



INTERIM GUIDELINE FOR HUMAN RABIES PREVENTION & CONTROL IN MALAYSIA

Disease Control Division
Ministry of Health Malaysia



INTERIM GUIDELINE FOR PREVENTION AND CONTROL OF RABIES IN MALAYSIA

INTRODUCTION

Dog bites are traumatic and dangerous events, representing a high probability of infection--especially if the bite goes untreated. A dog's saliva has a broad diversity of bacteria. In almost 100% of dog bites, harmful bacteria and other dangerous pathogens are present and can be transmitted to the bite wound. Signs that a dog bite has become infected include redness, pain and oozing. Generally, the management of dog bites depends on the location of the bite, the overall health condition of the bitten person and whether or not the dog is vaccinated against rabies. Most dog bite wounds can be managed in the general practice setting. However, it is important to recognize when a wound is at high risk of infection and when referral to hospital is required.

The most feared complication of an animal bite is rabies, although skin infection is the most common complication. Some bite wounds can be serious, causing injury and permanent disability. Bite wounds to the hand carry an especially high risk for serious complications because the skin's surface is so close to the underlying bones and joints.

Rabies is a zoonotic disease (a disease that is transmitted to humans from animals) that is caused by a virus. The disease infects domestic and wild animals, and is spread to people through close contact with infected saliva via bites or scratches. Rabies is present on all continents with the exception of Antarctica, but more than 95% of human deaths occur in Asia and Africa. Once symptoms of the disease develop, rabies is nearly always fatal. Rabies is widely distributed across the globe, with only a few countries (mainly islands and peninsulas) being free of the disease. Many animal species are involved in the maintenance and transmission of the disease in nature.

MODES OF TRANSMISSION

People are infected through the skin following a bite or scratch by an infected animal. Dogs are the main host and transmitter of rabies. They are the source of infection in all of the estimated 55 000 human rabies deaths annually in Asia and Africa. However, bats are the source of most human rabies deaths in the United States of America and Canada. Human deaths following exposure to foxes, raccoons, skunks, jackals, mongooses and other wild carnivore host species are very rare.

Transmission can also occur when infectious material – usually saliva – comes into direct contact with human mucosa or fresh skin wounds. Human-to-human transmission by bite is theoretically possible but has never been confirmed. Rarely, rabies may be contracted by inhalation of virus-containing aerosol or via transplantation of an infected organ. Ingestion of raw meat or other tissues from animals infected with rabies is not a source of human infection.

CLINICAL MANIFESTATIONS

The incubation period for rabies is typically 1–3 months, but may vary from <1 week to >1 year.

The initial symptoms of rabies are fever and often pain or an unusual or unexplained tingling, pricking or burning sensation (paraesthesia) at the wound site. As the virus spreads through the central nervous system, progressive, fatal inflammation of the brain and spinal cord develops.

Two forms of the disease can follow. People with furious rabies exhibit signs of hyperactivity, excited behaviour, hydrophobia and sometimes aerophobia. After a few days, death occurs by cardio-respiratory arrest.

Paralytic rabies accounts for about 30% of the total number of human cases. This form of rabies runs a less dramatic and usually longer course than the furious form. The muscles gradually become paralyzed, starting at the site of the bite or scratch. A coma slowly develops, and eventually death occurs. The paralytic form of rabies is often misdiagnosed, contributing to the underreporting of the disease.

PREVENTION AND CONTROL OF RABIES IN MALAYSIA

1. Surveillance of human rabies

1.1 CASE DEFINITIONS

1.1 Human Rabies

Clinical case definition - A person presenting with an acute neurological syndrome (encephalitis) dominated by forms of hyperactivity (furious rabies) or paralytic syndromes (dumb rabies) progressing towards coma and death, usually by respiratory failure, within 7-10 days after the first symptom.

It is further classified into;

- 1) Suspected: A case that is compatible with the clinical case definition and with history of dog bite or scratch.
- 2) Probable: A suspected case plus history of contact with a suspected rabid dog.
- 3) Confirmed: A case that is laboratory-confirmed.

