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Algorithm of the Management of Animal Bites

CATEGORY I
Touching and feeding of animal; licking by animal of intact skin (with reliable history and thorough physical examination); exposure to patient with signs and symptoms of rabies sharing of eating or drinking utensils. Casual contact (talking to, visiting and feeding suspected rabies cases) and routine delivery of health care to patient with signs and symptoms of rabies.

Unknown, escaped, sick, proven rabid or healthy animal*

NO TREATMENT
Except consider pre-exposure prophylaxis in a patient who is likely to have repeated exposure

CATEGORY II
Nibbling of uncovered skin with or without bruising/hematoma; minor scratches/abrasions without bleeding; minor scratches/abrasions which are induced to bleed; all Category II exposures on the head and neck area are considered Category III and should be managed as such

Healthy Animal
Unknown, escaped, sick, proven rabid animal

Vaccine
Observe animal for 14 days
Full course vaccine
RIG + vaccine
Observe animal for 14 days
RIG + full course vaccine

Animal dies
Animal stays healthy
May opt to discontinue vaccine or continue as pre-exposure prophylaxis

Animal gets sick
Sacrifice animal
Send head for lab examination

Positive or no exam done
Negative
Continue vaccination

CATEGORY III
Single or multiple transdermal bites; licking by animal of mucous membranes; head and neck exposures; handling of infected carcass, ingestion of infected raw meat; licks on broken skin

Healthy Animal
Unknown, escaped, sick, proven rabid animal

RIG + vaccine
Observe animal for 14 days
RIG + full course vaccine

Animal dies
Animal stays healthy
May opt to discontinue vaccine or continue as pre-exposure prophylaxis

Animal gets sick

ANNEX A

I. BACKGROUND/RATIONALE

Rabies, present in all continents and endemic in most African and Asian countries, is a fatal zoonotic viral disease, transmitted to humans through contact with infected animals, both domestic and wild. Rabies is estimated to cause at least 55,000 deaths per year worldwide, about 56% of which occur in Asia and 43.6% in Africa, particularly in rural areas on both continents. In the Philippines, although rabies is not among the leading causes of morbidity and mortality, rabies is considered a significant public health problem for two reasons: 1) It is one of the most acutely fatal infections and 2) It is responsible for the death of 200-300 Filipinos annually.

The Department of Health continues to be committed to the fight against rabies and has set the goal of rabies elimination in 2020. An essential part of the strategy is the provision of post-exposure prophylaxis to bite victims and pre-exposure prophylaxis to high risk individuals as mandated by the Anti-Rabies Act of 2007. Pursuant thereto, guidelines for the appropriate as well as cost-effective management of animal bite patients have been issued.

Historically the management if animal bite cases had to be updated every five (5) years and the guidelines revised accordingly to incorporate new and better treatment modalities based on research results. The first revision was made in 1997, the second in 2002 and the 3rd in 2007.

Since the release of the latest guidelines in 2007, new recommendations related to rabies management have been released by the World Health Organization and the US Centers for Disease Control. The Anti-Rabies Act of 2007 and its Implementing Rules and Regulations provided for the provision of pre-exposure prophylaxis among school children from high risk areas. These current guidelines are therefore amended to incorporate these crucial recommendations.

II. OBJECTIVE

To provide updated guidelines and procedures to ensure effective and efficient management of rabies exposures toward eventual reduction, if not elimination, of human rabies.
Rabies

Table 1a. Management of patients with Category II and III exposure where the biting animal cannot be observed or dies within the 14 days observation period

<table>
<thead>
<tr>
<th>FAT Result</th>
<th>Signs &amp; Symptoms of Rabies in Biting Animal</th>
<th>Give 3 Doses (Day 0, 3, 7)</th>
<th>Give 4th Dose (Day 28/30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>+</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>+</td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>-</td>
<td>+</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Not done</td>
<td>+</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Not done</td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

VI. SPECIFIC GUIDELINES AND PROCEDURE

A. Management of Potential Rabies Exposure

1. Initiation of post-exposure prophylaxis (PEP) should not be delayed for any reason regardless of interval between exposure and consultation as it increases the risk of rabies and it is associated with treatment failure.
2. There are no absolute contraindications to rabies PEP. Patients allergic to a specific vaccine/RIG or its components should be given the alternative vaccine/RIG.
3. Rabies exposure is stratified in three categories with corresponding management guidelines. (See Table 1)
B. Immunization

1. Active Immunization

1.1 Administration

Vaccine is administered to induce antibody and T-cell production in order to neutralize the rabies virus in the body. It induces an active immune response in 7-10 days after vaccination, which may persist for one year or more provided primary immunization is completed.

1.2 Types of Rabies Vaccines and Dosage

The National Rabies Prevention and Control Program (NRPCP) provides the following anti-rabies tissue culture vaccines (TCV):

- a) Purified Vero cell Rabies Vaccine (PVRV) - 0.5 mL/vial
- b) Purified Chick Embryo Cell Vaccine (PCECV) - 1.0 mL/vial

Table 2. List of TCV Provided by the NRPCP to Animal Bite Treatment Centers with Corresponding Preparation and Dose

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Preparation</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purified Vero Cell Rabies Vaccine (PVRV)</td>
<td>0.5 mL/vial</td>
<td>ID - 0.1 mL; IM - 0.5 mL</td>
</tr>
<tr>
<td>Purified Chick Embryo Cell Vaccine (PCECV)</td>
<td>1 mL/vial</td>
<td>ID - 0.1 mL; IM - 1.0 mL</td>
</tr>
</tbody>
</table>

2. Passive Immunization

Rabies Immune Globulins or RIG (also called passive immunization products) are given in combination with rabies vaccine to provide the immediate availability of neutralizing antibodies at the site of the exposure before it is physiologically possible for the patient to begin producing his or her own antibodies after vaccination. This is especially important for patients with Category III exposures. RIGs have a half-life of approximately 21 days.

2.1 Human Rabies Immune Globulins (HRIG)

Derived from plasma of human donors and administered at 20 IU per kilogram body weight. Available preparation is 2 mL/vial; 150 IU/ml.

2.2 Highly purified antibody antigen binding fragments [F(ab’)2] derived from Equine Rabies Immune Globulin (ERIG) produced from purified horse serum administered at 40 IU per kilogram body weight. Available preparation is 5 mL/vial; 200 IU/mL.

