Rabies Guidelines

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1 INTRODUCTION

1.1 Purpose of Guidelines

The purpose of this guideline is to assist those providing travel health advice, to manage the risk of travellers to rabies-prone exposures during their travel. The practitioner needs to provide education on the prevention and management of bites or scratches during travel and consider whether pre-travel vaccination should be recommended. A complete discussion of POST exposure rabies vaccination is outside the scope of these guidelines.

1.2 Pre-travel Health Risk Assessment Overview

When considering the risk of rabies to a traveller:

- Determine if traveller will be visiting a risk area
- Educate the traveller about the disease
- Understand pre and post exposure vaccination
- Advise about high-risk activities and risk groups
- Advise on what to do if exposed overseas

- Advise on action to be taken on return to Australia or New Zealand
- Decide with the traveller where the risk / benefit of pre-vaccination falls
- Decide which vaccine and schedule to use

1.3 Short cut to expert opinion on Rabies Pre-exposure prophylaxis here

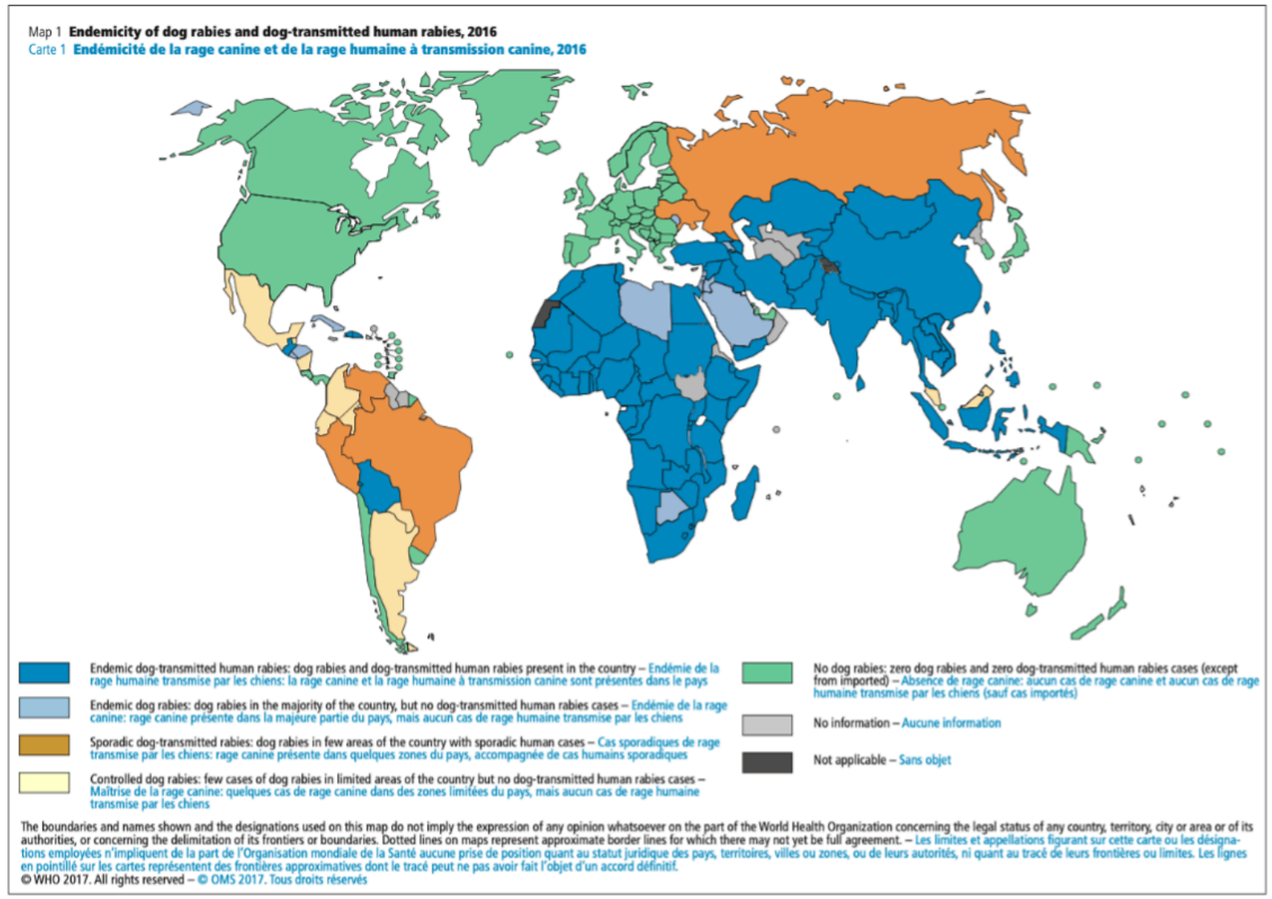
Click here to jump to Section 9.2 (Expert Opinion on Rabies Pre-exposure Prophylaxis)

