SMOFlipid®

Lipid Injectable Emulsion, USP 20%

Please see Important Safety Information, including Boxed Warning, on slide 13.

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SMOFlipid®
Lipid Injectable Emulsion, USP 20%

Indications and Usage

- SMOFlipid is indicated in adults as a source of calories and essential fatty acids for parenteral nutrition when oral or enteral nutrition is not possible, insufficient, or contraindicated

Limitations of Use

- The ω-6:ω-3 fatty acid ratio and Medium Chain Triglycerides in SMOFlipid have not been shown to improve clinical outcomes compared to other intravenous lipid emulsions

Contraindications

- Known hypersensitivity to fish, egg, soybean, or peanut protein, or to any of the active ingredients or excipients
- Severe hyperlipidemia or severe disorders of lipid metabolism with serum triglycerides >1,000 mg/dL

Dosage

- The recommended daily dosage in adults is 1 to 2 grams/kg per day and should not exceed 2.5 grams/kg per day

*Please see Important Safety Information, including **Boxed Warning**, on slide 13 prior to using SMOFlipid*

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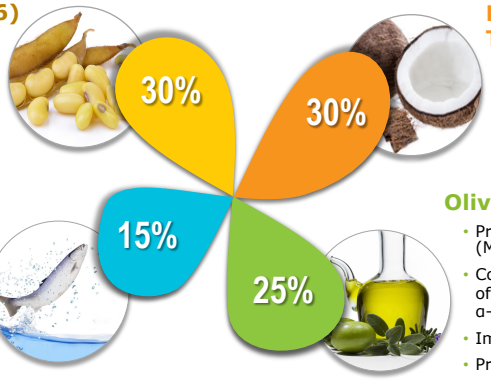
SMOFlipid®
Lipid Injectable Emulsion, USP 20%

Soybean Oil (ω-6)
- Source of essential fatty acids
- Provides energy



Medium Chain Triglycerides
- Source of rapidly available energy[1]
- Clears faster from the bloodstream than other fatty acids[2]

Fish Oil (ω-3)
- A source of ω-3 fatty acids (EPA and DHA)[4]
  - Considered conditionally essential fatty acids
- Provides energy

Olive Oil (ω-9)
- Provides ω-9 fatty acids (MUFA)
- Contains small amounts of linoleic acid and α-linolenic acid
- Immune neutral[3]
- Provides energy

α-tocopherol (approx. 200 mg/L) is an important antioxidant that protects long-chain polyunsaturated fats from peroxidation[5,6]

1. Deckelbaum RJ, et al. Medium-chain versus long-chain triacylglycerol emulsion hydrolysis by lipoprotein lipase and hepatic lipase: implications for the mechanisms of lipase action. *Biochemistry (Mosc).*1990;29(5):1136-1142; 2. Bach AC, et al. Medium-chain triglycerides: an update. *Am J Clin Nutr.* 1982;36(5):950-962. 3. Vanek VW, et al. A.S.P.E.N. position paper: Clinical role for alternative intravenous fat emulsions. *Nutr Clin Pract.* 2012;27(2): 150-192; 4. Kalish BT, Fallon EM, Puder M. *JPEN J Parenter Enteral Nutr.* 2012;36:380-388. 5. Burrin DG, et al. *Adv Nutr.* 2014;5(1):82-91; 6. Biesalski HK. *Gastroenterology.* 2009;137(5 Suppl):S92-S104.

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Lipid Injectable Emulsions for Adults: Composition Comparison

	Soybean Oil[1] 100%	Soybean Oil[2] 100%	Soybean Oil[3] 20% Olive Oil 80%	Soybean Oil[4] 30% MCT 30% Olive Oil 25% Fish Oil 15%
Fat Composition (%, Mean Values by Weight)				
α-Linolenic (ω-3)	7.5	7.5	2.35	2.25
Eicosapentaenoic (EPA ω-3)	0	0	0	2.3
Docosahexaenoic (DHA ω-3)	0	0	0	2.3
Linoleic (ω-6)	53	53	17.9	17.5
Oleic (ω-9)	24.5	23.5	61.9	29
α-Tocopherol (mg/L)[5]	38	No Data	32	163-225
Phytosterols (mcg/mL)[6]	342-439	No Data	274-226	178-207