2.3 Equine Rabies Immune Globulin (ERIG)

Derived from purified horse serum administered at 40 IU per kilogram body weight. Available preparation is 5 mL/vial; 200 IU/mL.

Table 3. List of Rabies Immune Globulins provided by the NRPCP to Animal Bite Treatment Centers

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Preparation</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Rabies Immune Globulin (HRIG)</td>
<td>150 IU/mL</td>
<td>20 IU/kg</td>
</tr>
<tr>
<td>Purified Equine Rabies Immune Globulin (pERIG)</td>
<td>200 IU/mL</td>
<td>40 IU/kg</td>
</tr>
</tbody>
</table>

Recommendations on the intradermal administration of anti-rabies vaccines:

The NRPCP introduced the intradermal (ID) use of rabies tissue culture vaccines in the country in 1997. The Philippines was among the first countries to adopt this regimen as recommended by the World Health Organization, in order to totally discontinue the use of nerve tissue vaccine (NTV) which was associated with vaccine induced encephalopathy. To mitigate the expected increase in the cost of PEP with the shift from NTV to TCV, the ID use of these vaccines was introduced. According to WHO, the ID use of tissue culture vaccines can decrease the cost of PEP by as much as 60-80%.

However, only a limited number of commercially available rabies vaccines have been proven, to date, as safe and efficacious for PEP when administered by the ID route. Recently, local manufacturers in rabies-endemic countries have started to produce rabies vaccines. The ID use of these vaccines should be based on adherence to WHO requirements for that route and approval by national health authorities as follows, “New vaccine manufacturers should provide clinical evidence that their products are immunogenic and safe when used intradermally. Clinical evidence should include clinical trials involving a vaccine of known immunogenicity and efficacy when used by this route as control, serological testing with rapid fluorescent focus inhibition test, and publication in internationally peer-reviewed journals.”

To ensure compliance to these recommendations and guarantee that animal bite patients seeking treatment in government Animal Bite Treatment Centers receive only TCV that have been proven to be safe and effective, the program, shall utilize for its intradermal regimen, only tissue culture vaccines that satisfy the following criteria:

1. The vaccine is registered with and approved by the Food and Drug Administration, formerly known as Bureau of Food and Drugs (BFAD); AND
2. The vaccine has been proven to be safe and efficacious for PEP when administered by the ID route using the schedule recommended by the World Health Organization. Having limited knowledge on and experience with the ID use of all available anti-rabies vaccines in the country, the program shall utilize the WHO list of approved TCV for ID use OR in the case of vaccines not included in the WHO list for ID use, the vaccine must comply with WHO requirements for new rabies vaccines and must have gone through local clinical trials on safety and immunogenicity which are published in peer-reviewed journals; AND
3. The potency of vaccines for ID use should be at least 0.5 IU/ID dose as evidenced by their lot release certificate. The potency of the vaccine batch should be provided by the manufacturer; AND
4. The product insert must contain the vaccine's approved ID dose and consistent with its Certificate of Registry (CPR) for Disease Control.
b. Computation and Dosage of Rabies Immune Globulin

HRIG at 20 IU/kg body weight (150 IU/mL)

- 50 kg patient x 20 IU/kg = 1000 IU
- 1000 IU ÷ 150 IU/mL = 6.7 mL

ERIG/F(ab')2 at 40 IU/kg body weight (200 IU/mL)

- 50 kg patient x 40 IU/kg = 2000 IU
- 2000 IU ÷ 200 IU/mL = 10 mL

c. Rabies Immune Globulin Criteria

All imported RIG introduced for the first time in the Philippines should undergo testing and evaluation by the WHO or WHO-recognized National Regulatory Authority (NRA), or National Control Laboratory (NCL). The tests should include Rapid Fluorescent Focus Inhibition Test (RFFIT), Mouse Neutralization Test (MNT), pre-clinical safety, pyrogenicity, and product purity.

An animal survivorship study may be required. The results of the clinical trials conducted on the product should have been published in a peer-review journal.

The local NRA/NCL should validate the RFFIT, MNT and purity of the product and require local clinical trials on safety. The above requirements are necessary for BFAD registration.

Locally produced RIG should undergo the same evaluation and testing as mentioned above by the local NRA/NCL and the product should be registered with and approved by BFAD before use.

d. Administration:

1) The total computed dose of RIG should be infiltrated around and into the wound as much as anatomically feasible, even if the lesion has healed. In case some amount of the total computed dose of RIG is left after all wounds have been infiltrated, it should be administered deep IM at a site distant from the site of vaccine injection (preferably anterolateral thigh) using another needle. The total computed dose should be administered as a single dose.

2) A gauge 23 or 24 needle, 1 inch length should be used for infiltration. Multiple needle injections into the same wound should be avoided.

3) A skin test must be performed prior to ERIG administration using a gauge 26 needle. For skin testing, 0.02 mL of 1:10 dilution of solution is infiltrated to raise a bleb 3 mm and read after 15 minutes. A positive skin test is an induration >6 mm surrounded by a flare/erythema. If initial skin test is positive, repeat skin test on same arm; use distilled water as control on the other arm.

4) If a finger or toe needs to be infiltrated, care must be taken not to impair blood circulation. Injection of an excessive amount may lead to cyanosis, swelling and pain.

5) RIG should not exceed the computed dose as it may reduce the efficacy of the vaccine. If the computed dose is insufficient to infiltrate all bite wounds, it may be diluted with sterile saline 2 or 3 fold for thorough infiltration of all wounds.

6) RIG should be administered at the same time as the first dose of vaccine (day 0). In case RIG is unavailable on day 0, it may still be given anytime before the day 7 dose of the vaccine. However if the day 3 and/or day 7 doses of the vaccine have not been given, RIG may still be given anytime.

7) In the event that RIG and vaccine cannot be given on the same day, the vaccine should be given before RIG because the latter inhibits the level of neutralizing antibodies induced by immunization.

8) RIG is given only once during the same course of PEP.

9) Patients with Positive skin test to purified ERIG should be given HRIG.

10) HRIG is preferred for the following:

   a. History of hypersensitivity to equine sera
   b. Multiple severe exposures (especially where the dog is sick or suspected of being rabid) on head and neck area
   c. Symptomatic HIV infected patients

11) Patient must be observed for at least one hour after injection of ERIG for immediate allergic reactions.

