RABIES INACTIVATED VIRUS VACCINE

I. ORDER FOR ADMINISTRATION

1. Screen for contraindications.
2. Provide a current Vaccine Information Statement (VIS), answering questions.
3. Obtain a signed Vaccine Administration Record (VAR).
4. Do not remove vaccine from refrigerator until ready to reconstitute it with the diluent supplied.
5. Reconstitute only with the supplied diluent., Gently swirl the contents until completely dissolved. It should be used immediately after reconstitution, and if not administered promptly, discard contents.
6. Give 1 ml dose of vaccine intramuscularly as a three dose series to eligible persons ≥18 years of age who may be at risk for exposure to the rabies virus.

   a. May be given simultaneously with all other vaccines.

Pharmacist signature Date

Electronic copy of this protocol available at
http://www.oregon.gov/dhs/ph/imm/provider/pharmpro.shtml

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II. LICENSED INACTIVATED RABIES VACCINES

Product Name	Vaccine components	Acceptable Age Range	Preservatives
Imovax Rabies® Human diploid cell vaccine (HDCV) Aventis Pasteur	The vaccine is obtained from infected human diploid cells, inactivated by β-propiolactone. It also contains <100 mg albumin, <150 µg neomycin sulfate and 20 µg of phenol red indicator.	≥Infancy	The vaccine contains no preservative or stabilizer. It should be used as a single dose vial.
RabAvert® Purified chick embryo cell vaccine (PCEC) Chiron	Vaccine is obtained by growing the fixed-virus strain in chicken fibroblasts, which are inactivated with β-propiolactone. One dose (1ml) contains <12 mg polygeline (processed bovine gelatin), <0.3 mg human serum albumin, 1 mg potassium glutamate, 0.3 mg sodium EDTA, <1µg neomycin, <20 ng chlortetracycline, and <2ng amphotericin B. Minimal amounts of chicken protein may be present in the final product; albumin content is <3 ng/dose.		The vaccine contains no preservative.

III. INDICATIONS FOR USE

Primary or Pre-exposure Vaccination

Pre-exposure vaccination should be offered to persons whose activities might bring them into contact with rabies virus or potentially rabid bats, raccoons, skunks, cats, dogs, or other species at risk for having rabies; such as:

- Veterinary students, veterinarians and other animal handlers
- Certain laboratory workers.
- International travelers who might come in contact with animals in areas where dog rabies is enzootic and immediate access to appropriate medical care, including biologics, might be limited.

Routine pre-exposure prophylaxis for other situations might not be indicated.

Pre-exposure prophylaxis is administered for these reasons:

- Although pre-exposure vaccination does not eliminate the need for additional therapy after a rabies exposure, it simplifies therapy by eliminating the need for RIG and decreasing the number of doses of vaccine needed—important for persons at high risk for being exposed to rabies in areas where immunizing products might not be available or where they might be at high risk for adverse reactions.
- Pre-exposure prophylaxis might protect persons whose post exposure therapy is delayed.
- It might provide protection to persons at risk for unapparent exposures to rabies.

IV. SCHEDULE FOR PRE-EXPOSURE RABIES VACCINE

Dose and Route: 1.0 ml IM in the deltoid		
Course of vaccination	**Recommended Age**	**Dose Regimen**
Primary	**≥18 years[1]**	**3 doses at 0, 7, and 21 or 28 days**
Booster[2]	**≥18 years[1]**	**1 dose only[3]**

[1]While this vaccine is licensed for persons ≥infancy, Oregon pharmacist's, by law, currently can't administer this vaccine to persons <18 years of age.

[2]Reference Pre-exposure recommendations in section IV above to determine which populations might require a booster dose.

[3]A pre-exposure booster is indicated if the antibody titer level falls below the minimum acceptable virus neutralization at a 1:5 serum dilution by the rapid fluorescent focus inhibition test.

V. CRITERIA FOR PRE-EXPOSURE IMMUNIZATION FOR RABIES

Risk category	**Nature of risk**	**Typical populations**	**Pre-exposure Recommendations**
Continuous	Virus present continuously, often in high concentrations. Specific exposures likely to go unrecognized. Bite, non-bite, or aerosol exposure.	Rabies research laboratory workers;* rabies biologics production workers.	**Primary course. Serologic testing every 6 months; booster vaccination if antibody titer is below acceptable level.** †
Frequent	Exposure usually episodic, with source recognized, but exposure also might be	Rabies diagnostic lab workers, * spelunkers, veterinarians and staff, and animal-control and	**Primary course. Serologic testing every 2 years; booster vaccination if antibody titer is**

Risk category	Nature of risk	Typical populations	Pre-exposure Recommendations
	unrecognized. Bite, non-bite, or aerosol exposure possible.	wildlife workers in rabies-enzootic areas.	**below acceptable level.** †
Infrequent (greater than population at large)	Exposure nearly always episodic with source recognized. Bite or non-bite exposure.	Veterinarians and animal-control and wildlife workers in areas with low rabies rates. Veterinary students. Travelers visiting areas where rabies is enzootic and immediate access to appropriate medical care including biologics is limited.	**Primary course. No serologic testing or booster vaccination**.
Rare (population at large)	Exposure always episodic with source recognized. Bite or non-bite exposure.	U.S. population at large, including persons in rabies-epizootic areas.	**No pre-exposure vaccination necessary**.

