NATIONAL RABIES CONTROL PROGRAM

Aim & Objectives

- **AIM:**
  - *To reduce mortality due to Rabies among human beings and progressively achieving the Global Target of reducing deaths due to Rabies " Zero by 30 ". To prevent deaths due to Human Rabies*

- ***Objectives***
  - *To facilitate prompt management of animal bite cases in humans by appropriate post exposure prophylaxis (PEP) .*
  - *Capacity building of the States to address Rabies through "One Health Approach" by advocacy and sensitization of the stakeholders.*
  - *Information, Education and Communication (IEC) and Behavioral Change communication (BCC) amongst the community.*

Strategic elements

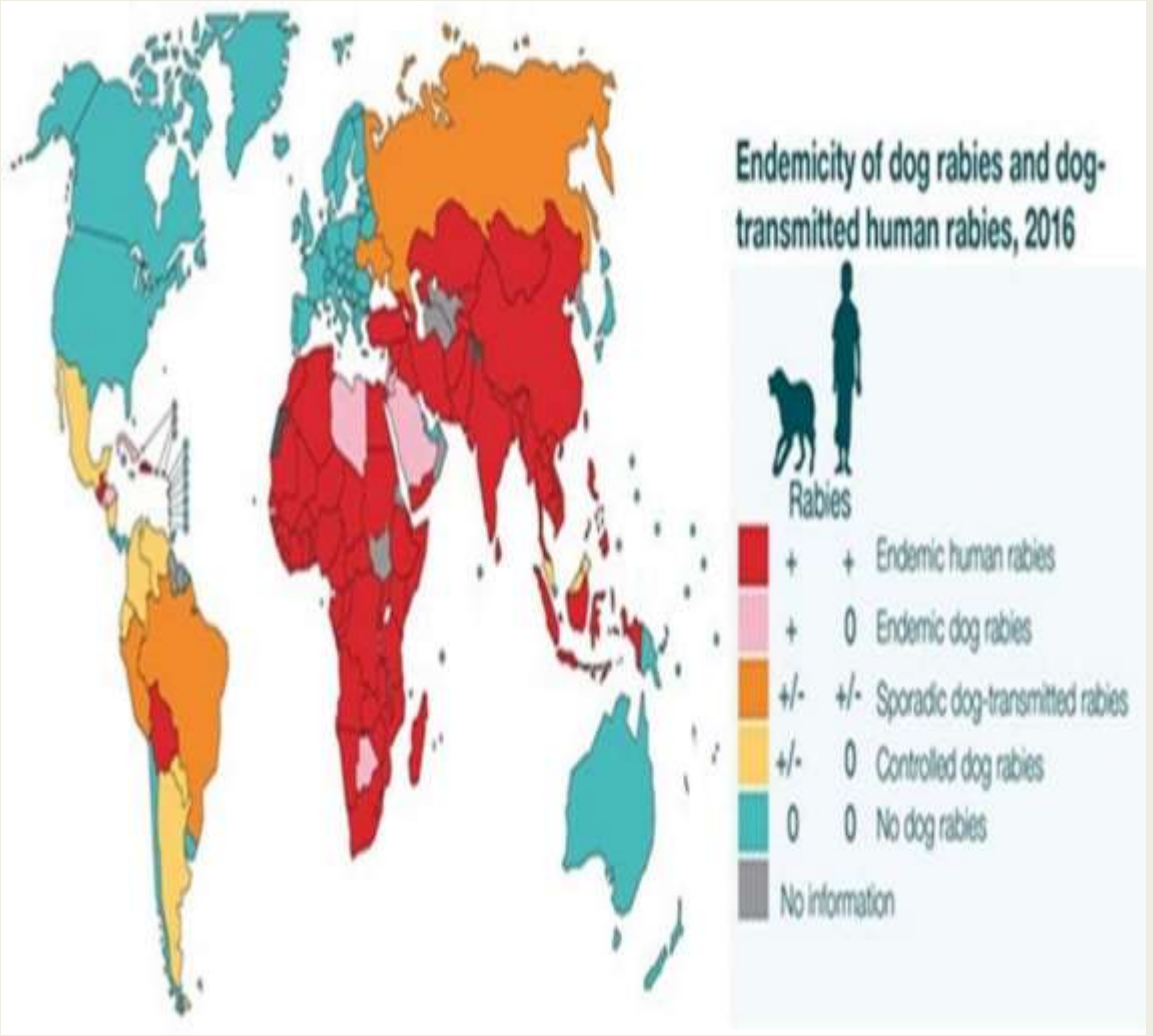
- Prevention:
  - *Introduce cost-effective public health intervention techniques to improve accessibility, affordability and availability of post-exposure prophylaxis.*
- *Promotion :*
  - *Improve understanding of rabies through advocacy, awareness, education and operational research.*
- *Partnership:*
  - *Provide coordinated support for the anti-rabies drive with the involvement of all stakeholders viz health sector , veterinary sectors, community, civil society, government and non-government sectors and international partners.*

Strategies

- *Advocacy of the States and UTs Government to facilitate prompt management of animal bite cases in humans by appropriate post exposure prophylaxis (PEP) through anti Rabies Vaccine and Anti Rabies Serum.*
- *Training of health professionals in appropriate animal bite management and Rabies Prophylaxis*
- *To promote utilization of cost affective Intra-dermal rabies vaccines for Rabies Post Exposure Prophylaxis.*
- *To strengthen rabies diagnostics and Surveillance of animal bites and rabies cases in human and Inter-sectoral Coordination by creating a network of Rabies Regional resource Centres*
- *Information, education & Communication increasing awareness about the diseases and importance of seeking timely and appropriate treatment for animal bites .*
- *Institutionalizing One Health Approach for Rabies by Strengthening Inter-sectoral Coordination through existing mechanisms.*
- *Operational Research.*

RABIES EPIDEMIOLOGY

- The number of human deaths globally due to dog-mediated rabies is estimated to be 59 000 annually,
- The majority of deaths are estimated to have occurred in Asia (59.6%) and Africa (36.4%).
- An estimated 35 172 human deaths (59.6% of global deaths)
- An estimated 20,000 human rabies deaths and 17.4 million animal bites occur per year. India accounts for the most deaths in Asia (59.9% of human rabies deaths) and globally (35% of human rabies deaths).
- An enhanced verbal autopsy survey within the Million Deaths Study suggested that 12 700 deaths (95% confidence interval, 10 000–15 500) were due to furious rabies



RABIES
POST EXPOSURE PROPHYLAXIS

DECISION TO TREAT

- Bites by all warm-blooded animals.
- **Exposure to wild animals:** Exposures to all wild animals should be treated as Category III exposure.
- **Rodent Bites:** Exposure to domestic rodents, hare and rabbits do not ordinarily require PEP. However, rodent bites in forest areas necessitate institution of PEP.
- **Exposure to bats:** Bat rabies has not been conclusively proven in India and hence, at present, exposure to bats does not warrant PEP.
- **Human-to-human transmission:** The risk of human-to-human transmission is minimal and there are no well-documented cases, other than the few cases resulting from infected organ/tissue (cornea) transplant. However, people who have been exposed closely to the secretions of a patient with rabies may be offered PEP as a precautionary measure. Organ/tissue (cornea) for transplantation should not be collected from suspected/confirmed rabies or Rabies-like encephalitis cases.

DECISION TO TREAT

- *OBSERVATION OF BITING DOG/CAT:*
  - *Valid only for dogs and cats*
  - *Start treatment and observe*
  - *Modify PEP*
- *Provoked Versus Unprovoked Bite:*
  - Whether a dog bite was provoked rather than unprovoked should not be considered a guarantee that the animal is not rabid as it can be difficult to understand what an attacking dog considers provocation for an attack.

Vaccination Status of Animal

- Unvaccinated animals are more likely to transmit rabies
- Vaccinated animals can transmit if the vaccination ineffective for any reason.
  - improper administration
  - poor quality of the vaccine
  - poor health status of the animal
- One dose does not provide long-lasting immunity. Animal requires yearly booster
- Appropriate documentation
- Proper history