1.2 Human Exposure to Rabies

It is further classified into two (2) groups;

- 1) Possible exposure: A person who had close contact (usually a bite or scratch) with an animal displaying clinical signs consistent with rabies at time of the exposure, or within 10 days following exposure in rabies infected area.
- 2) Exposed: A person who has had close contact (usually a bite or scratch) with a laboratory confirmed rabid animal

1.2 NOTIFICATION

For the purpose of investigation and further action, all suspected, probable and confirmed cases (including dog bite cases – human exposed to suspected rabid dog/animal) must be notified to the nearest Health District Office (PKD) within 24 hours of the date of diagnosis by respective hospital/clinic (Annex 1a). PKD must notify the nearest District Veterinary Office immediately by phone followed by submission form (Annex 1b) through fax. Then, District Health Office should further do these actions;

- Case should be referred to nearest hospital for evaluation and further action (management of case/patient).
- Notification of dog bite cases can be done using Annex 1a.
- All notified cases must be investigated.
- Within 48 hours, a rabid dog status should be clarified with the Veterinary District Office.
- Daily reporting is closed by 5.00 pm every day. Daily line listing and report should be submitted to JKN by respective PKD not later than 10.00 am the next day. JKN should submit daily report to KKM before 12.00 pm the next day via email: zoonosis@moh.gov.my.

Please refer Appendix 1: Carta Alir Pengurusan/Tindakan Kes Gigitan Anjing/Haiwan Liar which summarizes the above actions;

- a) Annex 1a: Borang Notifikasi Kes Gigitan Haiwan yang Membawa Penyakit Rabies (hospital/clinic to PKD)
- b) Annex 1b: Borang Notifikasi Kes Gigitan Haiwan yang Membawa Penyakit Rabies (PKD to Veterinary District Office)
- c) Annex 2: Laporan Harian Kes Gigitan Anjing/Haiwan Liar
- d) Annex 3: Carta Alir Notifikasi Kes Yang Terdedah Kepada Rabid Dog

2. Medical Response for human rabies/human exposures to rabid animals

2.1 GENERAL GUIDELINE FOR DOG BITE MANAGEMENT ACCORDING TO CATEGORY OF EXPOSURE

RISK CATEGORY	TYPE OF EXPOSURE	ACTION TO BE TAKEN
1	Touching/feeding animal. Licking of intact skin.	Nil if history is reliable. If history not reliable, treat as category 2.
2	Nibbling of uncovered skin. Superficial scratch, no bleeding. Licking of broken skin.	Apply wound treatment. Administer vaccine. Do not administer anti-rabies immunoglobulin. Stop vaccination if animal is rabies negative in laboratory tests, or remains healthy after 10 -14 days observation (dog or cat). Continue vaccination if animal is not found/captured.
3	Bites/scratches which penetrate the skin and draw blood. Licking mucous membrane. Multiple bites. Any wild animals bites	Apply wound treatment. Administer vaccine. Administer anti-rabies immunoglobulin. Administer anti-tetanus and antibiotic treatment. Stop vaccination if animal is rabies negative in laboratory tests, or remains healthy after 10 - 14 days observation (dog or cat). Continue vaccination if animal is not found/captured.

2.2 POST EXPOSURE MANAGEMENT

Effective treatment soon (within a few days, but as soon as possible) after exposure to rabies can prevent the onset of symptoms and death.

Post-exposure prevention consists of local treatment of the wound, administration of rabies immunoglobulin (if indicated), and immediate vaccination.

2.2.1 LOCAL TREATMENT OF THE WOUND

Removing the rabies virus at the site of the infection by chemical or physical means is an effective means of protection. Therefore, prompt local treatment of all bite wounds and scratches that may be contaminated with rabies virus is important. Recommended first-aid procedures include immediate and thorough flushing and washing of the wound for a minimum of 15 minutes with soap and water, detergent, povidone iodine or other substances that kill the rabies virus.

