



Dr Joan Ingram

Infectious Diseases
Physician

Auckland District Health
Board



Dr Jenny Visser

Senior Lecturer
Primary Health Care &
General Practice
University of Otago
Wellington

Saturday, June 10, 2017

(Room 2)

8:30 - 9:25 WS #92: Preparing the Traveller Who is Visiting Friends and Relations

9:35 - 10:30 WS #104: Preparing the Traveller Who is Visiting Friends and Relations
(Repeated)

Preparing the Traveller Who is Visiting Friends or Relatives

Joan Ingram- Auckland District Health Board and Auckland Travel Medicine Service

Jenny Visser- Otago Medical School and Travel Doctor

Outline

- VFR travellers- definition, who and where?
- What problems are they at increased risk of and why?
- Case studies
 - Family to Ethiopia
 - Church group to Samoa
 - Family to India
- How can we help?

Definitions

- *any* traveller whose intended purpose of travel is to *visit friends and family* 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)

Large and growing group of travellers

- Increasingly large group of non NZ born people in our population
- VFRs an increasing reason for travel
- More likely to be young
- Imported malaria, typhoid, hepatitis A, measles often in VFRs
- May lead to spread in the community

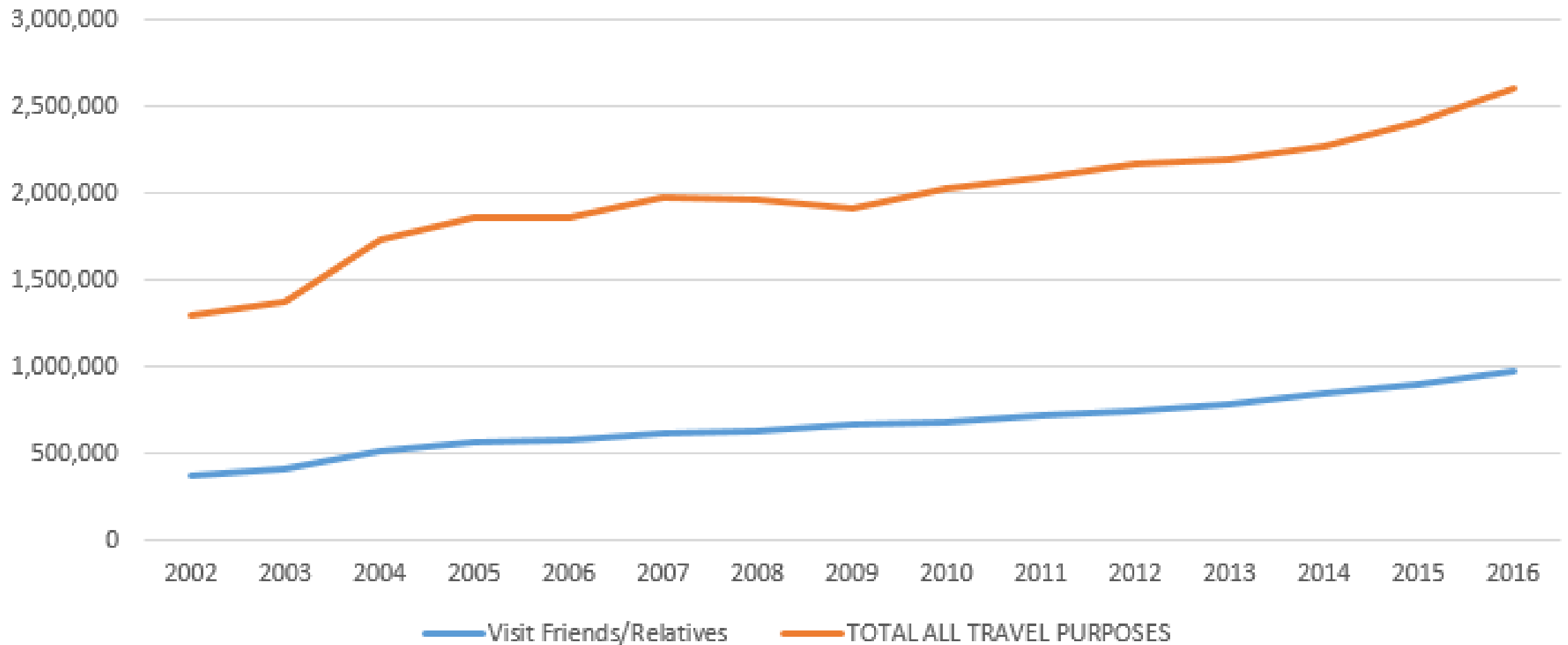
Census 2013

- Over a quarter of our population (25.2%) was overseas born in 2013
- Asia is now the most common region of birth for the overseas born
- Of those born overseas, the three most common countries of birth were:
 - England (215,589 people)
 - The People's Republic of China (89,121 people)
 - India (67,176 people).
- Asian ethnic groups continued to grow, almost doubling in size since 2001. The percentage of the population who identified as Asian in the last 3 censuses was:
 - 2013 – 11.8 percent
 - 2006 – 9.2 percent
 - 2001 – 6.6 percent.

Birthplace for the overseas born usually resident population 2001, 2006, and 2013 Censuses



Visit friends and relatives and Total travel purpose comparison



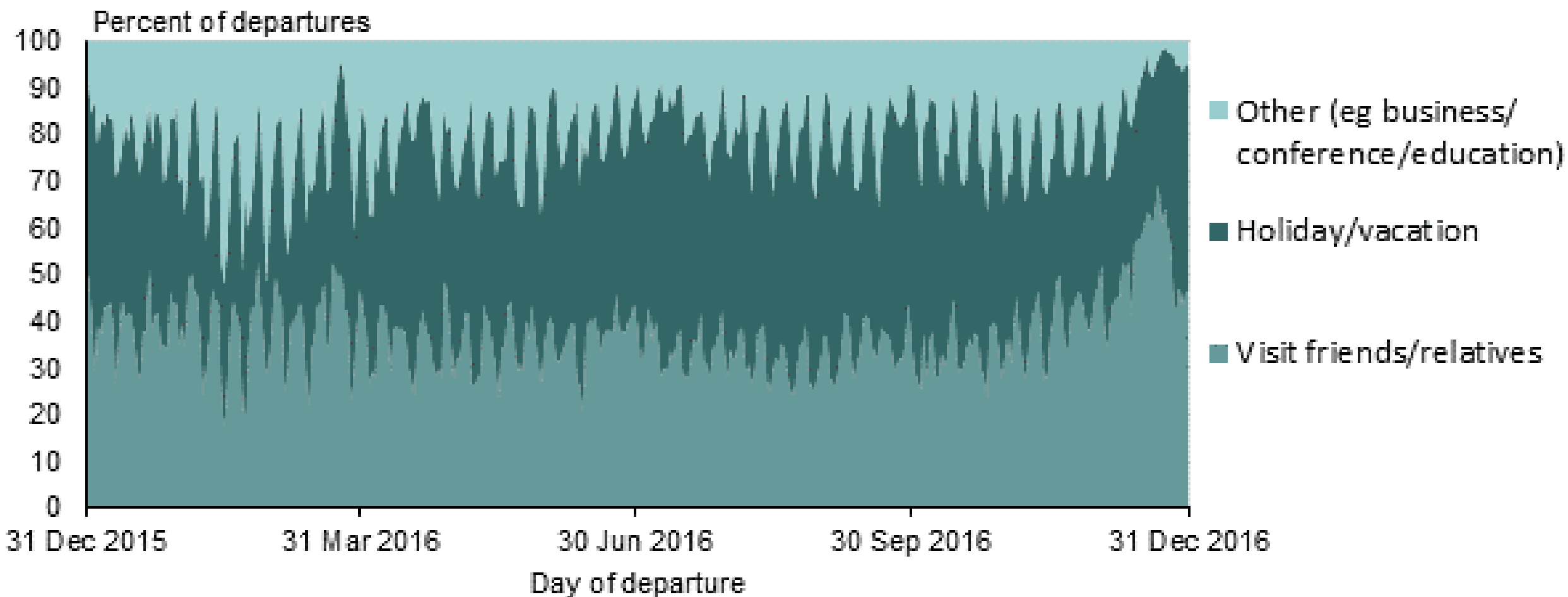
Increasing reason for travel

- In 2002 VFR was the reason for travel given by 29% of those departing NZ for less than 12 months.
- In 2016 it was 37%
- Particularly travel in December- Visiting friends and relatives was the reason for 54 % of the overseas trips by New Zealand residents in December 2015, while 35 % were for holidays, and 6 percent for business trips.