- The 4-oil lipid emulsion contains EPA and DHA
  - ESPEN states, "Addition of EPA and DHA to lipid emulsions has demonstrable effects on cell membranes and inflammatory processes." (Grade B)[9]

1. Intralipid [prescribing information]; 2. Nutrilipid [prescribing information]; 3. ClinOleic [prescribing information]; 4. SMOFlipid [prescribing information]; 5. Vanek VW, et al., *Nutr Clin Pract.* 2012;27(2):150-192; 6. Vanek VW, et al. *Nutr Clin Pract.* 2014;29(6):841; 7. Klek S, et al. *Clin Nutr.* 2013;32(2): 224-231; 8. Grimm H, et al. *Eur J Nutr.* 2006;45(1):55-60; 9. Singer P, et al. *Clin Nutr.* 2009;28(4):387-400.

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SMOFlipid Safety and Efficacy Select Adult Clinical Studies

Author, Pub, Yr	Population/Duration/Dose	Intervention/Results
Genton[1] ESPEN Abstract, 2004	PN >7 days n=32 (24 PP) Dose: 1 g/kg/day	RCT: Total calories per indirect calorimetry or 20-30 kcal/kg/d from PN with SMOF vs. SO ILE Results: • No change in lipid profile • No change in glucose profile • No change in LFTs
Mertes[2] *Ann Nutr Metabolism*, 2006	Elective surgery PN X 5 days n=249 (199 PP) Dose: 1.5g/kg/d	RCT: Isocaloric, isonitrogenous PN w/ SMOF vs SO ILE Results: • Triglyceride levels in both groups equivalent (Mertes) • Fatty acid patterns with SMOF vs. SO ILE (reflects FA provided) • Higher α-tocopherol levels with SMOF (Grimm)
Grimm[3]* *Eur J Nutrition*, 2006	n=33 (subset) Dose: 1.5g/kg/d	
Klek[4] *Clinical Nutrition*, 2013	Intestinal Failure on HPN X 4 weeks n=73 (62 PP) Dose: 1-2g/kg/d	RCT: SMOF vs SO ILE Results: • Less TG increase in SMOF group • α-tocopherol levels increased in SMOF but stabilized at 4 weeks • Lower AST, ALT, T. Bili in SMOF group at 4 wks vs. SO ILE ($p<0.05$) • Plasma and RBC fatty acid (FA) profiles reflect FA provided

PP=per protocol, SO=soybean oil, SMOF=SMOFlipid, RCT=randomized control trial, ILE=intravenous lipid emulsion, LFT=liver function test, AST=aspartate aminotransferase, ALT=alanine transaminase, T. Bili=total bilirubin, RBC=red blood cell, HPN=home parenteral nutrition
*Grimm subgroup analysis of Mertes
1. Genton L, et al. *Clin Nutr.* 2004;23:793; 2. Mertes N, et al. *Ann Nutr Metab* 2006;50(3):253-259; 3. Grimm H, et al. *Eur J Nutr* 2006;45:55-60;
4. Klek S, et al. *Clin Nutr.* 2013;32(2):224-231.

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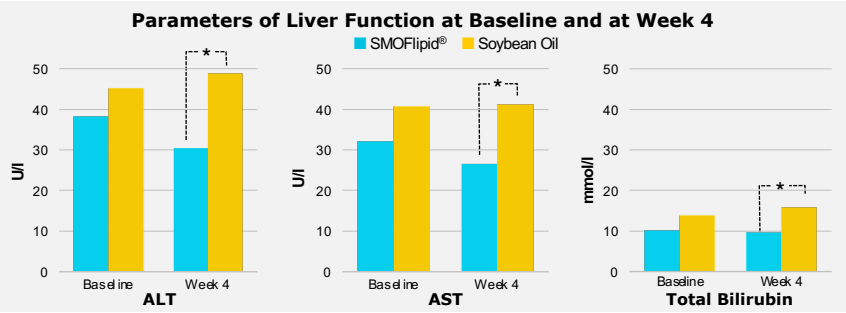
Liver Function Parameters 4 Week Study

- After 4 weeks, the mean concentrations of ALT, AST and total bilirubin were significantly lower in the Smoflipid group than the comparator group[1]
- ILE provided at 1.3 g/kg for both groups (n=73)



Monitor liver function. If SMOFlipid-treated patients develop liver enzyme abnormalities, consider discontinuation or dose reduction.