2.2.2 POST-EXPOSURE VACCINE (PEP) AND RABIES IMMUNOGLOBULIN (RIG)

PEP is given for risk category 2 and 3 accordingly. RIG is given for risk category 3 only.

- a) Area for injection for vaccine;
 - i. Adult - IM at deltoid area
 - ii. Children – IM at anterolateral aspect of thigh

NOTES:

- i. For children, gluteal area should never be used for rabies vaccine injections because observations suggest administration in this area results in lower neutralizing antibody titers.

- b) Indication;

Vaccination after exposure (post-exposure) is recommended for all individuals who have had contact with an animal (e.g., bites or abrasions) that they believe may be, or which is proven to be, rabid.

- c) Doses;

The number of doses required is determined by the previous immunization status of the individual

- i) Previously unvaccinated people;

- a) 4 doses at day 0, 3, 7, and 14.
- b) In addition to rabies vaccine, these people should also receive a dose of RIG at the same time as the first dose of the vaccine to provide rapid protection that persists until the vaccine works.

- ii) Previously vaccinated people - 2 doses at day 0 & 3 and RIG is unnecessary and should not be given.

iii) Immunocompromised patient (corticosteroids, other immunosuppressive agents, chloroquine, and immunosuppressive illnesses e.g. congenital immunodeficiency, HIV, leukaemia, lymphoma, generalized malignancy)

- a) 5 doses at day 0, 3, 7, 14 and 28.
- b) In addition to rabies vaccine, these people should also receive a dose of RIG at the same time as the first dose of the vaccine to provide rapid protection that persists until the vaccine works.

IMPORTANT NOTES:

1. For Negeri Perlis, Kedah, Pulau Pinang, Kelantan and Perak: RIG is given for risk category 3, multiple bites wound (priority to neck and head area) and dog is not found/captured.

2. For other States (rabies non-infected States): Risk category 2 and 3 should be assessed by ID Physician in hospital for commencement of PEP and/or RIG.

- a) Animal is found/captured: Notify the nearest District Veterinary Office to quarantine the animal. Start PEP and/or RIG if animal is sick or died within 10 - 14 days of observation; and after consulting ID Physician in hospital for further assessment of dog bite cases.**
- b) Stray animal: please consult ID Physician in hospital for further assessment of dog bite cases. PEP and/or RIG will be given based on the evaluation from the ID Physician.**

2.3 Type of vaccine and Immunoglobulin in Malaysia

a) Verorab (PVRV - purified inactivated rabies vaccine, prepared on vero cell) – Sanofi Pasteur

b) Rabies Immunoglobulin (RIG)

The decision to give RIG must be individualized due to a global shortage. Decision to be made after discussion with a person knowledgeable in rabies exposure management.

- i. Type of RIG
 - a) Equine RIG Dose: 40 IU/kg
- ii. Route of administration: IM at an anatomical site distant from vaccine administration.

RIG should be given with the first dose of vaccine to promote clearance of infection by neutralizes the virus before invasion of the nervous system. If possible, the full dose should be infiltrated around any wound(s) and any remaining volume should be administered IM at an anatomical site distant from vaccine administration.

Also, RIG should not be administered in the same syringe as vaccine. Because RIG might partially suppress active production of antibody, no more than the recommended dose should be given.

If immunoglobulin is not available, it can be delayed up to 7 days post 1st vaccine given. Beyond the seventh day, RIG is not recommended since an antibody response to the vaccine is presumed to have occurred.

2.4 Acute Dog Bite Case Management at Primary and Secondary Setting

- i. Primary Setting: clinical assessment, wound care and start antibiotic if wound is dirty. Patient with risk category 2 or 3 should refer to casualty at designated hospital. Patient with risk category 1 will discharge with advice (no risk of rabies)
- ii. Secondary Setting: Casualty Team will assess and start PEP (day 0 with or without RIG).
 - a. Asymptomatic patient: Discharge with Home Alert Card and Rabies Vaccination Certificate. Continue PEP if dog positive for rabies.