Main purpose of visit for NZ residents temporarily overseas

By day of departure

31 December 2015 to 31 December 2016



Source: Statistics New Zealand

What problems are they at increased risk of and why?

- Many studies suggest that VFR travellers are over represented in particular travel-related health issues
- Influenced by
 - Type of travel
 - Attitudes to travel-related health issues
 - Barriers to accessing pre-travel health advice

Barriers to accessing pre-travel advice

- Financial
- Accessing health services
- Language
- Cultural/Different belief systems
- Perception that they are NOT at risk
 - Belief in ongoing/long lasting immunity
 - Both traveller & health professional
- **VFR TRAVELLERS ARE LESS LIKELY TO ACCESS PRE-TRAVEL ADVICE**

Why are they at increased risk?

- Travel for longer
- More likely to travel to remote or rural areas
- More likely to use local transport
- More likely to consume risky food & drinks
- More likely to “live like a local” have close contact with local population
- Includes more vulnerable groups
 - Children
 - Pregnant women
- More likely to travel at short notice
- Less likely to be adequately vaccinated pre-travel (including routine vaccines)
- **LESS LIKELY TO ACCESS PRE-TRAVEL ADVICE**
- **LESS LIKELY TO TAKE MALARIA CHEMOPROPHYLAXIS**

Illness in Travelers Visiting Friends and Relatives: A Review of the GeoSentinel Surveillance Network

Karin Leder,^{1,2} Steven Tong,¹ Leisa Weld,⁴ Kevin C. Kain,⁵ Annelies Wilder-Smith,⁶ Frank von Sonnenburg,⁷ Jim Black,^{1,3} Graham V. Brown,^{1,3} and Joseph Torresi,^{1,3} for the GeoSentinel Surveillance Network^a

Geosentinel Network*: Number of clinics that see ill returning travellers

- Analysed data from 1997-2004
- All VFR consultations
 - “Immigrant” VFR vs “Traveller” VFR vs “Tourist” Traveller

*CID. 2006;43(9):1185-93.

Geosentinel study: Findings

- Travel-related health risks: In general
 - Immigrant VFRs > Traveller VFRs > Tourist travellers
- VFR travellers were less likely to seek pre-travel advice
 - **16%** immigrant VFRs
 - 47% traveller VFRs
 - 62% tourist VFRs
- VFR travellers: Many were children
 - 2% of immigrant VFRs
 - **21%** of traveller VFRs

Geosentinel study: Findings

- Immigrant VFRs had longer trips: trips > 30 days; **42%** vs 37% for traveller VFRs & 34% tourist traveller
- VFR travellers more likely to need treatment as inpatients during travel
 - **32%** in immigrant VFRs vs 11% in traveller VFRs & 6% in tourist travellers

VFR travellers have ↑ risk of Malaria

- Geosentinel Data: If visiting sub-Saharan Africa :Odds ratio of being diagnosed with malaria was
 - **2.6** for immigrant VFRs compared to traveller VFRs
 - **8.3** for immigrant VFRs compared to tourist travellers
- Imported malaria UK 2013*
 - **82%** in VFR travellers
 - (but had lower case fatality rates than tourist travellers)
- In a Dutch study**
 - **54%** of VFR travellers indicated that they took malaria chemoprophylaxis even though 100% were aware it was a risk
- In a Spanish study***
 - Only **5.3%** took malaria chemoprophylaxis
- * Behrens et al. *Malar J.* 2015;14(1):149. ** Wieten et al. *Malar J.* 2013;12:360. *** Monge-Maillo B et al. *Travel Medicine and Infectious Disease.* 2014;12(1):88-94.

NZ Imported Malaria: 13 years data*



**Lau et al. VBZ Dis. 2014;14(2):134-40.*

- 666 cases
- 80% (533) non-military: 20% (133) military
- In non-military
 - Average 41 cases/year
 - Acquired in
 - **PNG (24.4%)**
 - **India (18.6%)**
 - **Solomon Islands (8.8%)**
 - **Indonesia (6.1%)**
 - **Vanuatu (5.9%)**
 - Uganda (2.9%)
 - Thailand (2.7%)
 - Tanzania (2.7%)
 - Malawi (2.7%)

NZ Imported Malaria: *Lau et al. VBZ Dis.* 2014;14(2):134-40.

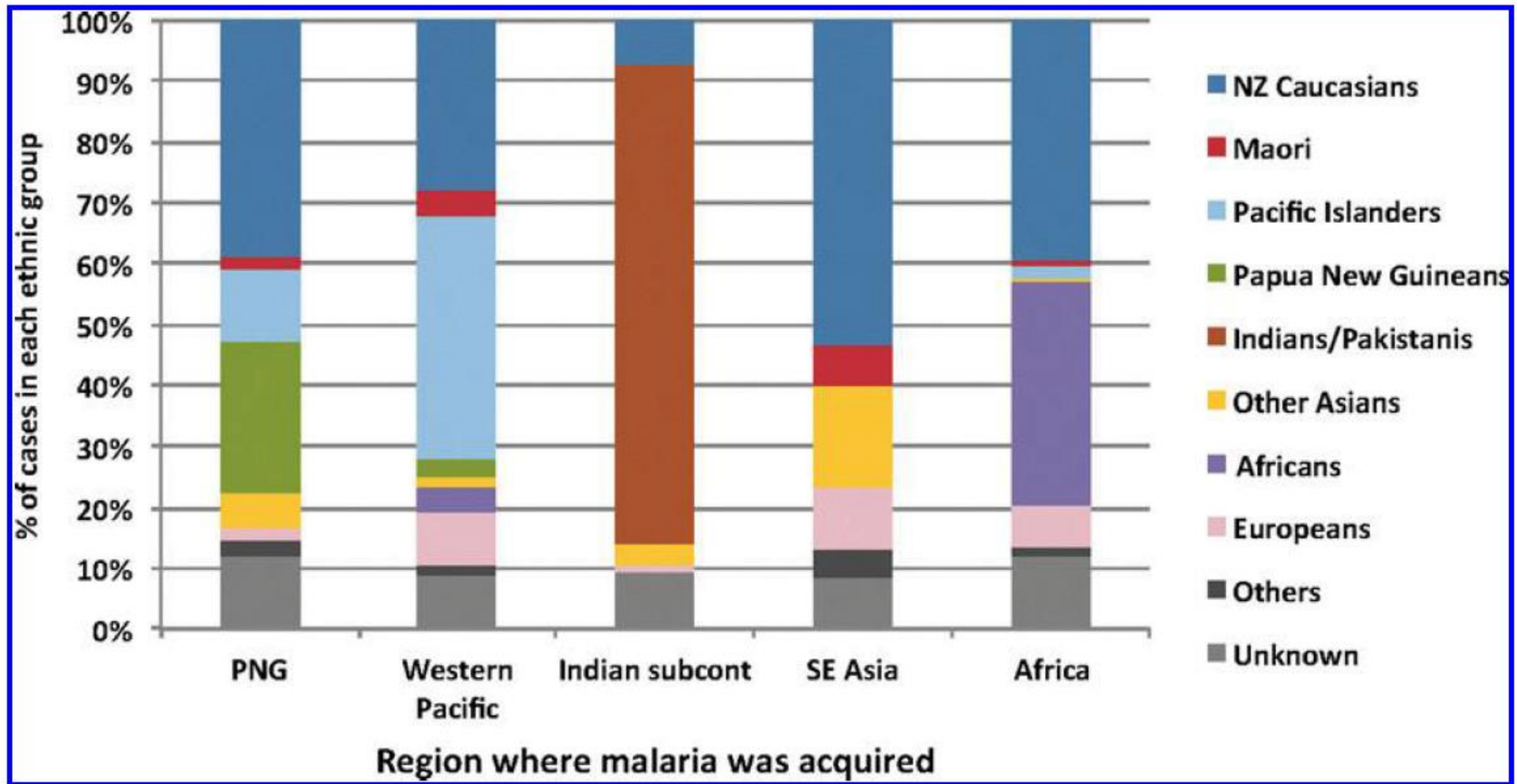


FIG. 4. Ethnic distribution of malaria cases acquired from different regions: Civilian cases.