2 DETERMINE IF TRAVELLER WILL BE VISITING A RISK AREA

- Rabies is found on all continents except Antarctica and WHO estimates nearly 60,000 deaths occur annually[1]. The majority of deaths occur in Asia (~60%) and Africa (~36%)[1]; however, cases are likely underestimated in many countries.

- See Figure 1 below showing countries where rabies is endemic and **here** for an interactive map where information on each region and country can be found.
- Australia and New Zealand are rabies free in terrestrial mammals. The only cases reported are imported from elsewhere.

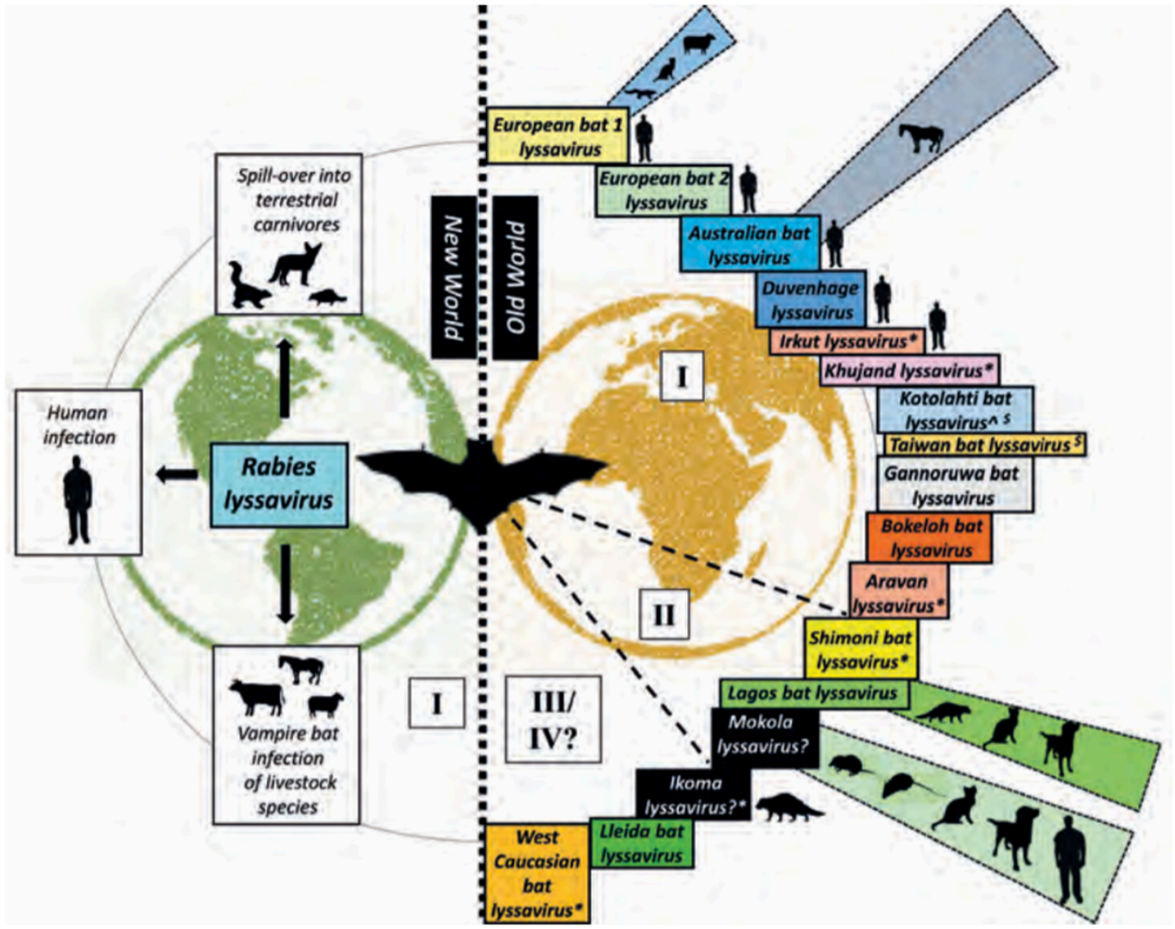
Figure 1: Endemicity of dog rabies and dog-transmitted human rabies, 2016



