping pills
- BMI 38

72 yr old female:

- Type 2 Diabetes on Metformin + insulin
- Lantus + Novorapid



Pre-travel consultation topics to cover

- Traveller's concerns
- Flight safety / fitness to fly / risks VTE
- Food & water borne illness / diarrhoea mx
- Vector borne illness – insects/ticks /animals
- Safety / Security / Accident / injury / insurance
- Sexual safety / Women's health
- Psychological preparedness / risks
- Managing pre-existing health problems – diabetes, asthma, etc
- Environment / climate
- Special activities (e.g. cycling, diving, caving, trekking, volunteering)
- Cultural awareness
- Special groups - children; elderly; disabled; VFR, immunocompromised….
- Medical kits

Venous thrombo-embolism incidence

Risk: 4-6% DVT in flights > 10 hrs[1]

Majority of travellers with travel related VTE have 1 or more risk factors[1]

Incidence of VTE highest in the first two weeks after travel returning to normal by eight weeks[2]

Assessment of risk should be made on an individual basis

1. Venous thrombosis from air travel. Cesarone MR et al, Angiology. 2002;53(1):1 (LONFLIT 3).

2. Cumulative flying time and risk of venous thromboembolism. MacCallum et al Br J Haematol. 2011 Dec;155(5):613-9.

Venous thrombo-embolism risk factors

- recent major surgery (≤ 1 month)
- active malignancy,
- previous unprovoked VTE,
- previous travel VTE without risk factor
- Pregnancy
- Obesity
- Hereditary thrombophilia
- Oestrogen containing OC
- Advanced age

- Weak risk factors:
- Window vs aisle seat
- Anxiety
- Sleeping

➢ More than one risk factor identifies those travellers at highest thrombosis risk

1. Guidelines on travel-related venous thrombosis.Watson et al Br J Haematol. 2011;152(1):31
2. https://www.uptodate.com/contents/prevention-of-venous-thromboembolism-in-adult-travelers?search=dvt%20flying&topicRef=2788&source=see_link
3. Schreijer et al Br J Haematol. 2009 Feb;144(3):425-9.

Venous thrombo-embolism prevention

- **No risk factors** -> General measures – not studied – no harm
- **Risk factors** + travel > 4-6 hrs – GCS and/or anticoagulants (individualise)
- **Already anticoagulated** (irrespective of cause) – no additional measures

<u>General measures:</u>

- No proven benefit, no harm
- Frequent ambulation, every one to two hours
- Frequent flexion and extension of the ankles (calf muscle stretching) and knees (thigh muscle stretching)
- Avoidance of agents that may promote immobility or dehydration (eg, sedative drugs, excess alcohol consumption)

1. Guidelines on travel-related venous thrombosis.Watson et al Br J Haematol. 2011;152(1):31
2. 3. Schreijer et al Br J Haematol. 2009 Feb;144(3):425-9.

Venous thrombo-embolism prevention

Graduated compression stockings (GCS):

- Below knee, fitted (no proven value above knee GCS)
- 15-30mmHg at the ankle
- high-quality evidence in airline passengers of substantial reduction in the incidence of symptomless DVT[1]

- In flights ≥ 4hrs: [2]
  - Low risk 4.5/10,000 fewer symptomatic DVT, 24/million fewer PE
  - High risk 16/10,000 fewer symptomatic DVT, 87/million fewer PE

➢ Those at higher risk have greater benefit

1. Cochrane Database Syst Rev. 2016;9:CD004002
2. Schreijer et al Br J Haematol. 2009 Feb;144(3):425-9.

Venous thrombo-embolism prevention

Pharmacoprophylaxis:

- Insufficient data to routinely recommend to high risk travellers
- Consider those at high risk (esp. prior VTE + *multiple* risk factors)
- If consider benefit > risk bleeding, and no c/i
- In *general population*, aspirin, LMWH, warfarin, NOAC proven in prevention of recurrent VTE
- In *travellers* the same efficacy cannot be assumed
- LMWH 1mg/kg, 2-4hrs before travel, every 24hrs, for 2-3 doses reduced the rate of asymptomatic DVT (0 versus 4.8 percent)[1]
- Aspirin – no benefit[1]

