IMMUNISATION COALITION

Travel vaccines in general practice: Challenges and approaches to vaccinating the outbound traveller

Dr Deborah Mills

Medical Director of a full-time specialised Travel Medicine clinic, Brisbane

11:30

Travel Vaccines in General Practice: Challenges and Approaches to Vaccinating the Outbound traveller

Dr Deb Mills
MBBS MPHTM

7.10.23

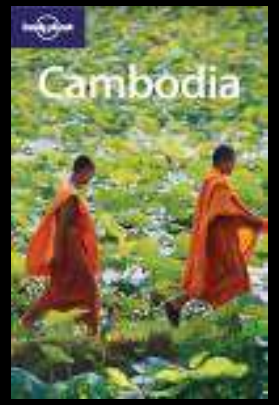
Dr Deb's
TRAVEL MEDICINE CENTRES
WITH YOU EVERYWHERE
THE TRAVEL DOCTOR
TRAVEL HEALTH CARE

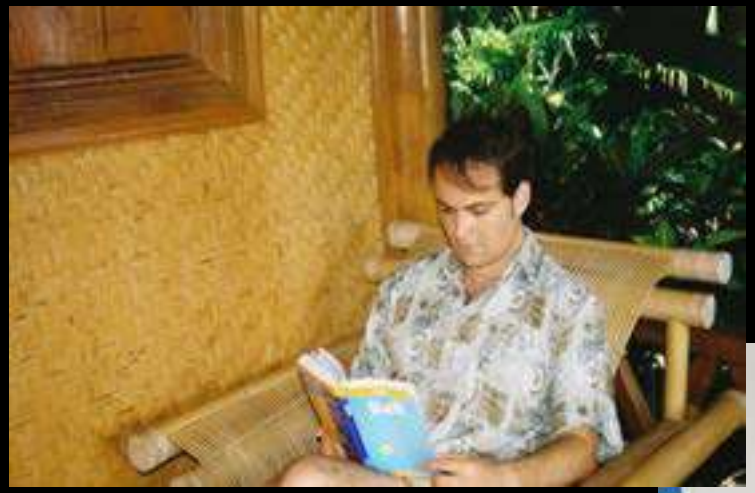
CONFLICTS of INTEREST

- Given talks for Sanofi, Sequiris, GSK
- Research funding Sanofi
- Book
- Run a Travel Clinic

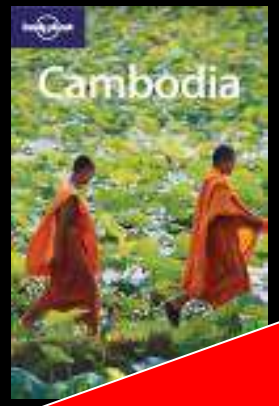
Travel medicine is more than just vaccines

What they don’t tell you…



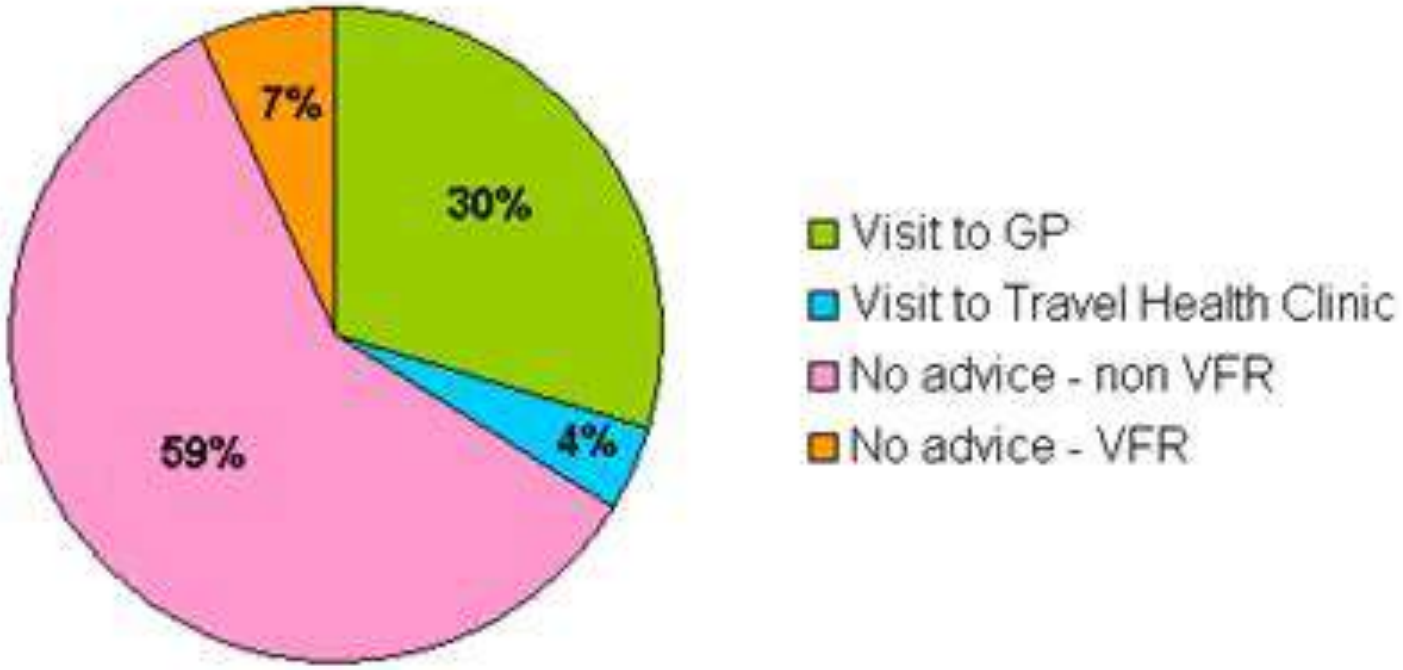


What they don't tell you…



"complacency"

Australian travellers attitude regarding health pre-travel consultation, Zwar 2007.



Pre Travel Advice and Hepatitis A Immunisation among Australian Travellers Zwar et al

J Travel Med 2007

The major reason …perceived low risk of infection while travelling

Past pre-travel vaccine uptake was associated with

- **increasing age (OR = 1.17) and**
- **travel to higher-risk destinations (OR = 2.92)**
- **BUT VFRs were less likely to have received pre-travel vaccines (OR = 0.74 [0.56–0.97] p = 0.028)**

Kain D, Findlater A, Lightfoot D, et al. Factors affecting pre-travel health seeking behaviour and adherence to pre-travel health advice: a systematic review. J Travel Med 2019;26(6)

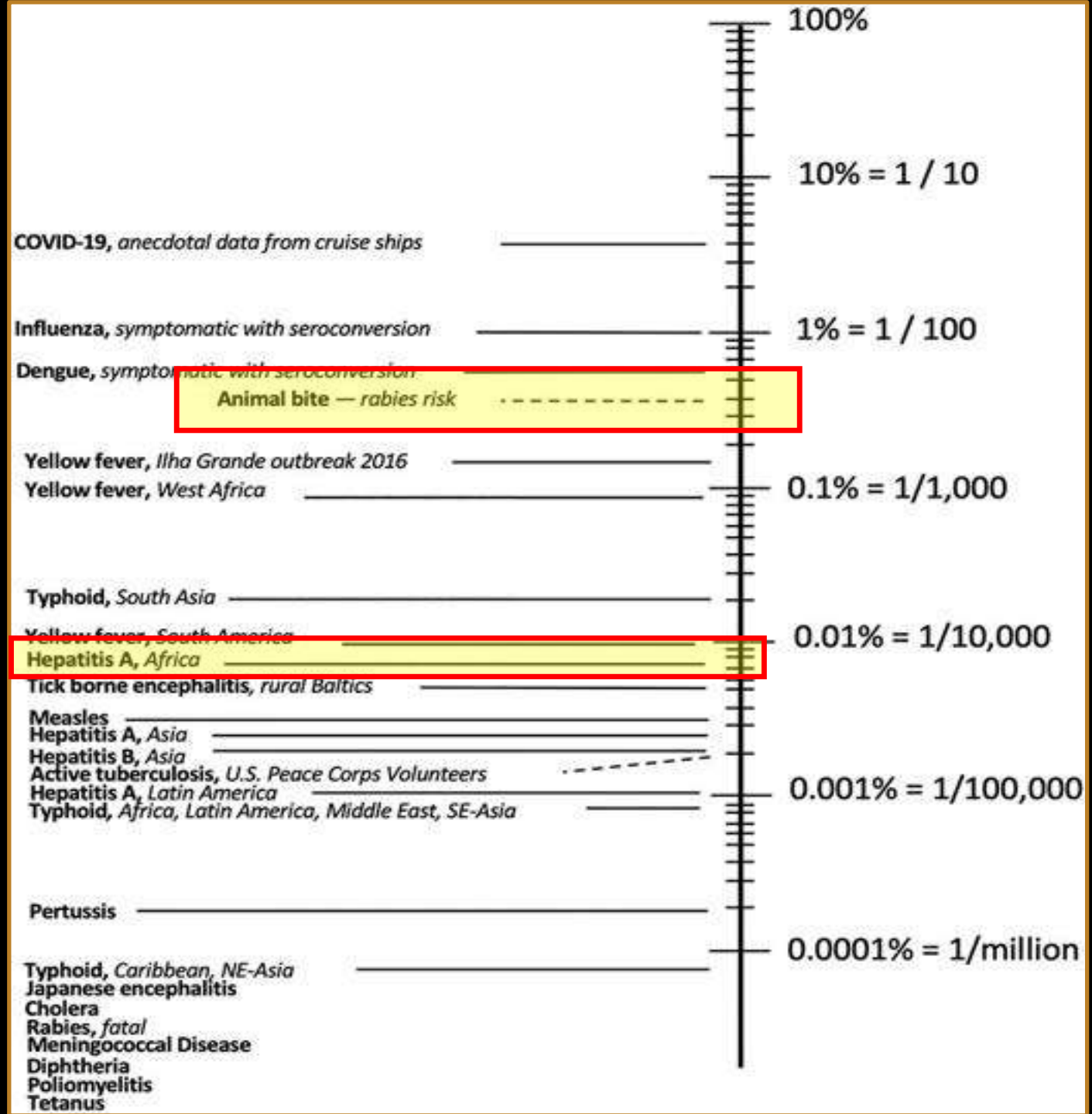
Travellers don’t realise what is involved and how much time it takes …

During pap smear / URTI/ BP script etc

“I’m going to XYZ.. do I need anything…”

..Need to make a separate appointment

Figure 1 Incidence rate per month of VPDs in travellers; best estimate for non-immunes



J Travel Med, taad085, https://doi.org/10.1093/jtm/taad085

Everything starts with History

Been before? Where ? When?

Problems while away?

Previous vaccine records?

Past Medical history / medications

This trip

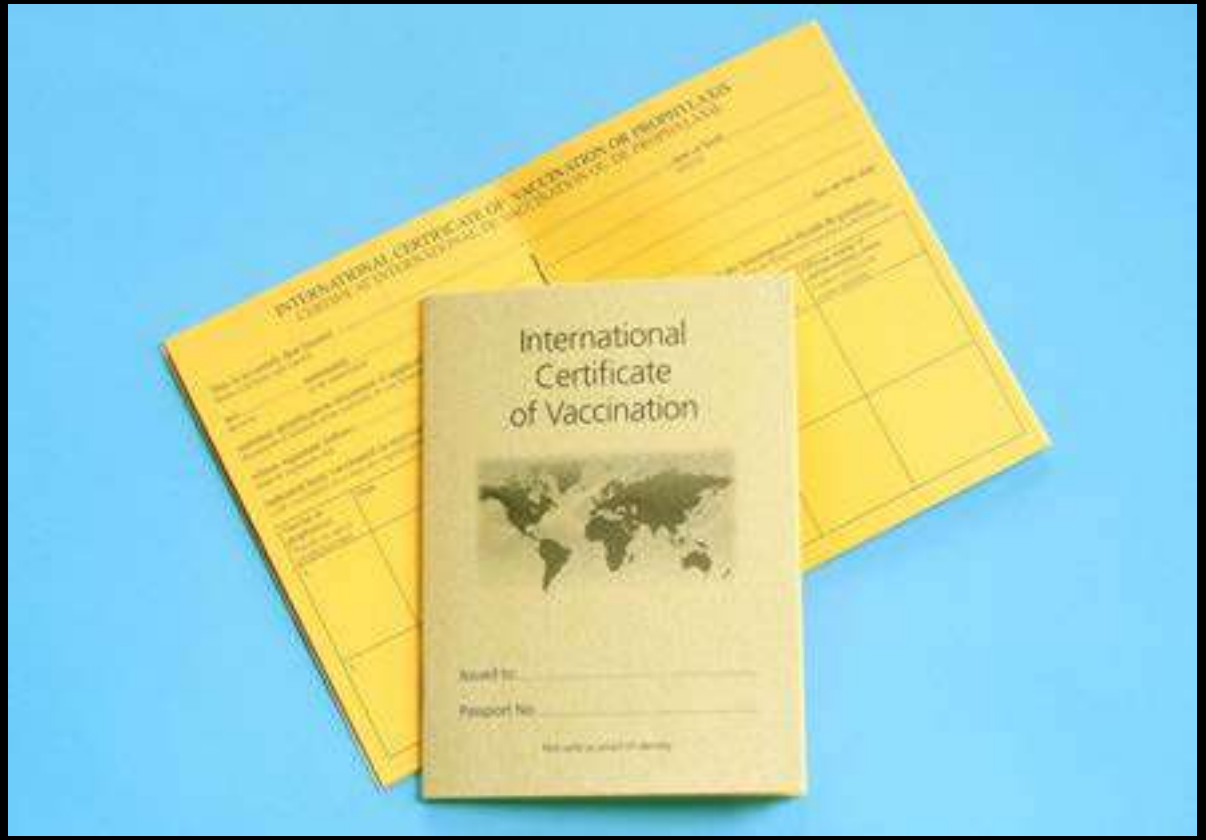
- Where // When // Why //Who
- How long
- What activities / accommodation/ food

Previous vaccine records

Australian Immunisation record?

Old vaccine books

Serology for some things



Serology ?