Source: World Health Organisation (2017, February 17), Human rabies: 2016 updated and call for data, *Weekly Epidemiological Record, 7*(91). 77-86. https://www.who.int/publications/i/item/who-wer9207#

- Other lyssaviruses, which are genetically related to rabies, circulate globally among bats. The bat lyssaviruses (including the Australian bat lyssavirus) cause a similar clinical picture to rabies with equally dismal survival rates (see Figure 2 below)[1].

Figure 2: Diversity of bat associated lyssaviruses[1]



Roman numerals refer to antigenic phylogroups. Pictograms represent spillover events where reported. * Denotes single isolation only; ^ represents no isolate available; ? No reported association with bat species; and $ Not yet classified by ICTV within the lyssavirus genus.

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https://www.who.int/publications/i/item/WHO-TRS-1012

3 EDUCATE THE TRAVELLER ABOUT THE DISEASE

- Rabies is a zoonotic disease caused by an RNA virus (genus *Lyssavirus*), which causes acute progressive encephalitis.

- Infection is acquired by exposure to saliva or neural tissue from an infected animal – usually dogs (99%),[3] however cats[4], bats, foxes, racoons and other mammals can also transmit the infection.[3]
- Humans can be exposed to infection through a mammal's bite or a scratch that breaks the skin or direct contact of the virus with the person's mucosa (nose, eye, mouth).[5]
- Incubation of rabies is usually 3 to 8 weeks; however, it can range from 1 week up to several years.[5] The risk of rabies is higher, and the incubation period is shorter if the individual is bitten/scratched in areas closer to the central nervous system, such as the head and neck, and in areas richly innervated with nerves, e.g. fingers.[5]
- Childhood fatalities are over-represented, with 40% of deaths occurring in those under 15 years of age[3].
- Rabies has the highest case fatality rate (~100%) of any infectious disease.[1] Once symptoms of rabies appear, it is almost always fatal; therefore, prevention is the ***key message*** for all travellers.
- Without post exposure prophylaxis (PEP), the average probability of developing rabies following a bite by a rabid animal varies by site of bite.[6] For example after bite to the
    - head is 55%
    - upper extremity is 22%
    - trunk is 9% and
    - lower limb is 12%[6]

NOTE: The majority of persons bitten by known rabid dogs do NOT acquire rabies

4 UNDERSTAND PRE AND POST EXPOSURE VACCINATION

- It is important travellers understand Pre-Exposure Prophylaxis (PrEP) and Post Exposure Prophylaxis (PEP) Rabies vaccination:

4.1 POST exposure

- Post Exposure Prophylaxis (PEP) rabies vaccination is required *after* an animal exposure
- Vaccines are given, but it may take many weeks to mount a good response so some travellers must also be given Rabies Immune Globulin (RIG) which contains instant antibodies to cover the traveller

until their own antibodies develop. RIG is required for category III exposures (and category II bat exposures; see Table 4 below) if no PrEP has been given but is not required if PrEP has been provided except in severely immunocompromised (IC) travellers.[1]

- Note RIG is not available in many endemic countries.[7,8] Vaccines are more readily available worldwide than RIG. To check availability of both vaccine and RIG by country see here.[8] See Table 4 below for classification of injury and management post-exposure.

4.2 PRE exposure

Pre-exposure prophylaxis (PrEP) is giving doses of vaccine *prior* to an animal exposure to allow the immune system to produce antibodies. PrEP primes the immune system.

The rationale for PrEP includes:

- RIG is not required (except for those severely immunocompromised).
- Fewer PEP vaccine doses may be required if the traveller has previously received some of a PrEP vaccination-series.