ALT=Alanine aminotransferase, AST=Aspartate aminotransferase
*Statistically significant difference between groups at week 4 ($p<0.05$)
Chart adapted from Klek S.[1]
1. Klek S, et al. Four-week parenteral nutrition using a third generation lipid emulsion (SMOFlipid®): a double-blind, randomised, multicentre study in adults. *Clin Nutr*. 2013;32(2):224-231.

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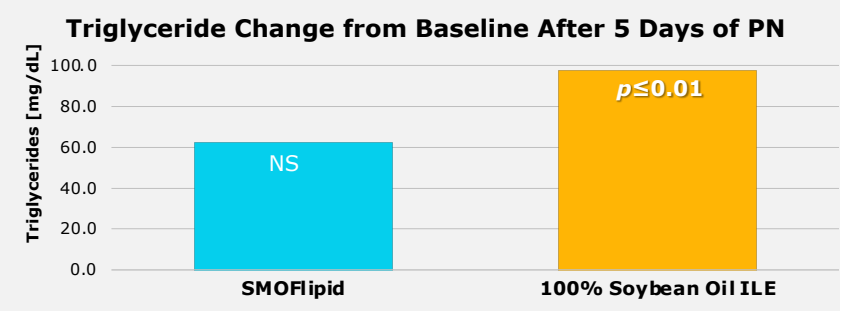
SMOFlipid® Shows Controlled Serum Triglyceride Levels

In postoperative surgical ICU patients (n=20, 1.5 g/kg/d lipid), SMOFlipid demonstrated a lower triglyceride increase from baseline compared to those patients who received a ILE with a higher soybean oil content[1]



Company-sponsored studies showed that mean triglyceride levels from baseline values to week 4 were similar In both the SMOFlipid and comparator groups

NS = Not significant

1. Antébi H, et al. *JPEN J Parenter Enteral Nutr.* 2004;28(3):142-148; Chart adapted from Antébi H, et al.

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What Do Clinical Guidelines Say?

American Society for Parenteral and Enteral Nutrition (ASPEN) position paper[1]:

"Alternative oil-based IVFEs are safe and effective alternatives to soybean oil IVFEs for a source of energy and essential FAs and may have potential biochemical and/or clinical benefits"

ASPEN/SCCM Critical Care Guidelines[2]: "When alternative IVFE are available in the US, based on expert opinion, alternative IVFE should be considered in the critically ill patient who is an appropriate candidate for PN"

Canadian Critical Care Nutrition guidelines[3]:

"When PN with IV lipids is indicated, IV lipids that reduce the load of ω-6 fatty acids/soybean oil emulsions should be considered"

ESPEN guidelines for critically ill patients[4]: "Lipids should be an integral part of PN for energy to ensure essential fatty acid provision in long-term intensive care unit patients"

This may include fish oil-enriched and olive oil-based lipid emulsions

ESPEN guidelines for surgical patients[5]: "Post op PN including omega-3 FA should be considered only in patients who cannot be adequately fed enterally and, therefore, require PN"

1. Vanek VW, et al. *Nutr Clin Pract.* 2012;27:150-192; 2. McClave et al, *JPEN J Parenter Enteral Nutr.* 3. *Canadian Critical Care Nutrition*, 2015. http://www.criticalcarenutrition.com/cpgs; 4. Singer P, et al. *Clin Nutr.* 2009; 28:387-400; 5. Weimann A, et al, *Clin Nutr.* 2017;36(3):623-650.

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ESPEN Workshop on "Lipids in the ICU"

Expert Group at ESPEN Workshop on "Lipids in the ICU" supports the use of olive oil and fish oil in nutrition support in surgical and non-surgical ICU patients, but considers that further research is required to provide a more robust evidence base.