VFR travellers at ↑Typhoid risk

- Geosentinel study
 - VFRs had **7** times the odds of being diagnosed with typhoid
- In Quebec*
 - 95% of imported typhoid in VFR travellers
- In Auckland New Zealand**
 - 69% cases imported typhoid were in VFR travellers
 - 14/40 in the Pacific (predominantly Samoa) & 26/40 non-Pacific (predominantly Indian sub-continent)
 - **Bui et al. Journal of Travel Medicine. 2011;18(6):373-8.* ** *Lane et al. Intern Med J. 2015;45(2):148-55.*



Typhoid outbreak confirmed in Auckland

31/03/2017

Newshub staff Lucy Warhurst

Ten people have been hospitalised after an outbreak of typhoid in Auckland, including children.

The Auckland Regional Public Health Service (ARPHS) has alerted the health sector to the outbreak and is tracing people who have been in contact with the confirmed cases.

Typhoid can be a serious illness and is potentially fatal but it can be treated with antibiotics.

Symptoms include:

Tuberculosis

- Geosentinel study
 - Immigrant VFRs **16.7** times odds cf to Traveller VFR and **66.7** cf to Tourist traveller
 - Higher rates could be due to higher rates of screening
 - And not all necessarily recently acquired

STIs

- VFR travel is often to countries with high rates of HIV & other STIs
- Geosentinel study: VFRs presented with increased rates STIs (odds ratio around 10)
- UK study* found that new sexual contacts common in VFRs (40% of men & 21% of women) and condom use was low (42% did not use).
- * *Fenton et al. Aids. 2001;15(11):1442-5.*

Hepatitis A

- Depending on the VFR traveller they might be at less or greater risk than tourist traveller
- Immigrant VFRs may have life-long immunity from naturally acquired infection as children
 - Their NZ born children are **unlikely** to be immune
 - Geosentinel study
 - Traveller VFR (usually children) more at risk
 - Quebec study
 - VFR children particularly at risk
- **Be aware that Hepatitis A epidemiology is changing**
 - E.g. In India* naturally acquired immunity rates dropping as socioeconomic status improves for many
 - * *Das et al. European Journal of Epidemiology. 2000;16(6):507-10.*

Family Returning to Ethiopia

- Mother born in 1980 , came to NZ in 1999
- One previous trip home in 2006
- Taking 8 year old, 4 year old and 3 year old twins who were all born here
- Departing in November
- Going for at least 3 months
- What do you want to know?

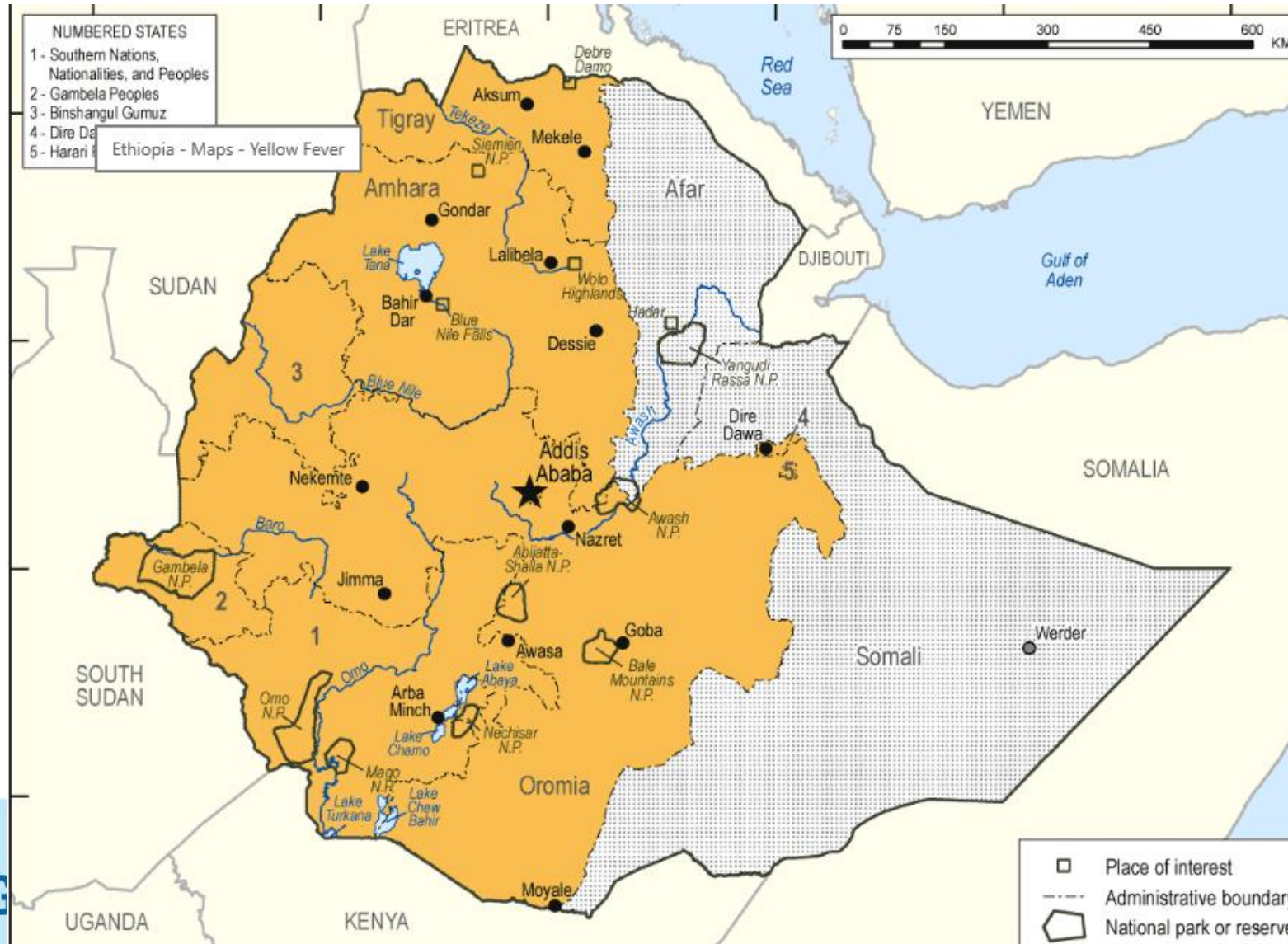
Further information

- Where will they be in Ethiopia?
- Accommodation? Activities?
- Have the children had their NZ schedule vaccinations?
- Has mother had any travel vaccinations previously for her other trip?

Vaccinations - routine

- Children have had their NZ schedule ones- excellent
- Any considerations for schedule vaccinations?
- Give the 3 year old twins their second MMR- first dose protects 95%
- Anything to remember regarding timing of it?
- Live vaccinations together or 28 days apart