5 ADVISE ABOUT HIGH-RISK ACTIVITIES AND RISK GROUPS

5.1 Predicting Risk

- **Any visit to a rabies endemic area may result in exposure.**
- It is important to understand that it is not possible to accurately predict who may be exposed to infection. Bites and skin abrasions are very common in travellers and often under-reported.[9]
- Activities involving contact with animals increase the risk of a risk exposure.[9] However, those bitten or scratched are not always interacting directly with animals. Travellers may be bitten or scratched when involved in seemingly non-animal related activities such as riding bicycles or motorcycles, walking in a temple or sitting on a beach.

- In a month of travel, experiencing an animal bite is relatively common whilst the risk of dying of rabies is extremely low[10]. See article and logarithmic table here to consider the likelihood of an animal bite that may put a traveller at risk from rabies[10].

5.2 Risk Factors for Rabies Risk Exposures

See Table 1 below for details about demographic factors and activities that increase the risk of exposure to rabies.

Table 1. Risk Factors for Rabies Risk Exposures

Travellers at higher risk	• Travellers visiting risk areas repeatedly or for long duration
	• Those aged 20-29 years of age[9]
	• Children because they
	  • are attracted/drawn to animals
	  • are less able to avoid exposure
	  • may not report scratches or bites
	
	are more likely to be bitten on the head, face and neck which reduces time to onset of disease

Activities that increase chance of rabies in endemic area	• Visiting zoos, animal parks, caves and other areas where humans are in contact with animals and/or bats • Touching, patting and feeding animals • Being around monkeys (with or without food) • Push bike, motor bike or jogging through villages Those with recreational or occupational exposure to mammals including bats

Access to medical care	• Lack of access to modern medical care means greater difficulty in accessing adequate post exposure treatment particularly Rabies Immune Globulin (RIG)

5.3 Myths about rabies

There are myths about rabies that go like this 'Rabies risk is not a big worry ....

- ***Rabies is not a big worry because it's only a short trip'*** – unfortunately not the case; many persons who are bitten, are bitten on short trips – not because short trips are riskier, but because short trips are more common, and you cannot accurately predict risk.[9]
- ***Rabies is not a big worry if you don't pat dogs'*** – unfortunately not the case; many of those bitten are not patting animals or did not initiate the contact with the animal: They are just near animals as part of the common activities associated with travel and they are bitten unexpectedly.[9]
- ***Rabies is not a big worry, because if you get bitten you can just be treated afterwards'*** – unfortunately not the case; unvaccinated travellers who are bitten need rabies immunoglobulin (RIG) and this can be very hard to find in many rabies-risk countries.[7,8] Seeking vaccination can cause a great deal of stress and travel disruption. Since rabies is a universally fatal disease, PEP is essential for every traveller who has a rabies-risk exposure.

6 ADVISE TRAVELLER ON WHAT TO DO IF EXPOSED OVERSEAS

- Avoid activities in section 5 above. Recommend travel insurance as any PEP and RIG may require flights or a change of schedule.
- In the event the traveller is bitten, scratched, or their mucosa (eye, nose, mouth) is in direct contact with a potentially infected animal or bat, the traveller should understand and recognise the urgency to take the following actions:

1. Immediate wound management

2. Rabies vaccine (post-exposure prophylaxis – PEP) may be required (see Section 9)
3. Rabies immunoglobulin (RIG) may be required[5] (see Section 9)

Immediate wound management

- It is essential to wash the area well with soap or detergent and water. Flush with copious amounts of water for at least 15 minutes.[3]
- Application of a virucidal solution such as povidone-iodine is recommended[1,5]. Local remedies are discouraged.
- The traveller is strongly encouraged to seek urgent medical attention from health professionals experienced in managing wounds at risk of rabies infection, as human immunoglobulin and vaccination may be required.
- See Table 4 below for categories of exposure and recommendations for PEP.

7 ADVISE ON ACTION TO BE TAKEN ON RETURN TO AUSTRALIA OR NEW ZEALAND IF EXPOSED OVERSEAS

7.1 Travellers potentially exposed to Rabies

- If the traveller is exposed to a potentially rabid animal and receives care whilst away, they should be encouraged to record the following information from the local medical provider[5,11], which can then be given to their public health unit on return to Australia or New Zealand.
    - Name and contact details of the clinic providing the care (phone number and email)
    - If RIG was administered
        - Name/Type of RIG (human, equine, monoclonal antibody)
        - Batch number
        - Volume, number of vials used
        - Time and date of administration.
    - If vaccine was administered

- Name/Type of vaccine used
- Batch number
- Route
- Time and date/s of administration.