Discontinue PEP if dog negative for rabies or dog still healthy after 10 - 14 days of quarantine

- b. Symptomatic patient: Start PEP and RIG. Admission to ward immediately.

2.5 Old Dog Bite Case Management

- i. Without wound: Discharge with advise (no risk of rabies)
- ii. With wound: Wound care, start PEP if patient was bitten less than 3 months ago with status of the dog are unknown, dog vaccination are not valid or dog die within 10 - 14 days of quarantine. Discharge with advice (no risk of rabies) if patient was bitten more than 3 months ago.

2.6 Rabies Vaccine and Rabies Immunoglobulin (RIG) Stockpile

Vaccines are to be kept at the state hospitals. If required, vaccine can be redistributed. JKN should give updated quantity of vaccine and RIG at the designated hospitals to Zoonosis Sector, Disease Control Division, MOH in their daily report.

2.7 Health Education

Discharge asymptomatic patient should receive Patient Home Alert Card (Sample, Appendix 2) and Rabies Vaccination Card (Sample, Appendix 3).

3. **Laboratory Criteria for diagnosis of human rabies**

No tests are available to diagnose rabies infection in humans before the onset of clinical disease. Several tests are necessary to diagnose rabies ante-mortem (before death) in humans; no single test is sufficient. Laboratory confirmed case include one or more of the following tests:

1. Detection of viral RNA by RT-PCR in clinical specimen.
2. Detection of rabies viral antigens by direct fluorescent antibody (DFA) or immunohistochemistry (IHC) in clinical specimens, preferably brain tissue (post mortem) or from skin or corneal scrapping/corneal touch impression (ante mortem).
3. Isolation of rabies virus (Viral isolation, VI) from clinical specimen
4. Detection by electron microscopy

Clinical specimens from the case/patient:

- Saliva (RT-PCR, VI)
- Skin biopsy of hair follicles at the nape of the neck (DFA, IHC, RT-PCR, VI)
- Brain biopsy for post mortem cases (DFA, IHC, RT-PCR, VI)
- Corneal scrapping/corneal touch impression (DFA, IHC)
- CSF (antibody test).

- Serum (antibody test).

Saliva: Use a sterile eye dropper pipette and dispense into a sterile container. Do not add preservatives or VTM.

Skin biopsy: Should be collected at the posterior region of the neck at the hairline. A section of skin 5 to 6 mm in diameter should contain a minimum of 10 hair follicles and be of sufficient depth to include the cutaneous nerve at the base of follicle (viral antigen is found in the nerve fibres surrounding the base of hair follicles). Place the specimen on a piece of sterile gauze moistened with sterile water and place in a sterile container. Do not add preservatives or VTM.

Brain Biopsy: Collect 5-6 mm in diameter, any part of the affected brain (they infect neurons in almost all brain regions especially the horn of Ammon of the hippocampus, limbic areas, brain stem, cerebellum and cerebral cortex) and place in a sterile container. Do not add preservatives or VTM.