Vaccinations- yellow fever



So all of them need yellow fever vaccination

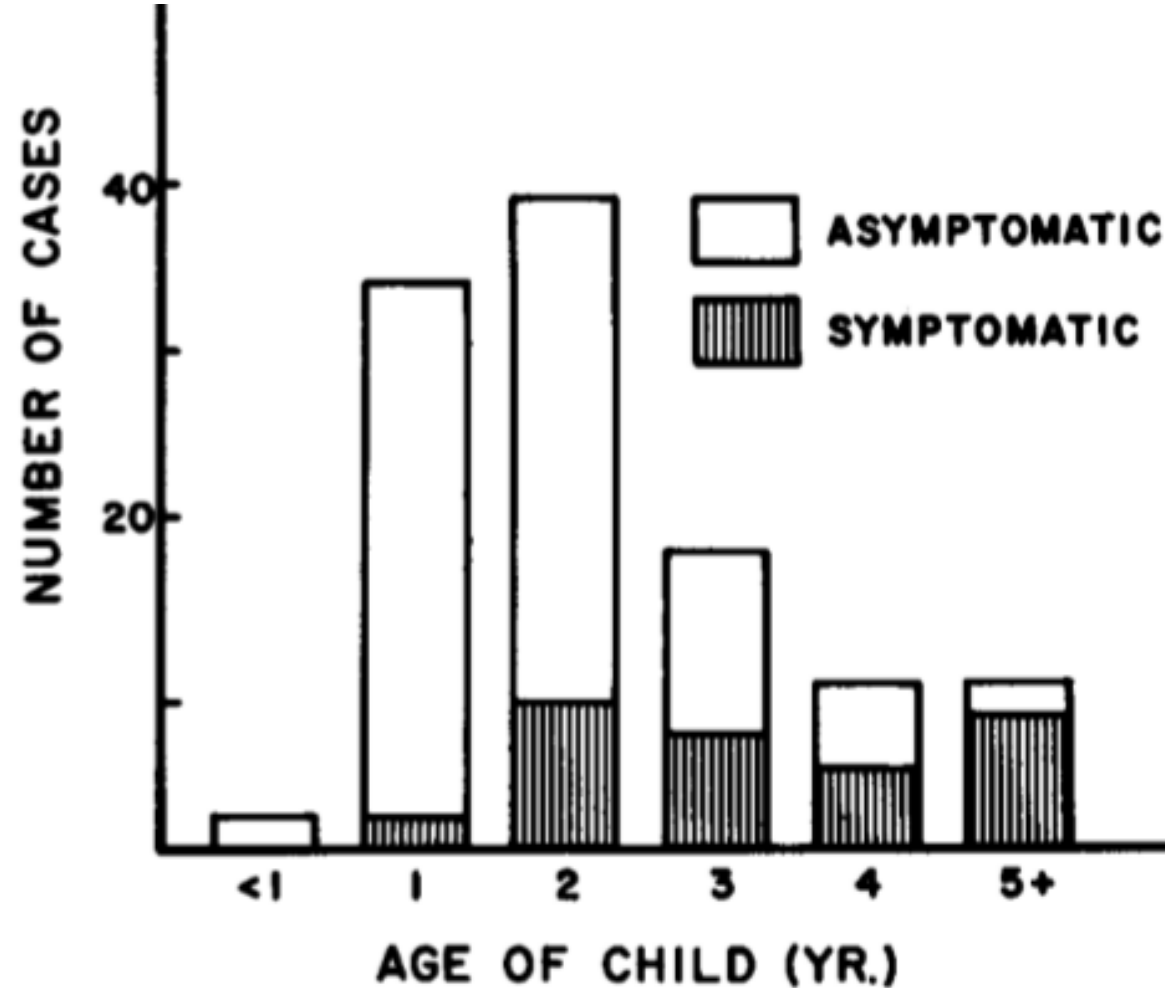
- Mother probably had it for her previous trip
- Children should all have it
- Now valid life time of person vaccinated (unless they are going to outbreak situation many years in the future or received it when pregnant or HIV positive)
- Remind mother to look after the vaccination certificates

Vaccinations- hepatitis A

- Ideally test mother
- Immunity to hepatitis A cannot be assumed – young adults may still be susceptible
- 500 residents in New Delhi – has declined significantly since 1980s

Age	% susceptible hepatitis A
>45	2
35-45	13
25-34	41
15-25	46

Hepatitis A in children- NEJM 1980; 302: 1222-7



Children

- So would want to vaccinate the 8 year old and ideally the 4 year old and 3 year olds as may have symptomatic illness and in addition prior to their next trip you won't know whether to vaccinate or not
- Those aged under 3 you may not vaccinate but they are a risk to others on their return here because of faecal shedding and the need to have nappies changed

Typhoid

- 69% of travel associated typhoid in Auckland between 2005 and 2010 was seen in returned VFRs
- In a study in NSW done in 2011 85% was in VFRs
- Would encourage vaccination for all of them as there 3 months and will be eating what the family there eats

Hepatitis B

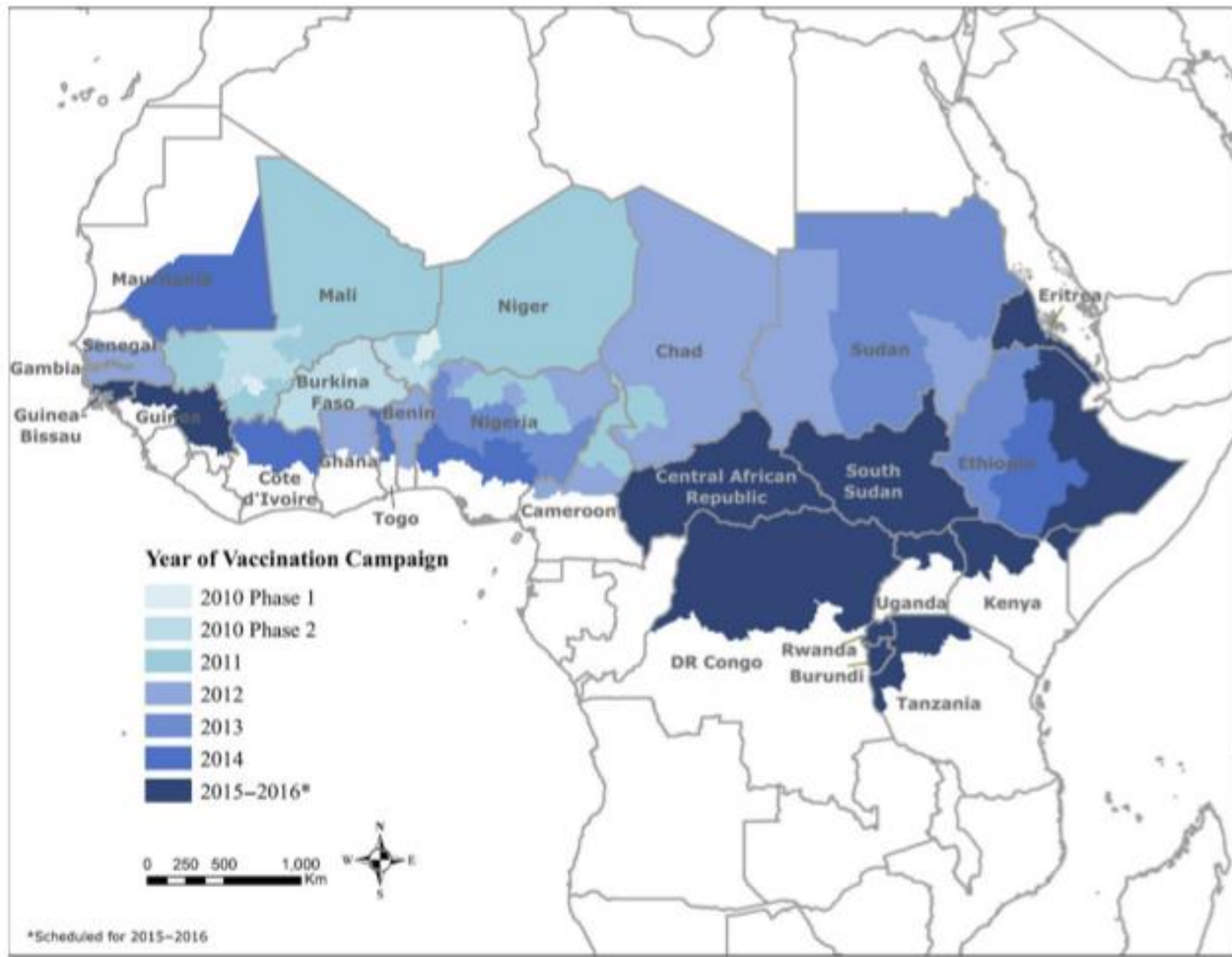
- Children have been vaccinated
- Mother will have been screened for carriage in her pregnancies but may not be immune
- Would be good to get vaccinated as she may partake of health care there, will keep returning over the years

Rabies

- Significant risk
- Children are more likely to be bitten than adults and bites are more likely to be high risk bites
- Would be great to have the children vaccinated as again it's a long term investment for future trips
- Really important to remind her and the children to try and stay away from dogs and other mammals, to wash a bite well and to seek medical care. May be no immunoglobulin in Gondar