1. Venous thrombosis from air travel. Cesarone MR et al, Angiology. 2002;53(1):1 (LONFLIT 3).

Our travellers

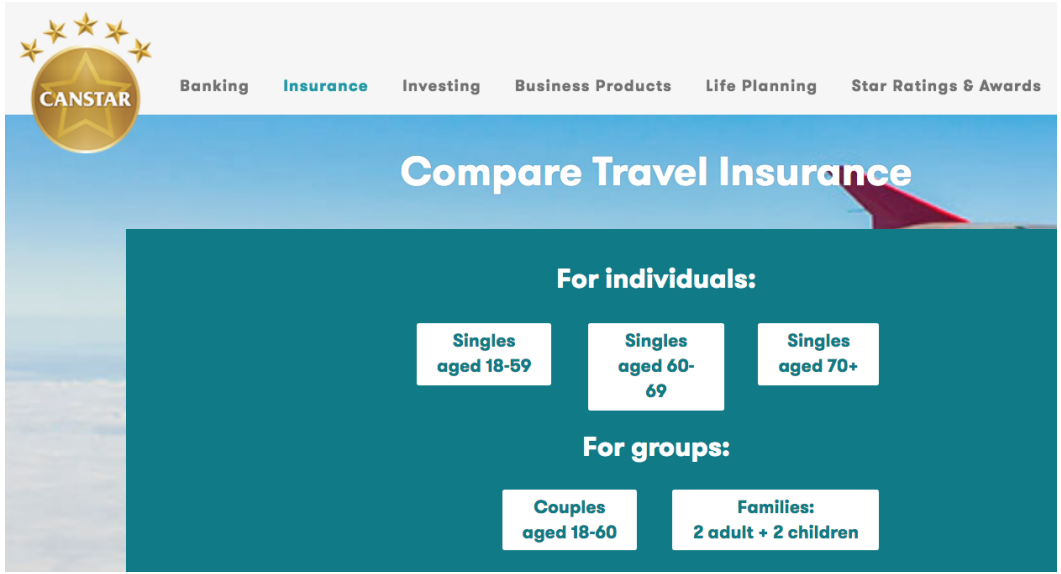
Recommend:

1. Flight 17 hrs + 6 hrs Auckland – Doha – Amsterdam (5 wks post Sx)
    - Aisle seat ? Business class
    - General Measures
    - GCS
    - LMWH
2. Cruise 2 weeks (6 weeks post Sx)
    - General Measures
    - GCS
3. Flight Edinburgh – Doha – Auckland (11 wks post Sx)
    - ? LMWH or just GCS + general measures

Insurance: ensure cover for pre-exiting conditions!

https://www.consumer.org.nz/services/travel-insurance/guide

https://www.canstar.co.nz/travel-insurance/



Tick disease

- Lyme disease + Tick borne encephalitis
- Habitat awareness – grassland, woodland
- Clothing – long sleeves/trousers, tucked into socks, closed shoes
- Permethrin treatment of clothing
- Insect repellents
- Inspect body/clothing for ticks and remove

Lyme Disease

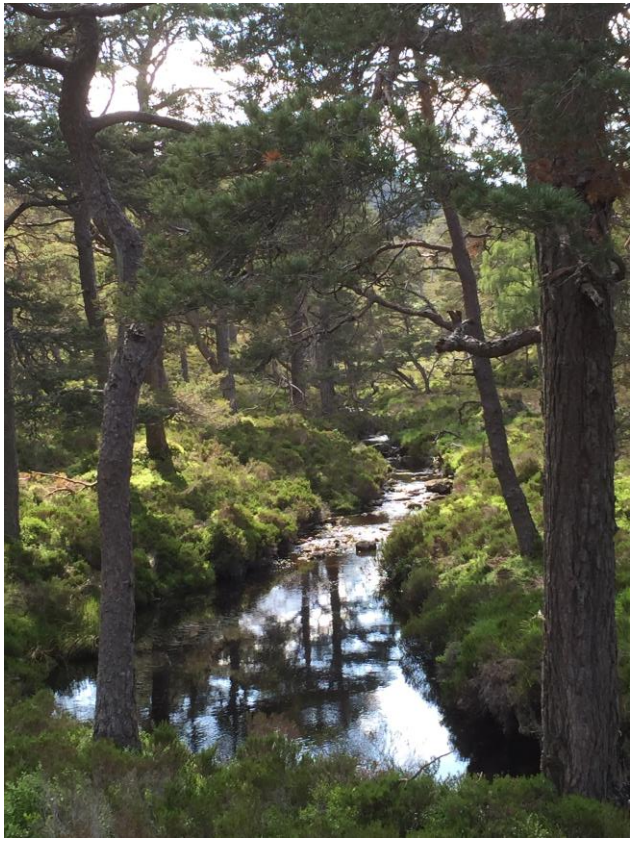
- Spirochete – *Borrelia burgdorferi*
- Transmission by *Ixodes* ticks
- Europe (esp central/Eastern Europe), Asia, North America (esp NE and north-central)
- Incubation 3-30 days
- 80% have erythema migrans rash +/- fatigue, fever, headache, arthralgia, myalgia neck, stiffness
- Days-weeks spreads -> neurological/cardiac complications
- Longterm sequelae – arthropathy, neuropathy, encephalopathy