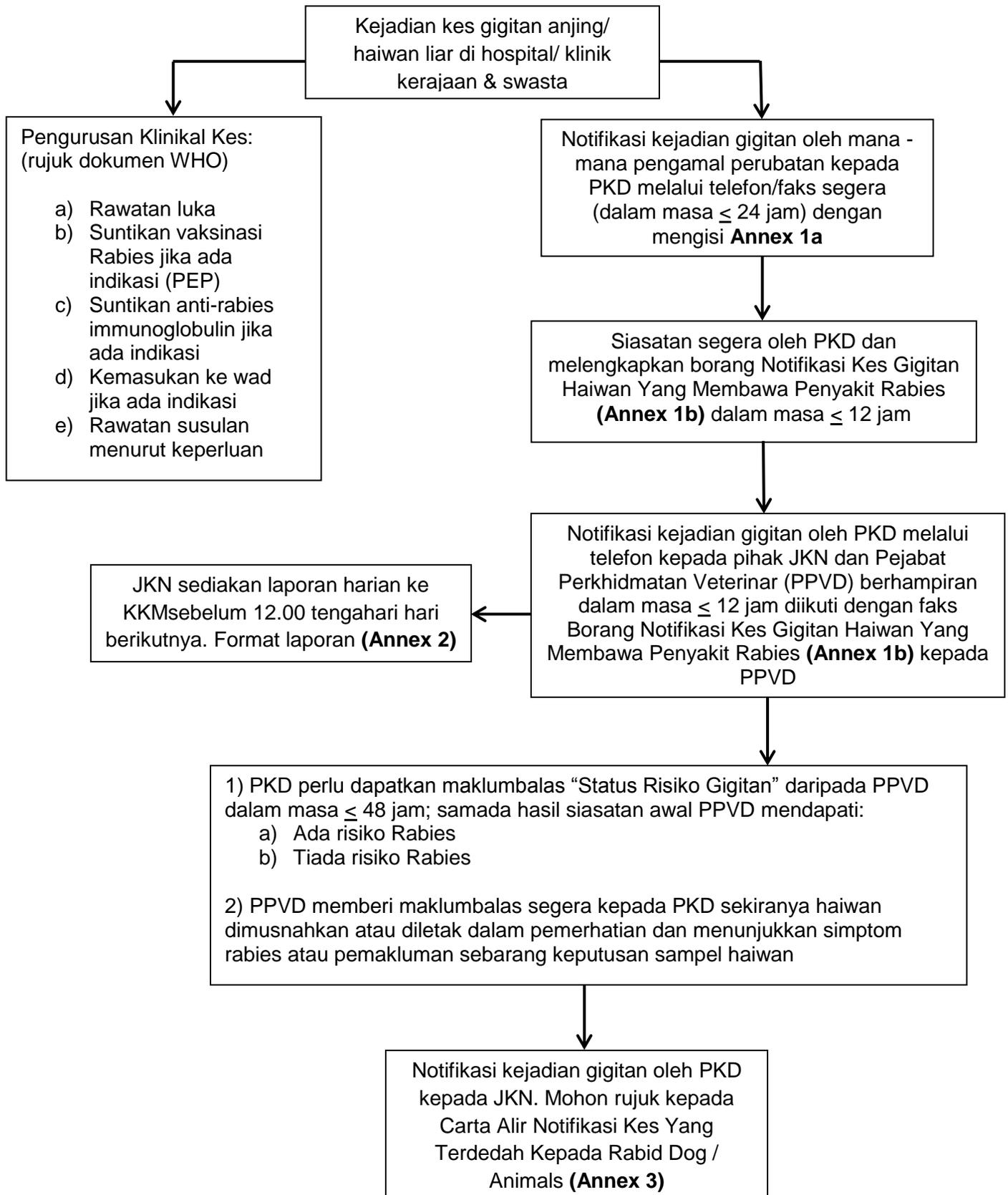
Corneal scraping/corneal touch impression: This requires topical ocular anesthetic and is best performed by an ophthalmologist. Corneal impression is obtained by pressing the surface of sterile glass slide gently but firmly onto the cornea. For corneal scrapings, epithelial cells are gently collected using a sterile loop or spatula and smeared carefully on a sterile glass slide. Fix impression/smear in acetone.

CSF: 1-3 ml in sterile container. Do not add preservatives or VTM.

Serum: 1-3 ml in sterile container. Do not add preservatives or VTM.

The specimens (except for fixed smears) must be kept chilled during storage and transport. Transport the specimens as quickly as possible to the laboratory.