"In addition to its positive effects on inflammation and immune function, fish oil (FO)-enriched PN may help to preserve liver function in critically ill surgical patients"

"If PN is required post-operatively in the ICU, 2nd or 3rd generation lipid emulsions may be administered, and in the case of surgical complications, FO-containing PN is recommended"

"Whilst the evidence base is not conclusive, there appears to be a potential for FO-enriched nutrition, particularly administered peri operatively, to reduce the rate of complications and ICU and hospital stay in surgical ICU patients, as well as to improve complications such as IFALD associated with SO-based ILEs"

Calder PC, et al. *Clin Nutr.* 2018 Feb;37(1):1-18.

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Summary of SMOFlipid®

Lipid Injectable Emulsion, USP 20%

- 4-oils: 30% SO, 30% MCT, 25% OO, and 15% FO
- SMOFlipid provided at 1-2 g/kg/d balances macronutrient intake
- Multiple associations recommend the use of mixed oil ILEs as safe and effective alternatives to soybean oil ILEs for a source of energy and essential FAs[1-3]
- Clinical outcomes:
  - Based on studies in adult patients; 5-28 days duration
    - Safe and well tolerated[4-6]
    - Noted to have similar or improved liver parameters[4,6]
    - Triglyceride level equivalent to 100% SO ILEs

*Please see Important Safety Information, including **Boxed Warning**, on slide 13 prior to using SMOFlipid.*

1. Weimann A, et al, *Clin Nutr.* 2017;36(3):623-650; 2. Vanek VW, et al. *Nutr Clin Pract.* 2012;27:150-192; 3. Singer P, et al. *Clin Nutr.* 2009;28:387-400; 4. Klek S, et al. *Clin Nutr.* 2013;32(2):224-231; 5. Wu MH, et al. *JPEN J Parenter Enteral Nutr.* 2014;38(7):800-808; 6. Antébi H, et al. *JPEN J Parenter Enteral Nutr.* 2004;28(3):142-148.

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Brief Summary of Prescribing Information

This brief summary does not include all the information needed to use Smoflipid safely and effectively. Please see full prescribing information, including Boxed Warning for Smoflipid (lipid injectable emulsion), for intravenous use at www.smoflipid.com.

WARNING: DEATH IN PRETERM INFANTS

See full prescribing information for complete boxed warning.

- Deaths in preterm infants after infusion of intravenous lipid emulsions have been reported in the medical literature.
- Autopsy findings included intravascular fat accumulation in the lungs.
- Preterm infants and low-birth-weight infants have poor clearance of intravenous lipid emulsion and increased free fatty acid plasma levels following lipid emulsion infusion

INDICATIONS AND USAGE

SMOFlipid is indicated in adults as a source of calories and essential fatty acids for parenteral nutrition when oral or enteral nutrition is not possible, insufficient, or contraindicated.

Limitations of Use: The omega-6:omega-3 fatty acid ratio and Medium Chain Triglycerides in SMOFlipid have not been shown to improve clinical outcomes compared to other intravenous lipid emulsions.

DOSAGE AND ADMINISTRATION

For intravenous infusion only into a peripheral or central vein. Recommended dosage depends on age, energy expenditure, clinical status, body weight, tolerance, ability to metabolize, and consideration of additional energy given to the patient. Prior to administration of Smoflipid, correct severe fluid and electrolyte disorders. The recommended daily dosage in adults is 1 to 2 grams/kg per day and should not exceed 2.5 grams/kg per day. Smoflipid 1000 mL is supplied as a Pharmacy Bulk Package for admixing only and is not for direct infusion. Prior to administration, transfer to a separate PN container.

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Brief Summary of Prescribing Information (cont.)