- Measles
- Mumps
- Rubella
- Varicella
- Hep B
- Hep A (mostly for disease)

Have a system to work through all the topics esp vaccines

HOW VACCINES ARE GIVEN

POLIO	**IPV / Adacel Polio / Boostrix IPV injection** One dose of IPV if the original course was given in childhood/ school. Available combined with Adacel and Boostrix. (Oral Sabin has been discontinued in Australia.)
TETANUS DIPHTHERIA WHOOPING COUGH	**Adacel / Boostrix / ADT / Tetanus Toxoid** Tetanus booster is one injection if the original course was given in childhood. Usually given combined e.g. Adacel or Boostrix = Tetanus, Diphtheria, Whooping cough (Pertussis) ADT = Adult Diphtheria & Tetanus
HUMAN PAPILLOMA	**Gardasil 9 injection** Dose depends on age. 9-14 years age: two injections 0, 6months. Over 15 years age: three injections 0, 1-2 months, 6 months
MEASLES MUMPS RUBELLA	**Priorix* / MMR II* injection** (Rubella is also known as German measles). Two injections give lifetime protection.
CHICKENPOX	**Varivax* / Varilrix* injection** Two injections: 0, 1-2 months. **Zostavax* injection** One injection protects against shingles.
INFLUENZA	**Fluvax / Vaxigrip / Intanza / Fluarix injection** Adult: one injection. Child: 6mth-9yrs: two injections 0, 1mth
PNEUMONIA	**Prevenar injection** Adult: one injection. **Pneumovax injection** Adult: one injection.
TYPHOID	**Typhim Vi / Typherix injection / Vivotif* Oral** One injection, or 4 capsules taken Day 1, 3, 5, & 7. Preferably given at least 2 weeks before departure.
TYPHOID + HEPATITIS A	**Vivaxim = Typhim Vi + Avaxim** One injection protects against Typhoid and Hepatitis A. Booster for Hepatitis A in 6 - 12 mths for lifetime protection.
HEPATITIS A	**Avaxim / Vaqta / Havrix injection** One initial dose, then a booster at 6-12 months.
HEPATITIS A+B	**Twinrix injection** Three injections: 0, 1 month and 6 months.
HEPATITIS B	**HBVax II / Engerix B injection** Usually three injections: 0, 1 month and 6 months. Rapid course: 0, 1, 2, 12 months or 0, 1 wk, 4 wks, 12 months.

MENINGITIS	**ACWY – Menveo / Menactra / Nimenrix** One injection, given at least 2 weeks before travel. **B – Bexsero** Two injections, spaced 1-2 months apart.
YELLOW FEVER	**Stamaril* injection** One injection, given at least 10 days before travel.
CHOLERA/ETEC	**Dukoral oral** Over 6 years of age: two doses of drink, given one week apart. Usually given 3 weeks before travel. Vaccine gives some protection against ETEC diarrhoea for three months.
JAPANESE B ENCEPHALITIS	**Jespect / Ixiaro injection** Two injections, spaced a month apart. **Imojev* injection** One dose for adults.
TICK-BORNE ENCEPHALITIS	**Encepur / FSME-IMMUN injection** Regular course: three injections: 0, 1-3 months, 5-12 months Rapid course: two injections: 0, 14 days.
RABIES	**HDCV / Rabipur / Verorab injection**

Options	Before bite		After bite
1	Nothing	Bite	RIG+ 0, 3, 7, 14, (28) *days*
2	0, 7, (28) *days*	Bite	0, *3 days*

After rabies risk exposure

1. If you are NOT pre-immunised, when bitten – you need Rabies Immune Globulin (RIG) injected into the bite wound on the day of the bite. RIG is a blood product and not available in many countries. Plus you need four to five doses of vaccine in the arm over the next month.
2. If you ARE pre-immunised before exposure, you have more time to seek help and you only need two further doses of vaccine and no RIG.

TUBERCULOSIS	**BCG* injection** One injection, usually given in childhood. BCG vaccine does not work well in adults. A tuberculosis test (QuantiFERON or Mantoux) may be recommended before travel, to document immunity. If necessary, the test is repeated 3 months after return home.
Q FEVER	**Q-VAX injection** One injection, given at least 2 weeks before exposure. A skin test and blood test must be done prior to vaccination.

* *Live vaccines*

and COVID

Vaccine GRID

Grid is useful for scheduling courses

PERSONAL VACCINATION SCHEDULE

(TO BE FILLED IN BY YOUR DOCTOR)

DATE:

Polio					
Tetanus / Diphtheria / Wh.cough					
HIB					
Rotavirus					
HPV (Human papilloma)					
Measles / Mumps / Rubella					
Chickenpox or Shingles					
Influenza					
Pneumonia					
Typhoid					
Hepatitis A					
Hepatitis B					
Meningitis ACWY					
Meningitis B					
Yellow Fever					
Cholera / ETEC Diarrhoea					
Japanese B Encephalitis					
Tick-borne encephalitis					
Rabies					
Tuberculosis					
Q fever					
COVID-19					
Malaria Tablets					

Don't forget your **travellers' medical kit** and a **letter of authorisation** for any tablets, medications or drugs you will be carrying overseas.

Case

- Kiara
- Today for routine 6 mth vaccines
- BTW ..In 4 months going to INDIA
- for 8 weeks
- “Just family”… (Village wedding)

POLIO

Español | Other Languages

CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

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Newsroom Home

United States confirmed as country with circulating vaccine-derived poliovirus

Print

Media Statement

For Immediate Release: Tuesday, September 13, 2022
Contact: Media Relations
(404) 639-3286

One lifetime booster dose of IPV

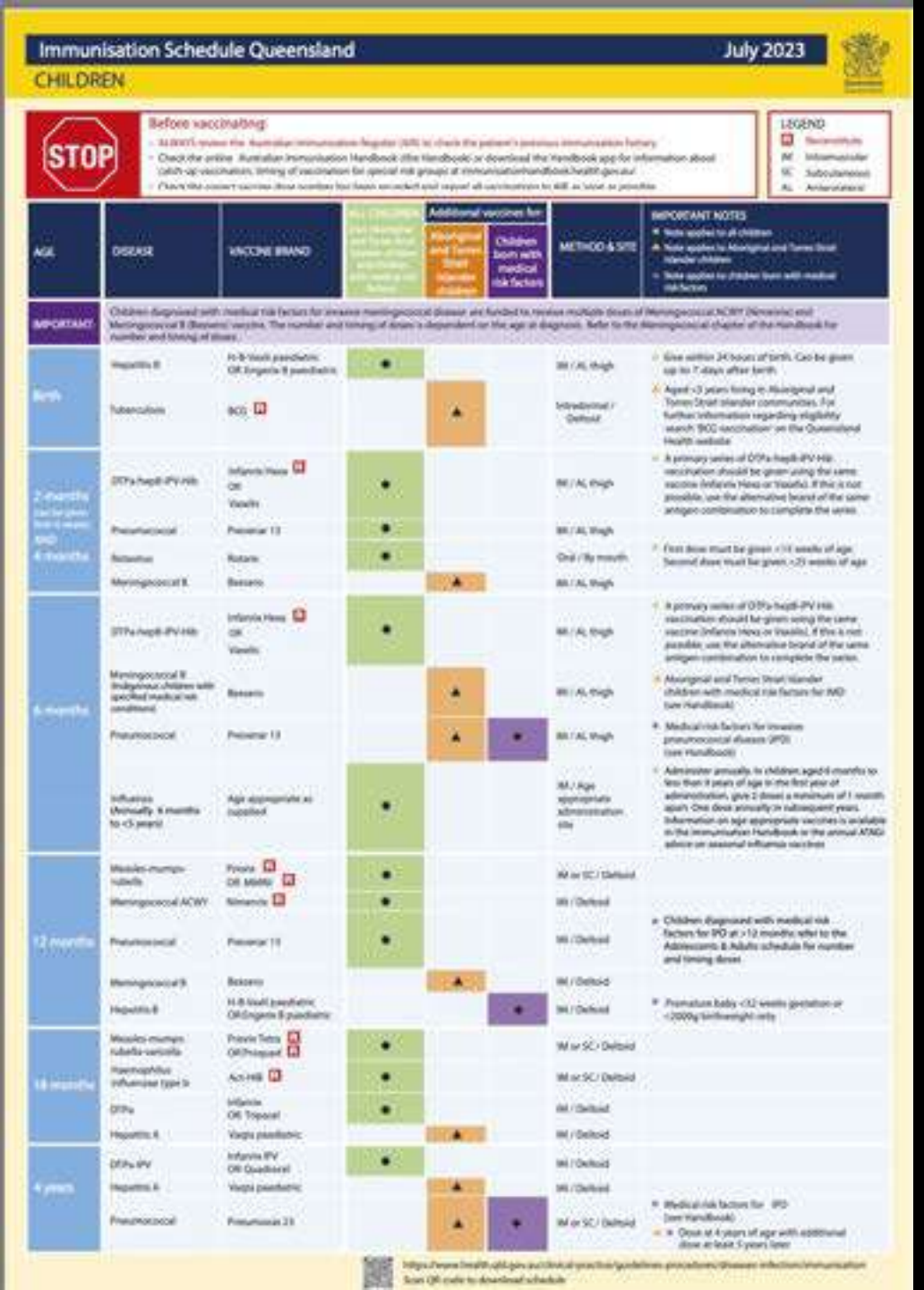
TETANUS

DIPHTHERIA

PERTUSSIS

Case

- Kiara
- Today for routine 6 mth vaccines
- BTW ..In 4 months going to INDIA
- for 8 weeks
- “Just family”… (Village wedding)



6 months	DTPa-hepB-IPV-Hib	Infanrix Hexa R OR Vaxelis
	Meningococcal B (Indigenous children with specified medical risk conditions)	Bexsero
	Pneumococcal	Prevenar 13
	Influenza (Annually 6 months to <5 years)	Age appropriate as supplied

	6mth	V1	V2	V3	V4
Polio	*				
Tet/Dip/Pert	*				
MMR					
Chickenpox					
Influenza					
Pneumonia	*				
Typhoid					
Hepatitis A					
Hepatitis B	*				
Meningitis ACWY					
Meningitis B					
Yellow Fever					
Cholera					
Jap B Enceph					
Rabies					
TB					

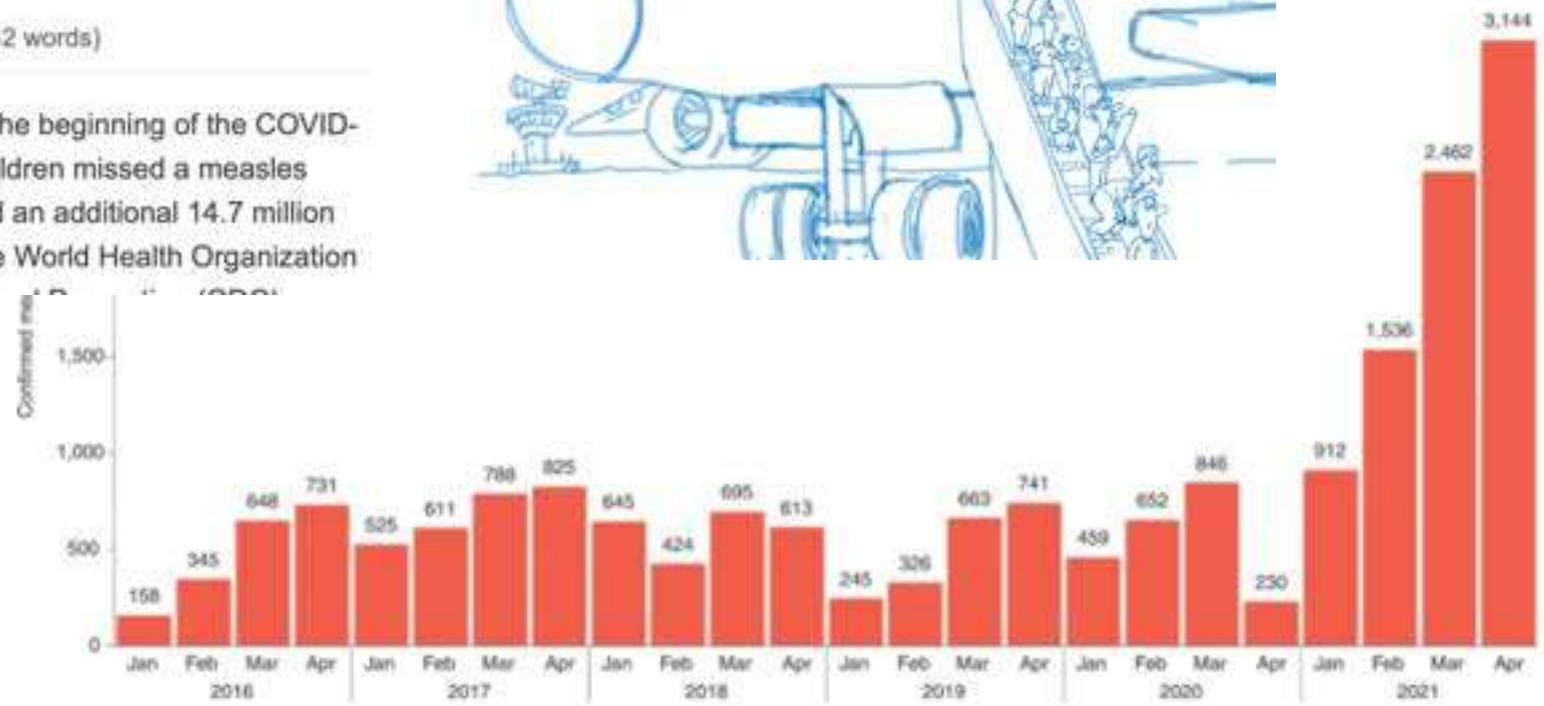
World Health Organization | Health Topics | Countries | Newsroom | Emergencies

Nearly 40 million children are dangerously susceptible to growing measles threat

23 November 2022 | Joint News Release | Reading time: 4 min (1042 words)

Measles vaccination coverage has steadily declined since the beginning of the COVID-19 pandemic. In 2021, a record high of nearly 40 million children missed a measles vaccine dose: 25 million children missed their first dose and an additional 14.7 million children missed their second dose, a joint publication by the World Health Organization