C. Management of Adverse Reactions

Hypersensitivity to ERIG/F(ab')2 may not be predicted by a negative skin test. Always be ready with adrenaline and antihistamines for treatment of hypersensitivity.

1. Anaphylaxis

   a. Give 0.1% adrenaline or epinephrine (1:1000 or 1 mg/mL) underneath the skin or into the muscle. Adults - 0.5 mL. Children - 0.01 mL/kg, maximum of 0.5 mL
   b. Repeat epinephrine dose every 10-20 minutes for 3 doses
   c. Give steroids after epinephrine

2. Hypersensitivity Reactions

   a. Give antihistamines, either as single drug or in combination
   b. If status quo for 48 hrs despite combination of antihistamines, may give short course (5-7 days) of combined oral antihistamines plus steroids
   c. If patient worsens and condition requires hospitalization or becomes life threatening, may give IV steroids in addition to antihistamines

3. Indications for the use of HRIG:

   a. Positive skin test to ERIG/F(ab')2
   b. History of hypersensitivity to equine sera
   c. Multiple severe exposures (especially where dog is sick or suspected of being rabid) on head and neck area
   d. Symptomatic HIV infected patients
   e. The patient must be asked to wait for at least one hour after injection of ERIG/F(ab')2 in order to observe for allergic reactions which usually consist of itchiness, rashes or aching joints.

D. Treatment

1. Post- Exposure Treatment

   1.1 Local Wound Treatment

   a. Wounds should be immediately and vigorously washed and flushed with soap or detergent, and water preferably for 10 minutes. If soap is not available, the wound should be thoroughly and extensively washed with water.
   b. Apply alcohol, povidone iodine or any antiseptic.
   c. Suturing of wounds should be avoided at all times
since it may inoculate virus deeper into the wounds. Wounds may be coapted using sterile adhesive strips. If suturing is unavoidable, it should be delayed for at least 2 hrs after administration of RIG to allow diffusion of the antibody to occur through the tissues.

d. Do not apply any ointment, cream or wound dressing to the bite site because it will favor the growth of bacteria and will occlude drainage of the wound, if any.

e. Anti-tetanus immunization may be given, if indicated. History of tetanus immunization (TT/DPT/Td) should be reviewed. Animal bites are considered tetanus prone wounds. Completion of the primary series of tetanus immunization is recommended. (See Table 4)

**Table 4. Guide to Tetanus Prophylaxis in Routine Wound Management**

<table>
<thead>
<tr>
<th>Indication for TT Immunization</th>
<th>Vaccination History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown or &lt;3 doses</td>
<td>Td* TIG/ATS Td* TIG/ATS</td>
</tr>
<tr>
<td>3 or more doses</td>
<td>No** No</td>
</tr>
</tbody>
</table>

All Animal bites Yes Yes No** No

* Tdap may be substituted for Td if the person has not received Tdap and is 10 yrs or older; DPT may be given for patients <7 yrs old; TT may be given if Td not available

** Yes, if more than 5 yrs since last dose

1.2. Recommended Antimicrobial

a. The most common organism isolated from dog and cat bites is *Pasteurella multocida*. Other organisms include *S. aureus, Bacteroides sp, Fusobacterium and Capnocytophaga*. Antimicrobials are recommended for the following conditions:
   - All frankly infected wounds
   - All category III cat bites
   - All other category III bites that are either deep, penetrating, multiple or extensive or located on the hand/face/genital area.

b. Recommended antimicrobials for frankly infected wounds include:

   **Amoxicillin/clavulanic**
   - Adults - 500 mg p.o. TID
   - Children - 30-45 mg/kg/day in 3 divided doses

   **Cefuroxime axetil**
   - Adults - 500 mg p.o. BID
   - Children - 10-15 mg/kg/day in 2 divided doses

   **For penicillin allergic patients**
   - Adults - Doxycycline
   - Children - Erythromycin
   - For those instances where there are no obvious signs of infection, amoxicillin as prophylaxis may suffice
   - Adults - 500 mg p.o. TID
   - Children - 30-45 mg/kg/day in 3 divided doses

The public should be educated in simple local wound treatment and warned not to use procedures that may further contaminate the wounds (e.g. *tandok, bato*, rubbing garlic on the wounds and other non-traditional practices).

1.3 Vaccination

a. **General Principles**

1. **Storage**
   - Vaccines should be stored at +2 to +8°C in a refrigerator, not freezer
   - Once reconstituted, vaccines should be kept in the refrigerator and used within 8 hours

2. **Administration**
   - Injections should be given on the deltoid area of each arm in adults or at the anterolateral aspect of the thigh in infants.
   - Vaccine should never be injected in the gluteal area as absorption is unpredictable

b. **Treatment Regimen Schedule**

1. **Updated 2-Site Intradermal Schedule (2-2-2-0-2)**

   This regimen is a modification of the original Thai Red Cross 2-site ID regimen where the day 90 dose has been transferred to day 28/30.

   **Table 5. Updated 2-Site Intradermal Schedule**

<table>
<thead>
<tr>
<th>Day of immunization</th>
<th>PVRV/ PCEV</th>
<th>Site of injection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 0</td>
<td>0.1 mL</td>
<td>Left and right deltoids or anterolateral thighs in infants</td>
</tr>
<tr>
<td>Day 3</td>
<td>0.1 mL</td>
<td>Left and right deltoids or anterolateral thighs in infants</td>
</tr>
<tr>
<td>Day 7</td>
<td>0.1 mL</td>
<td>Left and right deltoids or anterolateral thighs in infants</td>
</tr>
<tr>
<td>Day 28/30</td>
<td>0.1 mL</td>
<td>Left and right deltoid or anterolateral thighs in infants</td>
</tr>
</tbody>
</table>

   III. One intradermal dose should have at least 0.5 IU vaccine potency.

   IV. The ID injection should produce a minimum of 3 mm wheal. In the event that a dose of vaccine is inadvertently given subcutaneously or IM, the dose should be repeated

   V. A one (1) mL syringe with gauge 26 needle, preferably auto-disable syringe, should be used for ID injection

VI. The vaccination schedule should be strictly followed to prevent treatment failure. In certain instances
when patient fails to come on the scheduled date for his succeeding dose, the following rules should apply:

**Delay in day 3 dose**
- If delay is 1-2 days from day 3 schedule - give day 3 dose upon visit and follow the original schedule of day 7 and 28/30.
- If delay is 3-4 days from day 3 schedule - give day 3 dose upon visit, adjust succeeding doses (day 7 and 28/30) according to the prescribed interval.
- If delay is >4 days from day 3 schedule - restart a new course.