- It is recommended that all travellers who have been exposed and treated with PEP whilst overseas, should seek medical attention on their return.[5] Travellers should contact their local travel medicine clinic or GP, and will likely be referred to their local public health unit. Rabies serology may need to be checked to ensure the effectiveness of vaccines, and/or additional vaccine doses may be provided. If RIG was not given whilst away and less than 7 days have passed since first PEP vaccination, RIG may still be recommended. State public health provides RIG and rabies vaccine at no cost in Australia whereas in New Zealand a cost may be incurred.

8 DECIDE WITH THE TRAVELLER WHERE THE RISK / BENEFIT OF PRE-VACCINATION FALLS

Travel health practitioners are recommended to discuss the following with their patient:

- The risk of rabies when visiting rabies-**endemic** **(see Figure 1)**
- There is difficulty to accurately predict rabies risk, however children, young adults and those travelling to risk areas for long periods or on multiple trips, are at an increased risk of being bitten/scratched by a mammal.
- The myths about rabies risk as outlined above
- The importance of avoiding exposure
- What to do in the event of a bite
- Whether PEP and RIG are likely to be available if the traveller has a rabies-prone exposure (i.e. often it is not readily available).
- RIG is made from either equine or human sources.
- RIG is very expensive and has a short half-life. Low resource countries have limited supplies particularly in remote medical settings.
- Monoclonal antibody RIG is now available in some countries and will likely be more commonly available in the future.

- Even travellers who successfully access rabies vaccine whilst travelling, suffer a great measure of stress and trip disruption in dealing with the risk exposure.
- Check departure date and whether there is time for the rabies pre-vaccination course to be provided
- Whether the traveller is likely to visit these regions in future and thus get more 'value' from their PrEP vaccination
- The cost of the vaccine (including costs for administering the vaccine) and the time to attend a clinic for the vaccine.
- The risk of adverse events from the vaccine

In simple terms, where access is likely to be poor, and risk of exposure is high, PrEP should be offered.

9 DECIDE WHICH VACCINE AND SCHEDULE TO USE

>> click here to navigate back to section 6 ADVISE TRAVELLER ON WHAT TO DO IF EXPOSED OVERSEAS

9.1 Vaccines

- There are currently 3 human rabies vaccines registered in Australia (Rabipur, Merieux Inactivated Rabies Vaccine (MIRV) and Verorab) however it is likely MIRV will be discontinued now Verorab is readily available.[5] Currently New Zealand has only 3 registered vaccines (Rabipur[12], MIRV[13] and Verorab[14]).
- All vaccines can be used for both PRE and POST exposure.
- A course should ideally use the same vaccine for each dose, but if necessary, different brands of rabies vaccine can be used interchangeably.[5]
- The dose of rabies vaccines is the same for all ages (infant, children, adult) regardless of whether being used for PRE or POST vaccination.
- Vaccines can be given intramuscularly (IM) or intradermally (ID).
- ID vaccination of MIRV and Rabipur is 'off label' in both Australia[5] and NZ[12,13], however numerous studies show ID administration of rabies vaccines are efficacious in persons under 50 years of age with no immune deficiencies.[15]
- Since ID dose is significantly less volume than IM, ID is cheaper to administer if a vial can be used for more than one traveller.

- ID injections should only be provided by suitably qualified and experienced providers, usually in specialised travel medicine clinics. Immunisation providers must follow multidose vial procedures and discard the remaining vaccine 8 hours after opening the vial or at the end of the vaccination session.
- Both IM and ID vaccinations should be given in deltoid (or anterolateral thigh in infants). Buttock injection is not recommended.[1,5]

9.2 Pre-Exposure Prophylaxis (PrEP) Vaccine Schedules

AUSTRALIAN AND NEW ZEALAND EXPERT OPINION

Most healthy travellers visiting a GP prior to travel of less than one year to a risk country, who need pre-exposure rabies vaccine, should have 2 doses of IM rabies vaccine given at least 7 days apart.