Tickborne Encephalitis

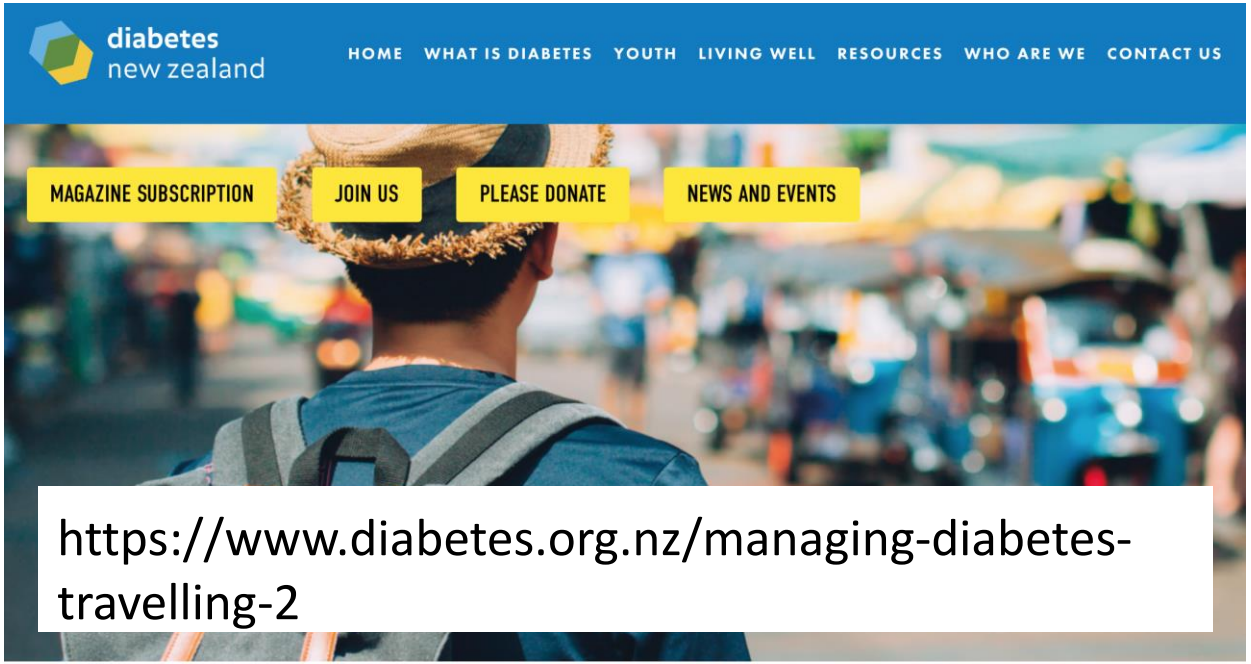
- RNA virus – Flavivirus group
- Transmission by *Ixodes* ticks & unpasteurised dairy products
- Europe and Asia (European, Siberian, Far-Eastern subtypes)
- 5,000-13,000^{+} cases/yr especially April to Nov
- Risk 1/10,000/month – “gross under-estimate”
- Incidence / severity > people over 50 yrs
- 2/3 people asymptomatic
- Biphasic : nonspecific febrile illness -> meningitis/encephalitis
- 2 inactivated Cell culture vaccines available in
  - Europe - 3 doses over 6-12 months + boosters
  - Russia - 2 doses over 7 months + boosters

Our Couple – “just Europe”

- Tick awareness
- Clothing advice +/- Permerthin
- Insect repellant
- Tick inspection



Couple – “just Europe” - Diabetes



Couple – “just Europe”
Vaccinations

Flu

ADT (? DTaP)