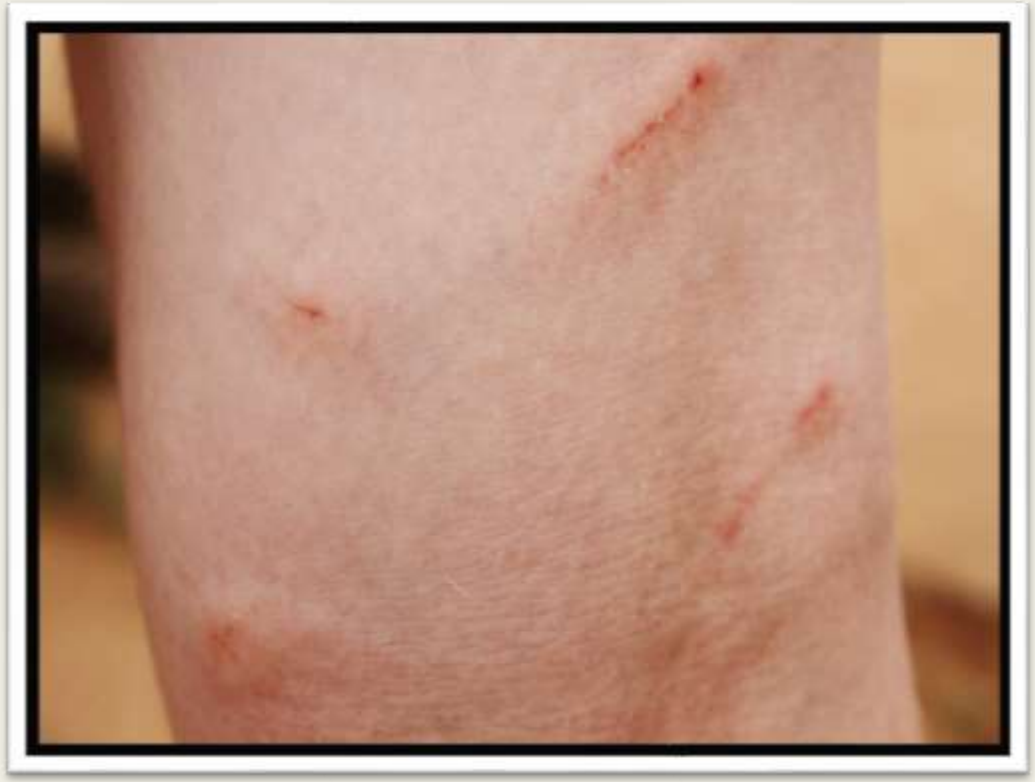
Risk Assessment

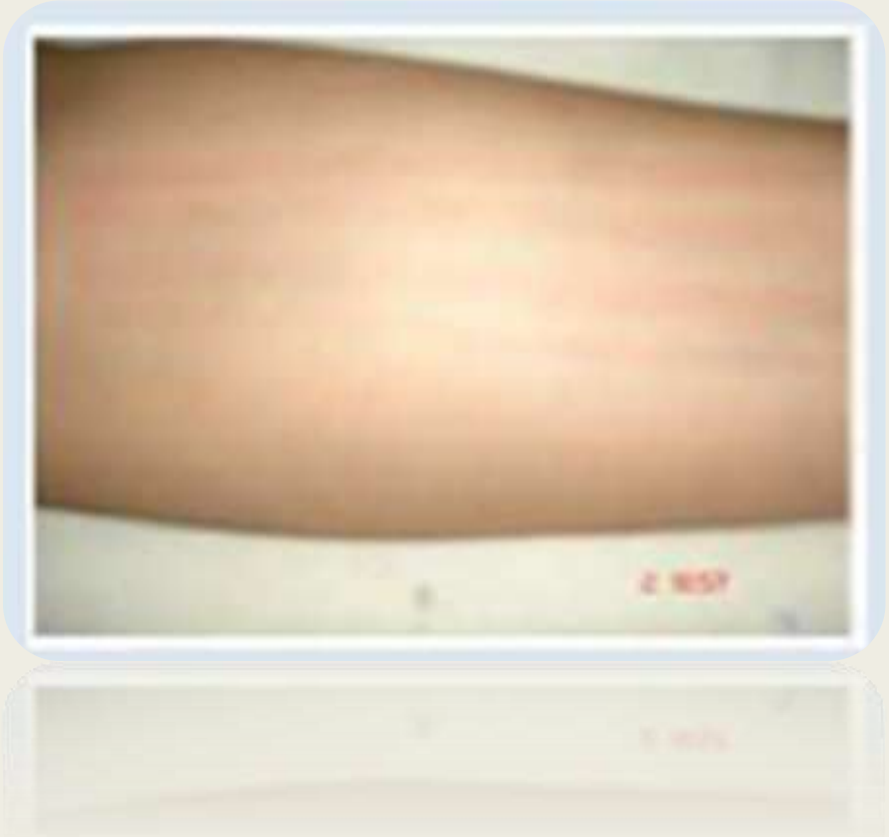
- Categorization based on Exposure

Category of Exposure	Type of Exposure
I	• Touching or feeding of animals • Licks on intact skin • Contact of intact skin with secretions/excretions of rabid animal /human case
II	• Nibbling of uncovered skin • Minor scratches or abrasions **without bleeding**
III	• Single or multiple transdermal bites or scratches, • Licks on **broken skin** • Contamination of **mucous membrane** with saliva (i.e. licks)

Category II

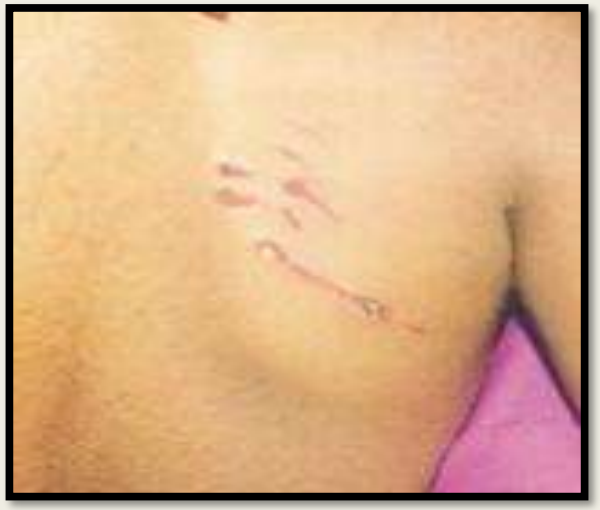
- Touching or feeding of animals
- Licks on intact skin
- Contact of intact skin with secretions/excretions of rabid animal /human case

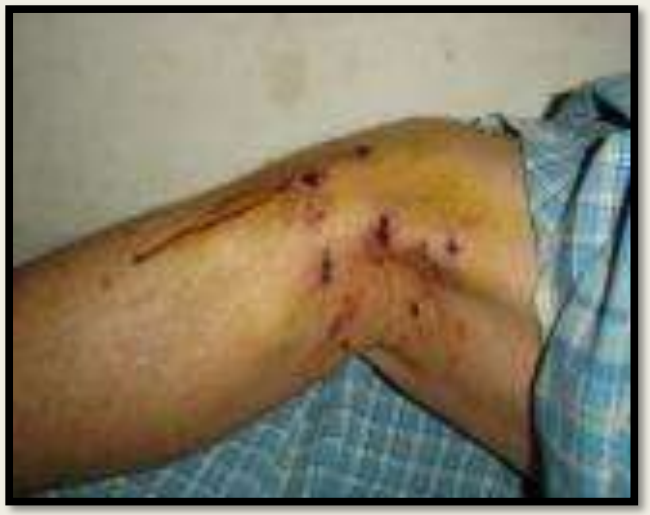




Category III

- Single or multiple transdermal bites or scratches,
- Licks on **broken skin**
- Contamination of **mucous membrane** with saliva (i.e. licks)

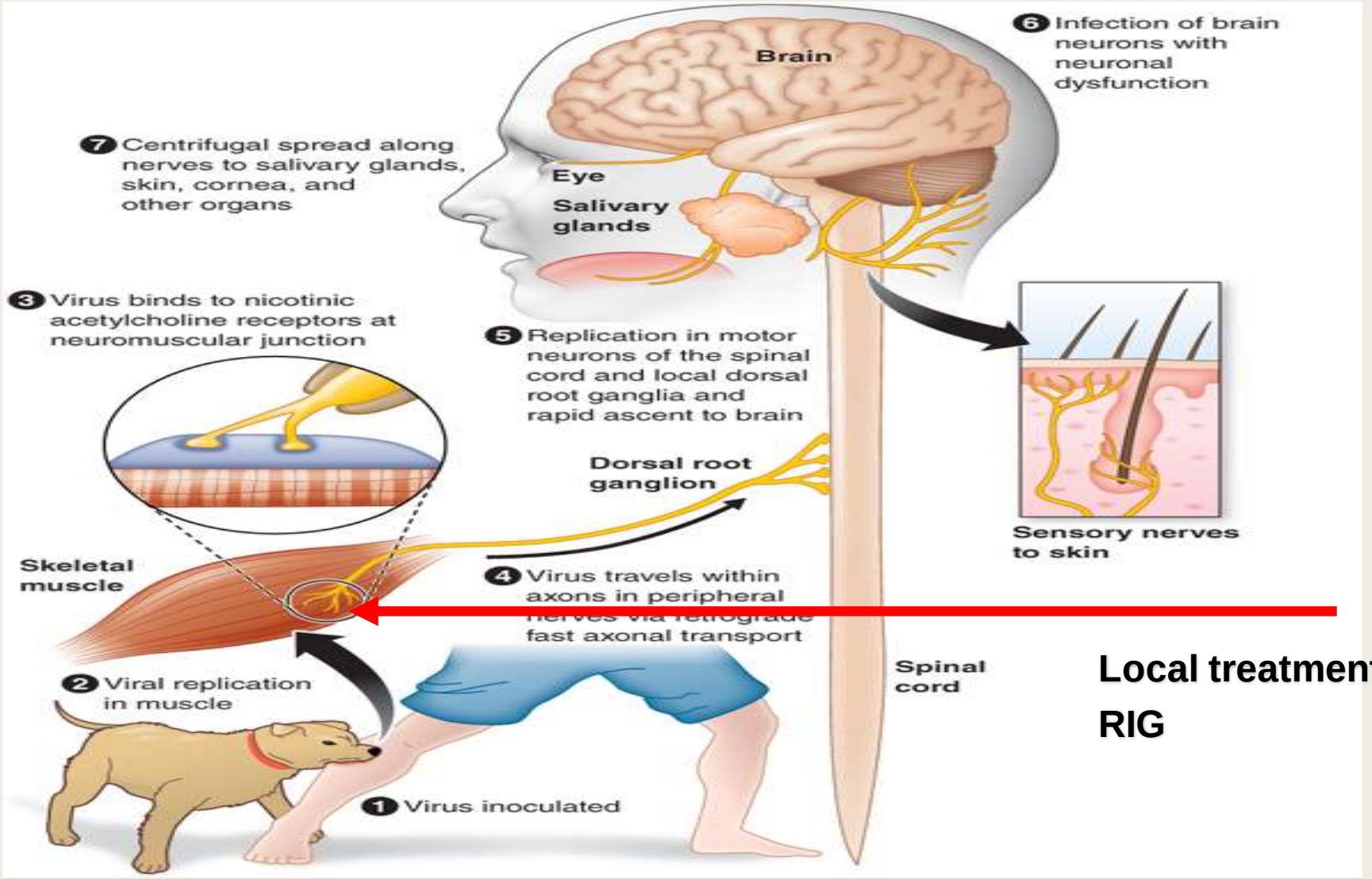




Principles of Treatment

1	Management of animal bite wound(s)
2	Passive immunization with Rabies Immunoglobulin (RIG)
3	Active immunization with Anti-Rabies Vaccines (RABIES VACCINE)

