

Patient Safety Law Will Take Time to Implement

BY NELLIE BRISTOL
Contributing Writer

WASHINGTON — The patient safety system signed into law this summer by President Bush likely will take many months to implement; but, after operating so long in an environment of liability fear, doctors may take even longer to trust it, said Michael O. Fleming, M.D., board chair of the American Academy of Family Physicians.

"I think physicians are going to have to get comfortable with this and realize that [documenting errors under the plan] is a thing that you can do now, and it's going to improve quality tremendously," said Dr. Fleming, adding it may take physicians time to lose their reporting inhibitions.

Doctors are concerned about reporting something going wrong, because someone will be at fault and liable for that situation, he said. "In medicine, unfortunately, too many times everybody—from

staff to nurses to doctors—has been afraid to report things."

Under the law, a "patient safety work product" of reported errors and near misses is privileged and cannot be used in legal or disciplinary actions. Data collected can only be used in a criminal trial after the court makes a determination that the evidence is "material to the proceeding" and "not reasonably available from another source," according to the Patient Safety and Quality Improvement Act of 2005.

The structure will allow providers to voluntarily submit information to patient safety organizations certified by the Department of Health and Human Services. Patient confidentiality must be maintained. The purpose of the system is to create a searchable database of medical errors that can be analyzed and used to develop new care systems and best practices that would avoid similar errors in the future.

Dr. Fleming said the law could help reveal weaknesses in medication dispensing and other systems. "This will give us an opportunity, when these errors occur, to report them without having to worry about the consequences of a liability threat."

The law became effective when the president signed it and authorizes federal funding for fiscal years 2006-2010. Implementation could begin as early as next year, said Gordon Wheeler, associate executive director for public affairs for the American College of Emergency Physicians, noting

OVIDE[®] (malathion) LOTION, 0.5%

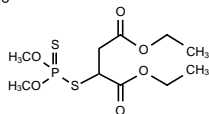
NDC 51672-5272-4

Rx Only

For topical use only. Not for oral or ophthalmic use.

DESCRIPTION

OVIDE Lotion contains 0.005 g of malathion per mL in a vehicle of isopropyl alcohol (78%), terpineol, dipentene, and pine needle oil. The chemical name of malathion is (+)-[(dimethoxyphosphinothioyl)-thio] butanedioic acid diethyl ester. Malathion has a molecular weight of 330.36, represented by C₁₀H₁₉O₆P₂S₂, and has the following chemical structure:



CLINICAL PHARMACOLOGY

Malathion is an organophosphate agent which acts as a pediculicide by inhibiting cholinesterase activity *in vivo*. Inadvertent transdermal absorption of malathion has occurred from its agricultural use. In such cases, acute toxicity was manifested by excessive cholinergic activity, i.e., increased sweating, salivary and gastric secretion, gastrointestinal and uterine motility, and bradycardia (see **OVERDOSAGE**). Because the potential for transdermal absorption of malathion from OVIDE Lotion is not known at this time, strict adherence to the dosing instructions regarding its use in children, method of application, duration of exposure, and frequency of application is required.

INDICATIONS AND USAGE

OVIDE Lotion is indicated for patients infected with *Pediculus humanus capitis* (head lice and their ova) of the scalp hair.

CONTRAINDICATIONS

OVIDE Lotion is contraindicated for neonates and infants because their scalps are more permeable and may have increased absorption of malathion. OVIDE Lotion should also not be used on individuals known to be sensitive to malathion or any of the ingredients in the vehicle.

WARNINGS

- OVIDE Lotion is **flammable**. The lotion and wet hair should not be exposed to open flames or electric heat sources, including hair dryers and electric curlers. Do not smoke while applying lotion or while hair is wet. Allow hair to dry naturally and to remain uncovered after application of OVIDE Lotion.
- OVIDE Lotion should only be used on children under the direct supervision of an adult.
- If OVIDE Lotion comes into contact with the eyes, flush immediately with water. Consult a physician if eye irritation persists.
- If skin irritation occurs, discontinue use of product until irritation clears. Reapply the OVIDE Lotion, and if irritation reoccurs, consult a physician.
- Slight stinging sensations may occur with the use of OVIDE Lotion.

General: Keep out of reach of children. Close eyes tightly during product application. If accidentally placed in the eye, flush immediately with water. Use only on scalp hair.

