

HIGHLIGHTS OF PRESCRIBING INFORMATION
 These highlights do not include all the information needed to use INTRALIPID® safely and effectively. See full prescribing information for INTRALIPID.

Intralipid® 30%

(lipid injectable emulsion), for intravenous use

Initial U.S. Approval: 1993

RECENT MAJOR CHANGES

Boxed Warning (Removed)	5/2023
Dosage and Administration (2.1, 2.2, 2.3)	2/2024
Contraindications (4)	5/2023
Warnings and Precautions (5.1)	2/2024

INDICATIONS AND USAGE

Intralipid is indicated as a source of calories and essential fatty acids for adult and pediatric patients requiring parenteral nutrition (PN) and as a source of essential fatty acids for prevention of essential fatty acid deficiency (EFAD).

DOSAGE AND ADMINISTRATION

- Intralipid 30% Pharmacy Bulk Package is for admixing only and is **not** intended for direct intravenous infusion. (2.1)
- Admixtures containing Intralipid 30% are prepared by a health-care provider. (2.1)
- Intralipid 30% must be combined with other PN fluids so that the resulting admixture has a final lipid concentration of no more than 20% (0.2 g lipid per mL of admixture). (2.1, 2.2)
- Protect the admixed PN solution from light. (2.2, 16)
- Recommended dosage depends on age, energy expenditure, clinical status, body weight, tolerance, ability to metabolize and eliminate lipids, and consideration of additional energy given to the patient. (2.3)

Age	Nutritional Requirements
	Recommended Initial Dosage and Maximum Dosage
Birth to 2 years of age (including preterm and term neonates)	Initial 0.5 g/kg/day not to exceed 3 g/kg/day
Pediatric patients 2 to <12 years of age	Initial 1 to 2 g/kg/day not to exceed 2.5 g/kg/day
Pediatric patients 12 to 17 years of age	Initial 1 g/kg/day not to exceed 2 g/kg/day
Adults	1 g/kg/day (stable) ≤1 g/kg/day (critically ill) not to exceed 2.5 g/kg/day

FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE

Intralipid® is indicated as a source of calories and essential fatty acids for adult and pediatric patients requiring parenteral nutrition and as a source of essential fatty acids for prevention of essential fatty acid deficiency (EFAD).

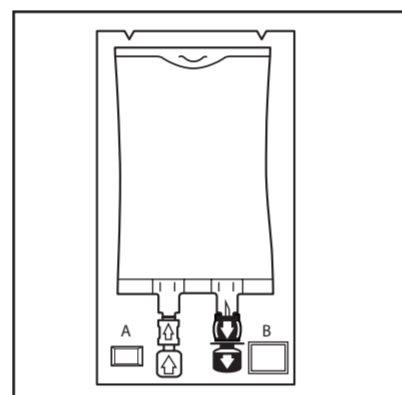
2 DOSAGE AND ADMINISTRATION

2.1 Important Preparation and Administration Instructions

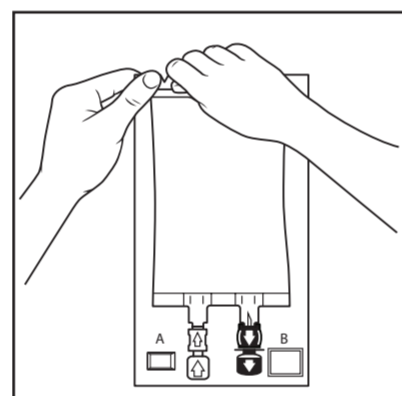
- Intralipid 30% Pharmacy Bulk Package is for admixing use only and is **not** intended for direct intravenous administration.
- Admixtures containing Intralipid 30% are prepared and administered by a healthcare provider in the inpatient setting. *See Dosage and Administration (2.2).*
- Patients and caregivers may administer admixtures containing Intralipid for home use after appropriate training by a trained healthcare provider. *See Patient Counseling Information (17).*
- Intralipid 30% must be combined with other PN fluids so that the resulting admixture has a final lipid concentration of no more than 20% (0.2 g lipid per mL of admixture). Refer to Admixture Preparation Instructions. *See Dosage and Administration (2.2).*
- When Intralipid 30% is diluted to 20%, strictly adhere to the recommended total daily dosage; the hourly infusion rate should not exceed 0.125 g/kg/hour for neonates and infants. *See Warnings and Precautions (5.1).*
- Intralipid admixtures with osmolality
 - Greater than or equal to 900 mOsm/L must be infused through a central vein.
 - Less than 900 mOsm/L may be administered either through a central or peripheral vein.
- Use a 1.2 micron in-line filter during admixture administration.
- PN admixtures should use a dedicated infusion line without any connections. Do not connect multiple medications in series.
- To prevent air embolism, use a non-vented infusion set or close the vent on a vented set and fully evacuate residual gas in the bag prior to admixture administration.
- The flow rate of the admixture should be controlled with an infusion pump. Do not pressurize the flexible bag to increase flow rates, and if administration is controlled by a pumping device, turn off the pump before the bag runs dry.
- Do not use infusion sets and lines that contain di-2-ethylhexyl phthalate (DEHP), including infusion sets that contain polyvinyl chloride (PVC) components, because they contain DEHP as a plasticizer.
- After connecting the infusion set, start infusion of PN admixture with Intralipid immediately. Complete the infusion within 24 hours.