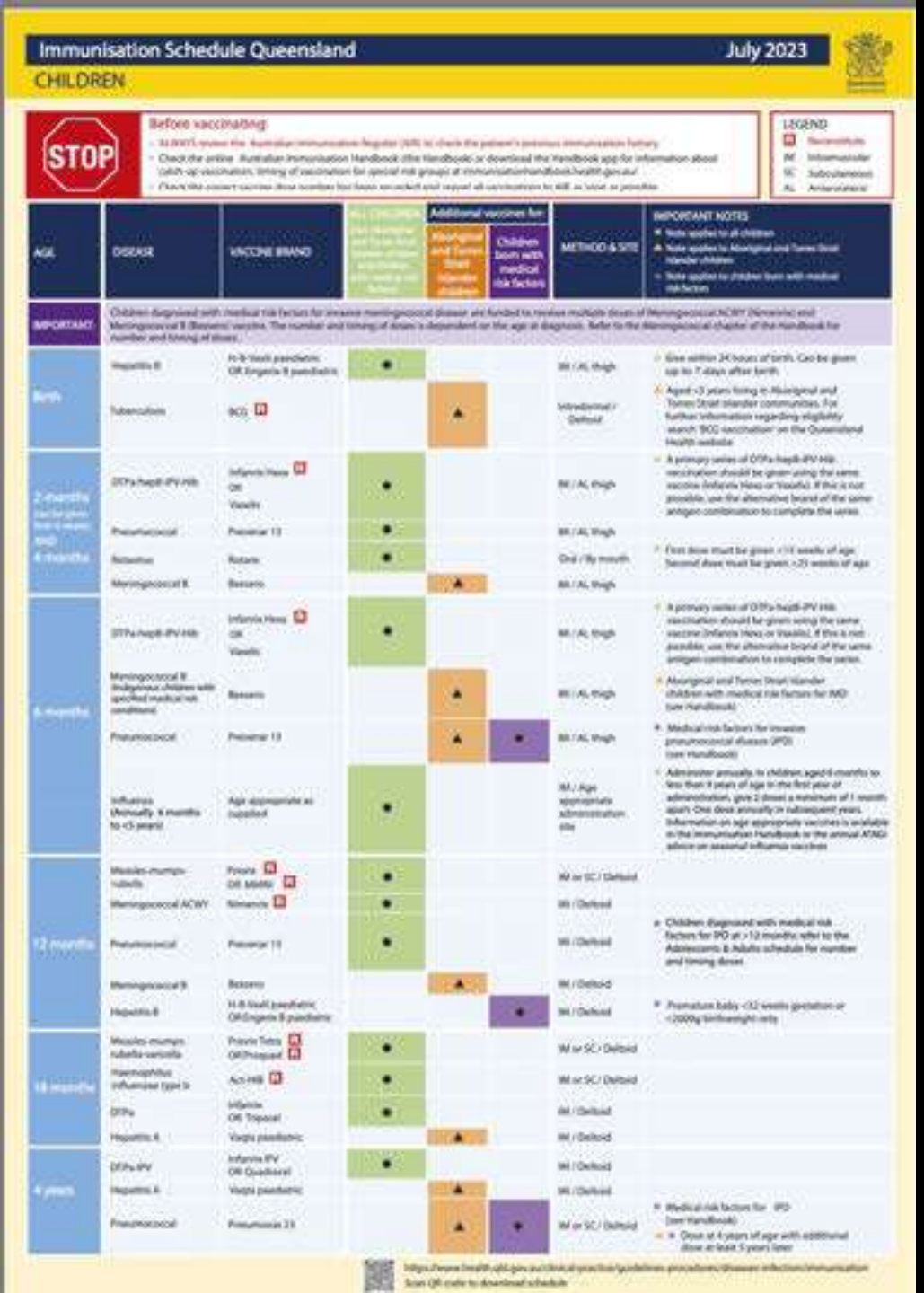
MEASLES



Cases reported in the first 4 months of the past 6 years (January through April, 2016–2021).

Extra MMR in 6-12 mth old travellers

Regardless of destination



AGE	DISEASE	VACCINE BRAND
12 months	Measles-mumps-rubella	Priorix R OR MMRII R
	Meningococcal ACWY	Nimenrix R
	Pneumococcal	Prevenar 13
	Meningococcal B	Bexsero
	Hepatitis B	H-B-Vaxll paediatric OR Engerix B paediatric

Still get another (routine) MMR

	6mth	7mths	8 mths	9mths	10mths (depart)
Polio	*				
Tet/Dip/Pert	*				
MMR				EXTRA MMR	
Chickenpox					
Influenza					
Pneumonia	*				
Typhoid					
Hepatitis A					
Hepatitis B	*				
Meningitis ACWY					
Meningitis B					
Yellow Fever					
Cholera					
Jap B Enceph					
Rabies					
TB					

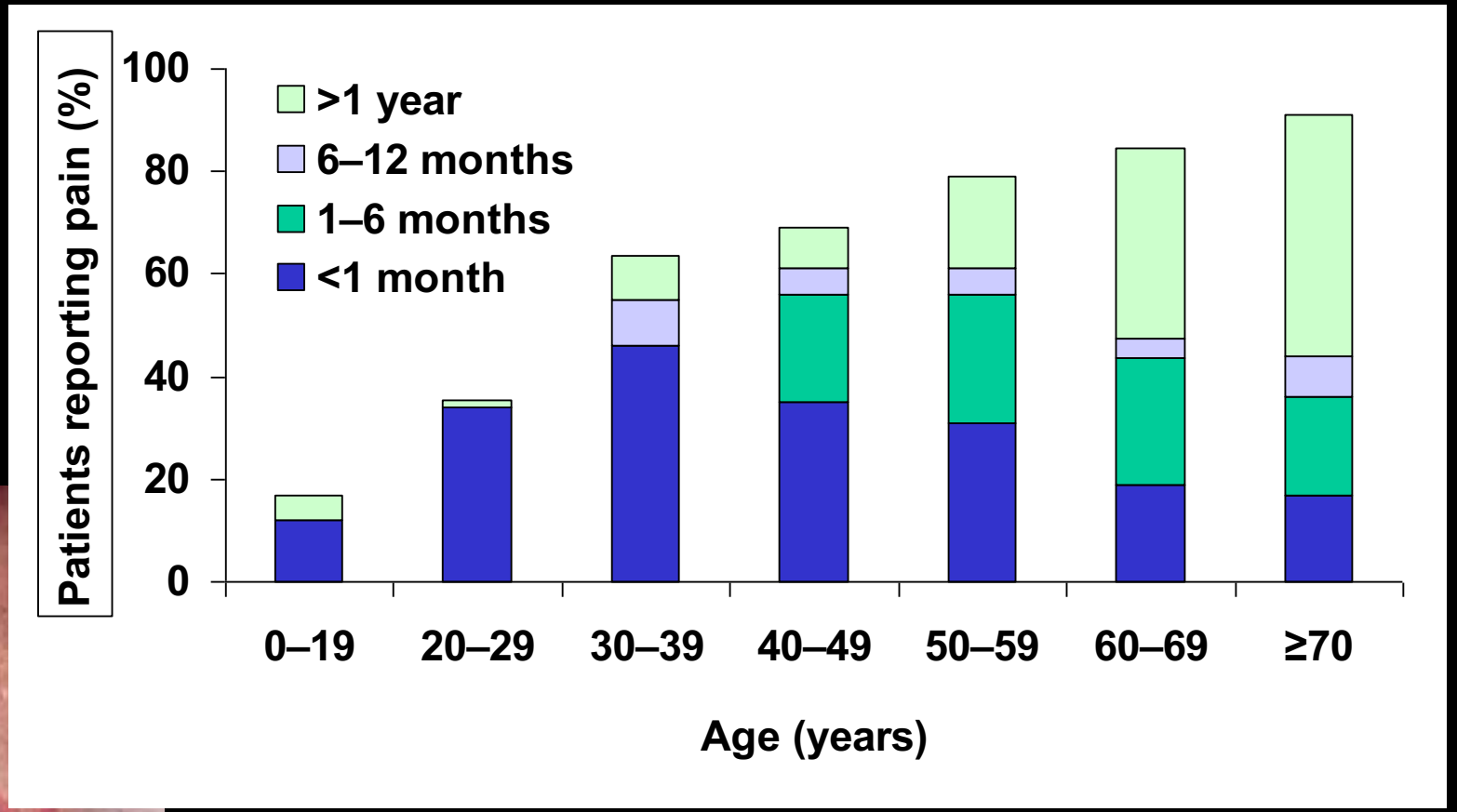
VARICELLA

Children aged 12 months to <14 years are recommended to receive 2 doses of varicella-containing vaccine

All children <14 years of age are recommended to receive 2 doses of varicella-containing vaccine, with the first dose given at 18 months of age. Children should receive this dose as MMRV vaccine. See Measles.

Children can receive varicella-containing vaccine from as young as 12 months of age. This provide earlier protection against varicella, which may be appropriate in the context of

Duration of Zoster-Associated Pain According to Age[1,2]



Influenza

‘Rollercoaster of a sickness’: how a horror flu season is catching Australian families off guard

About 69% of people admitted to hospital with confirmed influenza since April are aged under 16

- **Flu cases are on the rise across Australia. Do I need a winter vaccination?**
- **Follow our Australia news live blog for the latest updates**
- **Get our morning and afternoon news emails, free app or daily news podcast**

Influenza Vaccination and Reduction in Hospitalizations - (286,000 persons >65 yrs)

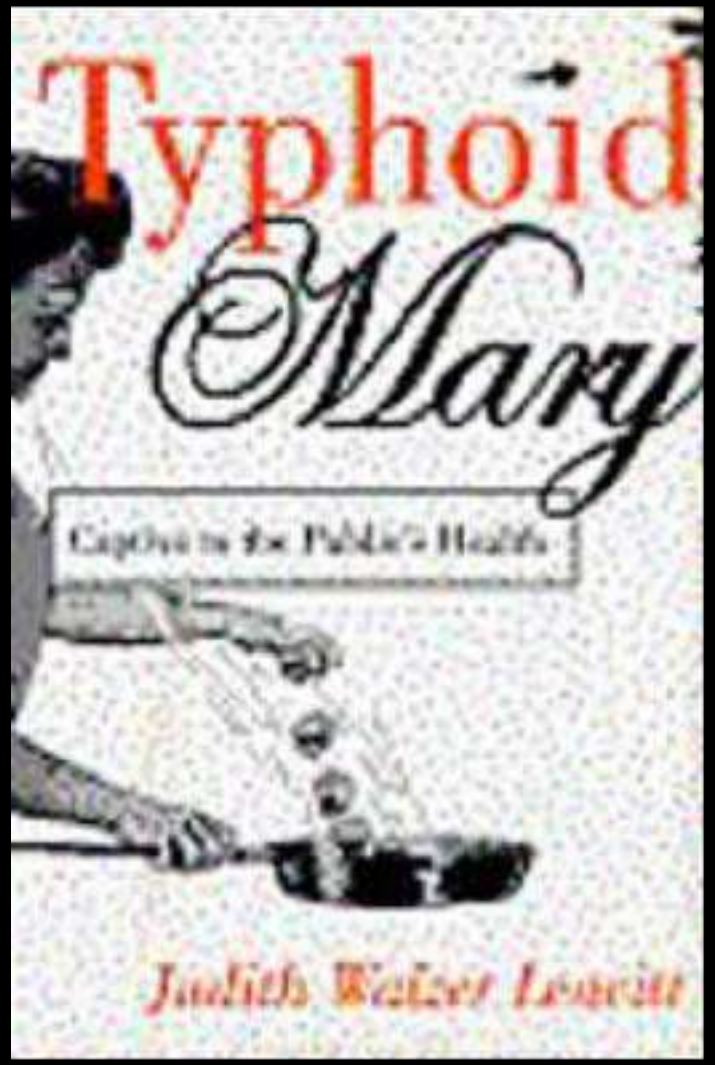
NEJM:Volume 348:1322-1332 April 3, 2003

Influenza vaccination associated with reduction in hospitalization for..

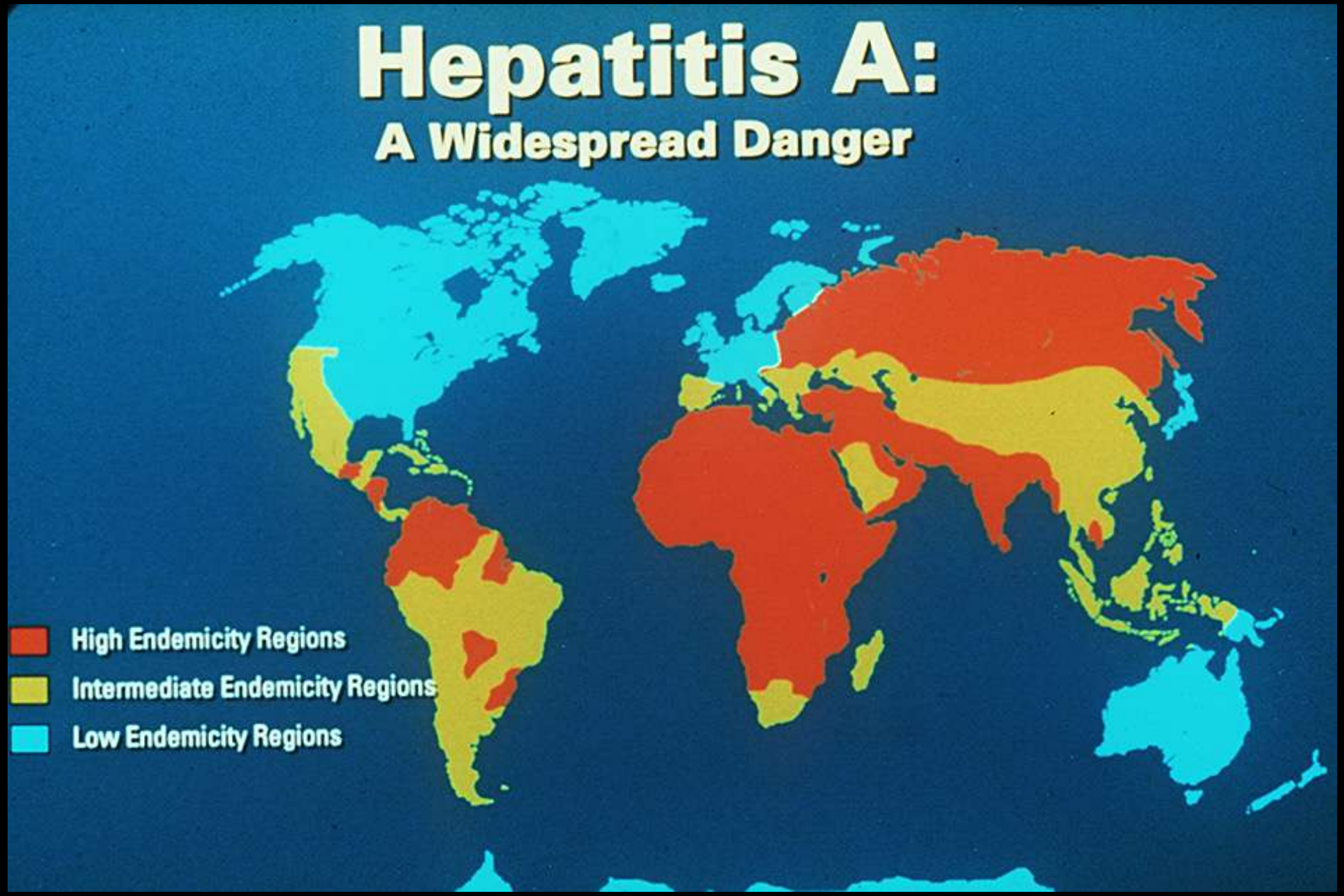
- cardiac disease by 19 percent..,
- cerebrovascular disease by 23 percent....