Information to Patients

- OVIDE Lotion is **flammable**. The lotion and hair wet with lotion should not be exposed to open flames or electric heat sources, including hair dryers and electric curlers. Do not smoke while applying lotion or while hair is wet. The person applying OVIDE Lotion should wash hands after application. Allow hair to dry naturally and to remain uncovered after application of OVIDE Lotion.
- OVIDE Lotion should only be used on children under the direct supervision of an adult. Children should be warned to stay away from lighted cigarettes, open flames, and electric heat sources while the hair is wet.
- In case of accidental ingestion of OVIDE Lotion by mouth, seek medical attention immediately.
- If you are pregnant or nursing, you should contact your physician before using OVIDE Lotion.
- If OVIDE Lotion comes into contact with the eyes, flush immediately with water. Consult a physician if eye irritation persists or if visual changes occur.
- If skin irritation occurs, wash scalp and hair immediately. If the irritation clears, OVIDE Lotion may be reapplied. If irritation reoccurs, consult a physician.
- Slight stinging sensations may be produced when using OVIDE Lotion.
- Apply OVIDE Lotion on the scalp hair in an amount just sufficient to thoroughly wet hair and scalp. Pay particular attention to the back of the head and neck when applying OVIDE Lotion. Anyone applying OVIDE Lotion should wash hands immediately after the application process is complete.
- Allow hair to dry naturally and to remain uncovered. Shampoo hair after 8 to 12 hours, again paying attention to the back of the head and neck while shampooing.
- Rinse hair and use a fine-toothed (nit) comb to remove dead lice and eggs.
- If lice are still present after 7-9 days, repeat with a second application of OVIDE Lotion.
- Further treatment is generally not necessary. Other family members should be evaluated by a physician to determine if infested, and if so, receive treatment.

Laboratory Tests: There are no special laboratory tests needed in order to use this medication.

Carcinogenesis, Mutagenesis, and Impairment of Fertility: Carcinogenesis, mutagenesis and impairment of fertility have not been studied with OVIDE Lotion (0.5% pharmaceutical grade malathion). However, following long-term oral administration of technical grade malathion to rodents via dietary supplementation, increased incidences of hepatocellular neoplastic lesions were observed in B6C3F1 mice dosed for 18 months at malathion doses greater than 1500 mg/kg/day, and in female F344 rats dosed for 2 years at malathion doses greater than 400 mg/kg/day. These tumors occurred only in association with severe hepatic toxicity and chronic suppression of acetylcholinesterase activity, or at doses causing excessive mortality. Based on body surface area, doses at which carcinogenic effects were observed in rodents following lifetime exposures to malathion were approximately 14- to 26-fold greater than the maximum dose anticipated in a 10 kg child following a single use of OVIDE Lotion, assuming 100% bioavailability. Actual systemic exposures are expected to be less than 10% of the administered dose.

The malathion of greater than pharmaceutical-grade purity used in OVIDE Lotion has not been tested for genotoxicity. The technical-grade malathion (95% pure) was found to be negative in *Salmonella typhimurium*, equivalently positive in the mouse lymphoma cell assay, and positive in *in vitro* chromosomal aberration and sister

chromatid exchange assays. Fifteen separate *in vitro* gene mutation studies with malathion of unknown purity have reported negative results, while three studies reported malathion to be mutagenic in bacterial cells. Both technical grade (94-96.5%) and purified (98-99%) malathion have been reported to cause chromosomal aberrations and sister chromatid exchanges *in vitro* in human and hamster cell lines. *In vivo* chromosomal aberration and micronucleus studies of technical-grade malathion are reported to be positive, whereas an *in vivo* chromosomal aberration study of >99% pure malathion was reported to be negative. Furthermore, mice exposed to malathion in their drinking water for 7 weeks demonstrated no evidence of chromosome damage in bone marrow cells, spermatogonia, or primary spermatocytes. Lack of details makes independent evaluation of the results of these assays impossible. Ashby and Purchase have suggested that impurities may be responsible for some of the observed genetic activity of malathion.

Reproduction studies performed with malathion in rats at doses over 180 fold greater than those anticipated in a 60 kg adult (based on body surface area and assuming 100% bioavailability) revealed no evidence of impaired fertility.

Pregnancy: Pregnancy Category B. There was no evidence of teratogenicity in studies in rats and rabbits at doses up to 900 mg/kg/day and 100 mg/kg/day malathion, respectively. A study in rats failed to show any gross fetal abnormalities attributable to feeding malathion up to 2,500 ppm (~200 mg/kg/day) in the diet during a three-generation evaluation period. These doses were approximately 40 to 180 times higher than the dose anticipated in a 60 kg adult (based on body surface area and assuming 100% bioavailability). Because animal reproduction studies are not always predictive of human responses, this drug should be used (or handled) during pregnancy only if clearly needed.

Nursing Mothers: Malathion in an acetone vehicle has been reported to be absorbed through human skin to the extent of 8% of the applied dose. However, percutaneous absorption from the OVIDE[®] (malathion) Lotion, 0.5% formulation has not been studied, and it is not known whether malathion is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when OVIDE Lotion is administered to (or handled by) a nursing mother.