2.2 Admixture Preparation Instructions

Use the following instructions to prepare the Intralipid 30% Pharmacy Bulk Package for transfer to a compounding bag:



- Inspect Bag
 - Inspect the integrity indicator (Oxalert®) (A) before removing the overpouch.
 - Discard the product if the indicator is black, overpouch is opened or damaged, emulsion color is not white, or seals of bag are broken.



- Remove Overpouch
 - Place the bag on a clean, flat surface.
 - Tear the overpouch at notch and pull down.
 - Discard the Oxalert sachet (A) and the oxygen absorber (B).
 - Visually inspect the bag and contents for particulate matter and discoloration prior to administration. The lipid emulsion should be a homogenous liquid with a milky white appearance. If the mixture is not white or the emulsion has separated (noted by discoloration, phase separation, or oily droplets), or if particulates and/or leakage are observed, discard the bag.

3 DOSAGE FORMS AND STRENGTHS

Intralipid 30% is a sterile, homogenous, milky, white lipid injectable emulsion in Flexible Containers supplied as:

- 150 g/500 mL (0.3 g/mL) of lipid in 500 mL Pharmacy Bulk Package

4 CONTRAINDICATIONS

- Known hypersensitivity to egg, soybean, peanut, or any of the active or inactive ingredients in Intralipid. *See Warnings and Precautions (5.3)*
- Severe disorders of lipid metabolism characterized by hypertriglyceridemia (serum triglyceride >1,000 mg/dL) *See Warnings and Precautions (5.7)*

5 WARNINGS AND PRECAUTIONS

5.1 Clinical Decompensation with Rapid Infusion of Intravenous Lipid Emulsions in Neonates and Infants

In the postmarketing setting, serious adverse reactions including acute respiratory distress, metabolic acidosis, and death have been reported in neonates and infants after rapid infusion of intravenous lipid emulsions. Hypertriglyceridemia was commonly reported.

Intralipid 30% Pharmacy Bulk Package is not intended for direct infusion. When it is diluted to 20%, strictly adhere to the recommended total daily dosage; the hourly infusion rate should not exceed 0.125 g/kg/hour.

Preterm and small for gestational age infants have poor clearance of intravenous lipid emulsion and increased free fatty acid plasma levels following lipid emulsion infusion. Carefully monitor the infant's ability to eliminate the infused lipids from the circulation (e.g., measure serum triglycerides and/or plasma free fatty acid levels). If signs or poor clearance of lipids from the circulation occur, stop the infusion and initiate a medical evaluation. *See Warnings and Precautions (5.5, 5.7) and Overdosage (10).*

5.2 Parenteral Nutrition-Associated Liver Disease and Other Hepatobiliary Disorders

Risk of Parenteral Nutrition-Associated Liver Disease
 Parenteral nutrition-associated liver disease (PNALD), also referred to as intestinal failure-associated liver disease (IFALD), can present as cholestasis or hepatic steatosis, and may progress to steatohepatitis with fibrosis and cirrhosis (possibly leading to chronic hepatic failure). The etiology of PNALD is multifactorial; however, intravenously administered phytosterols (plant sterols) contained in plant-derived lipid emulsions, including Intralipid, have been associated with development of PNALD.