**Delay in day 7 dose**
- If delay is <7 days from the day 7 schedule - give day 7 dose upon visit, give day 28/30 dose as originally scheduled.
- If delay is >7 - 14 days from day 7 schedule - repeat day 3 dose and revise according to the prescribed interval.
- If delay is >14 days from day 7 schedule - restart a new course.

**Delay in day 28/30 dose** - give day 28/30 dose upon visit; this may be considered as a booster.
- If RIG has already been administered, it should not be given again.

2. Standard Intramuscular Schedule
I. Using the standard IM regimen, one dose is equivalent to 1 vial of 0.5 mL of PVRV or 1.0 mL of PCECV. One (1) dose is given intramuscularly (IM) on days 0, 3, 7, 14 and 28.

<table>
<thead>
<tr>
<th>Day of immunization</th>
<th>PVRV (mL)</th>
<th>PCECV (mL)</th>
<th>Site of injection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 0</td>
<td>0.5</td>
<td>1.0</td>
<td>One deltoid or anterolateral thigh in infants</td>
</tr>
<tr>
<td>Day 3</td>
<td>0.5</td>
<td>1.0</td>
<td>One deltoid or anterolateral thigh in infants</td>
</tr>
<tr>
<td>Day 7</td>
<td>0.5</td>
<td>1.0</td>
<td>One deltoid or anterolateral thigh in infants</td>
</tr>
<tr>
<td>Day 14</td>
<td>0.5</td>
<td>1.0</td>
<td>One deltoid or anterolateral thigh in infants</td>
</tr>
<tr>
<td>Day 21</td>
<td>0.5</td>
<td>1.0</td>
<td>One deltoid or anterolateral thigh in infants</td>
</tr>
</tbody>
</table>

II. Treatment schedule should be strictly followed to prevent treatment failure. In certain instances when

patient fails to come on the scheduled date for his succeeding dose, the following rules should be followed:

**Delay in day 3 dose**
- If delay is 1-2 days from day 3 schedule - give day 3 dose upon visit and follow the original schedule of day 7, 14 and 28/30.
- If delay is 3-4 days from day 3 schedule - give day 3 dose upon visit, adjust succeeding doses (day 7, 14 and 28/30) according to the prescribed interval.
- If delay is >4 days from day 3 schedule - restart a new course.

**Delay in day 7 dose**
- If delay is ≤7 days from day 7 schedule - give day 7 dose upon visit, give day 14/28 dose as originally scheduled.
- If delay is >7 - 14 days from day 7 schedule - repeat day 3 dose and revise according to the prescribed interval.
- If delay is >14 days from day 7 schedule - restart a new course.

**Delay in day 28/30 dose** - give day 28/30 dose upon visit; this may be considered as a booster.
- If RIG has already been administered, it should not be given again.

3. Other Treatment Regimen Schedules
These are alternative regimens which are approved by WHO but they cannot replace the important role of RIG in Category III exposures.

3.1 Zagreb Regimen Schedule (2-1-1 Intramuscular Schedule)

<table>
<thead>
<tr>
<th>Day of immunization</th>
<th>PVRV (mL)</th>
<th>PCECV (mL)</th>
<th>Site of injection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 0</td>
<td>0.5</td>
<td>1.0</td>
<td>Left and right deltoids or anterolateral thigh in infants</td>
</tr>
<tr>
<td>Day 7</td>
<td>0.5</td>
<td>1.0</td>
<td>One deltoid or anterolateral thigh in infants</td>
</tr>
<tr>
<td>Day 21</td>
<td>0.5</td>
<td>1.0</td>
<td>One deltoid or anterolateral thigh in infants</td>
</tr>
</tbody>
</table>
3.2 Oxford Regimen Schedule (8-site Intradermal Schedule)

Table 8. Oxford Schedule

<table>
<thead>
<tr>
<th>Day of immunization</th>
<th>PCECV Number of doses</th>
<th>Site of injection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 0</td>
<td>0.1 mL</td>
<td>Deltoid (2), antero-lateral thigh (2), lower quadrant of abdomen (2), supra-scapular region (2)</td>
</tr>
<tr>
<td>Day 7</td>
<td>0.1 mL</td>
<td>Deltoid (2), antero-lateral thigh (2)</td>
</tr>
<tr>
<td>Day 30</td>
<td>0.1 mL</td>
<td>Deltoid (1)</td>
</tr>
<tr>
<td>Day 90</td>
<td>0.1 mL</td>
<td>Deltoid (1)</td>
</tr>
</tbody>
</table>

1.4 Post-Exposure Treatment under Special Conditions

a. Pregnancy and infancy are NOT contraindications to treatment with purified cell culture vaccines (PVRV, PCECV) and RIG.

b. Babies who are born of rabid mothers should be given rabies vaccination as well as RIG as early as possible at birth.

c. Alcoholic patients and those taking chloroquine, anti-epileptic drugs and systemic steroids should be given standard IM regimen as the response to ID regimen is not optimum for these conditions. Vaccination should not be delayed in these circumstances as it increases the risk of rabies.

d. Immunocompromised individuals (such as those with HIV infection, cancer/transplant patients, patients on immunosuppressive therapy etc.) should be given vaccine using standard IM regimen and RIG for both Category II and III exposures.

e. Exposed persons who present for evaluation or treatment weeks or months after the bite should be treated as if exposure has occurred recently. However, if the biting animal has remained healthy and alive with no signs of rabies until 14 days after the bite, no treatment is needed.

f. Interchangeability of modern rabies vaccine brands or types is not recommended. However, in countries such as the Philippines, Thailand, Sri Lanka, France and Germany it has been practiced for many years without reported untoward events, each time circumstances made it inevitable to interchange vaccine used for administration. Shifting from one vaccine brand to another is not recommended but may be warranted in the following circumstances, provided that it is one of the WHO recommended cell culture vaccines:

- Hypersensitivity reaction such as generalized rash, anaphylaxis, severe generalized pruritis, severe local reaction at injection site (swelling of entire upper arm)
- Unavailability of the initial vaccine used

g. Since no immunogenicity studies have been done regarding change in route of vaccine administration (i.e. shift from IM to ID or vice versa), shifting from one regimen to another is NOT recommended. As much as possible the initial regimen should be completed. In extreme circumstances that shifting has to be done from IM to ID regimen or vice versa, vaccination should be restarted from day 0 using the new regimen.

h. Bites by rodents, guinea pigs and rabbits do not require rabies postexposure treatment.

i. Bites by domestic animals (dog, cat) and livestock (cows, pigs, horses, goats etc) as well as wild animals (bats, monkeys, etc) require PET.

