Vaccinations for Travellers

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Scenario 1

- 42 y.o. courier, trip to Egypt in 2 weeks, including a 3 day cruise on the Nile
- Had routine shots for trip to Bali 2 years ago, nil since
- What does he need?
- What other advice should he be given?

Influenza

- One of the commonest travel-related illnesses
- Transmission year round in tropics
- Spread by droplet and also direct contact
- Incubation 1-4 days
- Shed for 24 hours before to 5-10 days after symptoms
- Symptoms usually last 3-5 days but recovery may be prolonged
- Mortality depends on viral strain and patient age

Influenza vaccine

- 95% effective in under 65s
  - If the strain has been predicted successfully
- Cannot cause the ‘flu
- Minimal side-effects compared to placebo
- Possible interaction with p450 medications
  - Warfarin, theophylline, etc.
- Probably the most important vaccine for any trip

Antivirals

- Travellers who cannot/ will not receive influenza vaccine should consider taking standby oseltamivir/ zanamivir with
- Oseltamivir resistance is an increasing problem with many strains of influenza A
- Zanamivir (inhaled) may cause bronchospasm esp in asthmatics

Other advice

- Reminder regarding avian influenza
  - Avoid poultry – live & dead
  - Care if cooking poultry
- Schistosomiasis
  - Don’t swim in the Nile

Scenario 2

- 21 year old Korean student who works part-time as a waitress tells you she is going back to visit family in Korea for 2 months.

- Which vaccines should she receive before going?

VFR

- High risk travellers
  - Lack of awareness of risk
  - Believe that they are immune
  - Higher risk itinerary
  - Eat more local foods, drink local water
  - Closer, longer contact with locals
- Increased risk of
  - Malaria, TB, HAV, HBV, cholera, measles and STDs

Advice for VFRs

- Don’t assume immunity
  - Check IgG or vaccinate
- Counsel as if the person was going to the area for the first time
  - Persuade them that the rules apply to them
- Discuss seeking medical care abroad
  - May be the reason for the trip
  - HBV, HIV, etc.

Thousands in Hep A scare

Saturday May 17, 2008

A Korean waitress at Queenstown's Copthorne Hotel may have exposed thousands of guests to hepatitis A.

Public Health South medical officer of health Dr Marion Poore was notified yesterday that the waitress was found to have hepatitis A after being admitted to Queenstown's Lakes District Hospital.

She started work at the Copthorne on April 11. An average of 300 guests a day eat breakfast at the hotel, meaning about 6900 people may have been exposed to the virus between April 11 and May 4, when the waitress stopped working.