In a randomized study of neonates and infants expected to be treated with PN for at least 28 days, parenteral nutrition-associated cholestasis (PNAC), a precursor to PNALD, developed more frequently in Intralipid-treated patients than patients treated with a 4-oil mixed lipid emulsion. *See Adverse Reactions (6.1), Use in Specific Populations (8.4).*

DOSAGE FORMS AND STRENGTHS

- 30% Injectable Emulsion:
 - 150 g/500 mL (0.3 g/mL) of lipid in Pharmacy Bulk Package (3)

CONTRAINDICATIONS

- Known hypersensitivity to egg, soybean, or peanut, or any of the active ingredients or excipients. (4, 5.3)
- Severe disorders of lipid metabolism characterized by hypertriglyceridemia (serum triglyceride > 1,000 mg/dL). (4, 5.7)

WARNINGS AND PRECAUTIONS

- Risk of Clinical Decompensation with Rapid Infusion of Intravenous Lipid Emulsion in Neonates and Infants:** Acute respiratory distress, metabolic acidosis, and death after rapid infusion of intravenous lipid emulsions have been reported. When Intralipid 30% is diluted to 20%, strictly adhere to the recommended total daily dosage; the hourly infusion rate should not exceed 0.125 g/kg/hour for neonates and infants. (5.1, 8.4)
- Risk of Parenteral Nutrition-Associated Liver Disease (PNALD):** Increased risk in patients who receive PN for extended periods of time, especially preterm neonates. Monitor liver function tests; if abnormalities occur consider discontinuation or dosage reduction. (5.2, 6.1, 8.4)
- Hypersensitivity Reactions:** Monitor for signs or symptoms. Discontinue infusion if reactions occur. (5.3)
- Risk of Infections, Fat Overload Syndrome, Refeeding Syndrome, and Hypertriglyceridemia:** Monitor for signs and symptoms; monitor laboratory parameters. (5.4, 5.5, 5.6, 5.7)
- Aluminum Toxicity:** Increased risk in patients with renal impairment, including preterm neonates. (5.8, 8.4)

ADVERSE REACTIONS

Most common adverse drug reactions (≥5%) from clinical trials in adults were nausea, vomiting, and pyrexia. Most common adverse drug reactions (≥5%) from clinical trials in pediatric patients were anemia, vomiting, increased gamma-glutamyltransferase, and cholestasis. (6.1)

To report SUSPECTED ADVERSE REACTIONS, contact Fresenius Kabi USA, LLC at 1-800-551-7176 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

DRUG INTERACTIONS

Vitamin K Antagonists (e.g., warfarin): Anticoagulant activity may be counteracted; increase monitoring of coagulation parameters. (7)

See 17 for PATIENT COUNSELING INFORMATION.

Revised: 3/2024

FULL PRESCRIBING INFORMATION: CONTENTS*

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* Sections or subsections omitted from the full prescribing information are not listed.

- Use the Intralipid 30% immediately for admixing after removal from the overpouch. If not used immediately, the product can be stored for no longer than 24 hours at 2°C to 8°C (36°F to 46°F). After removal from storage, and once the closure is penetrated, use Pharmacy Bulk Package contents within 4 hours.
- Diluting Intralipid 30% to a 10% or 20% concentration with an intravenous fluid such as normal saline or other diluent does not produce a dilution that is equivalent in composition to Intralipid 10% or 20% intravenous lipid emulsions. Therefore, diluents other than dextrose and amino acids should not be used to prepare admixtures for direct intravenous administration.