1.5. Post-Exposure Treatment of Previously Immunized Animal Bite Patients

I. Local wound care MUST always be carried out.

II. Persons with repeat exposure after having previously received complete primary immunization with tissue culture vaccine should be vaccinated as follows:

Table 9. PEP Schedule for Previously Immunized Animal Bite Patients

<table>
<thead>
<tr>
<th>PrEP/PEP History (Regardless of type TCV &amp; route of Administration in previous PrEP/PEP)</th>
<th>Give RIG</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient received complete pre-exposure prophylaxis on Days 0, 7, 21/28 using TCV OR Patient received at least Days 0, 3, 7 of ID/IM post-exposure prophylaxis dose using TCVs</td>
<td>No</td>
<td>Give 0.1 mL ID Dose at 1 site on each D0 &amp; D3 OR 1 vial IM dose at 1 site each on D0 &amp; D3</td>
</tr>
<tr>
<td>Patient did not complete the 3 doses of PrEP OR Patient received only 1 or 2 ID/IM dose of the PEP</td>
<td>Give if indicated</td>
<td>Give full course of PEP</td>
</tr>
</tbody>
</table>

Table 10. Pre-exposure Schedule

<table>
<thead>
<tr>
<th>Schedule</th>
<th>PVRV</th>
<th>PCECV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 0</td>
<td>0.1 mL</td>
<td>0.1 mL</td>
</tr>
<tr>
<td>Day 7</td>
<td>0.1 mL</td>
<td>0.1 mL</td>
</tr>
<tr>
<td>Day 0</td>
<td>0.1 mL</td>
<td>0.1 mL</td>
</tr>
<tr>
<td>Day 7</td>
<td>0.1 mL</td>
<td>0.1 mL</td>
</tr>
<tr>
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</tr>
<tr>
<td>Day 7</td>
<td>0.1 mL</td>
<td>0.1 mL</td>
</tr>
<tr>
<td>Day 0</td>
<td>0.1 mL</td>
<td>0.1 mL</td>
</tr>
<tr>
<td>Day 7</td>
<td>0.1 mL</td>
<td>0.1 mL</td>
</tr>
</tbody>
</table>

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Rabies

2. Pre-Exposure Prophylaxis

a. Benefits
1. The need for passive immunization product (RIG) is eliminated
2. PET vaccine regimen is reduced from five to two doses
3. Protection against rabies is possible if PET is delayed
4. Protection against inadvertent exposure to rabies is possible
5. The cost of PET is reduced

b. Target population
1. Personnel in rabies diagnostic laboratories
2. Veterinarians and veterinary students
3. Animal handlers
4. Health care workers directly involved in care of rabies patients
5. Individuals directly involved in rabies control
6. Field workers
7. It is recommended that children 2-10 yrs old also be immunized because of the increased risk and severity of animal bites in this age group

c. Regimen
1. ID regimen - 0.1 mL at one site only for all vaccine types on days 0, 7 and 21/28
2. IM regimen - 1 vial of 0.5 mL for PVRV or 1 mL of PCECV given on days 0, 7 and 21/28

IV. Patients who have previously received complete primary immunization with rabies vaccine have the advantage that booster doses will rapidly induce a large increase in antibody production (a “secondary response”). Therefore, there is no need to give RIG.

VI. Patients who have not completed the primary immunization as described above should receive full course including RIG if needed.

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d. One booster dose should be given every one to three years depending on risk of exposure (whether work-related or not).

See Table 10. Pre-exposure schedule

e. Routine booster doses are given depending on risk of exposure (See Table 11)

E. Management of Rabies Patients

Considering the fatal outcome and lack of cure for human rabies once symptoms start, treatment should center on comfort care, using sedation and avoidance of intubation and life-support measures once the diagnosis is certain.

1. Medications - any of the following regimens may be used
a. Diazepam
b. Midazolam
c. Haloperidol plus diphenhydramine - this regimen has been used at San Lazaro Hospital

See Table 12. Dosage of Drugs for Management of Rabies Patients

2. Supportive Care

Patients with confirmed rabies should receive adequate sedation and comfort care in an appropriate medical facility.

a. Once rabies diagnosis has been confirmed, invasive procedures must be avoided.

b. Provide suitable emotional and physical support.

Table 11. Routine Booster Doses for Previously Immunized Individuals

<table>
<thead>
<tr>
<th>Involved Personnel</th>
<th>Pre-exposure Immunization</th>
<th>Serologic Testing</th>
<th>With Exposure</th>
<th>Booster Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>All workers in rabies laboratories</td>
<td>Recommended</td>
<td>Every 6 months</td>
<td>1 booster each on Day 0 and 3</td>
<td>- No booster if Ab titer ≥0.5 IU/mL - 1 booster if Ab titer fall below 0.5 IU/mL - In the absence of serologic testing, 1 booster dose every 5 years is recommended</td>
</tr>
<tr>
<td>All veterinarians, veterinary students, animal handlers (dog trainers, workers in pet shops, zoos, etc.)</td>
<td>Recommended</td>
<td>Every 2 years</td>
<td>1 booster each on Day 0 and day 3</td>
<td>- No booster if Ab titer ≥0.5 IU/mL - 1 booster if Ab titer fall below 0.5 IU/mL - In the absence of serologic testing, 1 booster dose every 5 years is recommended</td>
</tr>
<tr>
<td>HCW involved in care of rabies patients; individuals involved in rabies control program; field workers, morticians</td>
<td>Recommended</td>
<td>None</td>
<td>1 booster each on Day 0 and 3</td>
<td>1 booster dose every 5 years</td>
</tr>
<tr>
<td>General population</td>
<td>Not recommended but may be considered as an option in young children and other individuals with risk of exposure</td>
<td>None</td>
<td>1 booster each on Day 0 and 3</td>
<td>- None</td>
</tr>
</tbody>
</table>
Rabies

2. Physicians responsible for screening donors must maintain a high index of suspicion for rabies.
3. Routine laboratory screening of donors for rabies is not recommended due to a requirement for testing of brain tissue, time constraints and serious consequences of a false positive result.