Pathogenesis of Rabies



Local treatment & RIG

Wound Management (Do's)

Do's	Act	Effect
Physical	Wash with running water	Mechanical removal of virus from the wound
Chemical	Wash the wound(s) with soap and water Apply antiseptic	Inactivation of the virus
Biological	Infiltrate immunoglobulin into the depth and around the wound(s) in Category III exposures	Neutralization of the virus

- Washing of wounds is desirable up to 15 minutes and should be carried out as soon as possible with soap and water.
- Since RABV can persist and even multiply at the site of the bite for a long time, wound management must be performed even if the patient reports late.
- Tetanus and antibiotic prophylaxis: Tetanus prophylaxis should be given as per national guidelines. To prevent sepsis in the wound(s), a suitable course of an antibiotic may be prescribed.

Wound Management (Don’t’s)

- Touch the wound(s) with bare hand
- Apply irritants like soil, chillies, oil, lime, herbs, chalk, betel leaves, etc.

Suturing of the wounds

- As far as possible suturing of wound is avoided.
- In case suturing cannot be avoided, clean the wound and the wound(s) should first be thoroughly infiltrated with ERIG or HRIG.
- The suturing should be delayed for several hours to allow diffusion of the RIG through the tissues before minimal suturingare done.
- Secondary suturing is less likely to become infected and present better cosmetic results if done under optimal conditions.
- An infected bite wound is not a contraindication for injection of RIG. Bites on the tips of the fingers or toes, ear lobes, nasal area or external genitalia can be safely injected with RIG, provided excessive pressure is avoided, as this can cause compression syndromes.

Counselling of Animal/Dog Bite Victim

- The sudden attack by an animal/dog could be traumatic because of its unpredictability which overwhelms the person's capacity to act appropriately in a balanced manner. Hence, counselling services should be offered to all animal bite victims to minimize the physical and emotional stress of the event.
- The dog bite victim should be fully explained about the importance of timely completion of post-exposure prophylaxis.

RABIES IMMUNOGLOBULIN

INDICATIONS

- All category III animal bite exposures cases
- Exposures to all wild animals should be treated as category III exposure.
- All animal bites in forest or in the wild should be treated as Category III exposure.
- In immunocompromised individuals such as HIV/AIDS patients, patients on immunosuppressive therapy (steroids/cancer chemotherapy), congenital agammaglobulinemia etc., RIG should be administered in both Category II and III exposure.

All Category III exposures and Category II exposures in immune-compromised individuals, in addition, require administration of RIG

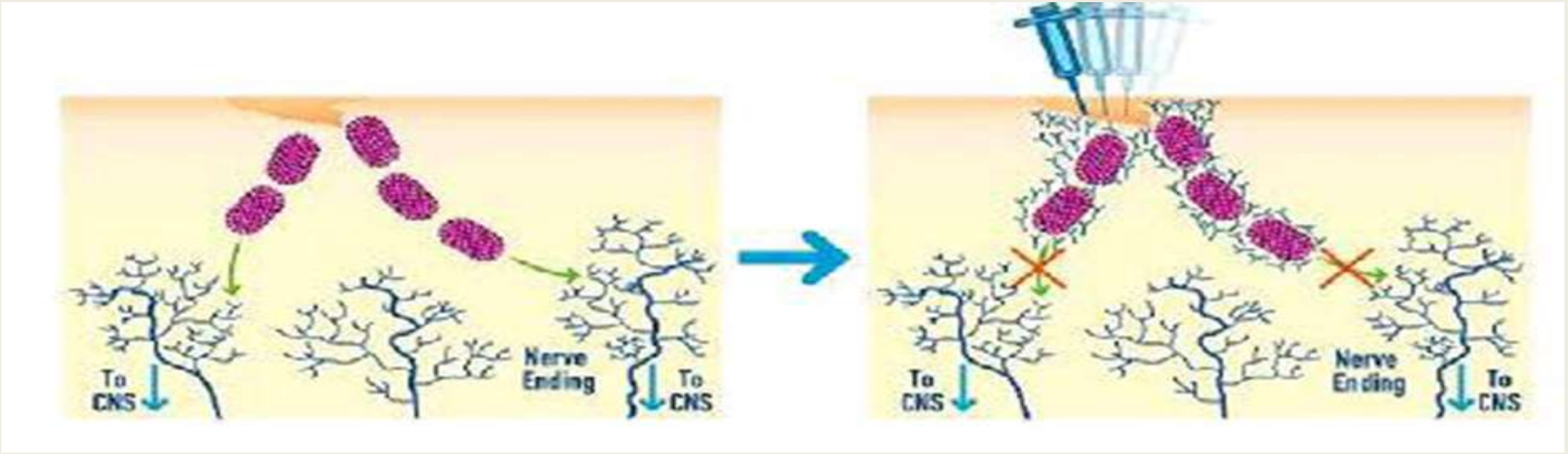
DOSAGES OF RABIES IMMUNOGLOBULIN:

Generic Name	Preparation Available	Dose
ERIG	300 IU per ml	40 IU per kg body weight
HRIG	150 IU per ml	20 IU per kg body weight

- The entire immunoglobulin dose, or as much as anatomically possible(but avoiding possible compartment syndrome), should be infiltrated carefully into or as close as possible to the wound(s) or exposure sites. Evidence suggests that injecting the remaining RIG volume intramuscularly at a distance from the wound provides little or no additional protection against rabies as compared with infiltration of the wound(s) alone.

Why RIG

- The role of RIG is to provide neutralizing antibodies at the site of exposure before patients starts producing their own antibodies as a result of vaccination. Therefore, RIG should be administered to all patients with category III exposure, except those who have previously received complete PrEP or PEP.



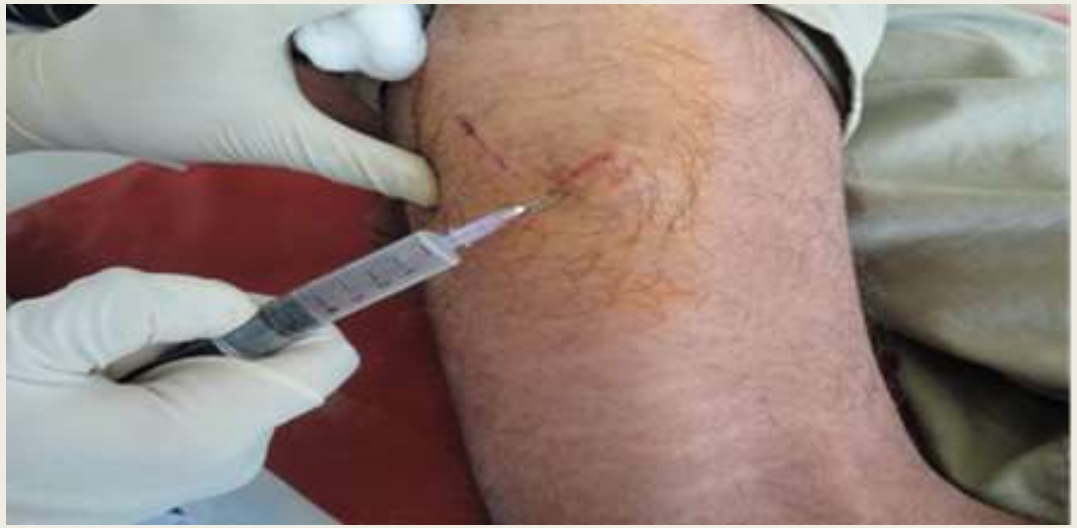
Administration of RIG:

- The RIG should be brought to room temperature (25 °C to 30 °C) before administering to the patient.
- RIG is administered only once, preferably at or as soon as possible after initiation of post-exposure vaccination. It is not indicated beyond the seventh day after the first dose of rabies vaccine, regardless of whether the doses were received on days 3 and 7, because an active antibody response to the rabies vaccine has already started, and this would represent a wastage of RIG.
- The entire immunoglobulin dose, or as much as anatomically possible(but avoiding possible compartment syndrome), should be infiltrated carefully into or as close as possible to the wound(s) or exposure sites.
- **Evidence suggests that injecting the remaining RIG volume intramuscularly at a distance from the wound provides little or no additional protection against rabies as compared with infiltration of the wound(s) alone.**

Administration of RIG:

- If, however, there is a high likelihood that there are additional small wounds (e.g. if a child does not report all wounds), injection of the remaining RIG volume intramuscularly as close as possible to the presumed exposure site, to the degree that is anatomically feasible, is indicated.
- The same applies to mucosal exposure with no wound, and rinsing with RIG can be considered. In the case of suspected exposure to RABV via aerosols, an intramuscular injection of RIG is still recommended.
- Tip of the finger(s), toe(s), ear lobe(s) or bites on the nose or around the eye can be safely injected with RIG provided the injection is not done with excessive pressure, which can cause compression syndrome. RIG should never be administered in the same syringe or at the same anatomical site where the vaccine was administered.
- As for all immunizations, animal bite victim should be kept under observation for at least 15–20 min after administration of ERIG and there is no need to admit the patient.