- a reduction in the risk of death from <u>all causes</u> by 50 percent

	6mth	7mths	8 mths	9mths	10mths (depart)
Polio	*				
Tet/Dip/Pert	*				
MMR				EXTRA MMR	
Chickenpox					
Influenza	Flu Child	Flu Child			
Pneumonia	*				
Typhoid					
Hepatitis A					
Hepatitis B	*				
Meningitis ACWY					
Meningitis B					
Yellow Fever					
Cholera					
Jap B Enceph					
Rabies					
TB					

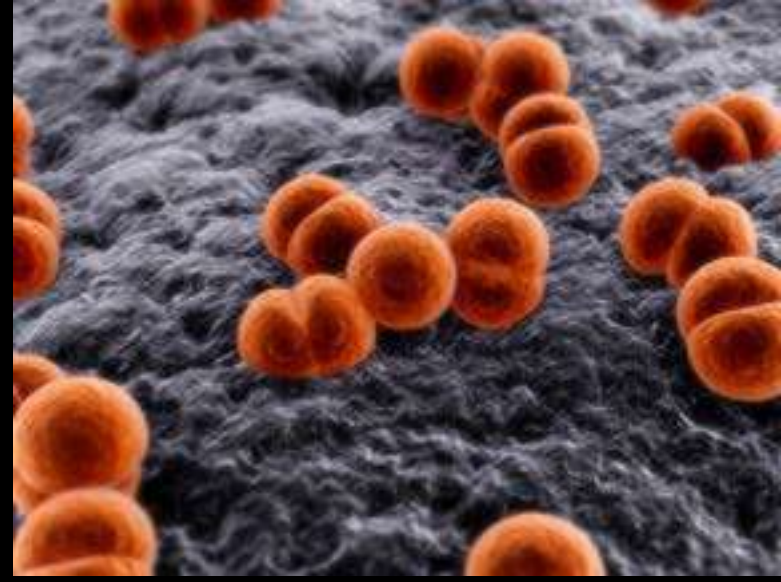

Typhoid
Mary
Judith Walzer Leavitt


High Risk
Moderate Risk


Hepatitis A:
A Widespread Danger
High Endemicity Regions
Intermediate Endemicity Regions
Low Endemicity Regions

	6mth	7mths	8 mths	9mths	10mths (depart)
Polio	*				
Tet/Dip/Pert	*				
MMR				EXTRA MMR	
Chickenpox					
Influenza	Flu Child	Flu Child			
Pneumonia	*				
Typhoid					
Hepatitis A				??	
Hepatitis B	*				
Meningitis ACWY					
Meningitis B					
Yellow Fever					
Cholera					
Jap B Enceph					
Rabies					
TB					

MENINGITIS ACWY



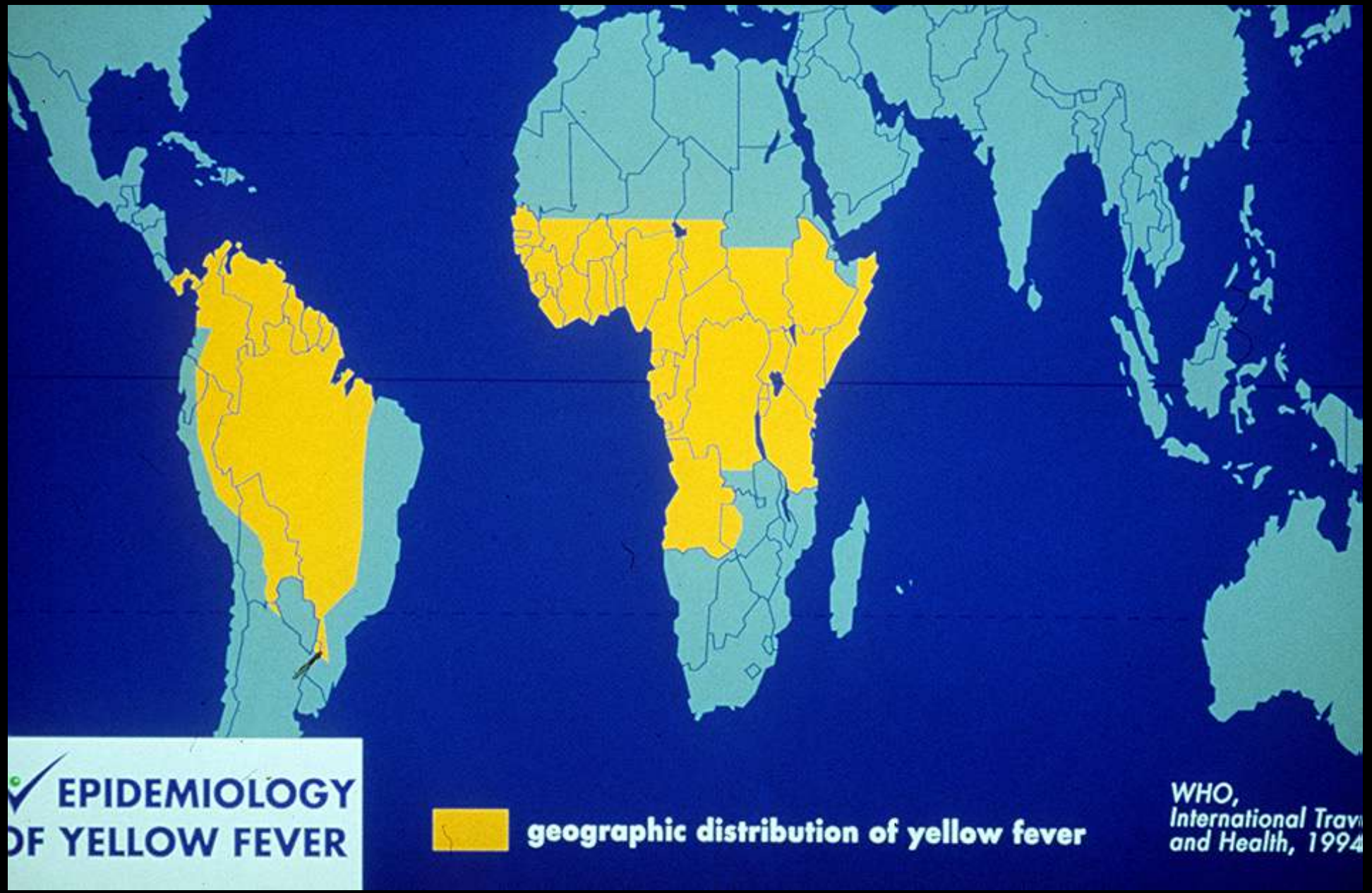
- **Extra Dose not funded**

	6mth	7mths	8 mths	9mths	10mths (depart)
Polio	*				
Tet/Dip/Pert	*				
MMR				EXTRA MMR	
Chickenpox					
Influenza	Flu Child	Flu Child			
Pneumonia	*				
Typhoid					
Hepatitis A				??	
Hepatitis B	*				
Meningitis ACWY		Men ACWY			
Meningitis B					
Yellow Fever					
Cholera					
Jap B Enceph					
Rabies					
TB					

FREE MEN B VACCINE

- (QLD) From early 2024
- Infants 6 weeks to 12 months
- Catch up to 2 years
- 15-19 years age

	6mth	7mths	8 mths	9mths	10mths (depart)
Polio	*				
Tet/Dip/Pert	*				
MMR				EXTRA MMR	
Chickenpox					
Influenza	Flu Child	Flu Child			
Pneumonia	*				
Typhoid					
Hepatitis A				??	
Hepatitis B	*				
Meningitis ACWY		Men ACWY			
Meningitis B	Men B		??	Men B	
Yellow Fever					
Cholera					
Jap B Enceph					
Rabies					
TB					


EPIDEMIOLOGY
OF YELLOW FEVER
geographic distribution of yellow fever
WHO,
International Travi
and Health, 1994

VACCINES

- Required
- Routine
- Recommended

ETEC diarrhoea
NNT 25

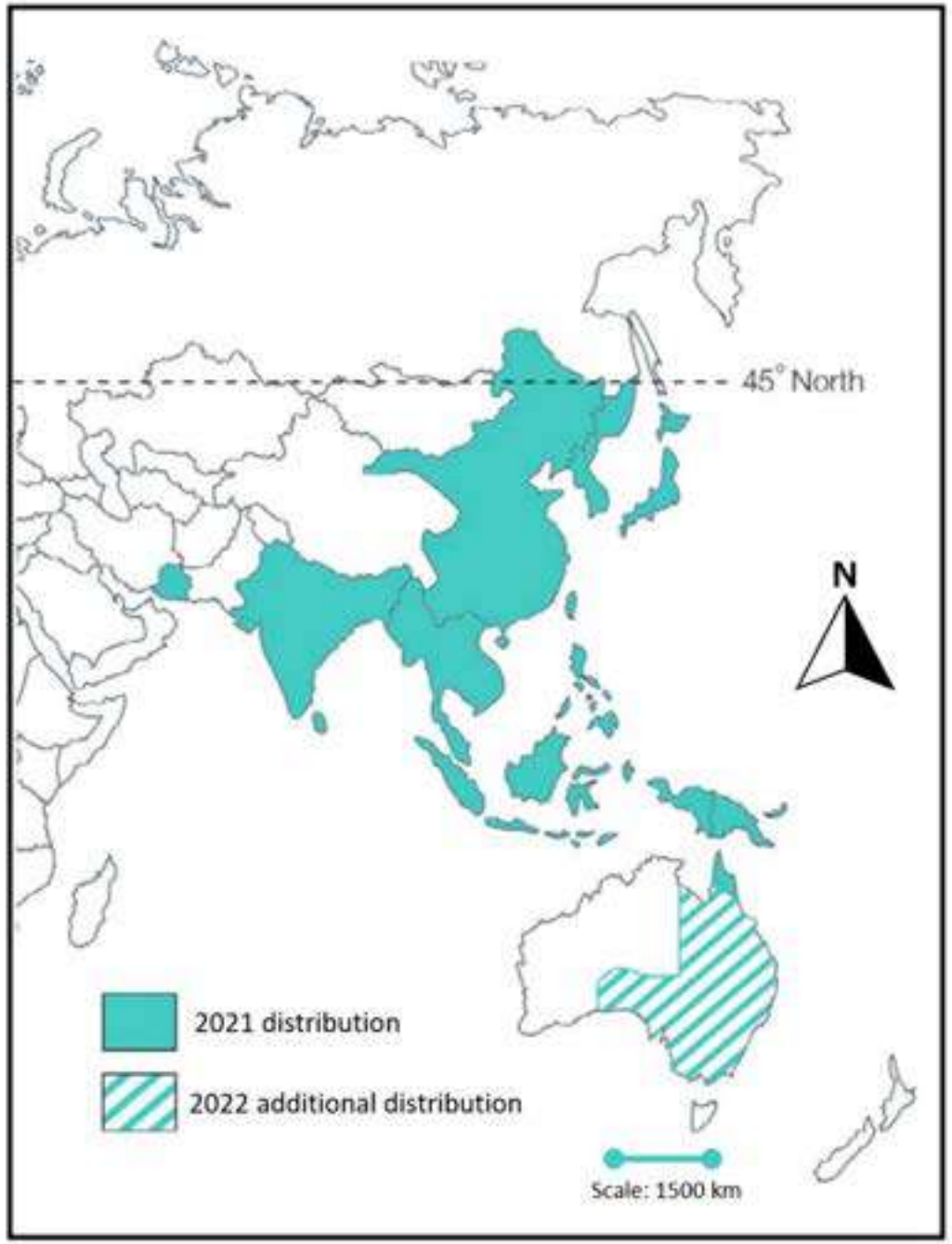


Figure 1. Japanese encephalitis virus is endemic throughout tropical and temperate areas of Asia,

JE Vaccine Tool

FEEDBACK OR COMMENTS

Japanese encephalitis vaccine tool

Calculator Version

Last updated on 19/07/2023.

Itinerary

Country of destination (JE risk map)

The system can only handle one destination at the time. For multi-country trips, please select the country with the highest risk of JE

Areas visiting within the country

Urban (city) Part urban, part rural Rural (farming/ wilderness)

If unsure, select 'part urban, part rural'

Duration of travel

For multi-country trips, please select the total duration of the trip in JE risk countries

<1 month

Demographic characteristics

Sex

Female Male Other

Age

<5 years 5-17 years 18-60 years >60 years

Do you have hypertension, diabetes mellitus, stroke, and/or renal disease?

Yes No

How often do you think you will use personal protective against mosquitoes (e.g., repellent)?

