

**OREGON HEALTH AUTHORITY  
IMMUNIZATION PROGRAM  
Japanese Encephalitis<sup>1</sup>**

01-01-2016:

- Vaccination age changed to clients  $\geq 7$  years of age

**I. OREGON IMMUNIZATION PHARMACY PROTOCOL:**

1. Check the ALERT Immunization Information System (IIS) to determine whether the patient needs this vaccine and any other vaccines.
2. Screen clients  $\geq 7$  years of age for contraindications.
3. Provide a current Vaccine Information Statement (VIS) and answer any questions.
4. Record all required data elements in the client's permanent health record.
5. See section IV. Pg. 4 for administration of **IXIARO**<sup>®</sup>
  - a. Shake syringe thoroughly prior to administration; solution will be **cloudy**.
  - b. Giv **IXIARO**<sup>®</sup> intramuscularly (**IM**) as a 2-dose series of 0.5mL to clients  $\geq 7$  years of age on days 0 and 28.
6. This vaccine may be given with all ACIP–recommended child and adult vaccinations.
7. Ask client to remain seated on the premises for 15 minutes after vaccination to decrease the risk of injury should they faint.

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Immunizing Pharmacist Signature

Date

For multiple signatures see: [1.usa.gov/PharmacyImmunizationProtocols](http://1.usa.gov/PharmacyImmunizationProtocols)

## II. LICENSED VACCINE

Product Name	Vaccine Component(s)	Acceptable Age Range	Dose Volume	Booster Dose	Thimerosal
IXIARO <sup>®1</sup>	6mcg purified, inactivated JEV proteins and 250 mcg of aluminum hydroxide per 0.5mL dose	2 months–2 years of age	0.25mL		No
		3–16 years of age	0.5mL		No
		≥17 years of age	0.5mL	≥1 year after primary series <sup>3</sup>	No

## III. RECOMMENDATIONS FOR USE<sup>2, 3</sup>

### A. Persons for whom Japanese Encephalitis vaccination is recommended

- JE Vaccine is recommended for travelers who plan to spend a month or longer in endemic areas during the Japanese encephalitis virus (JEV) transmission season. This includes longer-term travelers, recurrent travelers, or expatriates who will be based in urban areas but are likely to visit endemic rural or agricultural areas during a high-risk period of JEV transmission.
- Short-term travelers (<1 month) to endemic areas during the JEV transmission season if they plan to travel outside of an urban area and have an increased risk of JEV exposure:
  - ❖ Spending substantial time outdoors in rural or agricultural areas, especially during the evening or night.
  - ❖ Participating in extensive outdoor activities (e.g., camping, hiking, trekking, biking, fishing, hunting, or farming).
  - ❖ Staying in accommodations without air conditioning, screens, or bed nets.
- Travelers to an area with an ongoing JE outbreak.
- Travelers to endemic areas who are uncertain of specific destinations, activities, or duration of travel.

### III. RECOMMENDATIONS FOR USE

#### B. Laboratory workers<sup>4</sup>

- JE vaccine is recommended for laboratory personnel who work with live, wild-type JEV strains. Vaccinated, at-risk laboratory personnel should receive appropriate booster doses of JE vaccine or be evaluated regularly for JEV-specific neutralizing antibodies to assure adequate titers.
- Those individuals who received JE-MB (JE-VAX) who need a booster must take the 2-dose primary IXIARO<sup>®</sup> vaccine.

If the primary series of JE-VC (IXIARO<sup>®</sup>) was administered >1 year previously, a booster dose may be given before potential JE virus exposure.

#### C. Persons for whom Japanese Encephalitis vaccination is NOT recommended<sup>\*◇</sup>

- JE vaccine is not recommended for short-term travelers whose visit will be restricted to urban areas or times outside of a well-defined JEV transmission season.<sup>2, 3</sup>

\* Information on expected JEV transmission by country can be obtained from CDC at: <http://wwwnc.cdc.gov/travel/yellowbook/2016/infectious-diseases-related-to-travel/japanese-encephalitis> . Accessed 12 November 2015.

◇ These data should be interpreted cautiously since JEV transmission activity varies within countries from year to year.