Infiltration of RIG in wound



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Tolerance and side effects after RIG Infiltrations:

- There may be transient tenderness at the injection site and a brief rise in body temperature that does not require any treatment. Anaphylactic reactions are extremely rare. **RIG must never be given intravenously.**
- Serum sickness is rare and occurs usually 7 to 10 days after injection of ERIG, but it has not been reported after treatment with HRIG.
- A full course of Rabies vaccine should follow thorough wound cleansing and passive immunization.

Rabies Vaccine

- The lyophilized Rabies vaccine should be reconstituted with the diluent provided with the vaccine immediately prior to use.
- Some vaccines have 0.5ml diluents and while others have 1ml diluents as per the approval of the brand, which cannot be altered.
- All animal bite victims of Category II and III exposures, irrespective of their age and body weight, require the same number of injections and dose per injection.
- It is imperative that the information booklet/sheet accompanying the vaccine is carefully read and the instructions given are adhered to.
- The total content of the vial should be used as soon as possible, and not later than 6 hours after reconstitution.

Dosage Schedule

Route of Administration	Dose of Vaccine	Day of Dose	Number of injections Per Visit	Total Number of Visits
Intra Dermal	0.1ml per dose	Day 0, 3, 7 and 28	2	4
Intra Muscular	1 entire vaccine vial	Day 0, 3, 7, 14 and 28	1	5

Intradermal rout is the preferred route of administration of Rabies Vaccines Human

RABIES PEP FOR IIMMUNE- COMPROMISED INDIVIDUALS

- Proper wound management followed by local infiltration of RIG in both Category II and III exposures.
- After this, a complete course of Rabies Vaccine by IM route in both the category II and III exposures should be undertaken.
- Preferably, if the facilities are available, anti-rabies antibody titre estimation should be done 14 days after the completion of the course of vaccination to assess the need for additional doses of vaccine.

SPECIAL SITUATIONS

- **Persons consuming raw milk of rabid animals:** One should boil the milk before consumption in their day to day practice which will kill the rabies virus. There are no documented cases of transmission of rabies after drinking milk of rabid animal. Consumption of milk produced by rabid animal dose not requires Rabies PEP.
- **Pregnancy and Lactation:** Pregnancy and Lactations are not the contraindication for starting PEP as rabies is a fatal disease. Dosage and schedule remains same.
- **HIV/AIDS with low CD4 count <200:** Thorough wound treatment + RIG (Category II & III exposures) + 5 doses of vaccine by IM only. If feasible RvnAb response should be determined 2-4 weeks after completion of 5 doses to assess whether additional dose of vaccine is required.
- **Chloroquine therapy:** Vaccination with only IM route.
- **Previous history of severe adverse reaction to ARV:** Change the type of vaccine subsequently.

RABIES DOES NOT GIVE SECOND CHANCE AS IT IS 100% FATAL ONCE DISEASE OCCUR. HENCE, IT IS BETTER TO OVER TREAT RATHER THAN UNDER TREAT ANIMAL BITE CASES.

ADVERSE EVENTS FOLLOWING ANTI RABIES VACCINATION (AEFI):

- The CCVs are widely accepted as the least reactogenic rabies vaccines available today. However, few studies have now shown that adverse effects can be either general in nature or allergic in origin.
- Mild systemic adverse events following immunization (AEFI) include headache, malaise, nausea and fever. Symptomatic treatment may be needed. Minor and transient erythema, pain and/or swelling may occur at the site of injection, particularly following intradermal administration. Serious AEFIs, mainly of allergic or neurological nature, occur rarely.

Switch over from one brand/type of vaccine to the other:

- Shifting from one brand/type of CCV to another brand/type should not be encouraged in routine practice. However, under unavoidable circumstances, available brand/type may be used to complete PEP.

DURATION OF IMMUNITY

- Clinical data confirm that people vaccinated by modern Rabies Vaccine respond to booster immunization within 7 days, even if the initial course of PrEP or PEP was administered a decade back and regardless of the route of priming or booster immunization (IM or ID), and regardless of presence or absence of detectable titres of RABV-specific antibodies at the time of the booster.
- Humoral antibodies play an important role in protection against rabies. Anti-rabies neutralizing antibody titre of **0.5 IU/ml** or more in serum is considered as adequate seroconversion post-vaccination. This level is achieved in most healthy individuals by day 14 of a PEP regimen, with or without simultaneous administration of Rabies immunoglobulin.

Scientific basis for ID vaccination

- The skin is endowed with a network of dendritic cells, with extensive connections to the lymphatic tissues.
- Once the vaccine is injected via the ID route, the dendritic cells or the antigen presenting cells capture, process the antigen and present it to the immune effector T cells.
- By direct delivery of the antigen to the immune system of the skin, a potentially greater immunogenicity is achieved by the ID route, with a smaller dose of the vaccine, when compared to IM or subcutaneous routes

Benefits of ID over IM

- Intradermal administration offers an equally safe and efficacious alternative to intramuscular vaccination.
- Intradermal vaccination reduces the volume of vaccine used by 60-80%, is less costly and has potential to mitigate vaccine shortages.
- It requires only 1–2 vials of vaccine to complete a full course of PEP.
- Cost effectiveness modelling shows that when compared with intramuscular vaccination schedules, intradermal schedules are cost effective and dose sparing in all settings, even if the number of new bite patients is as low as 5 per month.

ID vs IM Seroconversion

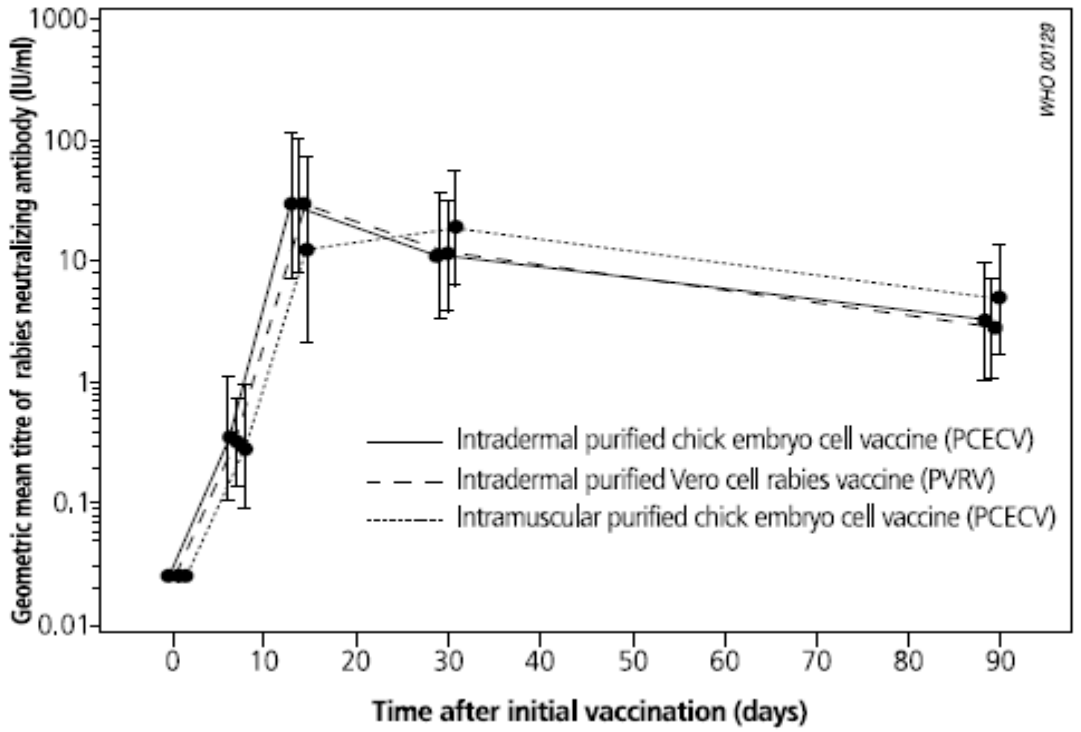
Table 2. **Rabies virus neutralization antibody titres for the per-protocol population**

Day	No. of patients/GMT	Intradermal PCECV	Intradermal PVRV	Intramuscular PCECV
7	*n*[a]	58	59	37
	GMT (IU/ml)[b]	0.34 (0.05–19.1)	0.32 (0.1–2.2)	0.29 (<0.05–19.1)
14	*n*	59	59	37
	GMT (IU/ml)	28.5 (1.1–1318.0)	28.9 (1.6–350.0)	12.3 (0.4–301.0)
30	*n*	55	57	36
	GMT (IU/ml)	10.9 (1.5–171.0)	10.9 (0.6–157.0)	18.5 (0.5–217.0)
90	*n*	53	58	36
	GMT (IU/ml)	3.0 (0.4–59.1)	2.7 (0.5–47.0)	4.7 (0.5–60.9)

[a] *n* = the number of patients per protocol.

[b] GMT = geometric mean titre of rabies virus neutralizing antibodies. Values in parentheses are the range.

Fig. 1. **Concentration of rabies neutralizing antibody (per protocol population)**



Source: Briggs DJ et al. Antibody response of patients after post exposure rabies vaccination with small intradermal doses of purified chick embryo cell vaccine or purified Vero cell rabies vaccine. Bulletin of the World Health Organization, 2000, 78:693–698.