They should be advised that a booster is recommended prior to the next trip.

This ensures:

- **the traveller will not need RIG if exposed**
- **it will be most cost effective for the traveller**
- **it is easy to administer for the non-specialised clinic**

The current Australian, New Zealand, WHO and CDC guidelines are outlined below and need to be reviewed carefully prior to making a final recommendation for each traveller.

1. Australian Rabies PrEP guideline[5]

There are 4 options for administering pre-exposure prophylaxis, varying by schedule length, number of doses and route of administration. There is no preferential recommendation for choosing a schedule and route of administration. Consideration should include a person's circumstance and personal preferences.

Three visit schedule

The recommended 3-visit pre-exposure prophylaxis schedule comprises 3 vaccine doses, given at days 0, 7 and 21–28. These can be given by either the intramuscular or intradermal route.

Two visit schedule

The recommended 2-visit pre-exposure prophylaxis schedule given by the **intramuscular** route comprises

- 2 vaccine doses, given at days 0 & 7.

The recommended 2-visit pre-exposure prophylaxis schedule given by the **intradermal** route comprises 4 vaccine doses, given as follows:

- 2 x 0.1 mL injections given at different sites on day 0
- 2 x 0.1 mL injections given at different sites on day 7

Australian guidelines recommend rabies virus neutralising antibody (VNAb) levels should be checked 3 weeks (range 2 to 4 weeks) after finishing the ID two visit schedule to ensure levels are ≥0.5IU per ml.[5] If there is insufficient time for antibody levels to be checked, IM may be preferable to ID.[5]

- Two visit schedules (IM or ID) may be beneficial for those with time or budget constraints when travelling to endemic areas e.g. presenting for travel advice close to their departure time, or those who have difficulty returning for appointments.
- Australian guidelines state that for travellers undertaking the two-visit schedule and likely to have future exposures, an IM booster given at least 12 months from first dose is recommended as antibody levels may wane and be inadequate for future exposures.[5] In Australia, an IM booster is recommended even if ID vaccinations were given initially. A booster beyond 12 months should still provide adequate protection.[5,9,15] See section 3 below regarding WHO recommendations (boosters not recommended) and CDC (boosters recommended if ongoing exposure risk).
- Two visit schedules (IM or ID) are not recommended for immunocompromised travellers (as their immune response may not be adequate).[5]
- Two visit ID schedules are not recommended for adults over 50 years (as seroconversion is less likely to occur in those over 50 years of age).[15,16]
- Intradermal (ID) injection route is not recommended for those who are
- immunocompromised (immune response may not be adequate).[5]
- taking chloroquine or other anti-malarial medications structurally related e.g. mefloquine, hydroxychloroquine at the time of vaccination or within one month, as the immune response is reduced).[17]

- Immunocompromised patients should also have their VNAb titres checked 2-4 weeks after their 3rd visit IM dose. An additional vaccination (and follow up serology), is recommended if titre is below 0.5IU/ml. If titre remains below 0.5IU/ml, advice should be sought from specialist immunisation clinics or health authorities.[5]

Table 2. Australian Rabies Pre-Exposure Vaccine Recommendations[5]

Three visit schedules	IM full vial • 1 ml MIRV/Rabipur • 0.5ml Verorab	1 site day 0, 7, 21-28	VNAb 2-4 wks post course for immuno-compromised (IC)
	ID 0.1 ml any of 3 vaccines	1 site day 0, 7, 21-28 (not IC)	
Two visit schedules	IM full vial • 1 ml MIRV/Rabipur • 0.5ml Verorab	1 site day 0, 7* (not IC)	
	ID 0.1 ml (two doses of any of 3 vaccines in different arms)	2 sites day 0, 7* (not if > 50 yrs or IC)	VNAb 2-4 wks post course

*IM booster at least 12 months after first dose visit will improve long term antibody response

Other considerations:

- It is preferable to use the same brand of vaccine for the course, however Rabies vaccines are interchangeable so if necessary, the course can be completed with a different WHO approved vaccine.[5]
- Other live and inactivated vaccines can be co-administered with rabies vaccines provided they are not mixed in the same syringe and are injected at different sites.[5,6]
- Whilst pregnancy is not a contraindication to rabies vaccination, a risk assessment for pregnant women travelling to an enzootic area is recommended.[18]

- The immune system is not impaired by delay[6], (and may even work better if there is more time between doses), so doses of vaccine can be given late but not early, e.g. where schedule says day 0 and day 7, doses of vaccine can be given at day 0, then day 8 or even much later say at day 40 but not day 0 and then day 6.
- Where travel of more than one year is planned, a 3-visit PrEP course would mean a booster is not necessary.