Zostavax

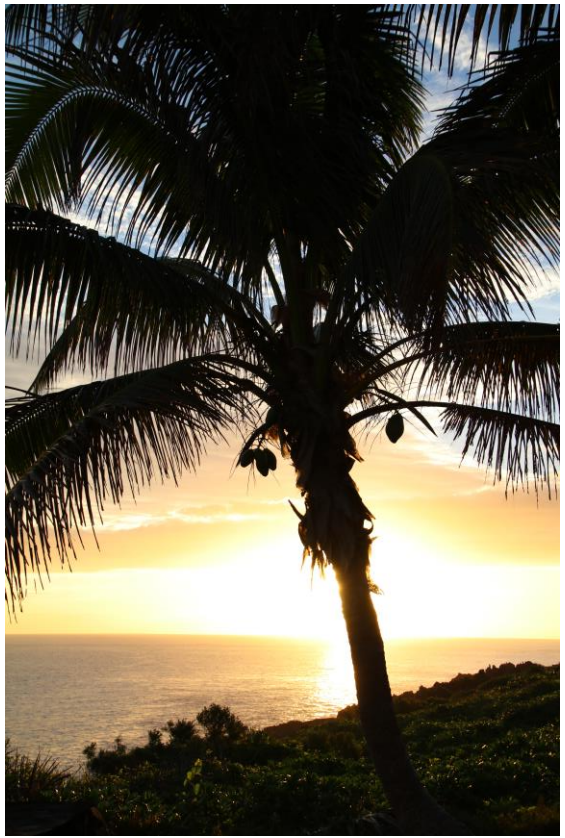
Hep A – higher risk Eastern Europe, lifetime

? TBE – not on our usual radar

Case 4: Honeymooners - Samoa

32 yr old female
28 yr old male
Wellington wedding
Apia 2 nights resort
– Savai'i beach fale 5 days (e.g. Reginas)

Travelled extensively
Planning pregnancy as soon as they return



Pre-travel consultation topics to cover

- Traveller's concerns = Zika
- Flight safety / fitness to fly / risks VTE
- Food & water borne illness / diarrhoea mx
- Vector borne illness – insects/ticks /animals
- Safety / Security / Accident / injury / insurance
- Sexual safety / Women's health
- Psychological preparedness / risks
- Managing pre-existing health problems – diabetes, asthma, etc
- Environment / climate
- Special activities (e.g. cycling, diving, caving, trekking, volunteering)
- Cultural awareness
- Special groups - children; elderly; disabled; VFR, immunocompromised….
- Medical kits

ZIKA

- RNA virus from Flavivirus group (incl Dengue, YF)
- Spread by bite from Aedes species
- Intrauterine, perinatal, sexual, laboratory, transfusion-associated transmission
- Uganda 1947 – FSM 2007 – SEA/Western Pacific – Brazil 2015 – Americas
- Most infections asymptomatic, and where symptomatic, usually mild
- Fever, maculopapular rash, arthralgia, myalgia, conjunctivitis, headache
- Treatment supportive
- Prevention is with standard mosquito avoidance measures,
- No blood donation 4 weeks post travel
- Sexual abstinence/condom use until risk passed
- 3/12 men, 8 weeks women

Countries and territories with current or previous Zika virus transmission

World Health Organization

MAP DATE: 26 October 2018

Countries and territories with current or previous Zika virus transmission

Countries and territories with established competent vector, but no known cases of Zika virus infection

Countries and territories with no known cases of Zika virus infection and no established competent vector