Method of ID administration

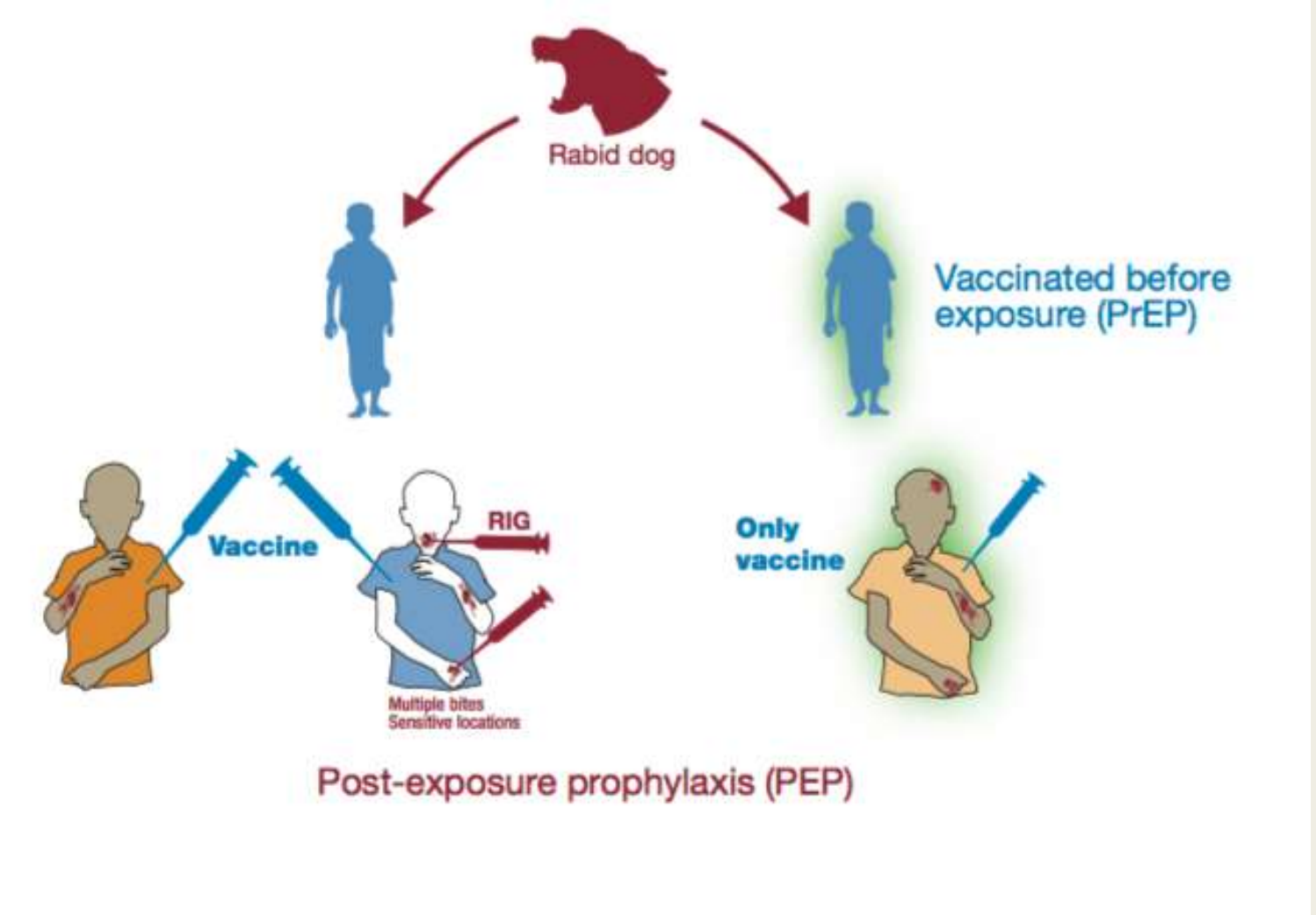
- Insulin syringes with a fixed needle of gauge 28 or more are used for ID administration of the rabies vaccine. After reconstitution of the vaccine with the diluent supplied, 0.2 mL of the same is loaded in the Insulin syringe. The needle is inserted into the skin, almost parallel to the skin, with the bevel pointed upwards. 0.1 mL of the reconstituted vaccine is injected into the dermis.
- Initially a resistance is felt. If the vaccine is injected into the dermis, it results in a blanched papule on the surface of the skin and finally a Peau d'Orange appearance. The remaining 0.1 mL is injected into the other site.
- The sites recommended for ID vaccination are the deltoids, suprascapular region and anterolateral part of the thigh. In the 2 site regimen, 0.1 mL is injected into each of the upper arms

MANAGEMENT OF RE-EXPOSURE IN PREVIOUSLY VACCINATED INDIVIDUALS

- For exposed or re-exposed patients who can document previous complete PrEP or PEP the following guidelines would be applicable:
- Proper wound management should be done.
- There is no need for administration of RIG.
- One-site Intradermal vaccine administration on days 0 and 3;

  Or

- One-site Intramuscular administration of an entire vaccine vial on days 0 and 3.
- Only adequate wound washing would be required in case of re-exposure where animal bite victim has documented proof of complete **PEP or PrEP within last three** months.


Rabid dog
Vaccinated before exposure (PrEP)
Vaccine
RIG
Multiple bites
Sensitive locations
Only vaccine
Post-exposure prophylaxis (PEP)

Points to Remember

- Stepwise approach in management of Animal Bite Cases consist of Local treatment of wound(s), Assessment of exposure followed by Administration of anti-rabies vaccination (either by IM/ID route) / administration of Rabies immunoglobulin (RIG in category III exposures or bleeding wound(s) and Advice and counselling of patient & attendants.
- Risk of rabies infection can be reduced to an extent of 50% if wound is properly taken care and Washing of wound(s) is/are desirable up to 15 minutes and should be carried out as soon as possible with soap and water.
- Touching or feeding of animals or Lick on intact skin (Cat- I) require no treatment if reliable history is available.
- Minor scratches or abrasions without bleeding or Nibbling of uncovered skin (Cat- II) requires only local treatment of Wound(s) and administration of Anti rabies vaccine.
- Single or multiple transdermal bites or scratches with oozing of blood, licks on broken skin or Contamination of mucus membrane with saliva requires both Wound Management and administration of Rabies immunoglobulin with Anti rabies vaccine

Points to Remember

- Updated Thai Red Cross (TRC) regimen(2-2-2-0-2) for intradermal administration consist of 0.1 ml of anti-rabies vaccine administered at 2 sites each on deltoid area on days 0, 3, 7 & 28. There is no vaccine dose on day 14. This is approved by DCGI.
- Essen regimen (1-1-1-1-1) for intramuscular administration consist of one dose of anti-rabies vaccine administered intramuscularly on days 0, 3,7,14 & 28. This is approved by DCGI.
- Anti-Rabies Vaccine is administered into deltoid region in adults and into anterolateral thigh region of young children and never injected into to gluteal region.
- RIG is administered only once, preferably at or as soon as possible after initiation of post-exposure vaccination. It is not indicated beyond the seventh day after the first dose of rabies vaccine.

Pre-Exposure Prophylaxis

- Laboratory staff handling the virus and infected material, clinicians and individuals attending to human rabies cases.
- Veterinarians, animal handlers and dog catchers.
- Wildlife wardens, quarantine officers etc.
- Travelers from rabies-free areas to rabies endemic areas.
- The Indian Association of Pediatrics (IAP) has recommended pre-exposure prophylaxis of children. This may be considered on a voluntary basis.
- Schedule

	Dose of Vaccine	Day of Dose	Number of injections Per Visit	Total Number of Visits
Intra Dermal	0.1ml per dose	Day 0, 7, and 21 or 28	1	2
Intra Muscular	1 entire vaccine vial	Day 0, 7, and 21 or 28	1	2

DEVIATIONS IN PEP SCHEDULE;

- The PEP should be started as soon as patients report to the health facility, irrespective of time-lapse after the animal exposure.
- Health personnel are required to strictly follow the recommended PEP schedule to prevent PEP failure. The patient should be informed clearly about the schedule verbally and in a written prescription.
- The first three doses of the PEP i.e doses on day 0, day 3 and day 7 should be completed maximum within 10 days to achieve effective immunity against the rabies virus.
- One or two days deviation do not necessitate re-starting of the vaccination schedule. However, in instances when the patient fails to visit on the scheduled date of first three doses and misses one or more dose, the administration of additional doses should be considered to complete the vaccination to obtain effective immunity.

DEVIATIONS IN PEP SCHEDULE;

- **Irregular and incomplete vaccination:** As a general thumb rule, 3 doses of ARV has to be administered by day 14 and 4/5 doses (either by IM or ID route) by day 28. There is no need to restart the vaccine, if there is delay of few days.
- **A patient received two doses of anti-rabies vaccine on day 0 and 3, and later came on day 14th. Should vaccine be continued or re start the schedule:** Continue the ARV by giving day 7 dose , 14 and 28 day vaccine should be given as close to the original dates and should be complete all five vaccines by day 28.
- **Patient come very late (few weeks or months) after animal bite:** PEP should be given as rabies has a prolonged incubation period. If patient has not taken any dose of ARV, even RIG/ should be injected to the site of bite, even though there are no bite marks seen.
- **Can Rabies vaccine be given with other UIP vaccines:** Yes it should be given at a site different from UIP vaccine, but rabies vaccine should be given in deltoid/ thigh by IM route or on both deltoid by ID route.

Newer Advancement in Post Exposure Prophylaxis

- WHO has recommended the use of Monoclonal Antibodies (mAb) as a “cocktail” containing at least two antibodies against RABV, as alternatives for RIGs in PEP. A monoclonal antibody product is recently licensed by DCGI in India. WHO recommends that a registry be maintained to monitor the clinical use and outcomes of mAb products for rabies PEP. Expert group recommends that the role of Monoclonal antibodies in case of category III bites as a replacement to Rabies Immunoglobulin needs to be studied with regard to its effectiveness and safety in multi-centric Indian settings before incorporation in National Guidelines.