CONTRAINDICATIONS

- Known hypersensitivity to fish, egg, soybean, or peanut protein, or to any of the active ingredients or excipients
- Severe hyperlipidemia or severe disorders of lipid metabolism with serum triglycerides >1,000 mg/dL

WARNINGS AND PRECAUTIONS (also see BOXED WARNING)

- Death in Preterm Infants: Deaths after infusion of soybean-based intravenous lipid emulsions have been reported in preterm infants. Autopsy findings included intravascular lipid accumulation in the lungs. 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. The safe and effective use of Smoflipid in pediatric patients, including preterm infants, has not been established.
- Hypersensitivity Reactions: Smoflipid contains soybean oil, fish oil, and egg phospholipids, which may cause hypersensitivity reactions. Cross reactions have been observed between soybean and peanut oil. Signs or symptoms of a hypersensitivity reaction may include: tachypnea, dyspnea, hypoxia, bronchospasm, tachycardia, hypotension, cyanosis, vomiting, nausea, headache, sweating, dizziness, altered mentation, flushing, rash, urticaria, erythema, pyrexia, or chills. If a hypersensitivity reaction occurs, stop infusion of Smoflipid immediately and undertake appropriate treatment and supportive measures.
- Risk of Catheter-Related Infections: Lipid emulsions, such as Smoflipid, can support microbial growth and is an independent risk factor for the development of catheter-related bloodstream infections. The risk of infection is increased in patients with malnutrition-associated immunosuppression, long-term use and poor maintenance of intravenous catheters, or immunosuppressive effects of other concomitant conditions or drugs.
- Fat Overload Syndrome: Fat overload syndrome is a rare condition that has been reported with intravenous lipid emulsions. A reduced or limited ability to metabolize lipids accompanied by prolonged plasma clearance may result in a syndrome characterized by a sudden deterioration in the patient's condition including fever, anemia, leukopenia, thrombocytopenia, coagulation disorders, hyperlipidemia, liver fatty infiltration (hepatomegaly), deteriorating liver function, and central nervous system manifestations (e.g., coma).

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Brief Summary of Prescribing Information (cont.)

- Refeeding Syndrome: Refeeding severely undernourished patients with PN may result in the refeeding syndrome, characterized by the intracellular shift of potassium, phosphorus, and magnesium as the patient becomes anabolic. Thiamine deficiency and fluid retention may also develop.
- Aluminum Toxicity: Smoflipid contains no more than 25 mcg/L of aluminum. Prolonged PN administration in patients with renal impairment, the aluminum levels in the patient may reach toxic levels. Preterm infants are at greater risk because their kidneys are immature, and they require large amounts of calcium and phosphate solutions, which contain aluminum. Patients with renal impairment, including preterm infants, who receive parenteral levels of aluminum at greater than 4 to 5 mcg/kg/day accumulate aluminum to levels associated with central nervous system and bone toxicity. Tissue loading may occur at even lower rates of administration of PN products.
- Risk of Parenteral Nutrition-Associated Liver Disease: Parenteral nutrition-associated liver disease (PNALD) has been reported in patients who receive PN for extended periods of time, especially preterm infants, and can present as cholestasis or steatohepatitis. The exact etiology is unknown and is likely multifactorial. Intravenously administered phytosterols (plant sterols) contained in plant-derived lipid formulations have been associated with development of PNALD, although a causal relationship has not been established. If Smoflipid-treated patients develop liver test abnormalities, consider discontinuation or dose reduction
- Hypertriglyceridemia: Impaired lipid metabolism with hypertriglyceridemia may occur in conditions such as inherited lipid disorders, obesity, diabetes mellitus, and metabolic syndrome.
- Monitoring/Laboratory Tests: Routine Monitoring: Monitor serum triglycerides, fluid and electrolyte status, blood glucose, liver and kidney function, blood count including platelets, and coagulation parameters throughout treatment. Essential Fatty Acids: Monitoring patients for signs and symptoms of essential fatty acid deficiency (EFAD) is recommended. Reference values should be consulted to help determine adequacy of essential fatty acid status. Increasing essential fatty acid intake (enterally or parenterally) is effective in treating and preventing EFAD.
- Interference with Laboratory Tests: Content of vitamin K may counteract anticoagulant activity. The lipids contained in this emulsion may interfere with some laboratory blood tests (e.g., hemoglobin, lactate dehydrogenase [LDH], bilirubin, and oxygen saturation) if blood is sampled before lipids have cleared from the bloodstream.