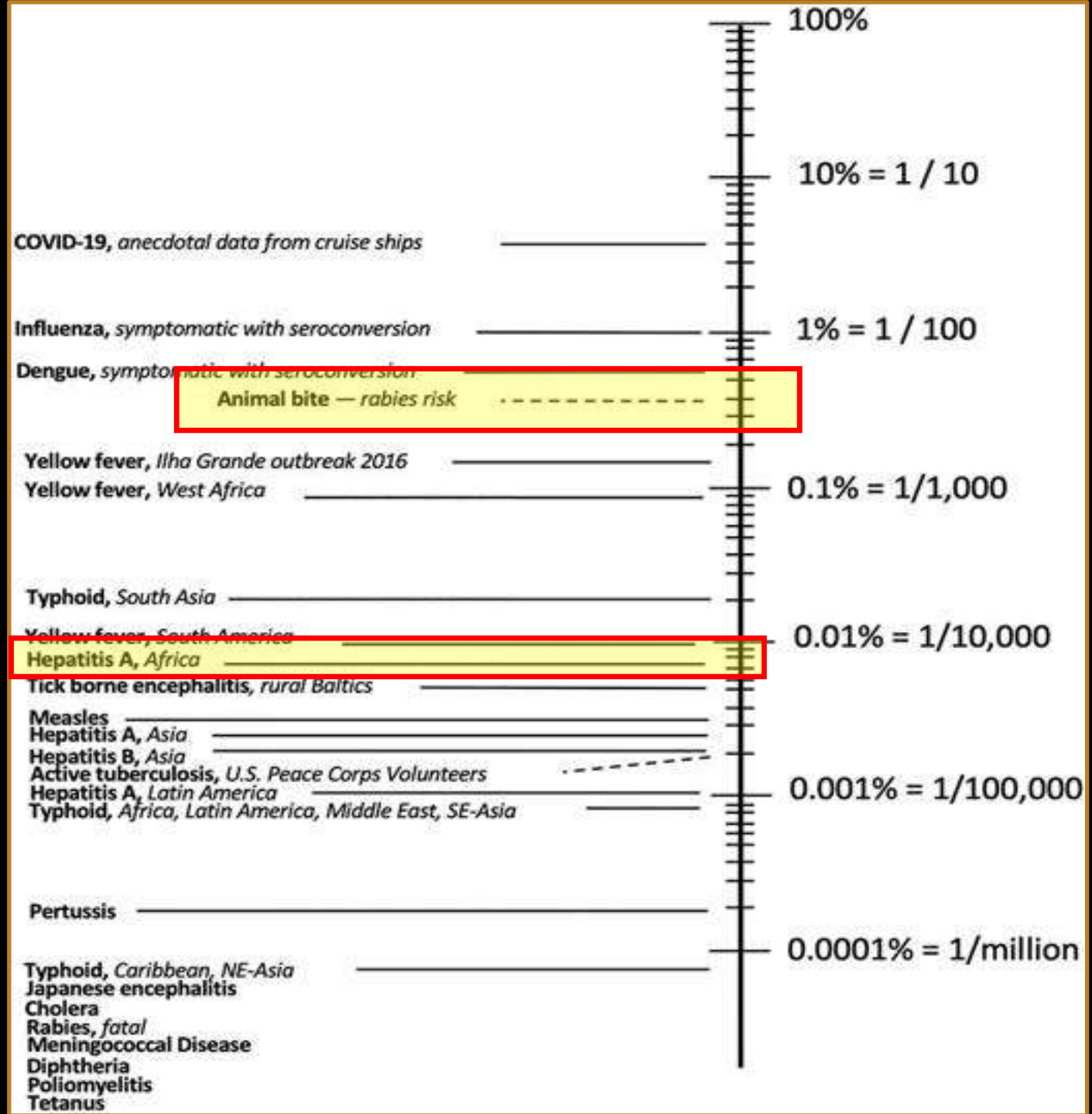
Always Sometimes (>50% of the time) Seldom

	6mth	7mths	8 mths	9mths	10mths (depart)
Polio	*				
Tet/Dip/Pert	*				
MMR				EXTRA MMR	
Chickenpox					
Influenza	Flu Child	Flu Child			
Pneumonia	*				
Typhoid					
Hepatitis A				??	
Hepatitis B	*				
Meningitis ACWY		Men ACWY			
Meningitis B	Men B		??	Men B	
Yellow Fever					
Cholera					
Jap B Enceph				?? JE Vaccine	CARE
Rabies					
TB					

TBE


ESTONIA
LATVIA
LITHUANIA
BELARUS
UKRAINE
HUNGARY
ROMANIA
BULGARIA

Figure 1 Incidence rate per month of VPDs in travellers; best estimate for non-immunes



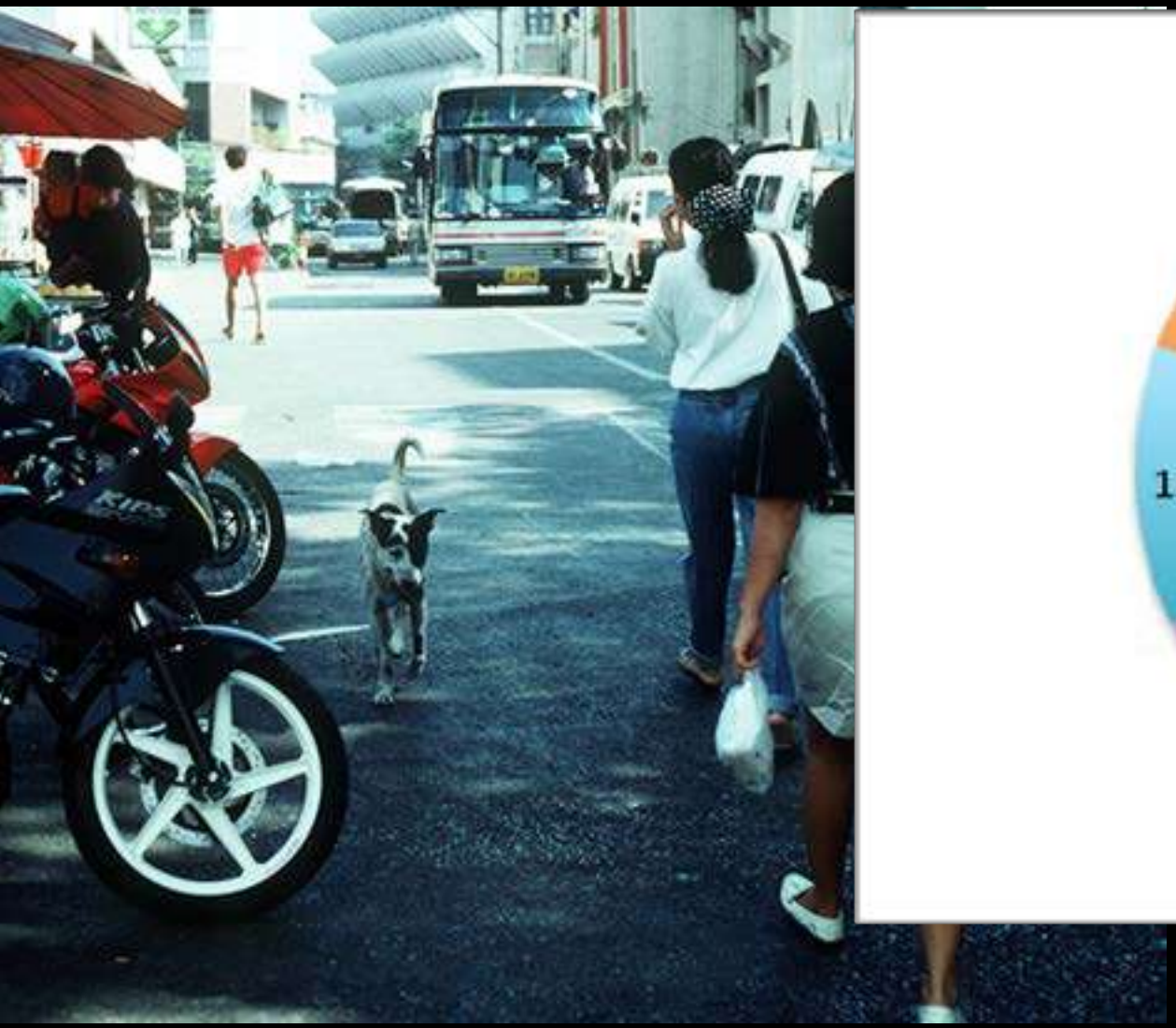
J Travel Med, taad085, https://doi.org/10.1093/jtm/taad085

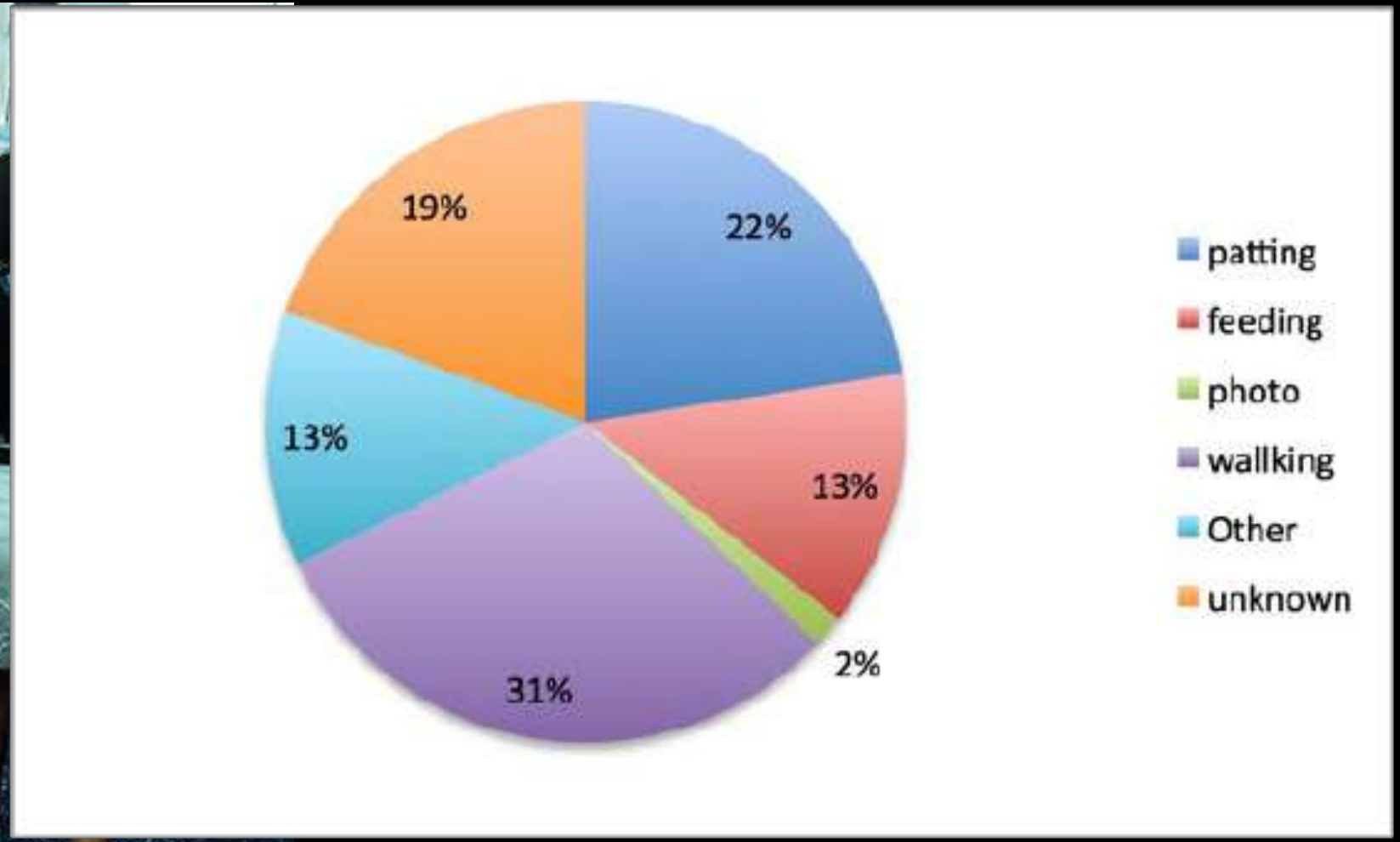
NOT PATTING DOGS

SHORT TRIPS

ARE NO GUARANTEE

Activity leading to bite?





Is it time to rethink Bali's monkey forests?

Monkey forests are popular attractions for visitors to Bali, but without the usual flow of tourists the animals are getting hungry and bored [Supplied/Al Jazeera]

Tourists bitten - dogs and monkeys

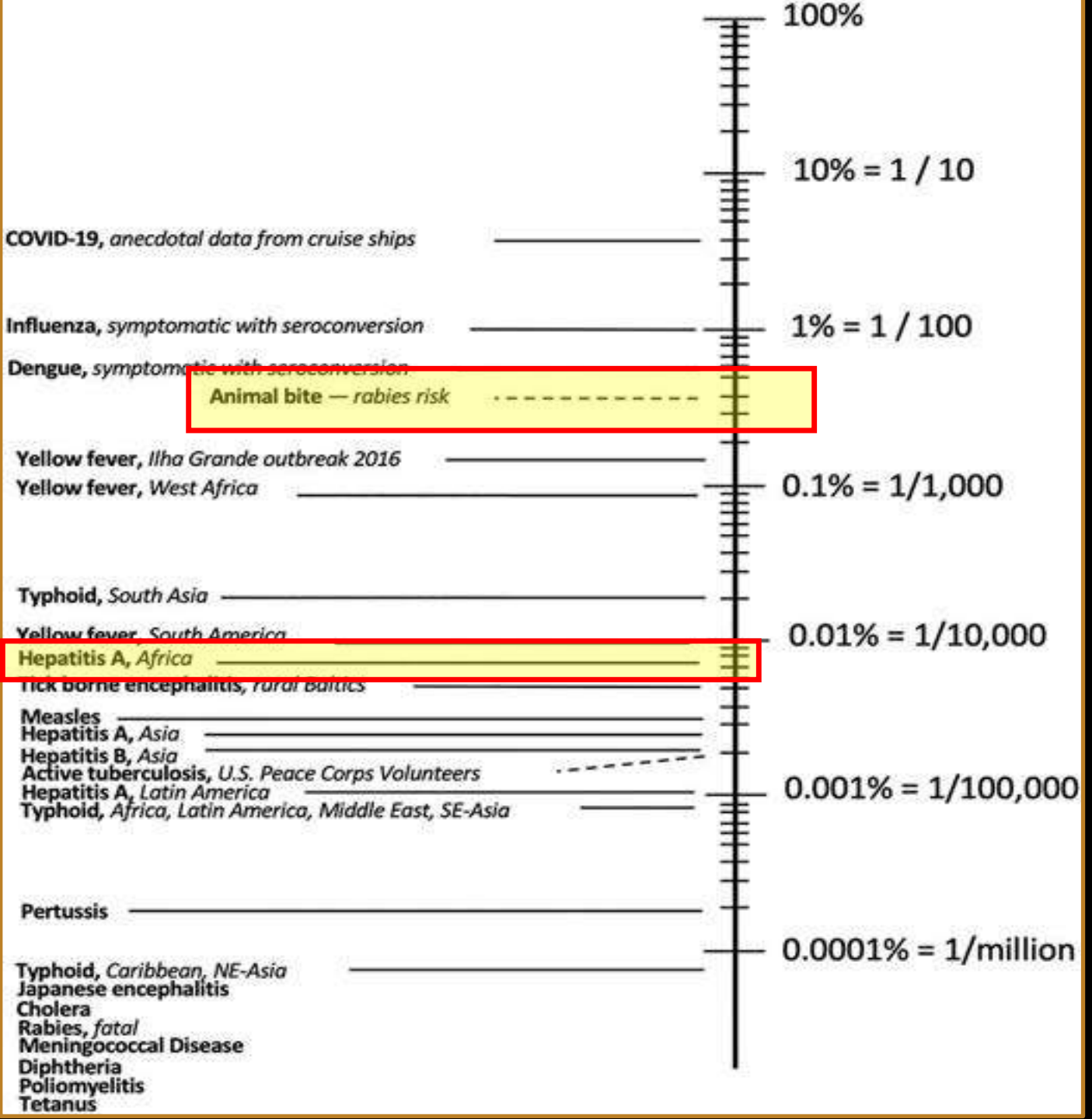


Figure 1 Incidence rate per month of VPDs in travellers; best estimate for non-immunes