Pediatric Use: The safety and effectiveness of OVIDE Lotion in children less than 6 years of age has not been established via well-controlled trials.

ADVERSE REACTIONS

Malathion has been shown to be irritating to the skin and scalp. Accidental contact with the eyes can result in mild conjunctivitis.

It is not known if OVIDE Lotion has the potential to cause contact allergic sensitization.

OVERDOSAGE

Consideration should be given, as part of the treatment program, to the high concentration of isopropyl alcohol in the vehicle.

Malathion, although a weaker cholinesterase inhibitor than some other organophosphates, may be expected to exhibit the same symptoms of cholinesterase depletion after accidental ingestion orally. If accidentally swallowed, vomiting should be induced promptly or the stomach lavaged with 5% sodium bicarbonate solution.

Severe respiratory distress is the major and most serious symptom of organophosphate poisoning requiring artificial respiration, and atropine may be needed to counteract the symptoms of cholinesterase depletion.

Repeat analyses of serum and RBC cholinesterase may assist in establishing the diagnosis and formulating a long-range prognosis.

DOSAGE AND ADMINISTRATION

- Apply OVIDE Lotion on **DRY** hair in amount just sufficient to thoroughly wet the hair and scalp. Pay particular attention to the back of the head and neck while applying OVIDE Lotion. Wash hands after applying to scalp.
- Allow hair to dry naturally - use no electric heat source, and allow hair to remain uncovered.
- After 8 to 12 hours, the hair should be shampooed.
- Rinse and use a fine-toothed (nit) comb to remove dead lice and eggs.
- If lice are still present after 7-9 days, repeat with a second application of OVIDE Lotion.

Further treatment is generally not necessary. Other family members should be evaluated by a physician to determine if infested, and if so, receive treatment.

Clinical Studies:

Two controlled clinical trials evaluated the pediculicidal activity of OVIDE Lotion. Patients applied the lotion to the hair and scalp in quantities, up to a maximum of 2 fl. oz., sufficient to thoroughly wet the hair and scalp. The lotion was allowed to air dry and was shampooed with Prell shampoo 8 to 12 hours after application. Patients in both the OVIDE Lotion group and in the vehicle group were examined immediately after shampooing, 24 hours after, and 7 days after for the presence of live lice. Results are shown in the following table:

Number of Patients Without Live Scalp Lice

Treatment	Immediately After	24 Hrs. After	7 Days After
OVIDE Lotion	129/129	122/129	114/126
OVIDE Vehicle	105/105	63/105	31/105

The presence or absence of ova at day 7 was not evaluated in these studies. The presence or absence of live lice or ova at 14 days following treatment was not evaluated in these studies. The residual amount of malathion on hair and scalp is unknown.

HOW SUPPLIED

OVIDE[®] (malathion) Lotion, 0.5%, is supplied in bottles of 2 fl. oz. (59 mL) NDC 51672-5272-4. Store at controlled room temperature 20° - 25°C (68° - 77°F).

Flammable. Keep away from heat and open flame.
Manufactured for:



a division of Taro Pharmaceuticals U.S.A., Inc.
Hawthorne, NY 10532
Manufactured by: DPT Lakewood, Inc.
Lakewood, NJ 08701

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DR. FLEMING

that for that to happen, the HHS "secretary's got a lot to do to set it up."

HHS must coordinate databases nationwide into a single aggregated interactive resource for providers and patient safety organizations. It also must develop or adopt voluntary national standards to promote the electronic exchange of health care information.

HHS will also certify the organizations, which were described as "new animals," by Margaret VanAmringe, vice president for public policy and government relations at the Joint Commission on Accreditation of Healthcare Organizations (JCAHO).

There are several possible models for patient safety organizations, she said, including U.S. Pharmacopeia's MEDMARX system. For a subscription fee, hospitals and health care systems can access MEDMARX's database to track adverse drug reactions and medication errors. Ms. VanAmringe also said groups like JCAHO could develop patient safety organizations, as could medical specialty organizations looking to establish "niche PSOs" to track specific areas, such as anesthesiology.

AAFP's Dr. Fleming said that while many such organizations likely would be run by systems analysts and industrial engineers, "I'm hoping there are also going to be peers." He added, "I think physicians are going to feel much more comfortable if we have peer evaluation."

Ms. VanAmringe said patient safety organizations will not only need to collect data but also have the ability to aggregate and analyze those data to provide institutions with "feedback on common problems." The PSOs will develop solutions and best practices by collating data from different institutions and then monitoring whether proposed interventions work. ■