H. Laboratory Confirmation of Suspected Rabid Animal
1. Seller's test or Negri Body Detection - direct microscopic examination technique using impression smear for the detection of rabies inclusion bodies known as Negri Bodies. The result must be confirmed with MIT or other diagnostic tools. It has low sensitivity and specificity.
2. Immunofluorescent Antibody Test (IFAT) - immunoassay using the monoclonal antibodies specific for rabies virus in an impression smear fixed with acetone. It needs a fluorescent microscope to determine the staining reaction. It is the gold standard in the detection of rabies specific antigen.
3. Mouse Inoculation Test (MIT) - in vivo test to confirm the infectivity of the rabies virus from the inoculum of the sample into a suckling or adult mice. The long post inoculation observation, 21 days, limits the clinical usefulness in the management of animal bite cases.
4. Rabies Fluorescent Focus Inhibition Test (RFFIT) - serologic assay using a cell culture technology to determine the rabies virus neutralizing antibody (VNA) in an immunized or sick individual.
5. Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR) - molecular detection of rabies nucleoprotein in a sample using rabies specific primers. Result should correlate clinically with other diagnostic tools.

F. Diagnosis
See Table 13. Laboratory Diagnosis for Human Rabies Suspects

G. Transmission Via Organ Transplantation
1. Clinical screening of prospective donors is recommended to include a detailed history, thorough clinical evaluation and analysis of the whole scenario.

Table 12. Dosage of Drugs for Management of Rabies Patients

<table>
<thead>
<tr>
<th>Drug</th>
<th>Pediatric dose</th>
<th>Adult dose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Midazolam</strong></td>
<td>0.1 mg/kg/dose IV, IM or PO every 4-8 hours</td>
<td>PO - 1/2 tablet }</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IM - 10-15 mg } every 4-8 hrs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IV - 2.5-5 mg }</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preparation: 15 mg/tablet, 5 mg/mL ampule</td>
</tr>
<tr>
<td><strong>Diazepam</strong></td>
<td>0.3-0.5 mg/kg every 2-4 hours not to exceed 20-40 mg/kg/24 hours</td>
<td>INITIAL: 10 mg IV, may be requested at 10-15 min intervals until a maximum of 30 mg had been given</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MAINTENANCE: 10 mg 3-4 x a day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preparation: 2 mg, 5 mg, 10 mg tablet; 5 mg/mL ampule (2 mL ampule)</td>
</tr>
<tr>
<td><strong>Morphine</strong></td>
<td>&lt;50 kg Bolus 0.1 mg/kg BW every 2-4 hrs</td>
<td>≥50 kg Bolus 5-8 mg every 2-4 hrs</td>
</tr>
<tr>
<td><strong>Haloperidol decanoate</strong></td>
<td>0.1 mg/kg IM or IV, may repeat hourly as necessary</td>
<td>INITIAL: 5 mg IM/SC every hour for 3 doses at least or until patient is calm</td>
</tr>
<tr>
<td>Note: Hypotension and dystonic reactions may occur</td>
<td>Maximum single dose 5 mg</td>
<td>MAINTENANCE: 5 mg IM/SC every 4 to 6 hrs and pm</td>
</tr>
<tr>
<td><strong>Diphenhydramine HCl</strong></td>
<td>1 to 2 mg/kg IV or IM: Maximum dosage 50 mg.</td>
<td>50-100 mg IM every 4 to 6 hrs</td>
</tr>
<tr>
<td>Note: May cause sedation, specially if other sedative agents are being used. May cause hypotension.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Rabies

J. Disposal of Carcass/Disinfection

a. Dispose the carcass by burying or burning in a pit. Disinfect the working area with 10% household bleach (chlorox) or 3% lysol.
b. Do not encourage eating the meat of the biting animal

K. Management of the Biting Animal

1. The biting animal should be observed for 14 days. Adequate animal care should be provided during the observation period.
2. It is advisable for patients to consult a veterinarian, whenever possible, regarding biting animal management especially when any of the following is observed:
   a. sudden change of behavior (from mild to vicious temperament or vice versa)
   b. characteristic hoarse howl
   c. watchful, apprehensive expression of the eyes, staring, blank gaze
   d. drooling of saliva
   e. paralysis or uncoordinated gait of hind legs
   f. marked restlessness, pacing in cage
   g. if at large runs aimlessly, biting anything in its way
   h. depraved appetite, self mutilation
   i. in some cases, lies quiescent, biting when provoked
   j. snaps at imaginary objects
   k. paralysis of lower jaw and tongue; inability to drink
   l. sudden death without associated signs and symptoms
3. Post Exposure Treatment (PET) may be discontinued if the biting animal remains healthy after the 14 day observation period.
4. If the animal dies or gets sick, the head should be submitted to the nearest rabies diagnostic laboratory for testing.

L. Dispensing of Human Anti-Rabies Immunizing Agent

The following procedures shall be observed when assessing animal bite patients and dispensing anti-rabies immunizing agents:
1. Assess the victim thoroughly and record in the Municipal/City/Hospital Rabies Surveillance Form

Table 13. Laboratory Diagnosis for Human Rabies Suspects

<table>
<thead>
<tr>
<th>Specimen*</th>
<th>Purpose</th>
<th>Test</th>
<th>Volume of Sample</th>
<th>Where</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Saliva</strong></td>
<td>Virus isolation</td>
<td>MIT RT-PCR</td>
<td>1-2 mL in sterile vial</td>
<td>RITM</td>
</tr>
<tr>
<td>Serum</td>
<td>Antibody detection</td>
<td>RFFIT</td>
<td>2 mL in sterile vial</td>
<td>RITM</td>
</tr>
<tr>
<td>CSF***</td>
<td>Antibody detection</td>
<td>RFFIT RT-PCR</td>
<td>1-2 mL in sterile vial</td>
<td>RITM</td>
</tr>
</tbody>
</table>