J Travel Med, taad085, https://doi.org/10.1093/jtm/taad085

EMERGING INFECTIOUS DISEASES

Emerg Infect Dis. 2002 Aug; 8(8): 789–795.
doi: 10.3201/eid0808.010467

PMCID: PMC3266706
PMID: 12141963

Human Exposure to Herpesvirus B–Seropositive Macaques, Bali, Indonesia

Gregory A. Engel,* Lisa Jones-Engel,* Michael A. Schillaci,* Komang Gde Suaryana,† Artha Putra,† Agustin Fuentes,‡ and Richard Henkel§

Author information ▸ Copyright and License information PMC Disclaimer

- Sangey forest Bali
- 81% of the 38 sampled macaques tested positive for antibodies -all 28 adults (100%) were seropositive
- Workers 51/105 bitten or scratched – 94% when holding food

Monkey forest

- Keep away
- Don’t feed the monkeys
- Rabies vaccination is extremely unpleasant
- Herpesvirus B (Cercopithecine herpesvirus 1) is a worry

	6mth	7mths	8 mths	9mths	10mths (depart)
Polio	*				
Tet/Dip/Pert	*				
MMR				EXTRA MMR	
Chickenpox					
Influenza	Flu Child	Flu Child			
Pneumonia	*				
Typhoid					
Hepatitis A				??	
Hepatitis B	*				
Meningitis ACWY		Men ACWY			
Meningitis B	Men B		??	Men B	
Yellow Fever					
Cholera					
Jap B Enceph				?? JE Vaccine	CARE
Rabies					CARE
TB					

Q FEVER

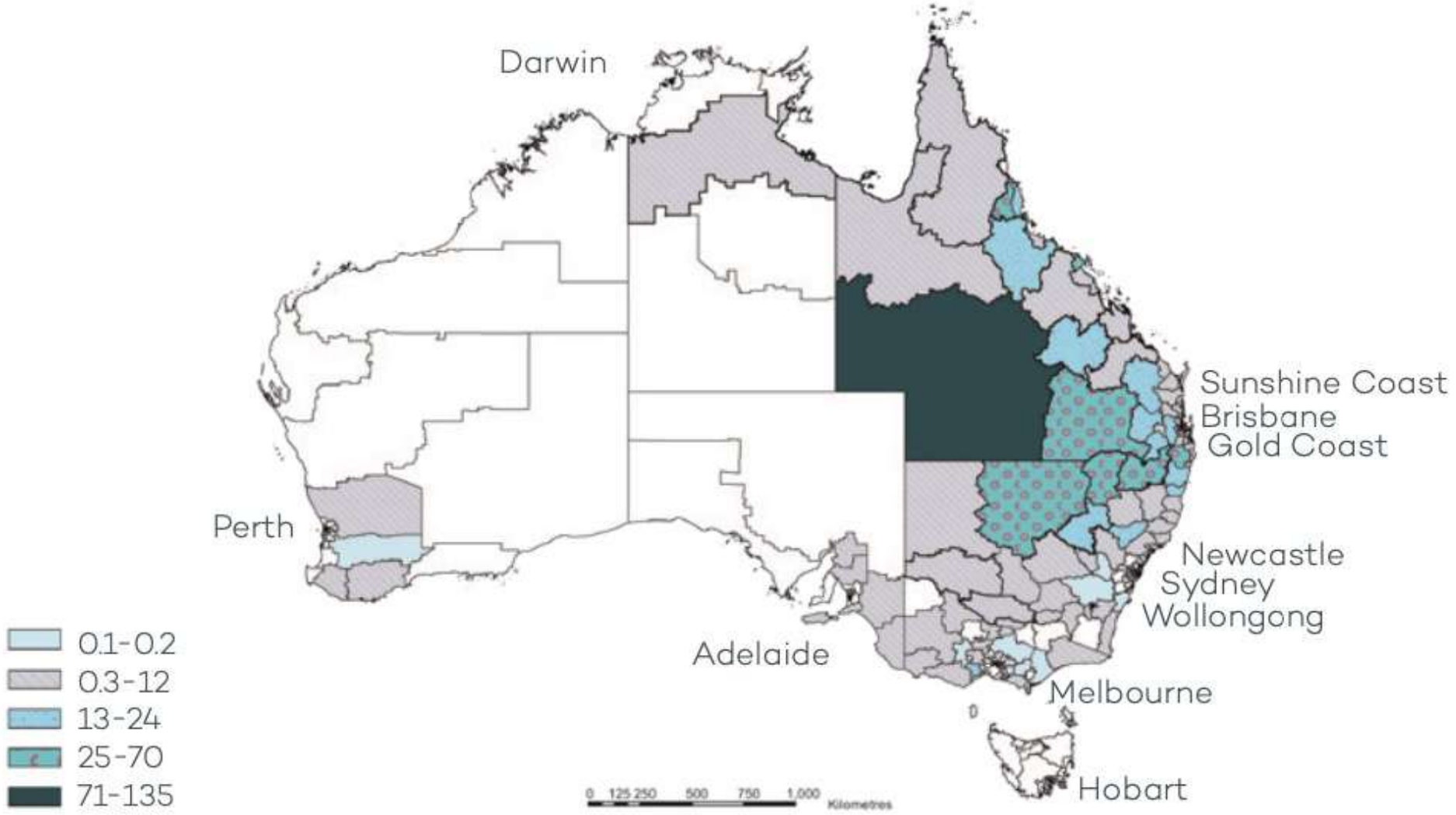


Figure 1: Notification rate for Q Fever, Australia, 2015 (cases per 100,000 population) by geographic areas.[2, 3, #]

#Geographical areas defined by Australian Bureau of Statistics (ABS) as Statistical Area Level 3 (population generally between 30,000 and 130,000)

Acute Q fever risk factors:[4]	
Meat & livestock	Abattoir workers and others associated with the meat industry
	Farm workers
	Shearers
	Stockyard workers
	Livestock transport workers
	Tanning and hide workers
Animal carers	Veterinarians, veterinary staff and veterinary nurses and students
	Wildlife carers, hunters, zoo keepers (working with high risk animals)
	Animal breeders and anyone regularly exposed to parturient animals
	Staff in veterinary microbiology laboratories
Environmental	Maintenance engineers, electricians, plumbers etc in at-risk environments
	Visitors to at-risk environments e.g. research workers, teachers, school students, insurance agents, sales people etc, especially in rural communities
	People with indirect contact to livestock e.g. those living down-wind of livestock transport routes, processing plants, feedlots and abattoirs
	People involved in rural mowing due to aerosolised dust potentially contaminated with infected animal excreta, especially kangaroos and bandicoots
	Family members of the at-risk occupational groups through exposure to contaminated clothing, boots or equipment

Figure 2: Q Fever outbreaks across the world, in time and place (personal synthesis).

H G, N A, Djaballah A S, H L, A S, S T, et al. Between Livestock's and Humans, Q Fever Disease is Emerging at Low Noise. Act Scie Micro. 2019 Sep 20;2(10):104–32.

Tuberculosis

leading infectious disease killer in the world

- 2 billion persons infected
- 10 million become ill each year
- 1.5 million die

MULTIDRUG RESISTANT TB

Without intervention ..

people dying

from drug-resistant TB

Will double every 5 years

BCG policy by Country

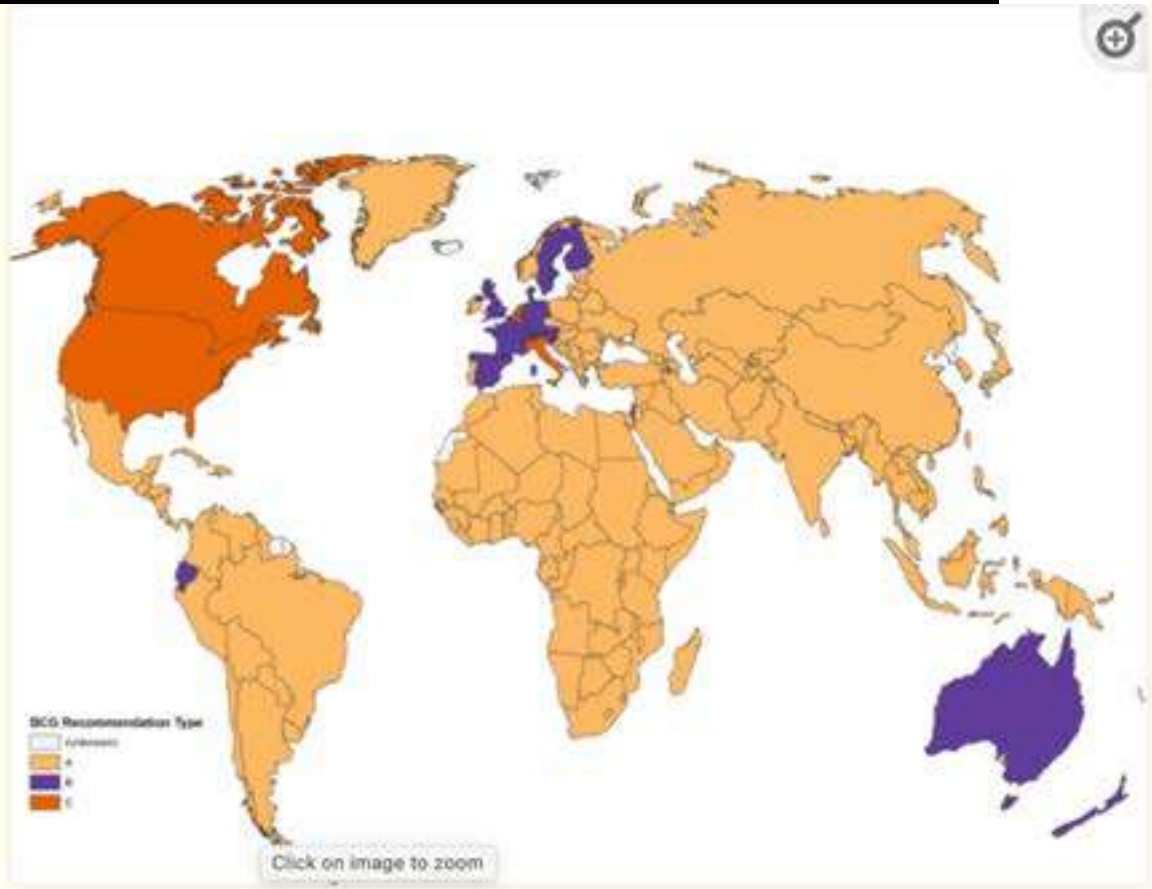


Figure 2

Map displaying BCG vaccination policy by country.

A: The country currently has universal BCG vaccination program. B: The country used to recommend BCG vaccination for

The severity of national TB epidemics, in terms of the number of incident TB cases per 100 000 population per year, v
widely among countries (Fig. 2.1.3). In 2021, countries with the highest rates were mostly in the WHO African Region.

Fig. 2.1.3 Estimated TB incidence rates, 2021

Ongoing cases

Journal of Travel Medicine
International Society of Travel Medicine
Promoting healthy travel worldwide
Journal of Travel Medicine, 2016, 1–6
doi: 10.1093/jtm/taw008
Review

Review

Tuberculosis and the traveller: evaluating and reducing risk through travel consultation

Justin T. Denholm[1,2,3]* and Irani Thevarajan[3,4]

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Abstract

Background: Although the last 10 years have seen a slow decline in global tuberculosis (TB) incidence, it remains one of the most significant infectious diseases worldwide, with an estimated 9.6 million new cases and 1.5 million deaths in 2014. The consequences of contracting TB can be significant for the individual, with extended treatment requirements, risk of lo…hers among the complications of dise…

Methods: This review…ding evaluation of risk, risk reduction… relevant litera-ture combined with e…

Results: The global T…sitive and drug resistant disease. Th…eater than 800/100 000, while multid…cent surveys of traveller risk are pres…l, risk to travellers is low, with rates… detailed travel evaluation is necess…are at high risk for progression to ac…ion.