CARTA ALIR PENGURUSAN/TINDAKAN KES GIGITAN ANJING/ HAIWAN LIAR



HOSPITAL / KLINIK KERAJAAN & SWASTA
 NAMA HOSPITAL/KLINIK KERAJAAN & SWASTA.....
 DAERAH
 NEGERI

PEJABAT KESIHATAN DAERAH
 DAERAH.....
 NEGERI

Tuan/Puan,

BORANG NOTIFIKASI KES GIGITAN HAIWAN YANG MEMBAWA PENYAKIT RABIES

NAMA PESAKIT	
K/P	
JANTINA	
UMUR	
BANGSA	
NAMA IBU/BAPA	
ALAMAT	
NO LAPORAN POLIS	
NO PESAKIT LUAR	
JENIS HAIWAN	
SILA TANDAKAN (√) DALAM KOTAK YANG SESUAI	BERTUAN () YANG TIDAK BERTUAN () BERLESEN () TAK BERLESEN () TIDAK DIKETAHUI ()
TARIKH DIGIGIT	
TEMPAT KEJADIAN	
TARIKH & RAWATAN DITERIMA	
MASA RAWATAN	
NAMA PEGAWAI PERUBATAN	
KES DIRAWAT SEBAGAI	PESAKIT LUAR () DIMASUKKAN WAD ()
ALAMAT HOSPITAL/KLINIK	

NOTA : Borang ini hendaklah diisi oleh pengamal perubatan yang menguruskan kes gigitan anjing/haiwan liar (bagi setiap kes)

PEJABAT KESIHATAN DAERAH
 DAERAH
 NEGERI

PEJABAT PERKHIDMATAN VETERINAR
 DAERAH.....
 NEGERI

Tuan/Puan,

BORANG NOTIFIKASI KES GIGITAN HAIWAN YANG MEMBAWA PENYAKIT RABIES

NAMA PESAKIT	
K/P	
JANTINA	
UMUR	
BANGSA	
NAMA IBU/BAPA	
ALAMAT	
NO LAPORAN POLIS	
NO PESAKIT LUAR	
JENIS HAIWAN	
SILA TANDAKAN (√) DALAM KOTAK YANG SESUAI	BERTUAN () YANG TIDAK BERTUAN () BERLESEN () TAK BERLESEN () TIDAK DIKETAHUI ()
TARIKH DIGIGIT	
TEMPAT KEJADIAN	
TARIKH & RAWATAN DITERIMA	
MASA RAWATAN	
NAMA PEGAWAI PERUBATAN	
KES DIRAWAT SEBAGAI	PESAKIT LUAR () DIMASUKKAN WAD ()
ALAMAT HOSPITAL/KLINIK	

NOTA : Borang ini hendaklah diisi oleh pegawai kesihatan daerah bagi setiap kes, dan satu salinan dihantar kepada JKN Negeri berkenaan.

**LAPORAN HARIAN
KES GIGITAN ANJING/ HAIWAN LIAR
NEGERI:
DAERAH:**

A. KEJADIAN KES GIGITAN ANJING

(1) Status kejadian kes gigitan anjing dilaporkan pada (*tarikh*)

Bil	Perkara	Jumlah
1.	Bil. kes gigitan dilaporkan	
2.	Bil. kes gigitan mendapat rawatan pesakit luar	
3.	Bil. kes gigitan menerima suntikan Vaksin Rabies	
4.	Bil. kes gigitan yang dimasukkan ke wad	
5.	Bil. kes gigitan diambil sampel ujian Rabies	
6.	Bil. kes gigitan disahkan positif Rabies	
7.	Bil. kes gigitan mati	
8.	Bil. anjing terlibat dalam kes gigitan	

(2) Status kumulatif kes gigitan anjing (*julat tarikh*)

Bil	Perkara	Jumlah
1.	Bil. kumulatif kes gigitan dilaporkan	
2.	Bil. kumulatif kes gigitan mendapat rawatan pesakit luar	
3.	Bil. kumulatif kes gigitan menerima suntikan Vaksin Rabies	
4.	Bil. kumulatif kes gigitan masih dalam susulan Rabies (PEP)	
5.	Bil. kumulatif kes gigitan telah tamat susulan Rabies (PEP)	
6.	Bil. kumulatif kes gigitan yang dimasukkan ke wad	
7.	Bil. kumulatif kes gigitan diambil sampel ujian Rabies	
8.	Bil. kumulatif kes gigitan disahkan positif Rabies	
9.	Bil. kumulatif kes gigitan mati	
10.	Bil. kumulatif anjing terlibat kes gigitan	
11.	Bil. kumulatif anjing terlibat kes gigitan berjaya ditangkap	
12.	Bil. kumulatif anjing terlibat kes gigitan diambil sampel	
13.	Bil. kumulatif anjing terlibat kes gigitan diambil sampel dan disahkan positif Rabies	
14.	Bil. kumulatif anjing terlibat kes gigitan ditangkap dan diarah kuarantin 10 hari	
15.	Bil. kumulatif anjing terlibat kes gigitan, diarah kuarantin 10 hari dan telah tamat tempoh kuarantin.	