nzherald.co.nz

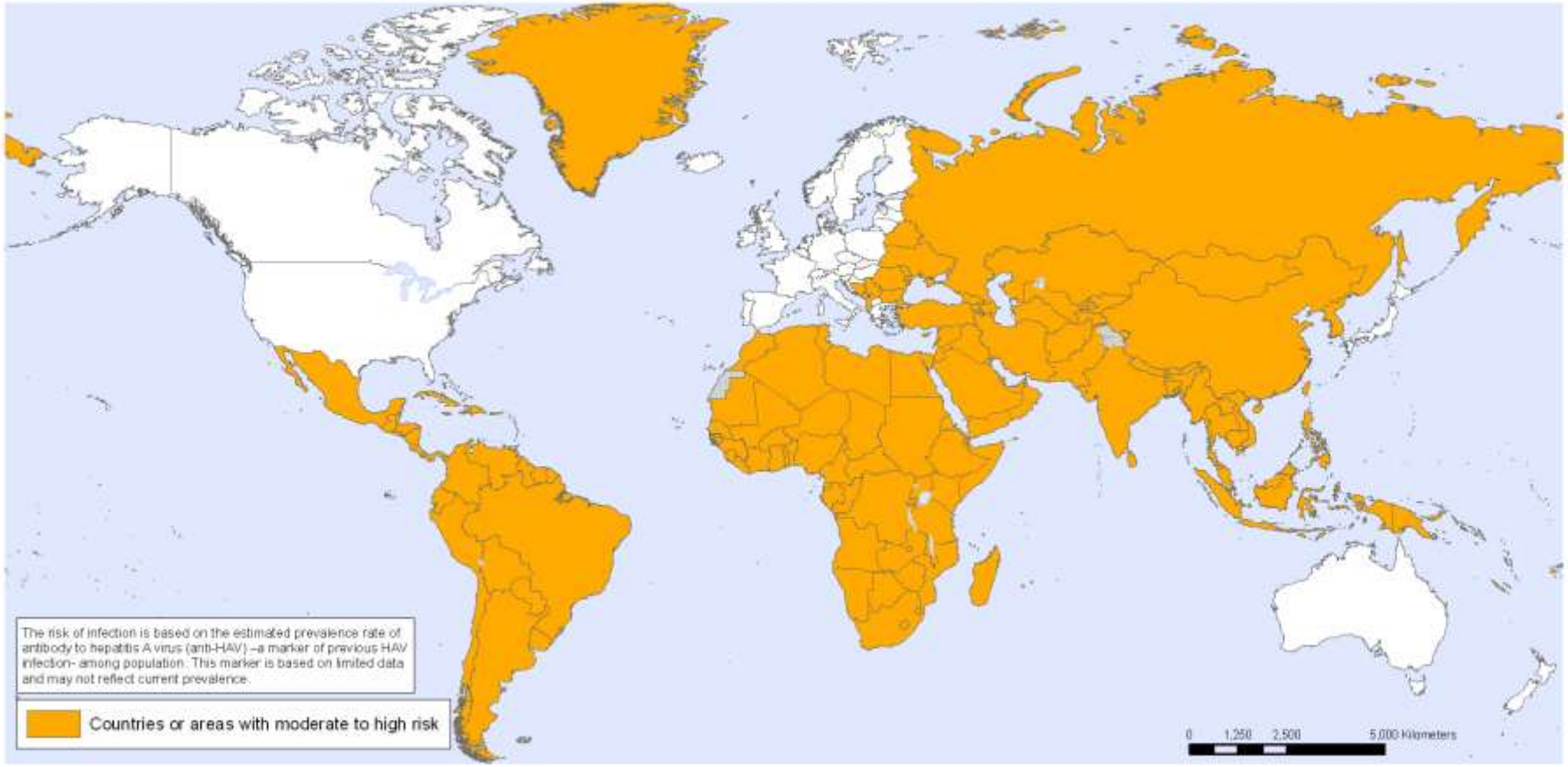
Hepatitis A

- Non-enveloped RNA hepatovirus (picornavirus family)
- Environmentally tough
  - Heat and acid stable
- Faecal–oral spread (shed for 1-3 months)
- Incubation 15-50 days
- Hepatitis for 4 weeks
- Fatigue for 6 months

Hepatitis A

- Illness is not chronic but may be:
  - Asymptomatic
  - Prolonged
  - Relapsing
  - Fulminant (HAV = 5-20% fulminant hepatitis)
  - Followed by auto-immune disease
- Case fatality rates
  - 0.15 – 3.3 / 1000 cases
  - 27 / 1000 in over 50 year olds

Hepatitis A, countries or areas at risk



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Data Source: World Health Organization/CDC
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization

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HAV vaccines

- Havrix (GSK)
  - 16 years +
  - Havrix junior for 1 – 15 years
- Avaxim (Sanofi-Pasteur)
  - 2 years +
- Combinations
  - HAV + Typhoid
    - Hepatyrix
    - Vivaxim
  - HAV + HBV
    - Twinrix (HAV + HBV) note ½ strength HAV
- Boosting – 2nd dose @ 6 – 12 months = lifelong

Scenario 3

- Family of three off to Fiji for 2 weeks to escape NZ winter
- Mother is a needle-phobic work colleague
- What do they need?

Tourists warned of typhoid in Fiji

A public health emergency has been declared in Fiji after an outbreak of typhoid in the major tourist belt region of the country.

The state controlled Fiji Broadcasting said the Health Ministry has sent a notice to hotel owners in the Coral Coast area of Viti Levu to take precautions.

Deputy Director for Public Health Dr Joe Koroivueta says there are 20 confirmed cases of typhoid in the Navosa area with 100 suspected cases.

The Fiji Times reported the outbreak was substantial but Health Ministry spokesman Iliesa Tora was refusing to divulge statistics of those infected.

stuff.co.nz

Typhoid

- *Salmonella enterica* serovar typhi
- Worldwide 16M cases & 600 000 deaths/yr
- Fecal-oral (shed for weeks to years)
- Incubation 5-21 days
- Symptoms variable
  - Usually fever and abdominal pain
  - May be associated with diarrhoea or constipation
- Mortality
  - Untreated 15% (with 60% fetal death)
  - Treated 0.4 – 1%
  - Rising antibiotic resistance is a major concern