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Brief Summary of Prescribing Information (cont.)

ADVERSE REACTIONS (also see Warnings and Precautions)

Clinical Trials Experience

Most common adverse drug reactions >1% of patients who received Smoflipid from clinical trials were nausea, vomiting, hyperglycemia, flatulence, pyrexia, abdominal pain, increased blood triglycerides, hypertension, sepsis, dyspepsia, urinary tract infection, anemia and device related infection.

Less common adverse reactions in ≤1% of patients who received Smoflipid were dyspnea, leukocytosis, diarrhea, pneumonia, cholestasis, dysgeusia, increased blood alkaline phosphatase, increased gamma-glutamyltransferase, increased C-reactive protein, tachycardia, liver function test abnormalities, headache, pruritis, dizziness, rash and thrombophlebitis.

Postmarketing Experience

The following adverse reactions have been identified during post-approval use of Smoflipid in countries where it is registered. Infections and Infestations: infection. Respiratory, Thoracic and Mediastinal Disorders: dyspnea.

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

Coumarin and Coumarin Derivatives, Including Warfarin: Anticoagulant activity may be counteracted; monitor laboratory parameters

USE IN SPECIFIC POPULATIONS

Pregnancy: There are no available data on risks associated with Smoflipid when used in pregnant women. Animal reproduction studies have not been conducted with Smoflipid. It is not known whether Smoflipid can cause fetal harm when administered to a pregnant woman. Consider the benefits and risks of Smoflipid when prescribing to a pregnant woman. In the US general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2% to 4% and 15% to 20%, respectively.

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Brief Summary of Prescribing Information (cont.)

USE IN SPECIFIC POPULATIONS (cont.)

- Lactation: No data are available regarding the presence of Smoflipid in human milk, the effects on the breast fed infant, or the effects on milk production. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for Smoflipid, and any potential adverse effects on the breastfed infant from Smoflipid, or from the underlying maternal condition.
- Pediatric Use: The safety and effectiveness of Smoflipid have not been established in pediatric patients. Deaths in preterm infants after infusion of intravenous lipid emulsion have been reported.
- Geriatric Use: Energy expenditure and requirements may be lower for older adults than younger patients. Of the 354 patients in clinical studies of Smoflipid, 35% were >65 years of age and 10% were >75 years of age. No overall differences in the safety and efficacy of Smoflipid were observed between these patients and younger patients, and other reported clinical experience has not identified differences in responses between the elderly and younger patients, but greater sensitivity in some older patients cannot be ruled out.
- Hepatic Impairment: Parenteral nutrition should be used with caution in patients with hepatic impairment. Hepatobiliary disorders are known to develop in some patients without preexisting liver disease who receive parenteral nutrition, including cholestasis, hepatic steatosis, fibrosis and cirrhosis (parenteral nutrition associated liver disease), possibly leading to hepatic failure. Cholecystitis and cholelithiasis have also been observed. The etiology of these disorders is thought to be multifactorial and may differ between patients.

OVERDOSAGE

- In the event of an overdose, fat overload syndrome may occur. Stop the Smoflipid infusion until triglyceride levels have normalized. The effects are usually reversible by stopping the lipid infusion. If medically appropriate, further intervention may be indicated. Lipids are not dialyzable from serum.

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Thank You!

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Appendix

Optional Supporting Resources

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Additional Summary Information

- Lipids serve as an important dietary source of energy and provide much of the critical structural and metabolically functional components of all biological membranes[1]
- SMOFlipid is the only lipid emulsion in the U.S. that contains four oils[2]
- All adult patients on PN are candidates for SMOFlipid[3,4]
- The omega-6:omega-3 fatty acid ratio and Medium Chain Triglycerides in SMOFlipid have not been shown to improve clinical outcomes compared to other intravenous lipid emulsions[2]

Please see Important Safety Information, including Black Box Warning prior to using SMOFlipid.