Discussion: It is impo…cess up-to-date information regardin…ement of TB in travellers, including …

Key words: Tuberculosis, latent, BCG vaccine, interferon-gamma release assay, tuberculin skin test

<1% per traveller year

Table 1. Risk factors and associated relative risk for developing active tuberculosis disease following infection

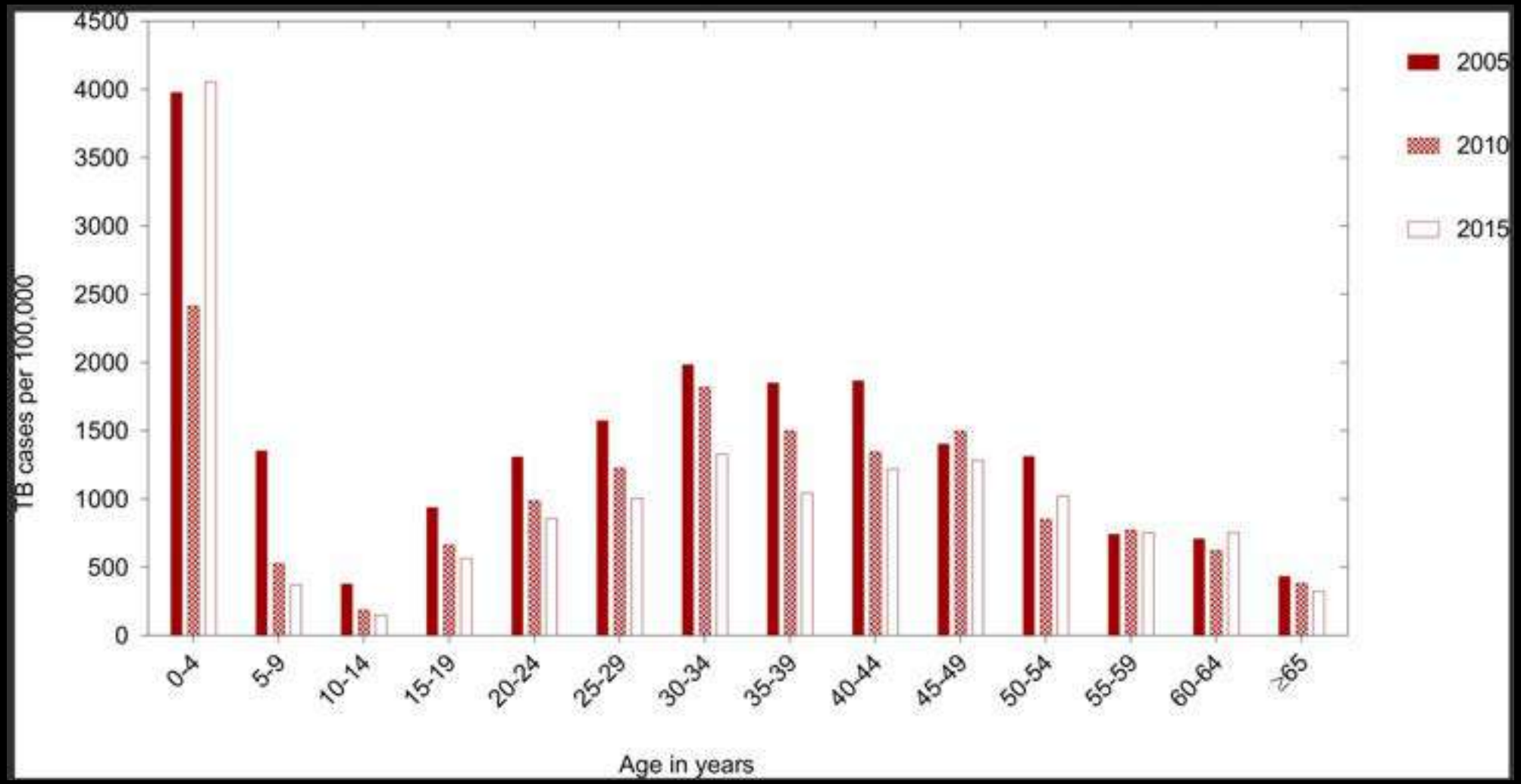
Risk factor	Relative risk
Cigarette smoking[25]	2
Current corticosteroid use[26a]	2.76
Diabetes[22]	3.11
TNFa inhibitor therapy[27,28]	4–9
Age <5 years old	5
Chronic renal failure on haemodialysis[29]	7.6
HIV infection[30]	60

[a]Any current daily oral steroid use.

Australian Immunisation handbook

- AGE --? Under age 5
- INCIDENCE AT DESTINATION-- ? 40/100,000
- DURATION OF TRAVEL --? more than 3 months
- PROXIMITY OF CONTACT -- ? Grandma with TB

AGE

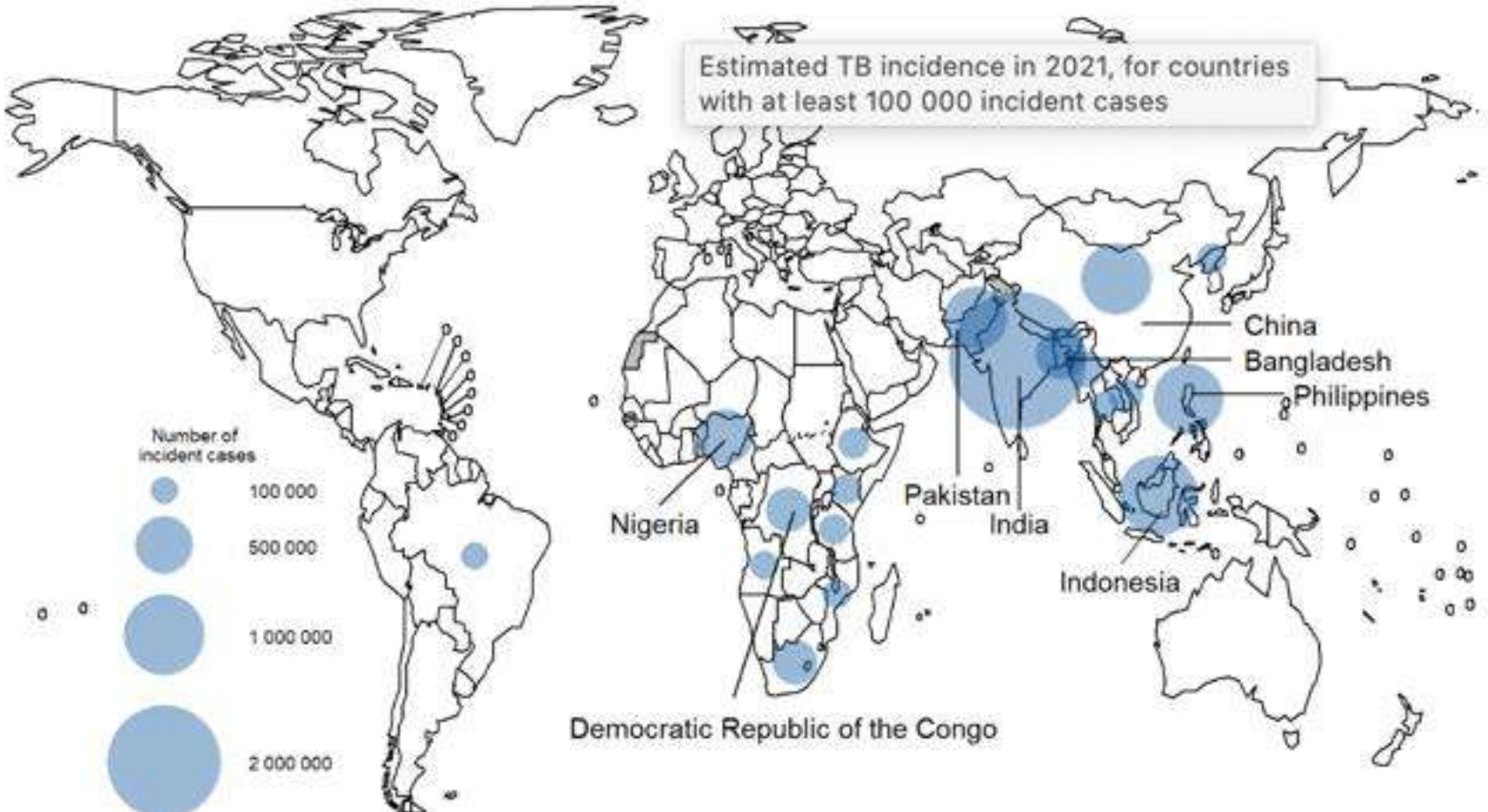


https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0235206

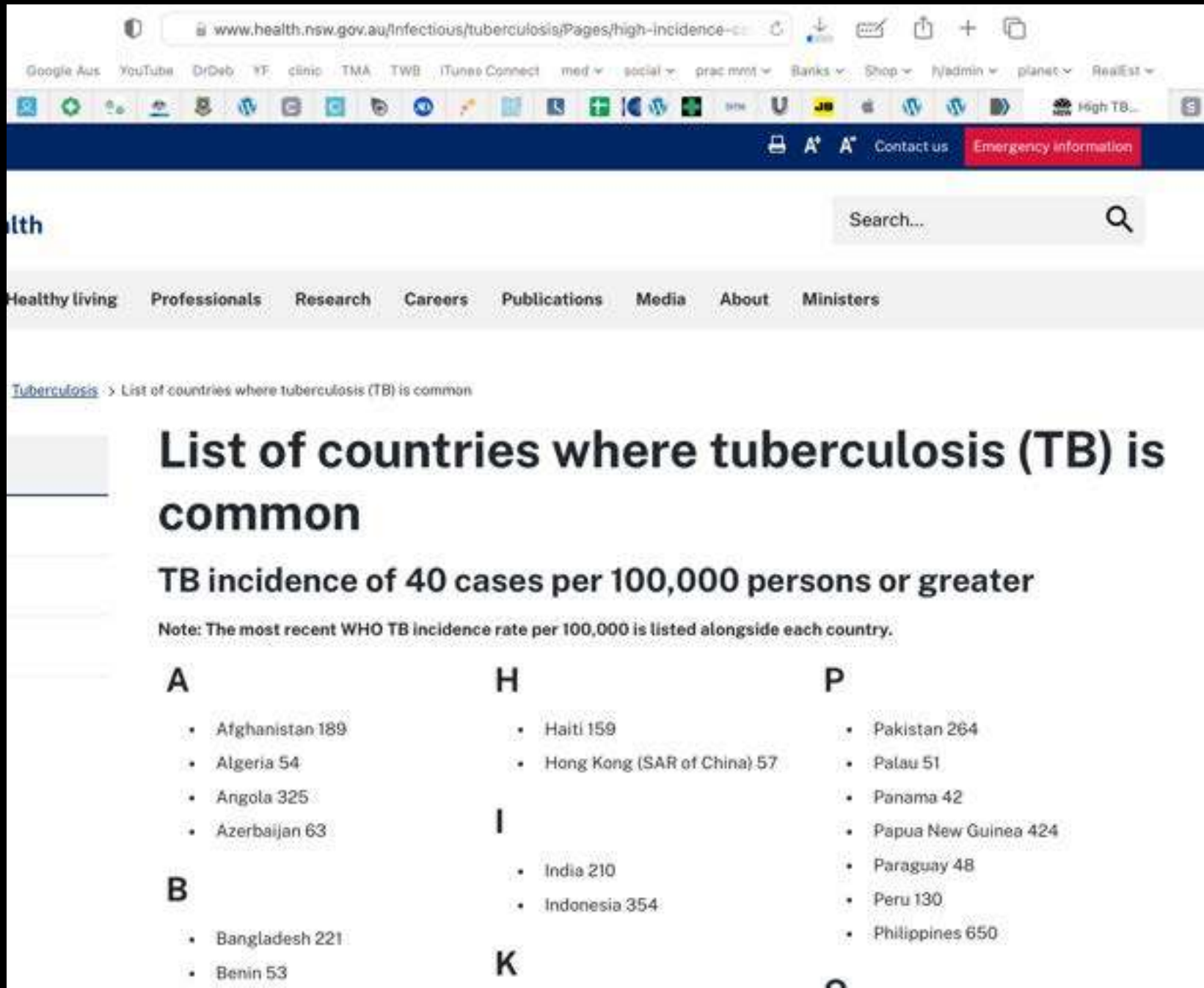
INCIDENCE AT DESTINATION?

Fig. 2.1.2 Estimated TB incidence in 2021, for countries with at least 100 000 incident cases

The eight countries that rank first to eighth in terms of numbers of cases, and that accounted for two thirds of global cases in 2021, are labelled.

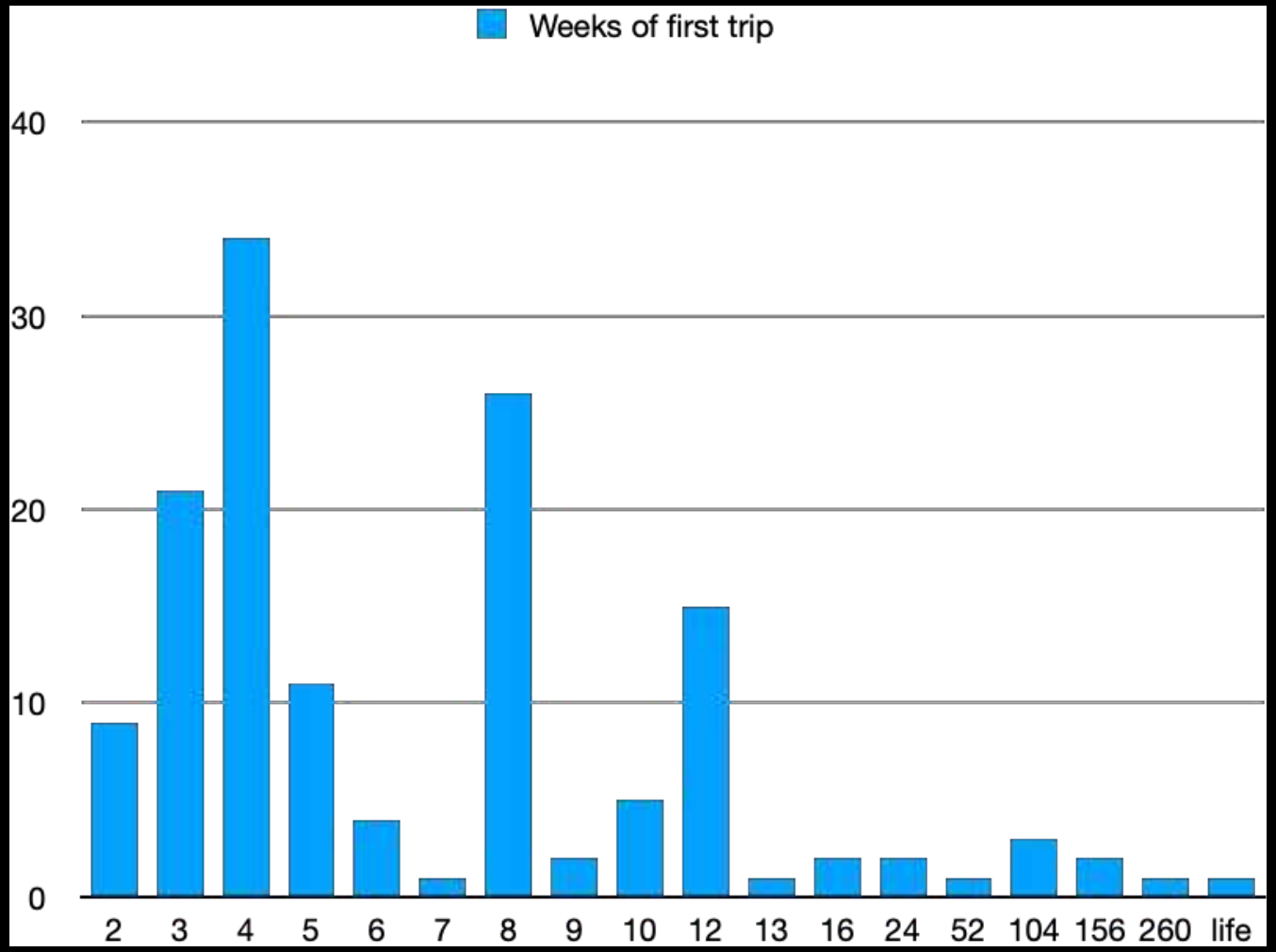


NSW HEALTH WEBSITE LIST



DURATION OF TRAVEL

- **Expected duration of ‘first trip’ for this group of 143**



80% FIRST TRIPS were UNDER 3 months

HISTORY

- AGE - care with other live vaccines
- Medical problems so far/ Medication / Allergies / sick or feverish today
- Out of Australia yet
- Leaving when
- Visitors with potential TB?
- More trips to the same area before the child is 5 years of age

< 6 months age

???

immunosuppression in mother

TNF inhibitors etc

JOURNAL ARTICLE

Case Report: Fatal case of disseminated BCG infection in an infant born to a mother taking infliximab for Crohn's Disease

Kuldeep Cheent, Jonathan Nolan, Sohail Shariq, Liina Kiho, Arabinda Pal, Jayantha Arnold

Journal of Crohn's and Colitis, Volume 4, Issue 5, November 2010, Pages 603–605,
https://doi.org/10.1016/j.crohns.2010.05.001
Published: 01 November 2010 **Article history**

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Abstract

We present the case of a 28 year old lady with refractory Crohn's Disease treated with infliximab throughout her pregnancy. Her baby was born healthy and received a Bacillus Calmette–Guérin (BCG) vaccine aged 3 months. Soon

HISTORY

- AGE - care with other live vaccines
- Medical problems so far/ Medication / Allergies / sick or feverish today
- Out of Australia yet
- Leaving when
- Visitors with potential TB?
- More trips to the same area before the child is 5 years of age

< 6 mths age …biological mother … immunosuppression???