Typhoid vaccine

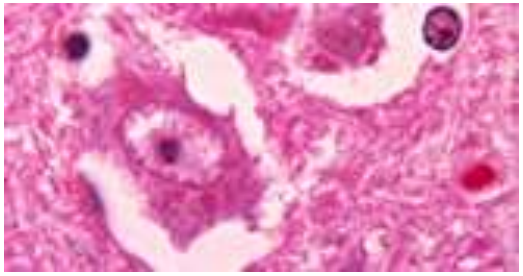
- Typherix (GSK)
- Typhim vi (Sanofi Pasteur)
- Protection
  - Approx 80% for S. typhi
  - Does not protect against paratyphoid
- Boosting 3-5 yearly as needed

Scenario 4

- 55 y.o. going mountain-biking with mates in Chile
- Family of four travelling to Bali for a fortnight’s beach getaway
- 28 y.o. spelunking enthusiast travelling to Australia to explore caves

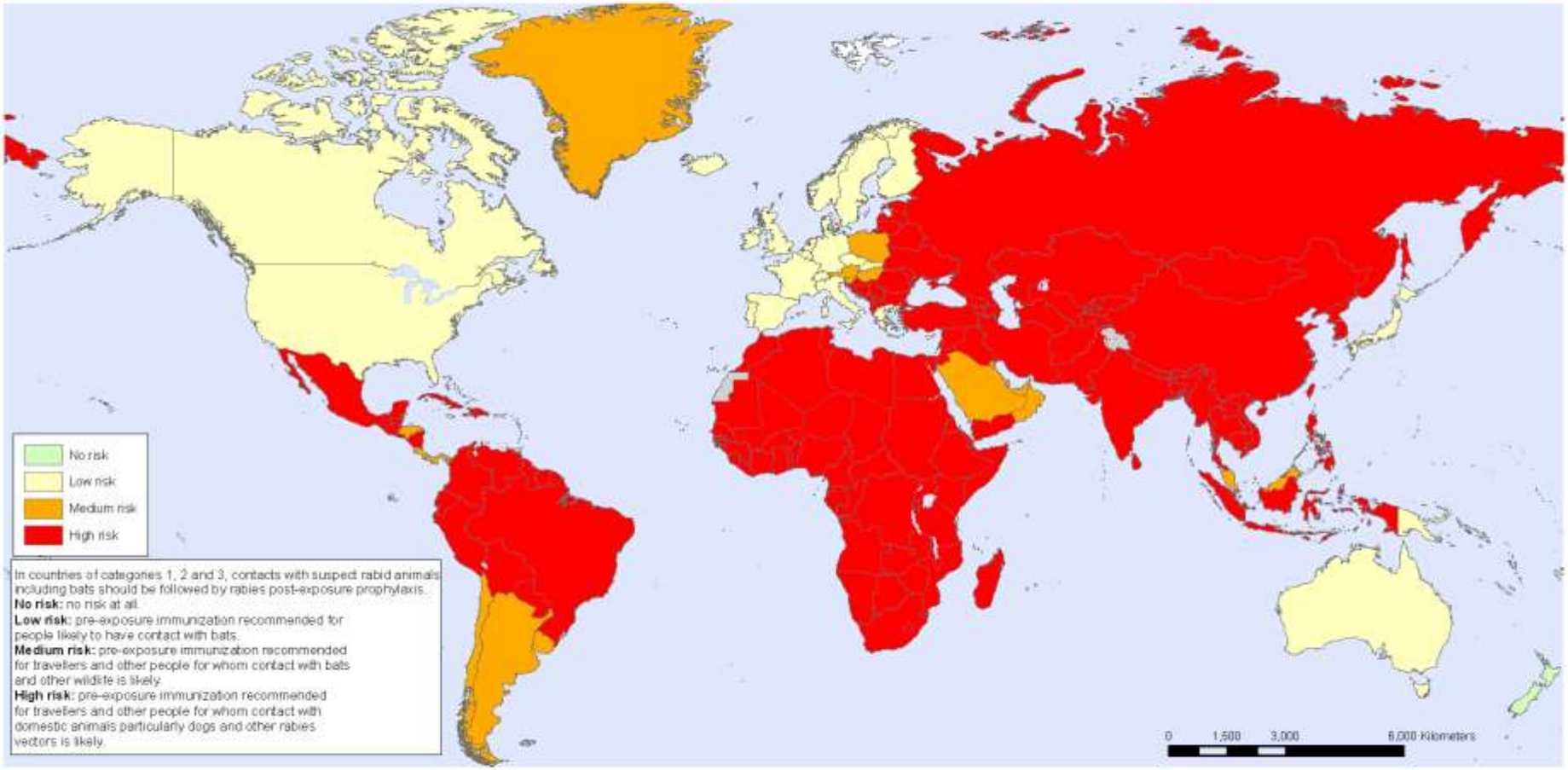
Rabies

- From the Latin ‘rabere’ to rave
- 7 viruses of the Lyssavirus genus
- Transmitted by bite of infected mammal
- Incubation 4 days to 19 years (avg 3/12)
- Manifestations
  - Furious/ encephalitic rabies
    - Hydrophobia/ aerophobia/ convulsions
  - Dumb/ paralytic rabies
    - Ascending paralysis/ meningism/ coma
- Death usually within 3 weeks of onset