B. AKTIVITI KAWALAN / PENDIDIKAN KESIHATAN

Senarai aktiviti kawalan / pendidikan Penyakit Rabies yang dijalankan

BIL	AKTIVITI DIJALANKAN
1.	
2.	

C. MAKLUMAT VAKSIN RABIES/ RABIES IMMUNOGLOBULIN (RIG)

a) Vaksin:

Tarikh	Kuantiti Asal	Kuantiti Tambahan	Kuantiti yang digunakan	Baki

b) Rabies Immunoglobulin (RIG):

Human Equine

Tarikh	Kuantiti Asal	Kuantiti Tambahan	Kuantiti yang digunakan	Baki

D. ULASAN PEGAWAI

Dilaporkan oleh:

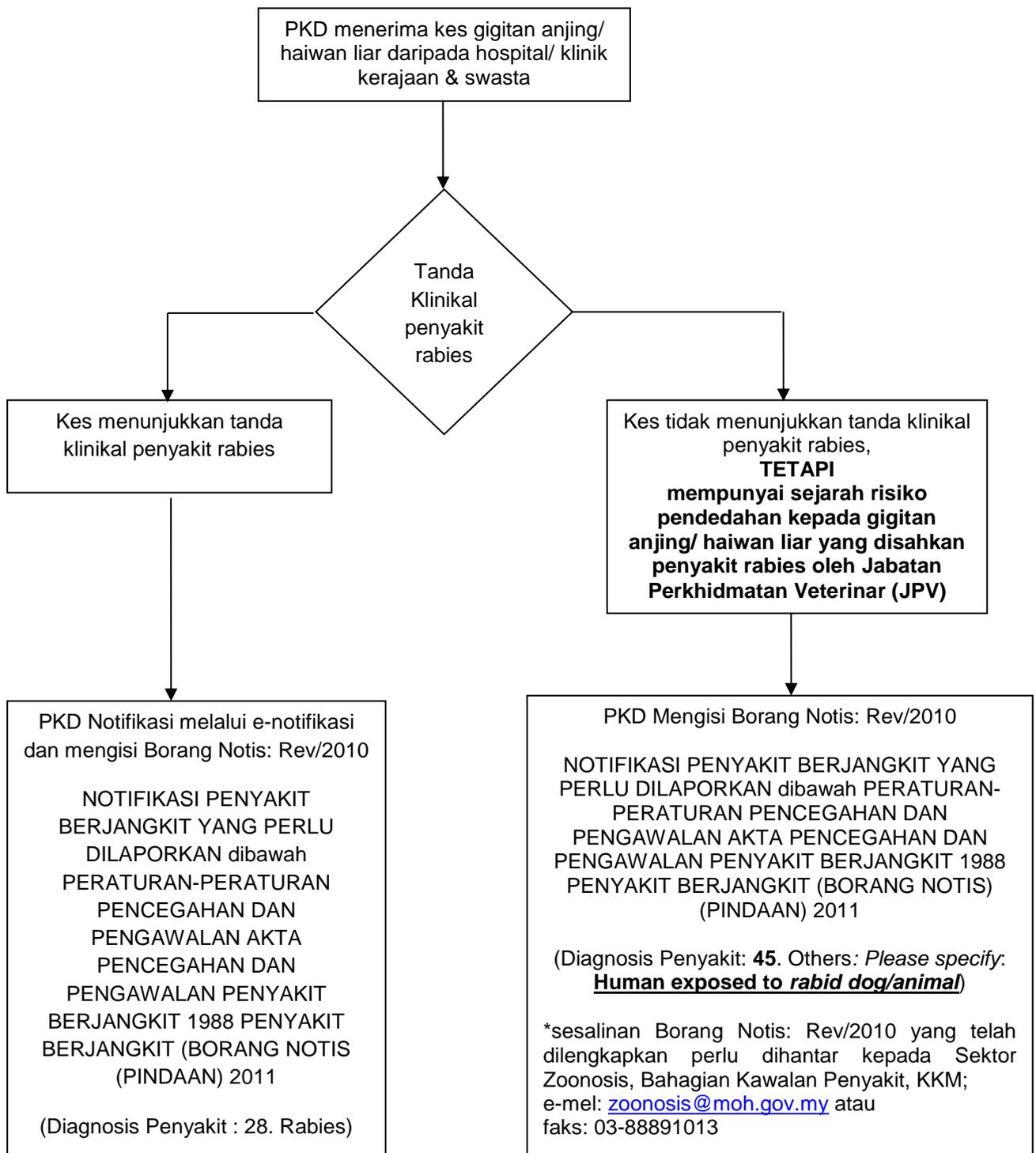
Tandatangan:

Nama:

Jawatan:

Tarikh:

**CARTA ALIR NOTIFIKASI KES YANG TERDEDAH KEPADA *RABID DOG* /
ANIMALS**



PERINGATAN

SEKIRANYA ANDA MENGALAMI TANDA – TANDA SEPERTI DI BAWAH, **SEGERA**
DATANG KE HOSPITAL UNTUK RAWATAN

Tanda awal jangkitan Rabies (Penyakit Anjing Gila) pada manusia

Tanda – tanda ini selalunya berlaku pada hari ke 20 sehingga hari ke 60 selepas gigitan haiwan. Walau bagaimanapun, tanda – tanda ini mungkin berlaku seawall beberapa hari selepas gigitan

- Demam
- Sakit dan lenguh pada tempat gigitan
- Kelesuan otot badan
- Sakit kepala

Tanda – tanda peringkat lewat berlaku apabila virus telah menyerang sistem saraf pusat

- Keresahan
- Kegelisahan
- Perubahan sikap secara tiba – tiba
- Kekeliruan
- Ketakutan terhadap air
- Kesukaran untuk menelan
- Insomnia (gangguan tidur)
- Lumpuh

Pesanan: Jabatan Kesihatan Negeri _____

**CERTIFICATE
OF POST-EXPOSURE
VACCINATION AGAINST
RABIES**

Name : _____

Date of birth/Age (years) _____ Sex : _____

Occupation : _____

Address : _____

Tel no : _____ Date of exposure _____

WHO category of exposure _____ Biting animal _____

Healthy/Sick _____ Animal vaccination status _____

Rabies virus neutralizing antibody titre/Method _____

Observations after 10 days (when relevant) _____

1. Wound washed with water/ soap/antiviral agent _____

2. Rabies immunoglobulin :

Date of treatment _____ Clinic/hospital name _____

Place _____

Name/Type of rabies immunoglobulin (human/equine) _____

SAMPLE

Date of vaccination	Day 0 (Date given : _____)
Vaccination centre/Place	
Type/Name of vaccine	
Manufacturer (batch no.) /Expiry date	
Dose (ml)	
Route of administration (intramuscular or intradermal) ¹ intramuscular is recommended	
Site of vaccination	
Adverse event, if any	
Rabies virus neutralizing antibody titre, if done/Method	
Signature of physician	

General remarks (if any)

Date of vaccination	Day 3 (Date given : _____)
Vaccination centre/Place	
Type/Name of vaccine	
Manufacturer (batch no.) /Expiry date	
Dose (ml)	
Route of administration (intramuscular or intradermal) ¹ intramuscular is recommended	
Site of vaccination	
Adverse event, if any	
Rabies virus neutralizing antibody titre, if done/Method	
Signature of physician	

General remarks (if any)