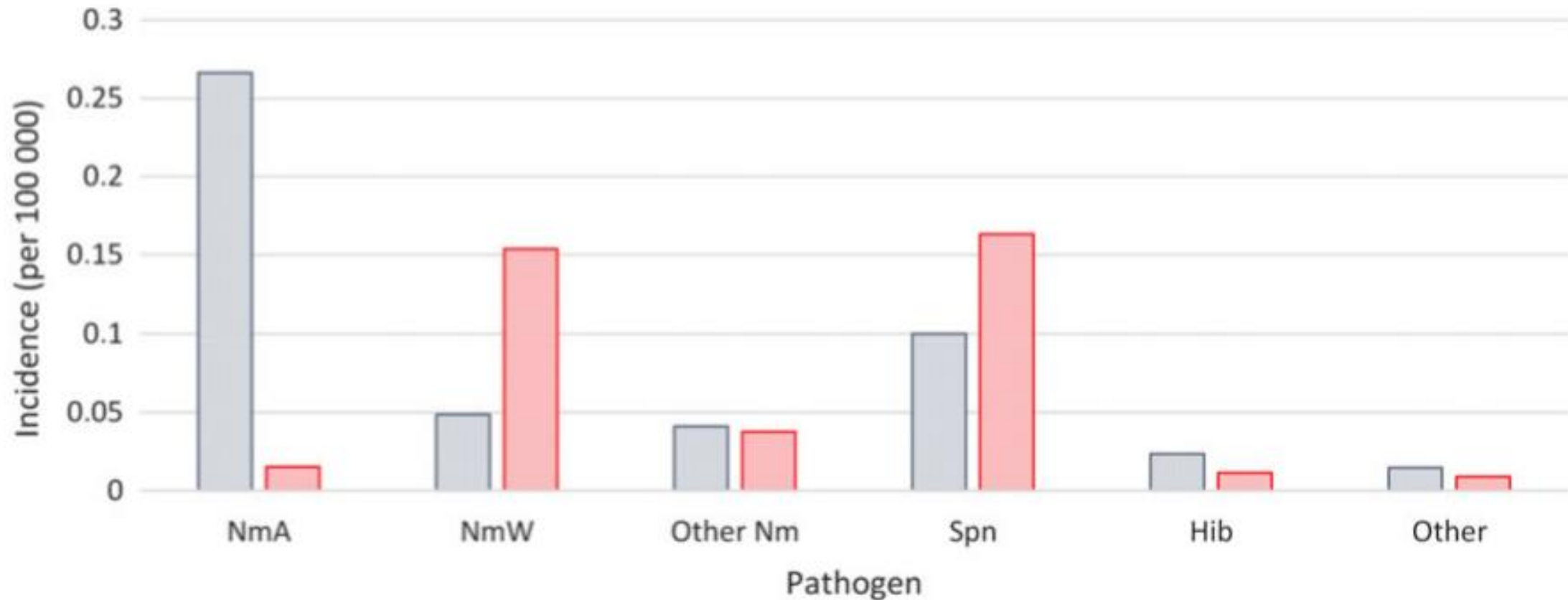
Meningitis

- Risk of epidemic activity especially in Western part of the country and between December and June (dry season) when our family will be there
- Historically serogroup A epidemics
- A conjugate *N. meningitidis* serogroup A vaccine was rolled out across the meningitis belt from 2010

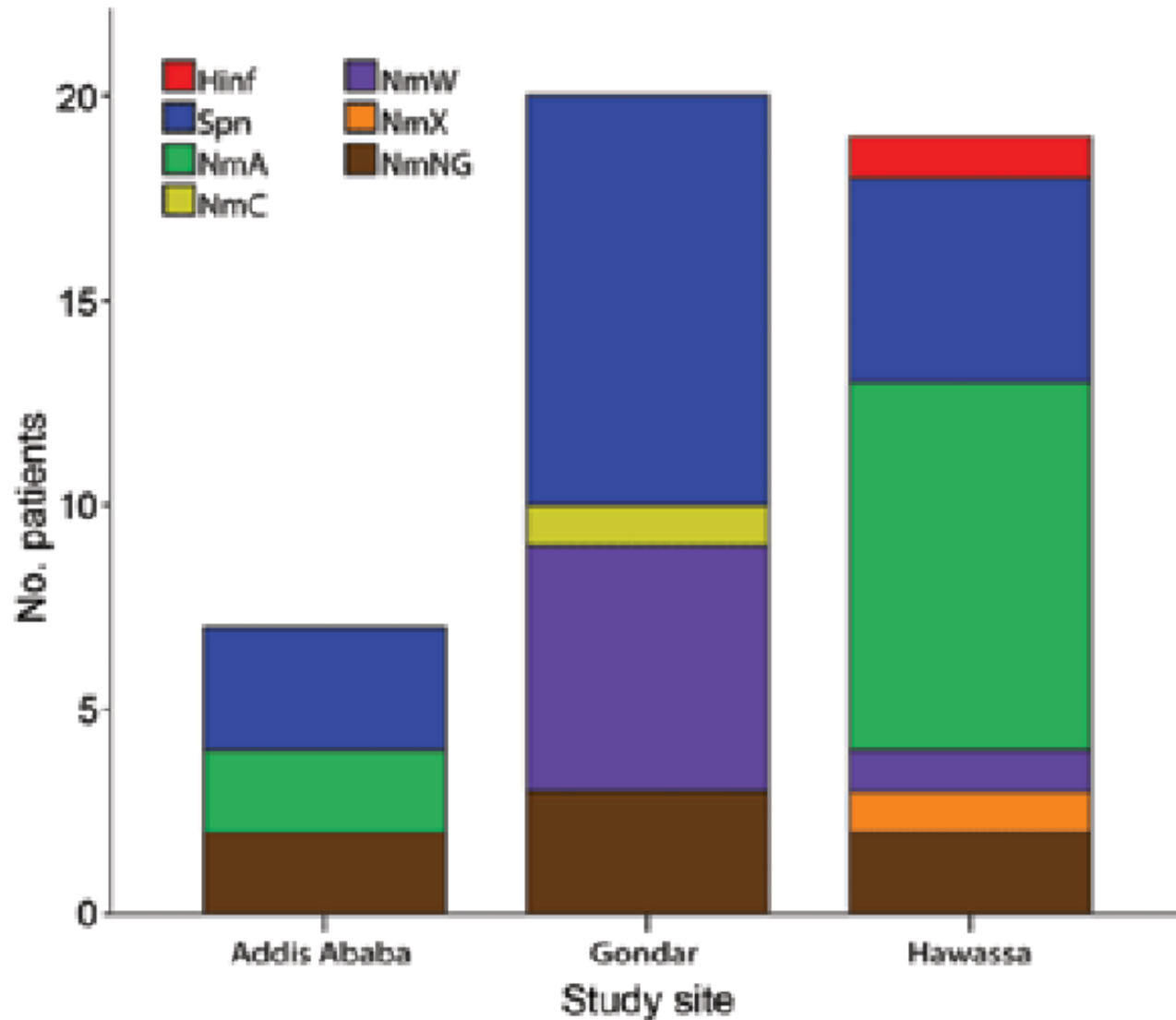


217 million doses in 15 countries from 2010

Incidence of different pathogens from CSF before (04-10) and after the Serogroup A vaccination (11-13)