Contraindications to vaccines

PrEP

- Persons with anaphylactic or severe allergy to eggs should avoid purified chick embryo cell vaccine (Rabipur)[5], and instead be offered human diploid cell vaccine (MIRV) or Verorab (cell culture vaccine)
- Persons with rubber or latex allergy are recommended not to be given Verorab[5].
- MIRV can rarely lead to serum sickness. Thus, for individuals who may require multiple doses over a lifetime e.g. frequent travellers or those at occupational risk, the purified chick embryo cell vaccine (Rabipur) or (cell culture vaccine) Verorab will be more suitable as PrEP and PEP.[19,20]

PEP

- Given the fatality rate if infected by a rabid animal, there are no absolute contraindications to any rabies vaccine. WHO and CDC both state rabies vaccines are inactivated and have been safely administered to persons of all ages including pregnant women.[1,21]

2. New Zealand

Schedules practiced by New Zealand travel practitioners are similar to Australian guidelines with both 2 and 3 visit IM or ID schedules included as options. In addition, a three visit, 2 site ID schedule is an option for immunocompromised travellers.

Serology and boosters are not routine however, a risk assessment is recommended (particularly for those immunocompromised or over 50 years), where a booster may be recommended anytime between 1 and 10 years post primary series (depending on risk and anticipated activities e.g. remote travel) noting however that WHO recommendations do not generally advise any further booster being required. Thus, recommendations are on a case-by-case basis.

See Table 3 for recommended schedules.

Table 3. New Zealand Rabies Pre-Exposure Vaccine Recommendations

Three visit schedules	IM full vial – 1 ml MIRV/Rabipur – 0.5ml Verorab (if MIRV or Rabipur not available)	1 site day 0, 7, 21-28 (Immunocompromised – IC only)	Serology and boosters are not routine (as per WHO). However, a risk assessment is recommended (particularly for IC or over 50 years), where a booster may be recommended anytime between 1 and 10 years post primary series (depending on risk and anticipated activities e.g. remote travel).
	ID 0.1 ml – of any vaccine	1 site day 0, 7, 21-28 (not IC)	
	ID 0.1 ml – 1 dose of any vaccine in different arms on same day	2 sites day 0, 7, 21-28 (IC only)[1]	
Two visit schedules	IM full vial – 1 ml MIRV/Rabipur – 0.5ml Verorab (if MIRV/Rabipur not available)	1 site day 0, 7 (not IC)	
	ID 0.1 ml – 1 dose of any vaccine in different arms on same day	2 sites day 0, 7 (not IC)	

3. Other Recommended Vaccine Schedules

The WHO and CDC both support 2 Visit PrEP, however schedules differ in type of administration.

1. World Health Organisation (WHO) recommend either two visit, one site IM (day 0 and 7) or two visit, two sites ID of PrEP (2 ID injections at different sites, day 0 and 7 with total 4 doses (except immunocompromised see below).[1,6]
A systematic review of vaccine potency has shown that current vaccines (>2.5 IU/IM dose), when administered by the ID route for either PEP or PrEP, have efficacy equivalent to or higher than that of the same vaccine administered by the IM route.[6]
WHO does not advocate boosters unless exposed and needing PEP[6]
A 3-visit schedule (day 0, 7, 21-28 IM or ID) is recommended for immuncompromised.[1]

WHO also states that evidence suggests that a change in the route of administration (from IM to ID) or in vaccine product (different brands) during a PEP or PrEP course is safe and immunogenic.[21]

2. Centers for Disease Control and Prevention (CDC) recommends two IM doses of PrEP (day 0 & 7) for travellers at risk.[21] For immunocompromised patients, serology should be performed 2-4 weeks post 2 dose series and if antibody <0.5IU/ml, a booster should be given.
CDC advocates either a serology test between years 1 & 3 or a pre-emptive booster from day 21 and up to 3 years for individuals at ongoing risk of exposure.[21]