* Judgment of relative risk and extra monitoring of vaccination status of laboratory workers is the responsibility of the laboratory supervisor (see U.S. Department of Health and Human Service's Biosafety in Microbiological and Biomedical Laboratories, 1999).

† Pre-exposure booster immunization consists of one 1.0 ml dose of human diploid cell (rabies) vaccine (HDCV) or purified chick embryo cell (PCEC) vaccine IM into deltoid. Minimum acceptable antibody level is complete virus neutralization at a 1:5 serum dilution by the rapid fluorescent focus

inhibition test. A booster dose should be administered if the titer falls below this level.

VI. CONTRAINDICATIONS & PRECAUTIONS

CONTRAINDICATIONS	PRECAUTIONS
1. In cases of pre-exposure immunization, there are no known specific contraindications other than situations such as developing febrile illness, etc. 2. For postexposure treatment, there are no known specific contraindications to the use of rabies vaccine. 3. Pregnancy is not a contraindication to post-exposure prophylaxis.	1. RabAvert® (PCEC) vaccine is produced in chick embryo cell culture. Persons with a history of anaphylactic, anaphylactoid, or other immediate reactions (e.g., hives, swelling of the mouth and throat, difficulty breathing, hypotension or shock) subsequent to egg ingestion should not be immunized with this vaccine. HDCV should be administered instead. 2. When chloroquine phosphate was used routinely for malaria prophylaxis, investigators discovered that the drug decreased the antibody response to concomitantly administered HDCV. Although interference with the immune response to rabies vaccine by other antimalarials structurally related to chloroquine (e.g., mefloquine) has not been evaluated, precautions for persons receiving these drugs should be followed. 3. Immune suppression, such as corticosteroid treatment or immunosuppressive illness, can interfere with the development of active immunity. 4. Pre-exposure vaccination is not usually recommended during pregnancy, but may be indicated if there is substantial risk. Consult with health care provider.

VII. ADVERSE REACTIONS

1. Local reactions (pain, erythema, and swelling or itching at the injection site) are reported as the most common reactions.

2. Systemic reactions (headache, nausea, abdominal pain, muscle aches, and dizziness) have been reported (5-40% of recipients).

3. An "immune complex-like" illness (urticaria, pruritus, arthralgia, arthritis, angioedema, nausea, vomiting, fever, and malaise) may occur in up to 6% of persons receiving booster doses of HDCV.

VIII. ADVERSE EVENT REPORTING

Adverse events following immunization must be reported to the Vaccine Adverse Events Reporting System (VAERS) at 1-800-822-7967. Forms and procedures can be found at the VAERS website: www.vaers.org. In addition, a copy of the completed VAERS form should be sent to the patient's primary provider, per ORS 855-041-0510

IX. OTHER CONSIDERATIONS

1. Persons who have experienced "immune complex-like" reactions should receive no further doses of HDCV vaccine unless they are exposed to rabies or likely to be unavoidably or unapparently exposed to rabies virus and have unsatisfactory antibody titers.

2. Pre-exposure Vaccination and Serologic Testing

   Because the antibody response has been satisfactory after these recommended pre-exposure prophylaxis vaccine regimens, routine serologic testing to confirm sero-conversion is not necessary except for persons suspected of being immunosuppressed. Patients who are immunosuppressed by disease or medications should postpone pre-exposure prophylaxis vaccinations and consider avoiding activities for which rabies pre-exposure prophylaxis is indicated. When that is not possible, immunosuppressed persons who are at risk for exposure to rabies should be vaccinated and their antibody titers checked. In these cases, failures to seroconvert after the third

dose should be managed in consultation with appropriate public health officials.

X. STORAGE & HANDLING

The freeze-dried vaccine should be protected from light and stored in a refrigerator between 2º-8ºC (35º to 47ºF). Do not freeze. It should be used immediately after reconstitution.

XI. REFERENCES

CDC. Rabies. In: *Health Information for International Travel 2008*. Atlanta: U.S. Department of Health and Human Services, Public Health Service, 2008: 274-281. Available at: http://wwwn.cdc.gov/travel/yellowBookCh4-Rabies.aspx

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