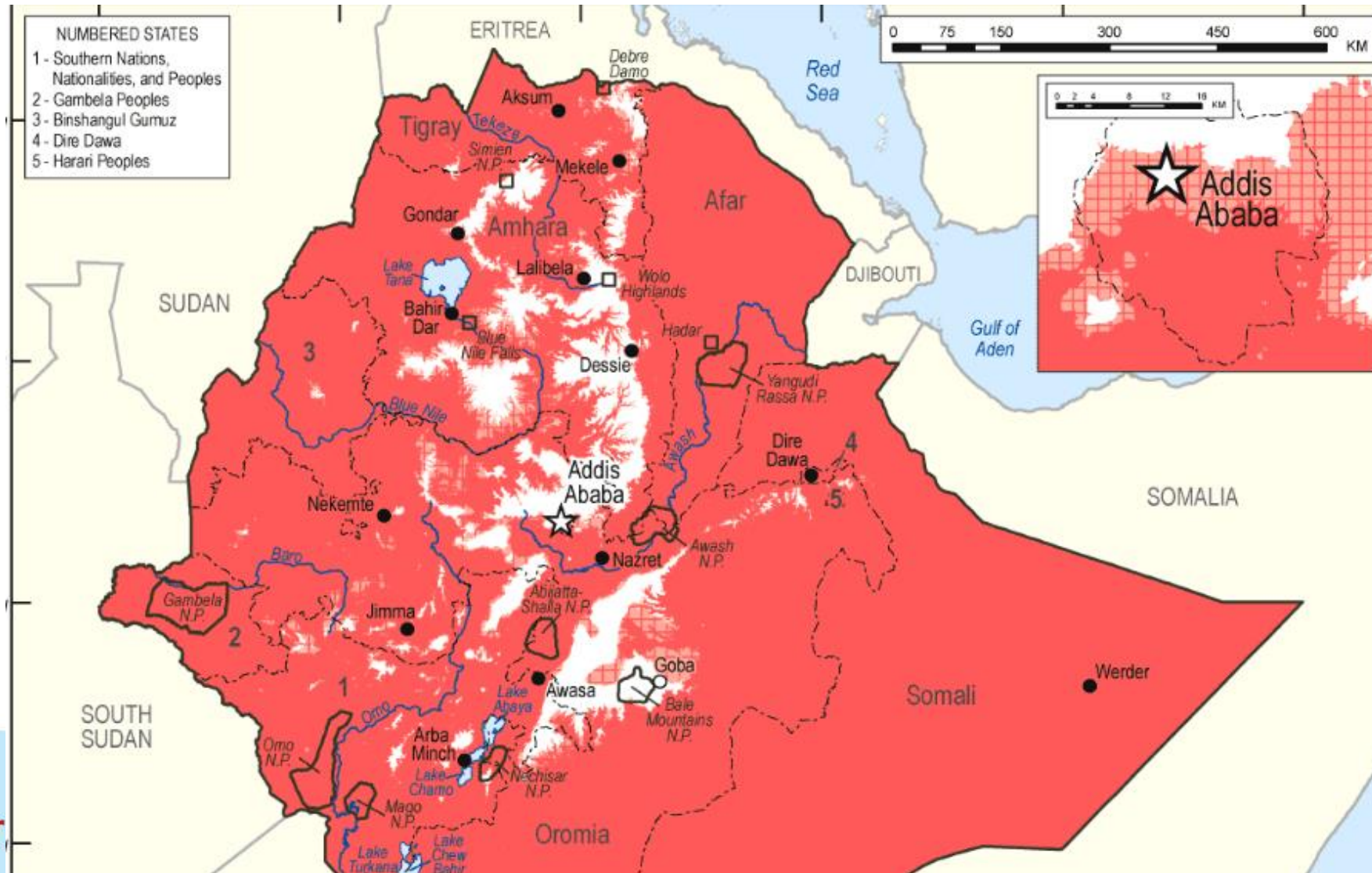


Causative organisms in bacterial meningitis isolates in Ethiopia 2012-13



- So it would be nice for the children especially the younger ones to have a conjugate meningococcal vaccination but a lower priority than some of the others

Malaria



Mosquito Bite Avoidance

- Explain to mother that she and the children are like babies who have no immunity to malaria- risk of serious illness
- They will need to explain to family over there why they need to be careful
- Evening and night time mosquito bite avoidance- repellent , clothing and treated nets
- Doxycycline for mother
- Children mefloquine – weight based
 - Malarone[®] an option but expensive

Diarrhoea

- Thoroughly cooked food and eaten while still hot
- Treated water
- ORS
- Loperamide
- Azithromycin if severe

Other things to discuss

- HIV – 1% of adult population
- TB- >100/100,000 only 8 and 4 year old have had BCG
- Dengue
- Leishmaniasis
- Schistosomiasis
- Insurance
- Accidents

Church Group to Samoa

- You see a church group travelling to Samoa
- Group: Three adults and 15 children (aged 12-16 years)
- Will be there for 3 weeks
- They will be hosted by and billeted in local homes by members of the church in a small village on Savaii
- One adult Samoan born, all others born & raised in NZ
- What more do you need to know?

What more do you need to know?

- Do they want a group medical briefing?
 - Advantages?
- Will you encourage all of them to see you if possible?
- NEED TO KNOW
 - When do they leave?
 - Medical history, regular medication, allergies
 - Have they visited Samoa before?
 - Vaccination history?
 - Exactly where is the village & any idea of nearest medical centre/clinic
 - Accommodation

What topics do you need to cover?

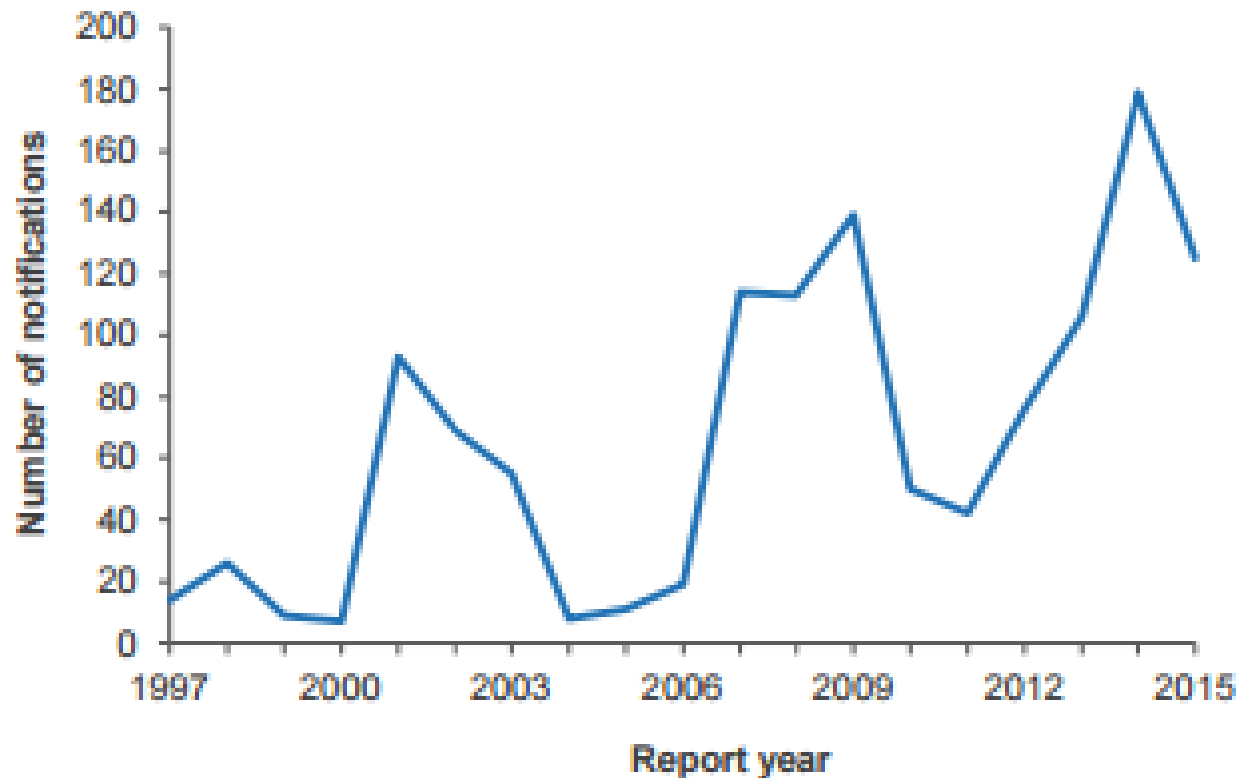
- Food & Water borne illness
 - General advice regarding hygiene, safer foods & beverage choices
 - Water disinfection options
 - Management of acute diarrhoeal illnesses
- Insect borne illnesses
 - Dengue, Chikungunya, Zika
 - Day biting mosquito
 - Avoiding bites: Cover up, insect repellents
- Environment
 - Heat illness
 - Swimming in sea
 - Drownings
 - Sea envenomation
- Vaccinations
- Insurance



ESR Annual Report:

https://surv.esr.cri.nz/PDF_surveillance/AnnualRpt/AnnualSurv/2015/2015AnnualReportFinal.pdf

Figure 8. Dengue fever notifications by year, 1997–2015



“The countries commonly visited or lived in were Tonga (43 cases), Indonesia (25 cases), and Samoa (16 cases). Some cases reported travelling to more than one country. “

Vaccinations for this group?

- Routine
 - Ensure all up to date as per National Immunisation Schedule
 - Children: Did they get their 11 year old Tetanus, Diphtheria, Pertussis booster? HPV?
- Recommended for travel
 - Tetanus/Diphtheria (+/- Pertussis) if > 10 yrs since last
 - Influenza
 - Hepatitis A
 - Typhoid

Family to India

- Mum (32), Dad (35) and children (14 years, 6 years and 9 months of age)
- Family immigrated to NZ when eldest child age 5.
- Planning 3 month trip to India. A mix of sightseeing (New Delhi, Agra & Varanasi) and then visiting family in urban and rural Gujarat.
- What more do you need to know?