CDC

Rabies, countries or areas at risk



Data Source: WHO Rabnet/CDC
Map Production: Public Health Information and Geographic Information Systems (GIS)
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Worldwide

- 66 000 people die of rabies
  - Mostly in Asia and Africa
- 4 million people receive post exposure prophylaxis (PEP)
- Major issues with receiving WHO approved PEP in many parts of the world
  - Immune globulin shortage
  - Incorrect vaccine
  - Incorrect dosing

Rabies vaccination

- Section 29 drug
- 3 doses
  - Days 0, 7 and 21-28
- 2 routes
  - Manufacturer approved (0.5ml i.m.)
    - Virtually 100% seroconversion
  - WHO approved (>0.1ml i.d.)
    - 99% seroconversion (recommend Ab test after)
- Duration is uncertain
  - Test + single booster if necessary on next trip

Rabies advice

- Whether or not vaccinated
  - Avoid mammals
  - Wash wound well after bite
  - Seek medical attention
    - Immediately if not vaccinated
    - Within 1 week if vaccinated

Rabies in perspective

- Vaccination is relatively expensive
- Relative costs
  - Vaccine $3-500 / Blissful ignorance $0
  - Vaccine $3-500 / Aborted trip $2-5000
  - Vaccine $3-500 / Life $???

Scenario 5

- 40 y.o. nurse off to India, New Delhi, to meditate for 1 month
- 23 year old medical student off to South Africa to do an elective
- Muslim traveller off to Mecca for Hajj
- Both have had ‘flu, HAV, typhoid and rabies shots
- What else should you consider?

Meningococcal disease

- Incubation 1 – 14 days
- Carriage = 5 – 10% population
- Disease 0.5 – 1000/ 100 000
- Disease
  - Meningitis (50%)
  - Septicaemia (20%)
  - Pneumonia (10%)
  - Urethritis/ cervicitis
- Invasive disease is rapidly fatal

Meningococcal meningitis, countries or areas at high risk, 2009

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Meningitis ACW-135Y vaccine

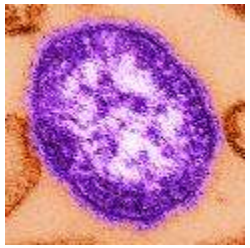
- Polysaccharide vaccines
- Mencevax
- Menomune
- Both subcutaneous
- Protection approx 90 – 95%
  - In 2 years +
  - No protection against group B
- Revaccinate 2 – 3 yrly as needed

Meningitis conjugate vaccine

- Polysaccharide conjugated to diphtheria toxoid
- Available in U.S. since 2005
- i.m. formulation
- Advantages
  - Similar cost and efficacy as polysaccharide
  - Stimulates T-cells
    - Longer effect (at least 5 years)
    - Anamnestic response on re-exposure
  - May clear carriage (better herd immunity)
- Hopefully available in NZ in next few years

Scenario 6

- 22 y.o. female student
- Routine consult for contraceptives
- Mentions that she is off to England for a year’s OE
- Parents are ‘greenies’
- What would you advise her?



Measles

CDC

- World's most infectious agent
- ($R_0 \approx 15$)
- Incubation 7-18 days
- Infectious 4 days before & after rash
- Fever, conjunctivitis, coryza, cough, rash
- Complications higher in <5 and >20 y.o.s
  - Pneumonia, encephalitis, diarrhoea
- Increased risk of miscarriage in pregnancy

Rubella

CDC

- Incubation 12-23 days
- Droplet spread
- Disease usually mild in adults
  - Rash, fever, L/Ns, conjunctivitis, pharyngitis
  - Arthralgias common in adult women
- Most teratogenic agent known to man
  - Deafness, cataracts, heart defects, retardation

MMR

- >95% effective
- Contra-indications
  - Pregnancy
  - Immune-suppression
- Side-effects worth knowing about
  - Rash
  - Arthralgias
  - Thrombocytopaenia