<http://www.cdc.gov/mmwr/pdf/rr/rr5901.pdf><sup>4</sup>

**IV. VACCINE SCHEDULE**

<b>A. IXIARO<sup>®</sup></b>				
<b>Age</b>	<b>Doses in Series</b>	<b>Acceptable age range</b>	<b>Dose volume</b>	<b>Booster</b>
≥2 months–2 years <sup>*</sup>	2 doses at 0 and 28 days	≥2 months of age	0.25mL	
≥3 –16 years <sup>*</sup>			0.5mL	
≥17 years			0.5mL	Yes <sup>*◊§‡</sup>

<sup>\*</sup> The safety and immunogenicity of a booster dose has not been evaluated in infants, children and adolescents 2 months to ≤17 years of age.<sup>1</sup>

<sup>◊</sup> If primary series of IXIARO<sup>®</sup> was administered to individuals ≥17 years of age and >1 year previously, a booster dose may be given before potential JE virus exposure.<sup>2, 3</sup>

<sup>§</sup> There are no data on the use of IXIARO<sup>®</sup> as a booster for JE-VAX<sup>®</sup>. If a previously vaccinated person needs a booster dose, administer a full series of 2 doses separated by at least 28 days of IXIARO<sup>®</sup>.<sup>2, 3</sup>

<sup>‡</sup> Data on the response to a booster dose administered >2 years after the primary series are not available.<sup>2, 3</sup>

## V. CONTRAINDICATIONS<sup>1</sup>

1. Severe allergic reaction (e.g., anaphylaxis) after a previous dose.

## VI. PRECAUTIONS AND WARNINGS

1. Hypersensitivity to protamine sulfate.<sup>1</sup>
2. Drug Interactions: There is no evidence for interference with the immune response when used concomitantly with Havrix<sup>®</sup>. Data are not available on concomitant administration of IXIARO<sup>®</sup> with other US-licensed vaccines.<sup>1</sup>
3. JE acquired during pregnancy carries the potential for intrauterine infection and fetal death. These special factors should be considered when advising elderly persons and pregnant women who plan visits to areas where JE is endemic.<sup>4</sup>
4. Pediatric / Geriatric: Not tested in individuals  $\leq 2$  months of age or  $\geq 65$  years of age.<sup>1</sup>

**VII. SIDE EFFECTS AND ADVERSE EVENTS**

IXIARO <sup>®1</sup> Number followed for Safety	Post Dose 1 NCT01041573 N =131 and 64 Adverse Reaction %		Post Dose 2 NCT01041573 N=131 and 64 Adverse Reaction %	
	IXIARO	Prevnar 7	IXIARO	Prevnar 7
Age in Years: <b>2 –11 months</b>				
Local Reaction, Injection site				
Tenderness	3.1	12.7	0.8	3.3
Hardening	0.0	7.9	0.0	1.6
Swelling	1.5	6.3	1.5	1.6
Redness	17.6	25.4	5.3	16.4
Systemic Complaints				
Irritability	15.3	12.7	8.4	8.2
Vomiting	7.6	6.3	3.8	1.6
Diarrhea	11.5	6.3	8.4	4.9
Excessive fatigue	3.1	7.9	1.5	3.3
Rash	8.4	9.5	3.8	4.9
Loss of appetite	5.3	9.5	5.3	6.6
Fever≥37.7°C (≥99.9°F)	23.7	25.4	14.5	23.3
37.7°C–38.6°C (99.9–101.5°F)	17.6	22.2	12.2	15.0
38.7°C–39.3°C (101.6–102.7°F)	6.1	1.6	1.5	6.7
39.4°C–40.5°C (102.8–104.9°F)	0.0	1.6	0.8	1.7
Table 2, page 7				

**VII. SIDE EFFECTS AND ADVERSE EVENTS Cont.**

<b>IXIARO<sup>®1</sup></b>	<b>Post Dose 1</b> NCT01047839 N =55 Adverse Reaction %	<b>Post Dose 2</b> NCT01047839 N=49 Adverse Reaction %
Number followed for Safety		
Age in Years: <b>3 years to ≤18</b>		
Local Reaction, Injection site		
Pain - Tenderness	18.2–30.9	16.3–24.5
Redness	5.5	0.0
Swelling	0.0	0.0
Itching	3.6	2.0
Systemic Complaints		
Irritability	0.0	6.1
Fever ≥37.7°C (≥99.9°F)	5.5	2.0
Nausea	1.8	2.0
Vomiting	0.0	2.0
Diarrhea	1.8	0.0
Flu-like symptoms	0.0	0.0
Excessive fatigue	12.7	0.0
Headache	1.8	4.1
Muscle pain	27.3	2.0
Rash	1.8	2.0
Table 6, page 11		