Vaccination

- What are the issues?
- How are you going to address them?
- They have \$200 to spend on vaccinations for the entire family
 - How are you going to prioritise the travel vaccines?



Routine vaccines: Mum, Dad & Oldest Child

- Did Mum & Dad receive any childhood vaccines?
 - If yes, how do we know what they were?
 - Do they have any records?
- Did the 14 year old get a catch-up programme when they first immigrated to NZ?



Routine vaccines: Mum, Dad & Oldest Child

- Current Indian Recommended Immunisation Schedule (Paediatric Association) at <https://docs.google.com/viewer/viewer?url=http://iapindia.org/files/Table-I-IAP-Immunization-Schedule-2016-Final.docx>
- Includes a typhoid conjugate vaccine at 9m & 2 yrs and Hep A at 12m & 18m



NZ: Catch-up funded vaccines

- **Children**

- Up to 18th birthday {And assume for HPV up to age 27 as per 2017 changes}
- **Can use funded vaccine & claim immunisation subsidy**

- **Adults (18yrs +)**

- NZ Resident or Refugee
- Eligible for
 - 3 Td
 - 3 IPV
 - 2 MMR (DOB > /1/1968)
 - 3 HPV (females 18-20y) {But will change in light of 2017 changes}
- Can use **funded** vaccines but cannot claim Immunisation subsidy for all
- See: <http://www.immune.org.nz/news/extension-catch-eligibility>

In addition to those on National Immunisation Schedule: What vaccine preventable diseases might they be exposed to?

- Influenza
 - Hepatitis A
 - Hepatitis B (adults)
 - Typhoid
 - Japanese encephalitis
 - Rabies
 - (Varicella)
- **Cost e.g.**
 - One child receives influenza, hepatitis A, typhoid, Japanese encephalitis and rabies vaccines
 - **Approximately \$1000**
 - **Which ones are likely to drop off the list?**

Vaccination

- Mum & Dad
 - If we assume immune hepatitis A (and/or serology)
 - Ideally should get at very least
 - ADT
 - Influenza
 - Typhoid

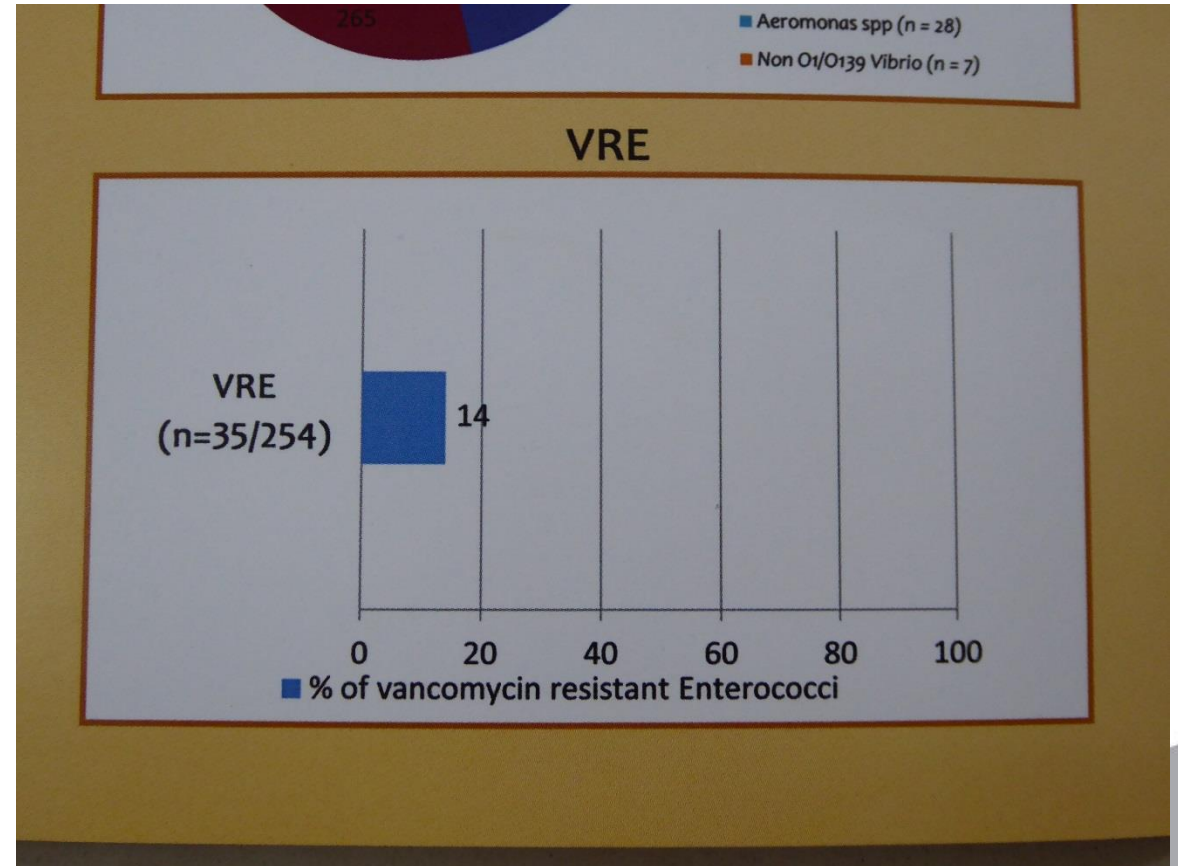


Vaccination

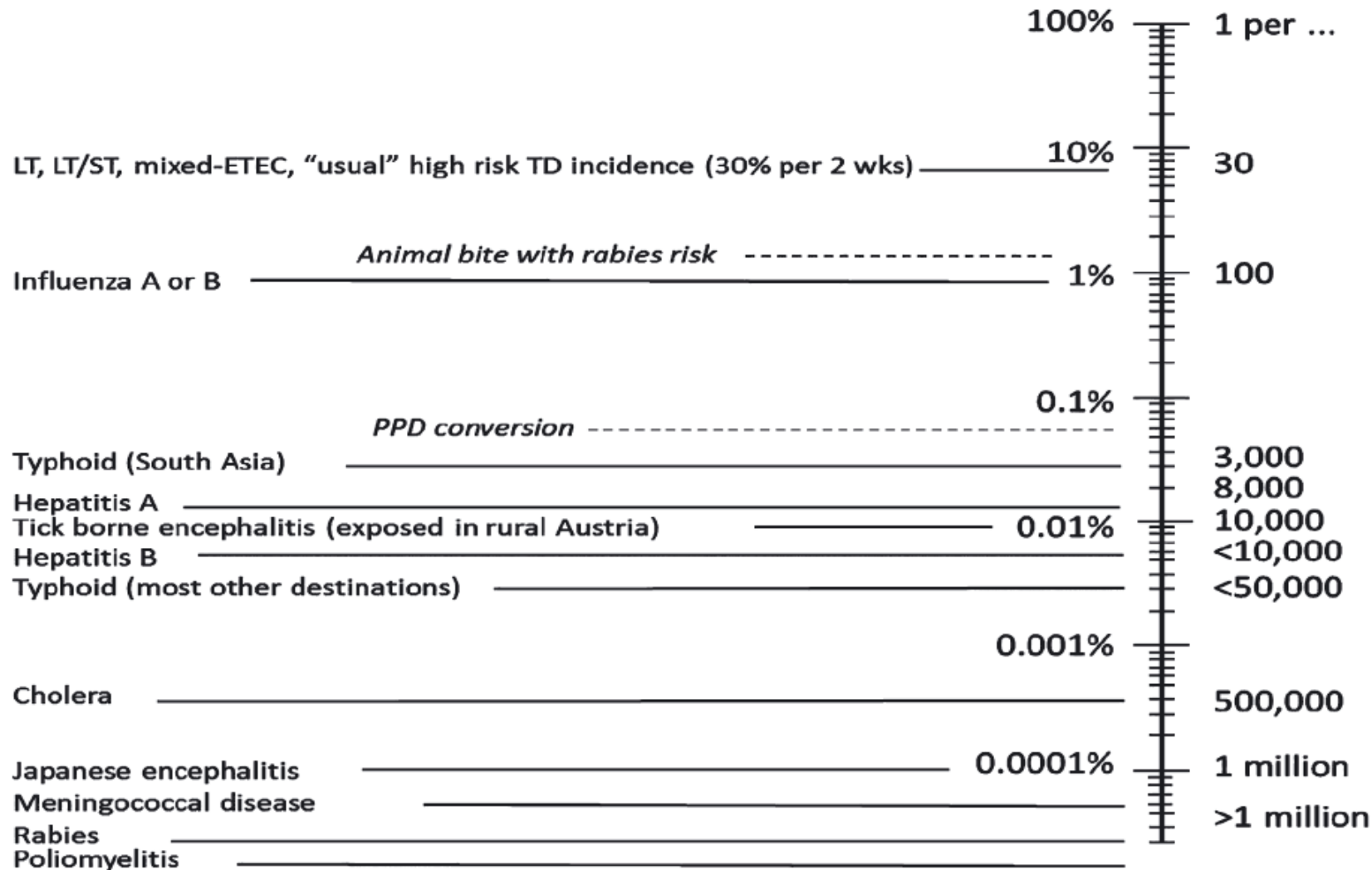
- 14 year old
 - Assuming up to date National Immunisation Schedule
 - If can assume naturally acquired Hepatitis A immunity
 - Influenza
 - Typhoid
- 6 year old
 - Assuming up to date National Immunisation Schedule
 - Ideally
 - Influenza
 - Hepatitis A
 - Typhoid