For a comparison of all schedules (Australia, New Zealand, WHO, CDC) see table here

9.3 Post Exposure Prophylaxis (PEP)

- A detailed discussion of PEP is outside the scope of these guidelines however a general understanding is important to inform PRE exposure vaccination
- PEP is recommended for category II and III wounds. The recommended schedule, number of doses, and route (IM or ID) will depend on the country, availability of vaccines and RIG, previous PrEP and patient factors (e.g. immunocompromised).
- For those who completed a 2- or 3-visit PrEP schedule prior to exposure, shorter schedules will be recommended (but may depend on the country protocol).
- All travellers must seek PEP as soon as possible after exposure. There are no studies showing how long one can safely wait. However, for exposures on the head, neck or fingers the incubation of rabies will be more rapid so it is especially important to have the PEP as soon as possible and preferably within 48 hours of exposure.[1,5]
- Immunocompromised, pregnant and lactating women can and should all be vaccinated if exposed (Category II & III).[1,5,6]
- Persons who happen to report a rabies risk exposure in the weeks, months or even years prior to presentation should be referred to a specialised travel clinic or public health organisation for assessment as there have been cases of extended incubation periods leading to fatal rabies encephalitis.

9.4 Rabies Immunoglobulin

- For category III exposures (and bat exposures categorised as Category II), the non-immune traveller (no PrEP) should have RIG injected into the wound after cleaning (but no later than 7 days after initial PEP vaccination).[1]
- The maximum dose (human RIG – 20IU/kg, equine RIG – 40IU/kg) should be infiltrated into or as close as possible to all wounds (avoiding compartment syndrome).
- For severe and multiple wounds requiring more immunoglobulin than the maximum dose, the RIG can be diluted with sterile saline to ensure infiltration of all wounds.
- If there has been mucosal contamination, rinsing with RIG can be considered.[1,5]
- Alternatives to human RIG (HRIG) in some countries include equine RIG and less commonly, a monoclonal antibody. Travellers should be encouraged to ask for written details of all treatment provided (see below).
- For those travellers who have received full PrEP, RIG is not recommended except in those severely immunocompromised.[1,5]
- Since wounds from bats are more likely to result in human infection, category II exposures from bats are treated as for category III exposures.[5]

Table 4. Categories of contact and recommended post-exposure prophylaxis (PEP)[1]

CATEGORIES OF CONTACT WITH SUSPECT RABID ANIMAL	POST-EXPOSURE PROPHYLAXIS MEASURES
Category I (no exposure) • touching or feeding animals • animal licks intact skin • exposure to animal blood, urine or faeces	• Washing of exposed skin surfaces • No PEP required
Category II (exposure) • nibbling of uncovered skin • minor scratches or abrasions without bleeding	• Wound management • Immediate PEP vaccination • If exposure to a bat, treat as Category III below

Category III (severe exposure) • single or multiple transdermal bites or scratches • contamination of mucous membrane or broken skin with saliva from animal licks • exposures due to direct contact with bats	• Wound management • Immediate PEP vaccination • Administration of rabies immunoglobulin (RIG) (or monoclonal antibodies) unless PrEP provided (only those severely immunocompromised having had PrEP are recommended for RIG)[1,5]

>> Click here to navigate back to section 4.1 POST exposure

Source: World Health Organisation (2018), WHO Expert Consultation on Rabies, third report. WHO Technical Report Series, No. 1012. https://apps.who.int/iris/bitstream/handle/10665/272364/9789241210218-eng.pdf?sequence=1&isAllowed=y

Practice point: Those travellers who suffer a rabies risk exposure, even those who successfully access rabies vaccine, often suffer a great measure of stress and trip disruption in dealing with the risk exposure.

In Australia the local public health unit will likely advise what should be done with any RIG that cannot be injected into the wound site. In New Zealand, there are authoritative travellers' health clinics in Auckland and Wellington that will do the same.

10 REFERENCES

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11 ADDITIONAL READINGS AND LINKS

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Next update scheduled for (TBC)

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Tel: +61 7 3872 2246
Email: actm@tropmed.org

PO Box 123
Red Hill Qld 4059

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