Category of Exposure	Type of Exposure	Recommended Post-Exposure Prophylaxis
I	• Touching or feeding of animals • Licks on intact skin • Contact of intact skin with secretions/excretions of rabid animal/human case	• None, if reliable case history is available • Wash Exposed area with Water & Soap and apply Antiseptic
II	• Nibbling of uncovered skin • Minor scratches or abrasions without bleeding	• Proper wound management • Rabies vaccine
III	• Single or multiple transdermal bites or scratches, • Licks on broken skin • Contamination of mucous membrane with saliva (i.e. licks)	• Wound Management • Rabies Immunoglobulin • Rabies Vaccine

Management of the bodies of patients who have died of rabies

- The body of a patient suspected to have died of rabies should be labelled as ‘Infectious’ but not as “contagious” (no airborne or droplet transmission).
- The risk of transmission to others is extremely low if standard precautions are observed. Blood does not contain RABV, but the virus is present in many other tissues and fluids, such as those of the central nervous system and salivary glands.
- Tissues and body fluids should be disposed of in the same manner as practiced for other infectious diseases such as tuberculosis and hepatitis.
- Disinfect the instruments used by autoclave or boiling after use.
- Discourage embalming.
- If embalming or autopsy is performed, it should be undertaken carefully, with appropriate precautions and personal protective equipment. Tissues and body fluids should be disposed of in the same manner as for other infectious diseases.
- The body of the deceased should be allowed to be buried or cremated, depending on their religious practice. Early disposal of the human remains by burial or cremation is highly recommended.
- If the conditions permits and death has occurred in a health facility/hospital where lab facilities for taking brain sample is available then the efforts should be made to collect the sample as per the standard protocols with strict infection control measures using proper personal protective equipment (PPE), and laboratory result should be communicated to the concerned authority.

Summary of PEP

Type of Prophylaxis	Route of Administration	Dose of Vaccine	Day of Dose	Number of injections Per Visit	Total Number of Visits	Site of Injection
Post Exposure Prophylaxis	Intra Dermal	0.1ml per dose	Day 0, 3, 7 and 28	2	4	Adults: Deltoid Muscle Infants and small Children: Anterolateral Thigh
	Intra Muscular	1 entire vaccine vial	Day 0, 3, 7, 14 and 28	1	5	
Pre Exposure Prophylaxis	Intra Dermal	0.1ml per dose	Day 0, 7, and 21 or 28	1	3	
	Intra Muscular	1 entire vaccine vial	Day 0, 7, and 21 or 28	1	3	
Re-exposure	Intra Dermal	0.1ml per dose	Day 0 & 3	1	2	
	Intra Muscular	1 entire vaccine vial	Day 0 & 3	1	2	

5 tips

to prevent dog bites

Dogs can be your best friends, but sometimes when we are angry or scared we might bite. Let's learn to live together responsibly and safely to prevent being bitten.

1

Don't disturb me or frighten me, particularly when I am eating or tied up.

- Don't disturb me when I am with my toys, my puppies, in a car, behind a fence or when I am asleep or ill.

2

Keep away from me when I am angry or scared.

- When I am angry, I will show my teeth.
- When I am scared, my tail will be between my legs and I will try to run away.

3

Don't move if I approach you when I am not on a lead.

- Stand still like a tree trunk.
- If you fall over, curl up and stay as still and heavy as a rock.

4

Approach me slowly and quietly.

- Ask my owner or your parents/guardian's permission before you touch me. Let me sniff your hand before you touch me. When you stroke me, stroke my back first.

5

If a dog bites you act quickly. Wash the wound with soap and water and look for a first aid centre.

- Remember to tell your parents that you were bitten. Tell them which dog it was and where you were when it bit you.

RECORDING, REPORTING AND SURVEILLANCE UNDER NRCP

Following Recordings and reporting formats should be available at Animal Bite Management facility:-

- Animal bite exposure register
- Rabies vaccination card / rabies treatment card in duplicate (One for the bite victim and another for ARC record)
- Line List format of Suspected / Probable / confirmed case of Rabies
- Human rabies / hydrophobia cases monthly format
- Monthly reporting format of animal bites for Health Facility
- lab reporting format
- SOP for Intersectoral coordination

Clinical description and recommended case definition

- Clinical description
  - *Paresis or paralysis, delirium, convulsions.*
  - *Without medical attention, death in about 6 days, usually caused by respiratory paralysis.*
- **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 if no intensive care is instituted.
- *Laboratory criteria*
  - *One or more of the following:*
  - *Detection of rabies viral antigens by direct fluorescent antibody test (FAT) or by ELISA in clinical specimens, preferably brain tissue (collected post mortem).*
  - *Detection by FAT on skin biopsy (ante mortem).*
  - *FAT positive after inoculation of brain tissue, saliva or CSF in cell culture, or after intracerebral inoculation in mice or in suckling mice.*
  - *Detectable rabies-neutralizing antibody titre in the serum or the CSF of an unvaccinated person.*
  - *Detection of viral nucleic acids by PCR on tissue collected post mortem or intra vitam in a clinical specimen (brain tissue or skin, cornea, urine or saliva).*

Case definitions for reporting Human Rabies

- **Suspect Case** :

Definition: Death of a human with history of dog bite few weeks/months preceding death

Wherever available, the details of such cases should be shared in a line list– Name, Age, Gender, Address

- To be reported in S Form (by Health Worker)

Case definitions for reporting Human Rabies

- **Probable Case :**

To be reported in P form (by Medical Officers/Doctors)

Definition: A suspected human case plus history of exposure# to a (suspect¥ / probable€) rabid animal

#Exposure is usually defined as a bite or scratch from a rabies-susceptible animal (usually dogs). It could also be lick exposure to open wound, abrasion, mucous membranes of the patient.

¥A suspect rabid animal is a rabies-susceptible animal (usually dogs) which presents with any of the following signs at time of exposure or within 10 days following exposure: unprovoked aggression (biting people or animals or inanimate objects), hypersalivation, paralysis, lethargy, abnormal vocalization, or diurnal activity of nocturnal species. Whenever the history of mentioned signs cannot be elicited, the history of exposure to rabies-susceptible animal would be considered adequate.

€A probable rabid animal is a suspect rabid animal (as defined above) with additional history of a bite by another suspect / probable rabid animal and/or is a suspect rabid animal that is killed, died, or disappeared within 4-5 days of observing illness signs.

Wherever available, the details of such cases should be shared in a line list as per line list design of IDSP.

Case definitions for reporting Human Rabies

- **Laboratory Confirmed case :**

to be reported in L-Form (by Laboratories having confirmatory test facilities for rabies)

Definition: A suspect or a probable human case that is laboratory-confirmed[$].

$ Laboratory confirmation by one or more of the following:

Detection of rabies viral antigens by direct fluorescent antibody test (FAT) or by ELISA in clinical specimens, preferably brain tissue (collected post mortem).

Detection by FAT on skin biopsy (ante mortem).

FAT positive after inoculation of brain tissue, saliva or CSF in cell culture, or after intracerebral inoculation in mice or in suckling mice.

Detectable rabies-neutralizing antibody titre in the serum or the CSF of an unvaccinated person.

Detection of viral nucleic acids by PCR on tissue collected post mortem or intra vitam in a clinical specimen (brain tissue or skin, cornea, urine or saliva).

Following Recordings and reporting formats should be available at Animal Bite Management facility:-

Name of Recording format	Availability of formats
Animal bite exposure register	All Health Facility providing Animal Bite Management
Rabies vaccination card / rabies treatment card in duplicate (One for the bite victim and another for ARC record)	All Health Facility providing Animal Bite Management
Line List format of Suspected / Probable / confirmed case of Rabies	District Hospital, Medical College. Infectious Disease Hospital Etc.
Monthly reporting format of animal bites for Health Facility	Health Facility (PHC &above) providing Animal Bite Management
lab reporting format	Laboratory providing Human rabies diagnosis

Animal Bite Register (To be filled by ANM / Nursing staff and should be verified by concern medical officer)

Name, Age ,Gender
Residential Address, Date of Bite, Site of Bite on Body

Details on Category of Bite (I/II/III) and PEP

ABIES CONTROL PROGRAM
E EXPOSURE REGISTER

Name of the Health Facility:
Address & Contact Details
Health Facility Code:

Type of

Reportir

Year

Any Clustering of cases Observed: If ye… the details

Registration		Type of Patient (New/ OLD)	Patient Detail				Exposure History			Exposure details		Post Exposure Prophylaxis			Previous History of ARV Vaccination (Complete / partial/NA)	Biting Animal Status after 10 days (Dead/ Alive/ Not traceable)	Remarks (Dose no/ PEP status complete / incomplete)
S/N	Date		Name	Age	Sex (M/F/ Other)	Residential Address	Date of Bite	Site of Bite on Body: (Extremities/ Trunk/ Head-Neck Face/ Back)	Biting Animal Species - dog/ cat/ monkey / others (specify)	Category of Bite (I/II/III)	Address where bite incidence took place	Adequate Washing of Bite wound Done(Y/N)	Rabies Immuno globin Given (Y/N)	ARV Route ID/IM			

Category I: Touching or feeding of animals; Licks on intact skin; Contact of intact skin with secretions / excretions of rabid animal / human case, **Category II:** Nibbling of uncovered skin; Minor scratches or abrasions without bleeding, **Category III:** Single or multiple transdermal bites or scratches, licks on broken skin; Contamination of mucous membrane with saliva (i.e. licks)