Post Mortem Only

<table>
<thead>
<tr>
<th>Brain (brain stem and cerebellum)</th>
<th>Antigen detection</th>
<th>Seller’s test RFA test</th>
<th>1 inch² of the brain if formalin fixation</th>
<th>RITM, SLH, RADDL ****</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viral isolation</td>
<td>RT-PCR Tissue culture MIT</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* all specimens must be temporarily stored at -20°C freezer until transport.
** It must be done at 4-6 hours interval.
*** It must be paired with a serum sample.
**** RADDL (regional animal disease diagnostic laboratory) - to facilitate preparation and transport of specimen

by a veterinarian in a clinic in order to assure that the precautionary safety measures in handling potentially infectious materials are strictly followed. The basic personal protective equipment (PPE) includes a laboratory gown, examination gloves, face masks and shields, and a disinfectant for decontamination.
b. In the household scenario, a clean table or bench is needed for the decapitation of the animal. The following procedures should be followed:

I. The handler should use gloves or wrap their hands with plastic bags to prevent direct contact with the specimen.
II. Eye protection such as optical glasses or sunglasses should be used to prevent any tissue splatter on the eyes.
III. An ordinary butcher’s knife or bolo may be used to cut the animal’s head.
IV. The head should be cut 2 inches away from the base in order to include important tissue components of the brainstem.
V. No attempt should be made to extract the brain tissue because this would cause additional risk to the processor.

c. Place the head of the animal in a leak proof double household plastic bag. This constitutes the primary container. Do not put any ice cubes inside this container. No chemical preservative like 10% formalin or alcohol should be used as this will render the specimens inappropriate for examination.

2. Specimen Transport

a. Place this primary container into another household plastic bag (secondary container) with liberal amounts of ice, enough to sustain the cold temperature during transport to the laboratory.
b. The two containers must be put into styrofoam or any leak proof transport container and brought to the nearest laboratory for testing.
c. If the specimen cannot be transported right away, it can be stored inside a leak proof styrofoam or ice box container. Put plenty of ice/ice packs into the container to allow for overnight cold storage. Replenish the ice/ice packs as often as needed until transport to the laboratory.
d. Label the transport container as “Rabies Suspect”. Affix label with the complete name, address and phone number for both the shipper and the laboratory recipient.

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<tr>
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<th>Volume of Sample</th>
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*** It must be paired with a serum sample.
**** RADDL (regional animal disease diagnostic laboratory) - to facilitate preparation and transport of specimen

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Table 14. Appropriate Specimen, Volume, Mode of Transport and Corresponding Tests for Animal Rabies Diagnosis

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Purpose</th>
<th>Test</th>
<th>Volume of Sample</th>
<th>Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>Antigen</td>
<td>IFA</td>
<td>Actual tissue</td>
<td>ice cubes or dry ice</td>
</tr>
<tr>
<td>Whole body*</td>
<td>Virus isolation</td>
<td>MIT</td>
<td>No chemical or formalin fixation</td>
<td></td>
</tr>
<tr>
<td>Brain Tissue</td>
<td>Viral RNA</td>
<td>RT-PCR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salivary Gland</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serum**</td>
<td>Antibody Detection</td>
<td>RFFIT</td>
<td>1-2 mL in sterile vial</td>
<td>ice cubes</td>
</tr>
</tbody>
</table>

* Rats, bats, mice, guinea pigs

3. If the situation warrants immunization (Category II and Category III), the patient should be given the intradermal regimen. The other approved regimens may be used if the ID regimen is not feasible.
4. If indicated, the patient shall be provided the required dose of passive immunization products/RIG, if available, preferably ERlG or F(ab)2.
5. Explain your decision to the patient with particular emphasis on adherence to treatment schedules, if immunization is indicated.
6. Observe courtesy and tactfulness when dealing with patients particularly among individuals who need not be immunized.

M. Priorities for Dispensing Vaccines

The following shall be the program’s order of priority for dispensing vaccines:
1. Patients bitten by animals found to be positive by IFAT or for “negri bodies” regardless of type of bite exposure
2. Patients with Category III exposure
3. Patients bitten by animals that are not available for observation (stray/slaughtered)
4. Individuals exposed to human rabies patients through bite/non-bite exposure
5. Patients with Category II exposure

N. Injection Safety

A safe injection is defined by the World Health Organization as an injection that:
- Does not harm the recipient
- Does not expose the health staff to any avoidable risks
- Does not result in waste that is dangerous to the community

1. Injection Equipment
a. Auto-Disable (AD) - are disposable injection devices that are especially made to prevent re-use and are therefore less likely than standard disposable syringes to cause person-to-person transmission of borne diseases.

The program recommends that health workers use AD syringe in their respective ABTC.

b. Conventional Syringes - are plastic syringes with steel needles that are provided usually by the manufacturer in sterile package. The needle may either be fixed to the syringe when it is produced or attached by the health staff just before use.

2. Management of sharp waste
Used syringes and needles should never be dumped in open areas where people might pick them up, step on them, or come in contact with them anyway. The need to better manage used or contaminated sharps is through the use of safety boxes or sharp containers. These are puncture-resistant containers where used syringes and needles can be immediately and temporarily stored after use until its final disposal.
3. Waste disposal
Collector boxes filled with used syringes and needles should be immediately brought to its final disposal. The program recommends the following methods of disposal:
   a. Use of septic vault
   b. Pit burial; and
   c. Waste treatment and final disposal to landfill

VII. IMPLEMENTING MECHANISMS

A. Roles and Responsibilities
1. Central Office - National Center for Disease Prevention and Control should be responsible for procurement, allocation and distribution of vaccines and RIG and shall augment vaccine requirements for low-income municipalities with high incidence of rabies.

   All Centers for Health Development shall be given allocation every quarter subject to availability of the rabies vaccines.

2. Centers for Health Development - The Centers for Health Development through the Director and the Rabies Control Program Coordinator shall be responsible for distribution of vaccines to the Provincial/City Health Offices.

3. Local Government Units - The Local Government units are encouraged to enact and strictly enforce ordinances relevant to rabies control and to provide fund allocation for anti-Rabies vaccines for bite victims. The Provincial Rabies Control Coordinators shall distribute the augmented vaccines of Department of Health to established Animal Bite Treatment Center where human anti-rabies immunizing agents (vaccines and RIG) are administered.