Vaccination

- 9 month old
 - Assuming up to date National Immunisation Schedule
 - Bring MMR #1 forward (after discussion with IMAC medical advisor)
 - Still need x2 post 12 months
 - Ideally
 - Influenza
 - Hepatitis A (for public health)
 - Typhoid

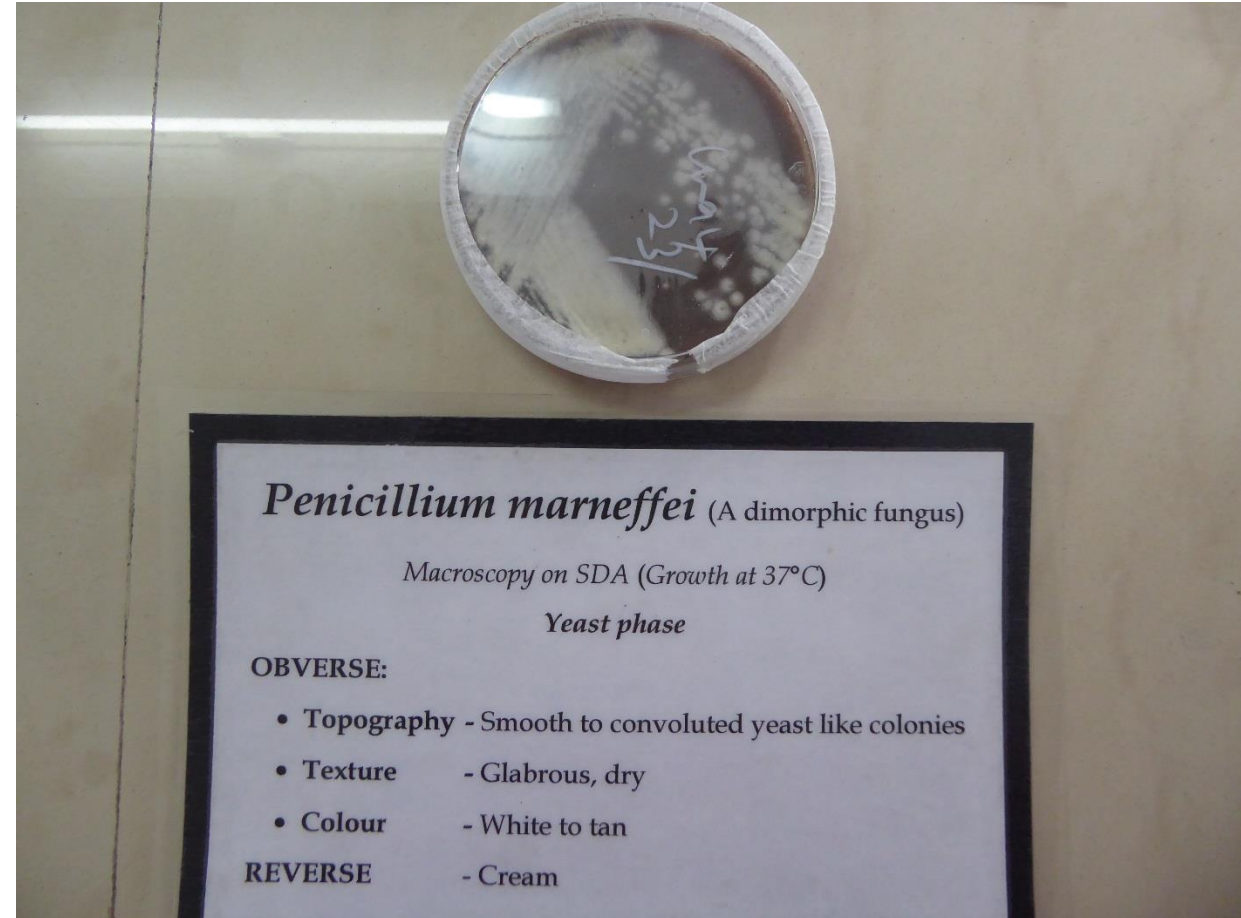


“Steffenogram”: Current estimates on vaccine-preventable disease incidence among Western travellers to tropical and subtropical destinations—absolute risk of disease/month of travel



So..if only had \$200 for vaccinations for entire family?

- Balancing many factors, including disease risk/epidemiology & severity of disease, then **probably** vaccinating the entire family (except 9 month old) against typhoid would be best use of money
- But no correct answer!



Engaging VFRs

- Preemptive advice to patients in your practice – recommend they see you when they plan to travel home, discuss it when giving childhood immunisations/ well child checks
- <http://www.headinghomehealthy.org/> has videos for VFRs, a site they can get destination specific advice and healthcare providers can also. Available in 12 languages
- <https://healthreach.nlm.nih.gov/document/365/Global-TravEpiNet-GTEN-PREP-Providers-Rapid-Evaluation-Portal-Healthy-Travel-Checklist> Healthy Travel Checklist in 14 languages

Healthy Travel Checklist

Here are some key tips for staying healthy on your trip!

For more information about travelling abroad: wwwnc.cdc.gov/travel OR www.headinghomehealthy.org

DURING YOUR TRIP

① Take Your Medications

- ✓ Take all of the medicines you usually take when you are at home.
- ✓ Take your anti-malarial medication (if prescribed). All anti-malarial medications start **before** your trip and continue **after** your return:

☐ None

☐ Atovaquone-proguanil

☐ Chloroquine

☐ Doxycycline

☐ Mefloquine

☐ Other: _____



② Protect Yourself from Bug and Animal Bites

- ✓ Avoid bug bites; use an insect repellent that contains at least 20% DEET.
- ✓ Wear long-sleeved shirts, long pants, closed shoes, and hats, as much as possible.
- ✓ Do not touch animals you don't know, even if they look safe.
- ✓ Seek immediate medical attention if you are bitten or scratched by any animal.



③ Be Careful What You Eat

- ✓ Drink beverages that have been bottled and sealed and avoid ice.
- ✓ Eat food that is fully cooked and served hot.
- ✓ Wash your hands often or use a hand sanitizer frequently.
- ✓ If you have diarrhea with fever or blood, take your anti-diarrheal antibiotic and seek medical care:

☐ None

☐ Ciprofloxacin

☐ Azithromycin

☐ Other: _____



④ Road and Motor Vehicle Safety

- ✓ Always wear a seatbelt.
- ✓ Wear a helmet when you ride a bike or motorcycle.
- ✓ Look for oncoming traffic in both directions.
- ✓ Avoid overcrowded buses and cars.
- ✓ Avoid driving at night on unfamiliar roads.



AFTER YOUR TRIP

- ✓ Seek medical attention if you develop a fever during your trip or after your return.
- ✓ Follow-up with a health care provider if you were seriously injured or ill during your trip.

On a bigger scale...

- Create a community advisory board- representatives from target population group meet and try to develop solutions. Explore cultural risk factors, create educational materials, network with cultural groups
- Educate travel agents who have high numbers of VFR clients
- Word of mouth travel health education- volunteer “health talkers” from target communities to share travel health information to their social networks

Not all questions
can be answered
by

Google