Mantoux

- CDC suggests better in children < 5 yrs
- No blood test
- Cheaper
- Better guide if going to do a BCG??

QuantiFERON 2001 approved FDA

- Sensitised white cells release Gamma Interferon on exposure to TB antigen
- measures the level of IFN-g
- Limited data children under 5yo
- ~92 % accuracy
- specific to human TB
- One visit

CARE of BCG

- No fever
- Takes 1-8 weeks to appear
  - Keep it mostly dry
  - No bandaids
  - Don’t pick or scratch
- 3 months to be effective
- No vaccines in left arm until healed
- Avoid live vaccines one month before and after

Effects of BCG

Caring for the BCG (Tuberculosis vaccine) site

We use a Non-Australia- Registered vaccine. Vaccine is manufactured by the ***AJ VACCINES DENMARK*** *It is accredited by the* ***World Health Organisation, Geneva*** *and used in New Zealand* ***AND used across Australia.***

This vaccine does NOT cause a fever. Panadol is usually not needed.

BCG vaccine starts as white **'bubble', which will disappear within an hour.**

The **pustule usually starts between 1-4 weeks after the vaccination**

The pustule usually starts as a small red bump. This grows and may swell to contain fluid or even pus or blood. A crust or a scab may form, eventually the scab will detach, and may release fluid or a pus-like discharge. Eventually, it settles to a red mark, which fades slowly to a small scar. **The spot can take 6 to 9 months to fully heal.** Very rarely - a lump will appear in the armpit of the vaccinated arm. Avoid getting the scar sunburned. Photos are at www.thetravelldoctor.com.au/tb-vaccine

Sometimes only a small red spot is present at the vaccine site, or nothing happens at all: the vaccine will still be effective.

BCG takes about **3 months to be fully effective then is valid for life.**

CARE INSTRUCTIONS - When there is a pustule:

Keep it mostly dry: Bath or shower as normal. **If swimming get out of the water after 30 minutes.** Dry the pustule by gentle patting, (do not rub) and then expose it to the air.

NEVER cover the pustule with a bandaid, plaster or dressing. Cover with a loose sleeve only: (Scratching through the sleeve is safe). Avoid tight or itchy sleeves such as woollen jumpers. Food as normal.

IMPORTANT: Leave the site of the BCG pustule alone. Never pick, scratch, squeeze or scrub the pustule. This may increase the pain, time to healing, risk of infection and size of scar. Use tissue or cotton ball to dab any ooze or fluid dispose in normal rubbish. Do not apply cream or moisturiser on the pustule. A small amount of baby oil in the bath is safe. Advise caregivers to avoid holding the affected part of the arm. With correct care, the BCG vaccination site will not usually cause pain. Dirt can be normal.

Avoid vaccines in left arm until pustule has fully healed.

Avoid LIVE vaccines (Routine 12 & 18 month vaccines) **for a month before or after BCG.**

Please notify me if the redness expands to more than the size of a 50c piece, if the armpit becomes sore or develops swellings, or if more/extra sores develop around the vaccine site, or if it takes > 9 months to heal.

This vaccine will take 3 months to take effect: 18 October 2025

If you wish a photo review, please send child's name and date of birth and date of BCG to clinic@thetravelldoctor.com.au

or if urgent: call or text Dr Deb Mills: mobile is 0408 199166

UNUSUAL ….6.5 months

Kawasaki disease

Positive predictive value of BCG site induration

is 90%

Early diagnosis

prevents cardiac side effects

- Loh A, Kua P, Tan Z. Erythema and induration of the Bacillus Calmette-Guérin site for diagnosing Kawasaki disease. *Singapore Medical Journal*. July 2018. doi:10.11622/smedj.2018084

	6mth	7mths	8 mths	9mths	10mths (depart)
Polio	*				
Tet/Dip/Pert	*				
MMR				EXTRA MMR	
Chickenpox					
Influenza	Flu Child	Flu Child			
Pneumonia	*				
Typhoid					
Hepatitis A				??	
Hepatitis B	*				
Meningitis ACWY		Men ACWY			
Meningitis B	Men B		??	Men B	
Yellow Fever					
Cholera					
Jap B Enceph				?? JE Vaccine	CARE
Rabies					CARE
TB		BCG			

Scheduling

Live vaccines together or 1mth apart

Course

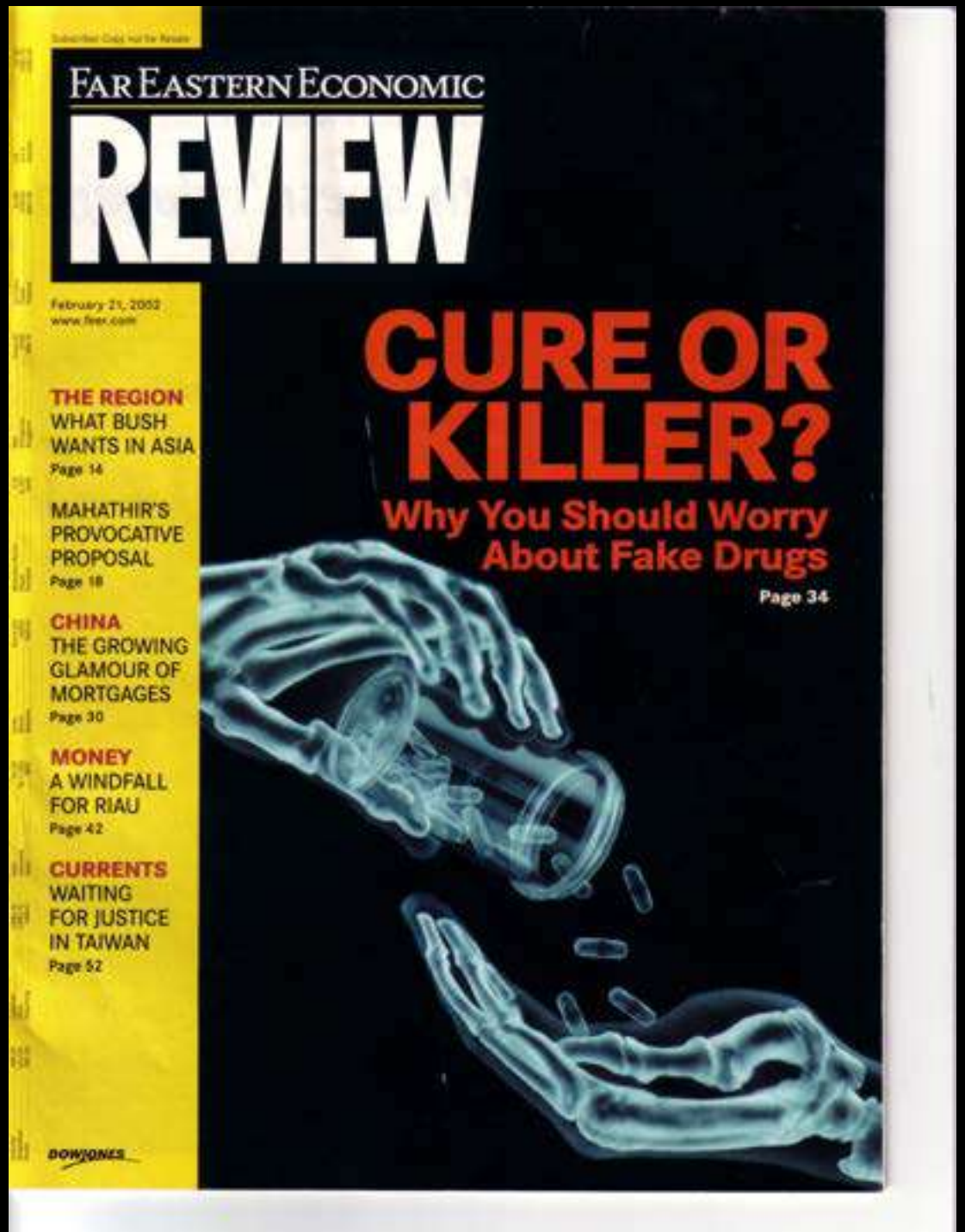
Fill in rest

Scheduling

If the recommended intervals between doses are exceeded, there is no need to recommence the schedule or give additional doses, because the immune response is not impaired by such delay.

- *The Australia Immunisation Handbook 6th Edition p 48*

Fake Drugs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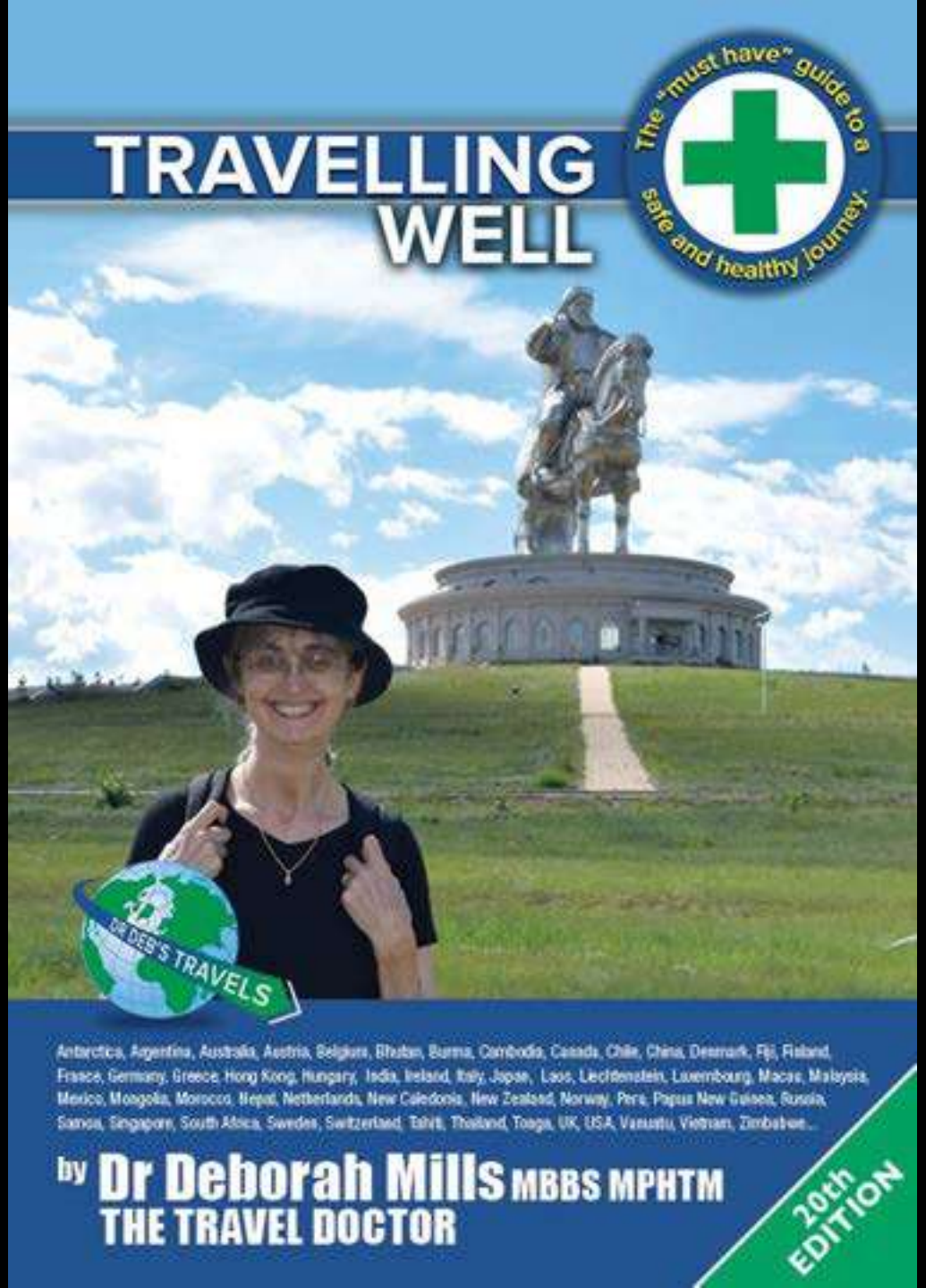
WHAT BUSH WANTS IN ASIA
Page 14
MAHATHIR'S PROVOCATIVE PROPOSAL
Page 18
CHINA
THE GROWING GLAMOUR OF MORTGAGES
Page 30
MONEY
A WINDFALL FOR RIAU
Page 42
CURRENTS
WAITING FOR JUSTICE IN TAIWAN
Page 52
DOWJONES
CURE OR KILLER?
Why You Should Worry About Fake Drugs
Page 34

Travellers Medical Kit

Other Healthy Travel Advice

- Malaria/ Dengue/ Zika etc
- Encourage pre travel fitness
- Motor vehicle injuries (half are pedestrians)
- Local parasites
- Healthy eating/ ciguatera
- Sexually transmitted disease advice
- DVT
- Altitude sickness



Resources for travellers

My suggestion ..Who to refer..??

- Special vaccines
  - Yellow Fever/ JE / TBE / Rabies/ BCG/Q Fever /Dengue
- Unusual/unfamiliar destinations
- Complicated itineraries
- Long term expats esp with young children
- Pre-existing illness especially if unstable e.g HIV
- Pregnant travellers esp. to malarious areas