Admixing Instructions

- Prepare the admixture in PN containers using strict aseptic techniques to avoid microbial contamination.
- Do not add Intralipid 30% Pharmacy Bulk Package to the PN container first; destabilization of the lipid may occur. The prime destabilizers of emulsions are excessive acidity (such as a pH <5) and inappropriate electrolyte content. Amino acid solutions exert buffering effects that protect the emulsion from destabilization. Give careful consideration to the addition of divalent cations (Ca⁺⁺ and Mg⁺⁺), which have been shown to cause emulsion instability.
- Do not inject additives directly into Intralipid.
- Intralipid 30% may be mixed with amino acid and dextrose injections to produce "all-in-one" PN admixtures. The mixing sequence below must be followed for manual compounding to minimize pH-related problems by ensuring that typically acidic dextrose injections are not mixed with lipid emulsions alone; shake bags gently after each addition.
 - Transfer dextrose injection to the PN container.
 - Transfer amino acid injection.
 - Transfer Intralipid 30%.
- Simultaneous transfer of amino acid injection, dextrose injection, and Intralipid to the PN container is also permitted; follow automated compounding device instructions as indicated. Use gentle agitation during admixing to minimize localized concentration effects.
- Additions to the PN admixtures should be evaluated by a pharmacist for compatibility. Questions about compatibility may be directed to Fresenius Kabi.
- Inspect the admixture to ensure that precipitates have not formed during preparation of the admixture and the emulsion has not separated. Discard the admixture if any of the above are observed.
- Infuse admixtures containing Intralipid immediately. If not used immediately, store admixtures under refrigeration at 2°C to 8°C (36°F to 46°F) for no longer than 24 hours. Infusion must be complete within 24 hours after removal from refrigeration. Discard any remaining admixture.
- Protect the admixed PN solution from light.

2.3 Recommended Dosage and Administration

- The recommended nutritional requirements of lipid and recommended dosages of Intralipid to be administered to meet those requirements for adults and pediatric patients are provided in Table 1.
- The dosing of Intralipid depends on the patient's individual energy requirements influenced by age, body weight, tolerance, clinical status, and the ability to metabolize and eliminate lipids.
- When determining dose, energy supplied by dextrose and amino acids from PN, as well as energy from oral or enteral nutrition, has to be taken into account. Energy and lipid provided from lipid-based medications should also be taken into account (e.g., propofol).
- Prior to administration of admixtures with Intralipid, correct severe fluid and electrolyte disorders and measure serum triglyceride levels to establish a baseline value. In patients with elevated triglyceride levels, initiate Intralipid at a lower dosage and titrate in smaller increments, monitoring the triglyceride levels with each adjustment. *See Warnings and Precautions (5.7).*

Table 1: Recommended Pediatric and Adult Dosage for Intralipid Concentrations of 20% or less in an Admixture

Age	Nutritional Requirements
	Recommended Initial Dosage and Maximum Dosage
Birth to 2 years of age (including preterm and term neonates*) <i>See Warnings and Precautions (5.1)</i>	Initial 0.5 g/kg/day not to exceed 3 g/kg/day**
Pediatric patients 2 to <12 years of age	Initial 1 to 2 g/kg/day not to exceed 2.5 g/kg/day**
Pediatric patients 12 to 17 years of age	Initial 1 g/kg/day not to exceed 2 g/kg/day**
Adults	1 g/kg/day in stable patients ≤1 g/kg/day in critically ill patients not to exceed 2.5 g/kg/day**

* The neonatal period is defined as including term, post-term, and preterm neonates. The neonatal period for term and post-term neonates is the day of birth plus 27 days. For preterm neonates, the neonatal period is defined as the day of birth through the expected age of delivery plus 27 days (i.e., 44 weeks post-menstrual age).

** Daily dosage should also not exceed a maximum of 60% of total energy requirements. *See Overdosage (10).*

Dosage Modifications in Patients with Essential Fatty Acid Deficiency

When admixtures with Intralipid are administered to correct essential fatty acid deficiency (EFAD), supply 8% to 10% of caloric input from Intralipid in order to provide adequate amounts of linoleic and linolenic acids.

Monitor liver tests in patients treated with admixtures containing Intralipid and consider discontinuation or dosage reduction if abnormalities occur.

Other Hepatobiliary Disorders

Hepatobiliary disorders including cholecystitis and cholelithiasis have developed in some PN-treated patients without preexisting liver disease.

Monitor liver tests when administering admixtures containing Intralipid. Patients developing signs of hepatobiliary disorders should be assessed early to determine whether these conditions are related to Intralipid use.