VIII. REPEALING CLAUSE


IX. EFFECTIVITY

This order shall take effect immediately.
### Rabies Vaccines

**Vaccines for Active Immunization**
- Purified Chick Embryo Cell Vaccine (PCECV)
  - Rabipur
- Purified Vero Cell Rabies Vaccine (PVRV)
  - Verorab

**Vaccines for Passive Immunization**
- Human Rabies Immuno Globulins (HRIG)
- Highly Purified Antibody Antigen Binding Fragments [F(ab')2]
- Anti-Rabies Immunoglobulin (Equine)

**DPT/OP Vaccines**

**Vaccines for Active Immunization**
- Adacel
- Anatetall
- Antitet 1500 IU
- Antitet 3000 IU
- Antitet 5000 IU
- Boostrix
- DT COQ or D.P.T
- Infanrix
- Infanrix-IPV + Hib
- Infanrix Hexa
- Pentaxim
- Quivaxem
- TD-Pur
- Tetavax
- Tetric-HiB
- Teto 40 IU
- Tetaxim
- Tripacel
- Tripavac
- Tritanrix-HB

**Vaccine for Passive Immunization**
- Ig Tetano
- Tetagam
- Tetanea

### Analgesic

- Morphine

### Antibiotics

**Cephalosporin**
- Cefuroxime axetil
  - Aeruginox
  - Altacef
  - Axet
  - C-Tri T
- Cimex Powder for Suspension
- Drugmaker's Biotech Cefuroxime
- Educef
- Elixime
- Ifurax
- Infekor

**Macrolide**
- Clarithromycin
  - Am-Europharma Erythromycin
  - Drugmaker's Biotech Erythromycin
  - Erasymin
  - Erythromycin/Erythrocin DS
  - Ilosone/Ilosone DS
  - Pharex Erythromycin
  - Upperzin

**Penicillin**
- Amoxicillin/Clavulanic Acid
  - Amoclav
  - Amoclav Suspension
  - Augmentin
  - Augmex
  - Bactv
  - Bactoclav
  - Bioclavid
  - CAX
  - Clavmex
  - Clavoxel
  - Clavoxin
  - Clovimax
  - Enhamox
  - Extan
  - Gloclav
  - Natruvox
  - Penhance-DS/Penhance-625
  - Sulivan
  - Vamox

**Cloxacillin**
- Avastoph
- Bandox
- Cloxi
- Drugmaker's Biotech Cloxacillin
- Encloxil
- Lewinex
- Medix
- Oxaclen
- Pannox Capsule
- Pharex Cloxacillin
- Prostaphlin-A
- Ritemed Cloxacillin
- Secloxin

**Tetracycline**
- Doxycycline
  - Bioclyn
  - Doryx
  - Doxin
  - Dyna-Doxycline
  - Vibramycin

**Antihistamines**
- 1st Generation
  - Chlorphenamine maleate
    - Barominic
  - Drugmaker's Biotech Chlorphenamine
    - Chlorphenamine maleate/
      - Betamethasone
    - Betneton
    - Chlorphenamine maleate/
      - Prednisolone
    - Histacort Tablet
    - Celestamine
    - Alleen AH
    - AM-Europharma Diphenhydramine HCl
    - Benadryl
    - Drugmaker's Biotech Diphenhydramine
      - Nebrecon
    - Unisom
    - Diphenhydramine
      - Hydroxyzine
      - Drugmaker's Biotech Hydroxyzine
      - Itexar
    - Mequatazine
      - Primalan
    - Phenylpropanolamine
      - 2nd Generation
      - Acrivastine
        - Azelastine
        - Aforvir
        - Allerkid
        - Antrazine
        - Amin 1
        - Allermed
        - Celtrim
        - Cetrix
        - Cetyrol
        - Drugmaker's Biotech Cetirizine HCl
        - H-One
        - Histamed
        - Histazine
        - Priklao
        - Ricosin
        - Rhinitrin
        - Texine
        - Unizef
        - Virlix
        - Welcet
        - Zetrix
        - Zimex
        - Zyrmin
        - Zyrtec
      - Desloratadine
        - Aerius
      - Ebastine
        - Aleva
        - Ebastine/Betamethasone
        - Co-Aleva
      - Fexofenadine
        - Fenalex
<table>
<thead>
<tr>
<th>Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Fexet</em></td>
</tr>
<tr>
<td><em>Fexoral</em></td>
</tr>
<tr>
<td><em>Neofex</em></td>
</tr>
<tr>
<td><em>Sensitin</em></td>
</tr>
<tr>
<td><em>Telfast</em></td>
</tr>
<tr>
<td><strong>Loratadine</strong></td>
</tr>
<tr>
<td><em>Allerta</em></td>
</tr>
<tr>
<td><em>Claritin</em></td>
</tr>
<tr>
<td><em>Lergicyl</em></td>
</tr>
<tr>
<td><em>Loran</em></td>
</tr>
<tr>
<td><em>Lorat</em></td>
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<tr>
<td><em>Loratyne</em></td>
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<tr>
<td><em>Lordam</em></td>
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<tr>
<td><em>Lorfast</em></td>
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<tr>
<td><em>Lorid</em></td>
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<tr>
<td><em>Onemin</em></td>
</tr>
<tr>
<td><em>Zanith</em></td>
</tr>
<tr>
<td><em>Zylohist</em></td>
</tr>
<tr>
<td><strong>Loratadine/Betamethasone</strong></td>
</tr>
<tr>
<td><em>Claricort</em></td>
</tr>
<tr>
<td><strong>Loratadine/Phenylephrine</strong></td>
</tr>
<tr>
<td><em>Loraped</em></td>
</tr>
<tr>
<td><strong>Levocetirizine</strong></td>
</tr>
<tr>
<td><em>Xyzal</em></td>
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<tr>
<td><strong>Mebhydrolin napadisylate</strong></td>
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<td><strong>Inotropic Agent</strong></td>
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<td><strong>Epinephrine/ Adrenaline</strong></td>
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<td><em>Hizon Epinephrine</em></td>
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<td><strong>Sedatives</strong></td>
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<td><strong>Diazepam</strong></td>
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<tr>
<td><em>Trankil</em></td>
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<tr>
<td><em>Valium</em></td>
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<tr>
<td><strong>Midazolam</strong></td>
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<td><em>Dormicum</em></td>
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<td><strong>Haloperidol</strong></td>
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<tr>
<td><strong>Prednisolone</strong></td>
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