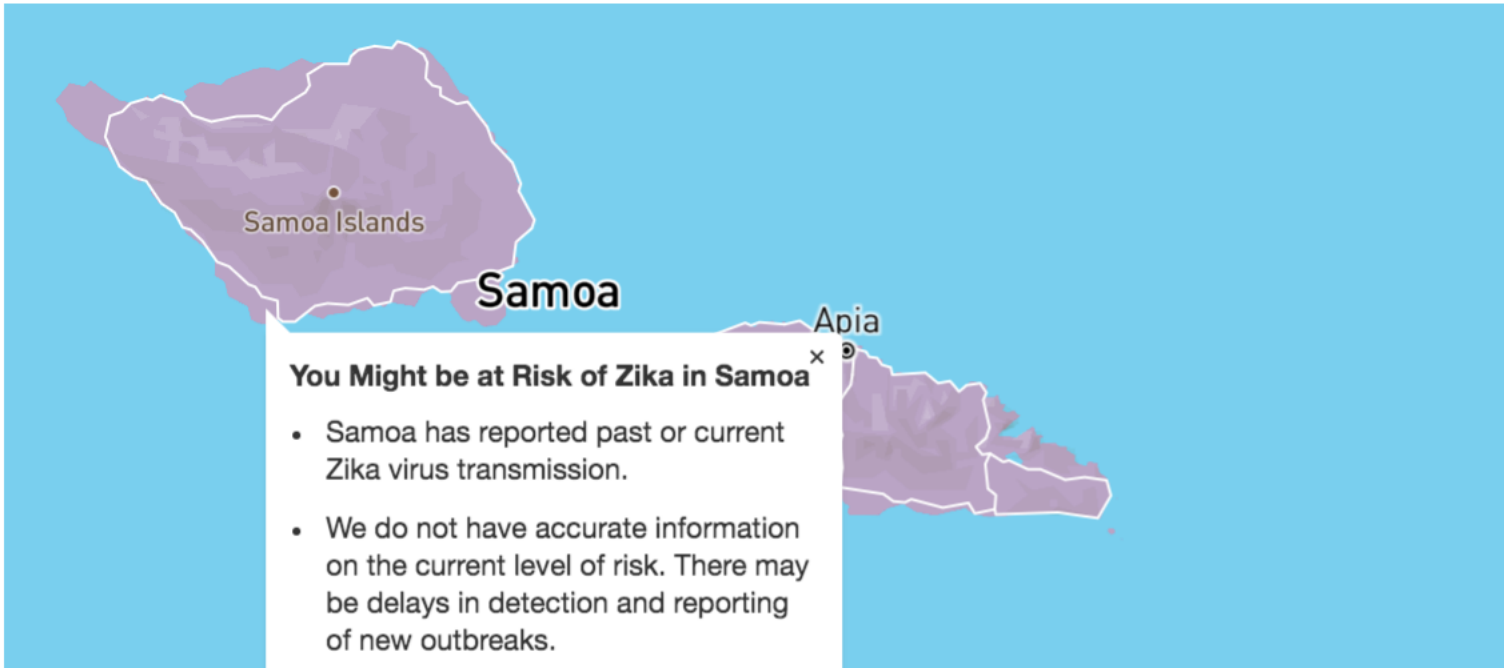
Not Applicable

Areas are classified according to country, territory, or subnational area.
Data as of November 16,2017.
Zika virus country classification tables available at:
http://www.who.int/emergencies/zika-virus/classification-tables/en/
Zika virus country classification scheme available at:
http://apps.who.int/iris/bitstream/10665/254619/1/WHO-ZIKV-SUR-17.1-eng.pdf

Click on your destination for Zika information

Search for a place by name or zoom and click on the map to see CDC's travel recommendations for Zika.

learn more.



https://wwwnc.cdc.gov/travel/page/zika-travel-information

ZIKA in pregnancy

Main concern is:

Severe birth defects including

- Microcephaly,
- Other brain defects
- Congenital Zika Syndrome

Incidence[3] >40% Brazilian prospective observational study

- 15% USA Zika pregnancy registry
- 7% Frence American territories

Greatest risk if exposure early in pregnancy

https://www.cdc.gov/zika/
https://wwwnc.cdc.gov/travel/yellowbook/2018/infectious-diseases-related-to-travel/zika
https://www.nejm.org/doi/full/10.1056/NEJMoa1709481

ZIKA - TESTING

All testing has to be discussed/approved by Microbiologist

- PCR: Most accurate test
- After symptom onset PCR is positive in:[1]
  - Serum for up to 5-7 days
  - Urine for 10-14 days in urine

- Serology: available but not recommended by the MoH[1].
- Occasionally used when window for PCR may have passed
- serology has cross reactivity with other Flaviviruses[1,2]
- IgM can remain positive for several months, making it difficult to different current from recent past infection (e.g. infection during pregnancy versus infection prior to pregnancy)[3]
- Serology sensitivity poor, esp if test done early/late, and false -ve[4,5,6]

1 https://www.health.govt.nz/our-work/diseases-and-conditions/zika-virus
2 Southern Community Labs personal communication
3 https://emergency.cdc.gov/han/han00402.asp
4 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5572859/
5 https://www.cdc.gov/zika/hc-providers/clinical-guidance/sexualtransmission.html
6 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5572859/

ZIKA - FUNDED TESTING

All testing has to be discussed/approved by Microbiologist.

- Pregnant woman who are exposed (even asymptomatic)
- Babies where vertical transmission concern
- *Some* symptomatic patients – will consider on a case by case basis – "Wouldn't normally test as it is not going to change anything"

https://www.health.govt.nz/our-work/diseases-and-conditions/zika-virus
Southern Community Labs personal communication

ZIKA - UNFUNDED TESTING

- Asymptomatic pregnant women with *ongoing* possible Zika virus exposure. CDC most helpful[1,2]
- IgM serology testing is not routinely recommended
- PCR 3x during pregnancy – prenatal, and 2 other

1. https://www.cdc.gov/zika/
2. https://wwwnc.cdc.gov/travel/yellowbook/2018/infectious-diseases-related-to-travel/zika

Case 4: Honeymooners – Samoa Typhoid

Thank you
Questions ?