5.3 Hypersensitivity Reactions

Intralipid contains soybean oil and egg phospholipids, which may cause hypersensitivity reactions. Cross reactions have been observed between soybean and peanut. Intralipid is contraindicated in patients with known hypersensitivity to egg, soybean, peanut or any of the active or inactive ingredients in Intralipid. If a hypersensitivity reaction occurs, stop infusion of admixtures containing Intralipid immediately and initiate appropriate treatment and supportive measures.

5.4 Infections

Parenteral nutrition, such as Intralipid, can support microbial growth and is an independent risk factor for the development of catheter-related bloodstream infections. To decrease the risk of infectious complications, ensure aseptic techniques are used for catheter placement, catheter maintenance, and preparation and administration of admixtures containing Intralipid.

Monitor for signs and symptoms of infection including fever and chills, as well as laboratory test results that might indicate infection (including leukocytosis and hyperglycemia). Perform frequent checks of the intravenous catheter insertion site for edema, redness, and discharge.

5.5 Fat Overload Syndrome

Fat overload syndrome is a rare condition that has been reported with intravenous lipid injectable emulsions and is characterized by a sudden deterioration in the patient's condition (e.g., fever, anemia, leukopenia, thrombocytopenia, coagulation disorders, hyperlipidemia, hepatomegaly, deteriorating liver function, and central nervous system manifestations such as coma). A reduced or limited ability to metabolize lipids, accompanied by prolonged plasma clearance (resulting in higher lipid levels), may result in this syndrome. Although fat overload syndrome has been most frequently observed when the recommended lipid dose or infusion rate was exceeded, cases have also been described when the lipid formulation was administered according to instructions.

If signs or symptoms of fat overload syndrome occur, stop the infusion of admixtures containing Intralipid. The syndrome is usually reversible when the infusion of the lipid emulsion is stopped.

5.6 Refeeding Syndrome

Administering PN to severely malnourished patients may result in refeeding syndrome, which is characterized by the intracellular shift of potassium, phosphorus, and magnesium as patients become anabolic. Thiamine deficiency and fluid retention may also develop. To prevent these complications, closely monitor severely malnourished patients and slowly increase their nutrient intake.

5.7 Hypertriglyceridemia

The use of Intralipid is contraindicated in patients with hypertriglyceridemia with serum triglyceride concentrations >1,000 mg/dL.

Patients with conditions such as inherited lipid disorders, obesity, diabetes mellitus, or metabolic syndromes have a higher risk of developing hypertriglyceridemia with the use of Intralipid. In addition, patients with hypertriglyceridemia may have worsening of their hypertriglyceridemia with administration of Intralipid. Excessive dextrose administration may further increase such risk.

Evaluate patients' capacity to metabolize and eliminate the infused lipid emulsion by measuring serum triglycerides before the start of infusion (baseline value) and regularly throughout treatment. If triglyceride levels are above 400 mg/dL in adults, stop the Intralipid infusion and monitor serum triglyceride levels to avoid clinical consequences of hypertriglyceridemia such as pancreatitis. In pediatric patients with hypertriglyceridemia, lower triglyceride levels (i.e., below 400 mg/dL) may be associated with adverse reactions. Monitor serum triglyceride levels to avoid potential complications with hypertriglyceridemia such as pancreatitis, lipid pneumonia, and neurologic changes, including kericterus.

To minimize the risk of new or worsening of hypertriglyceridemia, assess high-risk patients for their overall energy intake including other sources of lipids and dextrose, as well as concomitant drugs that may affect lipid and dextrose metabolism.

5.8 Aluminum Toxicity

Intralipid contains no more than 25 mcg/L of aluminum. Prolonged PN administration in patients with renal impairment may result in aluminum reaching toxic levels. Preterm neonates are at greater risk because their kidneys are immature, and they require large amounts of calcium and phosphate solutions that contain aluminum.

Patients with impaired kidney function, including preterm neonates, who receive parenteral levels of aluminum at greater than 4 to 5 mcg/kg/day can accumulate aluminum at levels associated with central nervous system and bone toxicity. Tissue loading in these patients may occur at even lower rates of administration.

5.9 Monitoring/Laboratory Tests

Monitor fluid status closely in patients with pulmonary edema or heart failure.

