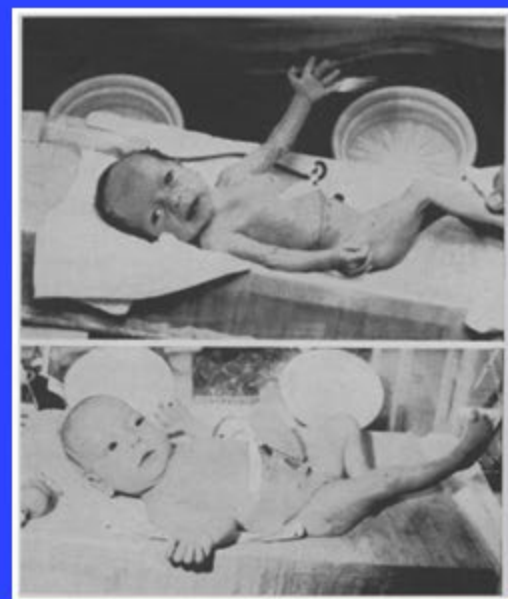


A Brief History of PN

History of PN in North America

- Requirements for PN
 - Appropriate venous access
 - Appropriate intravenous nutrient solutions
- 1930's
 - Protein hydrolysate solutions available (high immunogenicity)
- 1960's
 - Safe intravenous fat emulsion preparation (Europe only)
 - Seldinger technique for central venous access
 - 1968: First clinical report of long-term PN support in beagle puppies
 - 1968: First case report of preterm infant maintained for 44 days on intravenous nutrition



History of PN in North America – Cont'd

- 1970's
 - Crystalline amino acid solutions available (decreased immunogenic reactions)
- 1980's
 - Infant-specific crystalline amino acid solutions
 - Alternative lipid emulsions developed in Europe
 - American Medical Association Nutrition Advisory Group recommendations for intravenous vitamins

History of PN in North America – Cont'd

- 2000's
 - 2002 – USA Food and Drug Administration (FDA) pediatrics approval for Intralipid®
- 2010's
 - 2016 – Health Canada pediatric approval for SMOFLipid®
 - 2018 – FDA pediatric approval for Omegaven®
- 2020's
 - 2022 – FDA pediatric approval for SMOFLipid®
 - 2024 - FDA pediatric approval for CLINOLIPID®