*To be maintained by Health facility providing treatment to animal bite cases

Summary

Indicator	Old	New		Total
Total Number of Patients attended				
	I	**II**	**II**	
Category wise Number of Patients				

Indicator	IM	ID
Route of ARV Administration		
Total Number of Cat II patients receiving ARS		

Animal Bite exposure register(Annexure 3)

- Every Animal Bite victims attending the health facility should be provided requisite animal bite management and post exposure prophylaxis as per National Rabies Guidelines.
- All the information should be noted down in Animal bite register by ANM / Nursing staff and should be verified by concern medical officer.
- Information in the Animal bite exposure contains basic details on Name, Age ,Gender Residential Address, Date of Bite, Site of Bite on Body: (Extremities/ Trunk/ Head-Neck Face/ Back),Biting Animal Species - dog/ cat/ monkey/ others etc., place of animal bite etc
- Patient has to be categorised as per Category of Bite (I/II/III)
- Animal bite exposure format also contain monthly summary table that needs to be shared with PHC or higher level of health facility which summarises the information from animal bite register about the cases reported in that month.
- Summary of this information to be submitted by each health facility providing animal bite management facility to respective Block/ District level officials on monthly basis)

Rabies vaccination card / Rabies treatment card in duplicate (One for the bite victim and another for ARC record)

Name, Age/Sex and Residential Address

Details on category of exposure(I/II/III), biting site and date if bite/exposure

Details on wound management and Post exposure vaccination record

NATIONAL RABIES CONTROL PROGRAM

RABIES POST EXPOSURE TREATMENT CARD (To be retained at Anti Rabies Clinic)

Name and address of the health facility:

Patient Reg. No

Name
Age/ Sex

Patient Residential Address & Contact No

Category of Exposure

I. Touching or feeding of animals
Licks on intact skin
Contact of intact skin with secretions /excretions of rabid animal/human case ☐

II. Nibbling of uncovered skin
Minor scratches or abrasions without bleeding ☐

III. Single or multiple transdermal bites or scratches, licks on broken skin
Contamination of mucous membrane with saliva (i.e. licks) ☐

Biting Site: Extremities/ Trunk/ Head-Neck Face/ Back

Date of Exposure/bite (DD/MM/YYYY)
Site of Bite/ Bites
Type of animal
Dog ☐ Monkey ☐
Cat ☐ Other ☐

Biting animal status
Alive ☐
Dead ☐
Unknown ☐

Date treatment started (DD/MM/YYYY)

Past h/o vaccination
If Yes

Specify whether Partial / complete

Wound management

Washed immediately with water ( ) Yes ( ) No
Antiseptic application ( ) Yes ( ) No

Wound washed at facility ( ) Yes ( ) No
ARS Infiltration ( ) Yes ( ) No

Post exposure vaccination record Route of Administration ( ) ID ( )IM

Period	Date due	Date given	Signature
Day 0			
Day 3			
Day 7			
Day 14 (for IM only)			
Day 28			

Outcome: PEP Complete/ Incomplete

Line List format of Suspected / Probable / confirmed case of Rabies

NATIONAL RABIES CONTROL PROGRAM

Date: **Line List of Suspected/ Probable/ Confirmed Rabies Cases/ Deaths***

S.No.	Name	Age	Sex	Contact Number	Village	Sub District/ Taluk/Blck/ mandal	District	State	Biting Animal	Suspected/ probable/ Confirmed	Address of place where bite incidence took place	Category of Bite	Status of PEP (Complete/ Partial/ Nil/NA)	Name of the health facility reported Rabies case	Outcome of patient (Death in Hospital/ LAMA/ Alive)	Date

- **To be submitted to NCDC on nrcp.ncdc@gmail.com every month before 5th day**
- **To be submitted by State Nodal Officer to NCDC Delhi –NRCP on every month before 5th day**

Monthly reporting format of animal bites for Health Facility

No. of patients as per type of biting animal and Category of bite

Details of patients as per Route of vaccination, Suspected/ probable/ Confirmed Rabies Cases/ Deaths Reported in district/State

Total Vaccine (no. of vials) used in the District/State (monthly), Total ARS (no. of vials) used in the District/State (monthly)

*District Monthly Report (NRCP-M02)**

State Name:
District Name:
District Nodal Officer Name:
Address:
Month and Year of Reporting:

Total no. of health facilities providing facility for animal bite management/ Number of Facilities submitted report	
Mention no. of patients as per type of biting animal	**District Total**
Dog	
Cat	
Monkey	
Any other (specify)	
Mention no. of patients as per Category of bite	**District Total**
I. Touching or feeding of animals, Licks on intact skin Contact of intact skin with secretions /excretions of rabid animal/human case	
II. Nibbling of uncovered skin Minor scratches or abrasions without bleeding	
III. Single or multiple transdermal bites or scratches, licks on broken skin Contamination of mucous membrane with saliva (i.e. licks)	
Details of patients as per Route of vaccination	**District Total**
IM route (Essen schedule on day 0,3,7,14,28)	
ID route (update Thai Red Cross Regimen : 2-2-2-0-2)	
No. of Category III victims given ARS	
Number of Patients completed PEP	
Suspected/ probable/ Confirmed Rabies Cases/ Deaths Reported in district	**District Total**
No. of human rabies deaths confirmed by laboratory tests	
No. of clinically suspected rabies cases seen at OPD (who refused admission)	
No. of clinically suspect rabies cases admitted	
No. of clinically suspected rabies cases left against medical advice	
No. of clinically suspect rabies deaths in hospital	
Total Vaccine (no. of vials) used in the District (monthly)	**District Total**
Opening balance	
Quantity received	
Quantity utilized	
Closing balance	
Total ARS (no. of vials) used in the District (monthly)	**District Total**
Opening balance	
Quantity received	
Quantity utilized	
Closing balance	
Information on Rabies and Animal Bite cases shared with District veterinary Officer	Yes/ No
Any Clustering of Animal Bite Cases observed, If yes write the details including locality	
Any other remarks	

Date: **Signature:**

At District level reports to be shared by District Nodal officer NRCP to State Nodal officer

- District monthly report on animal bites and rabies cases and line list of rabies cases which contains following information

Total no. of health facilities providing facility for animal bite management/ Number of Facilities submitted report,
No. of patients as per Category of bite, Details of patients as per Route of vaccination, Suspected/ probable/ Confirmed Rabies Cases/ Deaths Reported in district,
Total Vaccine (no. of vials) used in the District (monthly), Total ARS (no. of vials) used in the District (monthly),
Information on Rabies and Animal Bite cases shared with District veterinary Officer, Any Clustering of Animal Bite Cases observed? If yes write the details including locality, Any other remarks.

At State level to be shared by State Nodal officer NRCP

- NRCP Reporting state level monthly format to be shared by State Nodal Officer to NRCP Division at nrcp.ncdc@gmail.com.
- Information on animal bite cases, availability of ARV/ARS, Clustering of animal bite or rabies cases should be inform regularly to NRCP division.
- IDSP/IHIP Reporting – weekly forms (S/P/L) on animal bite and rabies should be shared as per IDSP norms to central surveillance unit IDSP .

Human Rabies Surveillance

Syndromic:

Cases are reported on the basis of signs & symptoms by health workers;

Presumptive:

Cases are diagnosed and reported based on typical history and clinical examination by Medical Officers

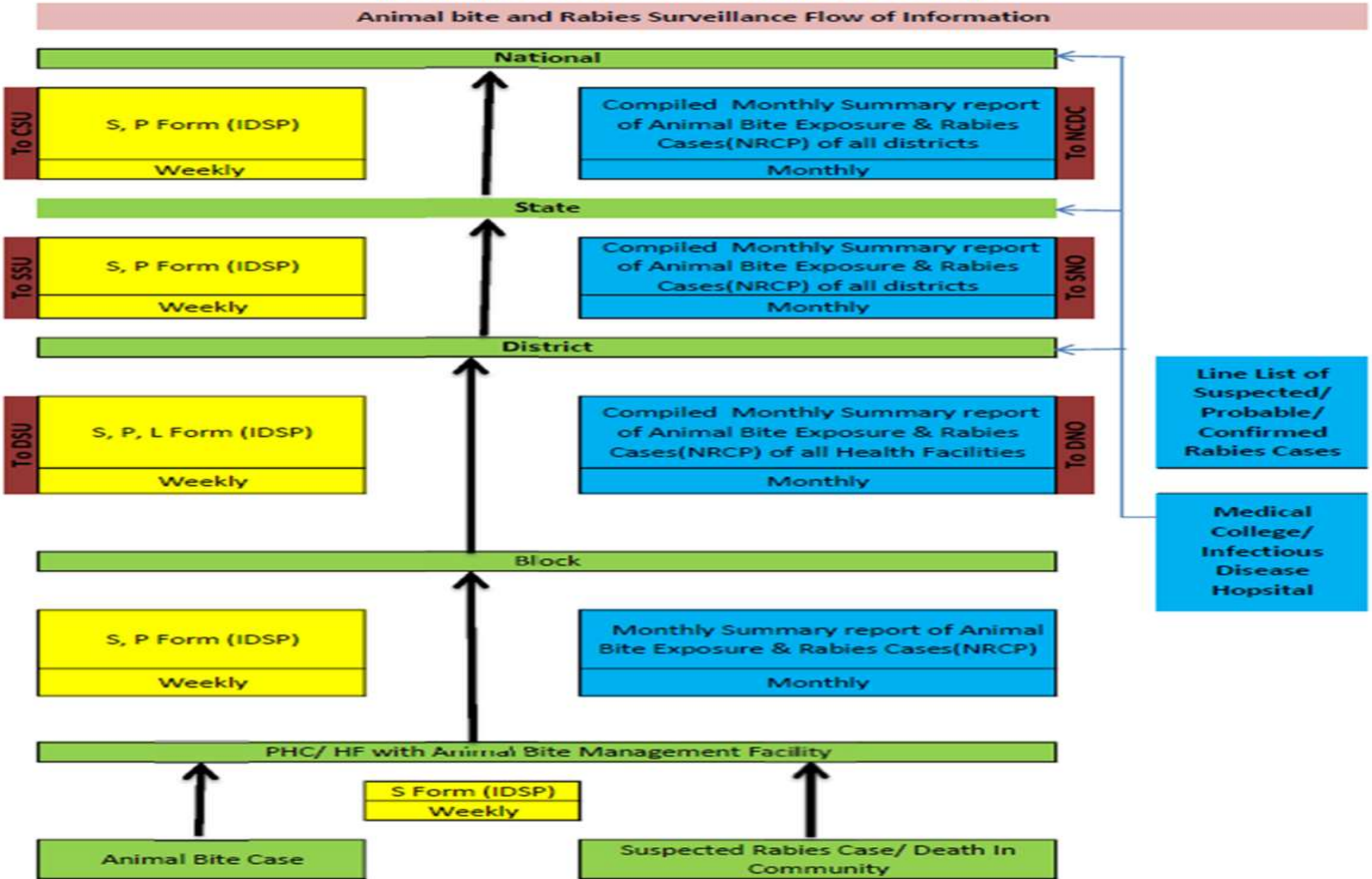
Laboratory Confirmed:

Clinical cases are confirmed by an appropriate laboratory test. Under IDSP there are three forms to be filled up i.e. S forms, P forms, and L forms.(Annexure-5)

Surveillance system for Animal bite and Rabies case reporting-

- **IDSP/IHIP reporting** – Under IDSP /IHIP , animal bite cases are reporting through S, P,& L forms while rabies cases can be reported under IHIP portal
- **NRCP reporting**- Reporting under NRCP is **only facility based reporting** and information collected till PHC level through IDSP/IHIP need to be compiled and filled in monthly formats of NRCP. It contains information Animal bites , rabies cases, ARV /ARS status , route of administration etc

NATIONAL RABIES CONTROL PROGRAM



Point to remember

- Recording & reporting of each and every case of Animal bite and Rabies cases occurring in community is very essential step for maintaining the surveillance of Animal bite and Rabies cases.
- Recordings and reporting formats should be available at health facilities providing Animal Bite Management facility. (PHC/Anti Rabies Clinic /CHC/ Sub divisional hospital/ District Hospital / Medical college etc.
- At village and Sub centre Level, AHSA and ANM need to report animal bite cases through S form of IDSP/Event alert form under IHIP.
- At PHC level/ Block level animal bite and rabies cases are reported through monthly reporting form of NRCP as well as P form of IDSP.
- At District level animal bite and rabies cases are reported through monthly reporting form of NRCP as well as P form of IDSP.
- At State level animal bite and rabies cases are reported through monthly reporting form of NRCP as well as P form of IDSP.
- Medical colleges and infectious disease hospital/tertiary care hospital having in patient facility for rabies case management should shared the line list the rabies cases to respective district nodal officer and NRCP division at nrcp.ncdc@gmail.com.
- At every level (sub centre, PHC, District, State) coordination should be made with veterinary counterpart for rabies vaccination of dogs and dogs population management.

STATE LEVEL ACTIVITIES THROUGH NATIONAL HEALTH MISSION

Activities Proposed for National Rabies Control Programme Under NHM PIP

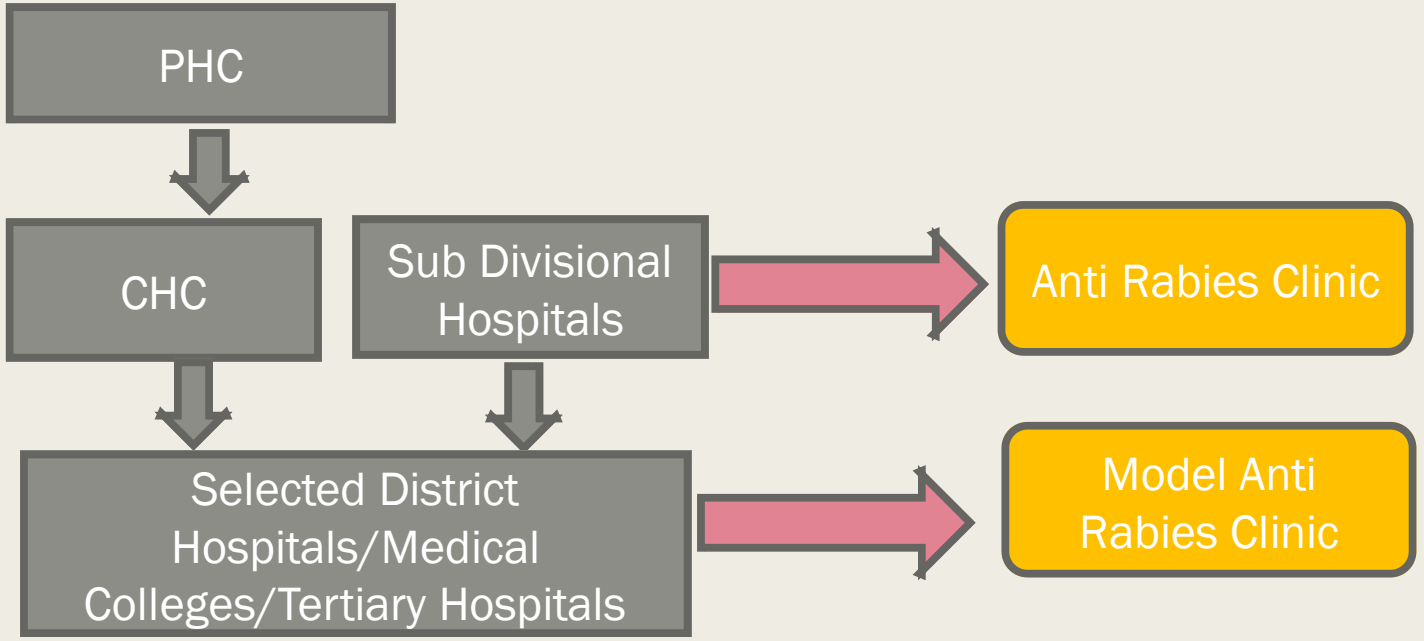
New FMR	Particulars
6	**Number of Anti rabies Clinics Proposed**
6.1.2.6.2	Procurement of equipment & computer for district level Model Anti Rabies Clinics in existing health facilities
6.2	**Procurement of Drugs and supplies**
6.2.24	Procurement of Drugs and supplies under new initiatives
6.2.24.1	Provision of Anti-Rabies Vaccine/Anti-Rabies Serum for animal bite victims
9	**Training**
9.5.29.7	Trainings of Medical Officers and Health Workers under NRCP
11	**IEC/BCC**
11.24.4.1	IEC/BCC under NRCP: Rabies Awareness and DO'S and Don'ts in the event of Animal Bites
12	**Printing**
12.17.2	Printing of formats for Monitoring and Surveillance
16	**Programme Management Activities**
16.1.2.2.16	Monitoring and Surveillance (review meetings , Travel) under NRCP

MODEL ANTI RABIES CLINIC

➢Anti-Rabies Clinics / Centers are the health facilities manned by trained doctor/s and nurse/s where individuals with rabies exposure are evaluated and managed.

➢The existing resources of district hospitals will be strengthened as Model Animal Anti Rabies Clinics as per proposed IPHS standards.

➢Over a period of five years (60-100 Model Anti rabies Clinic each year), 300 district hospitals will be having designated Model Anti Rabies Clinic. These centers will be providing Animal Bite Management facilities, Counseling of Animal Bite victims, and referral, services for suspected Rabies patients, Surveillance activities and Intersectoral Coordination with other stakeholders.



Anti Rabies Clinic	Model Anti Rabies Clinic
The existing PHC/CHCs/Sub divisional hospitals will act as ARC	Identified District Hospitals/Medical Colleges/Tertiary Hospitals will act a Model ARC
All trained in Animal Bite management and Rabies Pre and Post-exposure prophylaxis.	Management of Animal Bite Wounds- isolated wound washing facility
Availability of Rabies post-exposure prophylaxis-vaccine and sera	Availability of Rabies post-exposure prophylaxis-vaccine and sera
Animal Bite register	Functional referral services for hydrophobia/suspected rabies cases
	Standardized recording and reporting systems
	Manpower for ARC: The minimum required staff at each ARC is I/C Physician (Nominated by DHS) One Nurse (GNM)
	All trained in Animal Bite management and Rabies Pre and Post-exposure prophylaxis.
	Risk assessment and Counseling of Animal Bite victims

Training under NRCP

- Training of health care professionals at all levels on appropriate animal Bite Management, ID route of Rabies post Exposure Prophylaxis, RIG infiltration and other technical aspects
- Training of field Staffs
- Training of private-sector health care professionals
- Veterinary Medical Officers
- Training of Medical colleges/ Veterinary Colleges
- Medical Interns

IEC/BCC Under NRCP

- Creating awareness regarding do's and don'ts in the event of an animal/dog bite
- Importance of seeking timely and appropriate treatment for animal bites
- Counseling of Animal Bite victims
- Dissemination of IEC developed on Rabies
- Creation of educational films for professionals and the general community
- Organization of public lectures/ scientific symposiums and communication workshops for sensitization of healthcare professionals, policy makers

Thank you