1. Hise M, Brown JC. *The ASPEN Adult Nutrition Support Core Curriculum*. 3rd Edition, 2017. Silver Springs, MD: American Society for Parenteral and Enteral Nutrition; 2. SMOFlipid Prescribing Information. 2018. Fresenius Kabi; 3. Klek S, et al. Four-week parenteral nutrition using a third generation lipid emulsion (SMOFlipid®): a double-blind, randomised, multicentre study in adults. *Clin Nutr.* 2013;32(2):224-231; 4. Antébi H, et al. *JPEN J Parenter Enteral Nutr.* 2004;28(3):142-148;

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Effect of FO-containing ILE in Surgical Patients

Meta Analysis (N=19 studies; 1,167 patients)

- This study is a systematic review and meta-analysis by Bae, et al. of data comparing outcomes in surgical patients receiving FO-containing ILE vs non-FO containing ILE
- The search was conducted via MEDLINE, EMBASE, Cochrane Central through Aug 2014. The Cochrane Risk of Bias Tool was used to evaluate each trial 19 RCTs (1167 pts) met inclusion criteria
- The FO-containing ILE products were: FO-, FO+SO-, FO+SO+MCT+OO-, FO+SO+MCT-containing ILE. The non-FO containing ILE products were: SO-, OO/SO-, MCT/LCT-containing ILE

Bae HJ, et al. *Am J Health-Syst Pharm.* 2017;74(12):904-918.

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Effect of FO-containing ILE in Surgical Patients

Meta Analysis (N=19 studies; 1,167 patients)

Clinical Outcome	Effect	95% CI	p value
Mortality	OR 1.2	0.46 - 3.12	0.72
Hospital LOS	WMD -1.81	-2.89 to -0.74	0.0009 (I^2 = 60%)
Hospital LOS (SO subgroup analysis)	WMD -2.7	-3.6 to -1.79	<0.00001
Post-op infections	OR 0.44	0.3 to 0.65	<0.0001
Post-op infections (SO subgroup analysis)	OR 0.42	0.25 to 0.72	0.001

Conclusion:
Overall effect on outcomes greatest with FO-containing ILE vs. SO ILE

WMD=Weighted Mean Difference; OR=Odds Ratio
Bae HJ, et al. *Am J Health-Syst Pharm.* 2017;74(12):904-918.

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Meta Analysis: Fish Oil Containing ILE

- Efficacy and safety of ω-3 enriched ILE in elective surgical and ICU patients vs. non-FO enriched ILE

  23 RCT (13 RCT: ICU, 10 RCT: Abdominal Surgery non-ICU), n=1502

Clinical Outcome	Effect	95% CI
Mortality (Primary Outcome)	RR 0.89	0.59 – 1.33
Hospital LOS	MD -3.29	-5.13 – -1.45*
ICU LOS	MD -1.92	-3.27 – -0.58*
Infections	RR 0.61	0.45 – 0.84*

- Statistically significant non-clinical outcomes:
  - Increased LTB5/LTB4 ratio, DHA, EPA, α-tocopherol levels
  - Reduced IL-6 levels
  - Reduced AST/ALT

MD=Mean difference; RR=Risk ratio

*Sig diff in LOS and infections: confidence interval does not pass 1.0

Pradelli L, Mayer K, Muscaritoli M, Heller AR. *Crit Care.* 2012;16(5):R184 & Correction: Pradelli, et al. *Crit Care* 2013;17(1):405.

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Health Economic Study: Fish Oil Containing ILE

- Cost-effectiveness based on the results of the meta-analysis by Pradelli, et al. 2012[1,2] and country-specific cost data[3]
- In the model calculation, fish oil-containing ILE treatment costs in 4 countries were offset by reduction in hospital stay and antibiotic costs

Country	Cost Savings per Non-ICU Patient ($)	Cost Savings per ICU Patient ($)
France	2,051	5,584
Germany	1,481	4,558
Italy	1,139	5,356
UK	684	5,470

†Dollar amounts converted from EUR to USD using XE Currency Converter

1. Pradelli L, Mayer K, Muscaritoli M, Heller AR. *Crit Care.* 2012;16(5):R184; 2. Pradelli L, et al. Correction: *Crit Care* 2013;17(1):405; 3. Pradelli L. *Clin Nutr.* 2014;33(5):785-792.

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