**VII. SIDE EFFECTS AND ADVERSE EVENTS Cont.**

IXIARO <sup>®1</sup>	Post Dose 1 NCT00605085		Post Dose 2 NCT00605085	
	N = 1993 IXIARO	N = 657 PBS + Al(OH) <sub>3</sub> <sup>*</sup>	N = 1968 IXIARO	N = 645 PBS + Al(OH) <sub>3</sub>
Number followed for Safety	Adverse Reaction %		Adverse Reaction %	
Age in Years: <b>≥18 years</b>				
Local Reaction, Injection site				
Any Reaction	48.5	47.7	32.6	32.2
Pain - Tenderness	27.7	28.2	17.7	18.2
Redness	6.8	5.4	4.6	4.1
Induration	4.8	5.3	4.0	3.0
Swelling	2.4	3.3	2.3	1.6
Itching	2.6	3.3	1.6	1.9
Systemic Complaints				
Headache	21.6	20.2	13.4	13.0
Myalgia	13.3	12.9	5.6	5.3
Fatigue	8.6	8.7	5.2	5.9
Influenza-like illness	8.2	8.5	5.8	4.3
Nausea	4.7	5.3	2.6	3.7
Nasopharyngitis	2.3	1.8	2.6	2.3
Fever	1.9	2.1	1.5	1.7
Tables 7–8 pages 13–14				
* Phosphate Buffered Saline with 0.1% aluminum hydroxide [PBS + Al(OH) <sub>3</sub> ]				

## VIII. OTHER CONSIDERATIONS

1. Although  $\leq 1\%$  of JEV infections results in clinical disease, JE is a devastating illness that has a case-fatality rate of 20–30% and neurologic or psychiatric sequelae in 30–50% of survivors. No specific treatment exists.<sup>2</sup>
2. In all instances, travelers are advised to take personal precautions to reduce exposure to mosquito bites.<sup>4</sup>
3. The decision to use IXIARO<sup>®</sup> should balance the risks for exposure to the virus and for developing illness, the availability and acceptability of repellents and other alternative measures, and the side effects of vaccination.<sup>4</sup>
4. Assessments should be interpreted cautiously because risk can vary within areas and from year to year.<sup>3</sup>
5. Risk of JE for travelers to highly endemic areas during the transmission season can reach 5 to 50 cases per 100,000; the risk for most short term travelers may be 1 per million or less.<sup>3</sup>
6. **Adverse Events:** epinephrine hydrochloride solution (1:1,000) and other appropriate agents and equipment must be available for immediate use in case of anaphylactic or acute hypersensitivity reaction.<sup>5</sup>
7. **Immunocompromised:** individuals with altered immunocompetence may have reduced immune responses. Immunosuppressive therapies may decrease the immune response to IXIARO<sup>®1</sup>
8. **Lactation:** It is not known whether IXIARO is excreted in human milk. Use with caution in nursing mothers.<sup>1</sup>

**IX. STORAGE AND HANDLING**

All clinics and pharmacies enrolled with the VFC program must **immediately** report any storage and handling deviations to their Oregon Immunization Program health educator. The health educator assignment map is located at: [http://bit.ly/HE\\_Map](http://bit.ly/HE_Map)

Vaccine	Temp	Storage Issues	Notes
IXIARO <sup>®</sup> 1	Store at 2°–8°C (36°F–46°F)	Do not use if vaccine has been frozen. Report to health educator.  Store in original container. Protect from light.	No natural rubber latex.  Do not use after expiration date shown on the label.

**X. ADVERSE EVENTS REPORTING**

Adverse events following immunization must be reported to the Vaccine Adverse Events Reporting System (VAERS). The VAERS online report form is available at <https://vaers.hhs.gov/esub/step1>.

A pharmacist who administers any vaccine must report to the OHA ALERT Immunization Information System in a manner prescribed by OHA within 15 days of administration. This replaces the former requirement to notify the primary health care provider. A pharmacist is not required to notify the primary health care provider. Oregon Administrative Rule 855-019-0290-(2)(3).<sup>7, 8</sup>

To request this material in an alternative format (e.g., Braille) or to clarify any part of the above order, contact the Oregon Health Authority Immunization Program at 971.673.0300 and 711 for TTY. For other questions, consult with the vaccine recipient’s primary health care provider or a consulting physician.

Electronic copy of this protocol available at: [1.usa.gov/PharmacyImmunizationProtocols](http://1.usa.gov/PharmacyImmunizationProtocols)

## References

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2. CDC. Use of Japanese encephalitis vaccine in children: Recommendations of the Advisory Committee on Immunization Practices, 2013. MMWR 2013;62 898–900. Available at: [www.cdc.gov/mmwr/pdf/wk/mm6245.pdf](http://www.cdc.gov/mmwr/pdf/wk/mm6245.pdf) Accessed 17 November 2015.
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8. Oregon Administrative Rule. Board of Pharmacy. Division 19. Licensing of pharmacists: 855-019-0290 (2). Available at:  
[http://www.oregon.gov/pharmacy/Imports/Rules/December10/855-019\\_Perm.pdf](http://www.oregon.gov/pharmacy/Imports/Rules/December10/855-019_Perm.pdf) Accessed 11 September 2015.