

2021 Infusion Therapy Standards of Practice Update

EDITOR'S NOTE

INS strives to align the *Standards* with guidelines and clinical practice recommendations based on the most current evidence available. In our effort to provide consistent information and minimize confusion, this article outlines 4 corrections that will supersede recommendations published in January 2021. Please take a moment to carefully read through each item and make the appropriate updates to your clinical practice. A formal correction will be printed in the *Journal of Infusion Nursing* July/August issue with corresponding links to the digital edition.

NEW RECOMMENDATIONS FOR FILTRATION

After publication of the 2021 *Infusion Therapy Standards of Practice* (the *Standards*) in January, the American Society for Parenteral and Enteral Nutrition (ASPEN) released new guidance on filtration of parenteral nutrition (PN). Compiled by Lisa Gorski, MS, RN, HHCNS-BC, CRNI®, FAAN, INS Standards of Practice Committee Chair, and Patricia Worthington, MSN, RN, CNSC, ASPEN Board of Director and PN Safety Committee member, this clinical practice brief outlines a history of filtration and summarizes some key information from ASPEN's 2021 recommendations which will update the recommendations in the *Standards*.¹ Clinicians are encouraged to read the ASPEN Position Paper for a thorough discussion about particulate matter and challenges and issues related to PN filtration.²

An abbreviated history of filtration is as follows²:

- Since 2004, ASPEN has recommended filtration with a 0.22-micron filter for non-lipid containing PN solutions and a 1.2-micron filter for lipid containing solutions.³
- In 2014, ASPEN addressed that the problem of occluded filters may be due to use of an incorrect filter size or the presence of particulate matter in the solution. The recommendations for 0.22- and 1.2-micron filters were unchanged and no alternative recommendation for use of a 1.2-micron filter to manage precipitation were made.⁴
- The 2021 *Standards* included the 2014 ASPEN safety recommendations, filtration of injectable lipid emulsions (ILEs), and additional evidence citations addressing particulate matter and microbubbles.¹
- In February 2021, ASPEN published new recommendations for filtration that states: Use a 1.2-micron filter for all PN solutions including PN solutions with lipids ["total nutrient admixtures" (TNA)], dextrose-amino acid admixtures, and lipid injectable emulsions. To align with ASPEN, this new recommendation supersedes the INS Practice Recommendations for the use of 0.22-micron filtration for non-lipid solutions.
- Specifically, this revised guidance impacts Standard 35, Filtration, Practice Recommendation G (page S103)¹ and Standard 63, Parenteral Nutrition, Practice Recommendation B1 (page S190).¹

Why is filtration of PN solutions critically important? What are the clinical consequences of particulate matter? In-line filters were initially developed for infection control purposes, but their role in protecting patients from the harmful effects of particulate matter has emerged as their primary purpose in infusion therapy. The main consequence of particulate matter is to the lungs. Symptoms may include fever, dyspnea, cough, respiratory failure, and even sudden death. Notably, when medications are co-infused with PN, there is an even greater increase in particulate matter. In 1994, the US Food and Drug Administration (FDA) issued a safety alert regarding patient deaths related to calcium-phosphate precipitation in PN solutions that led to microvascular pulmonary emboli.⁵ As a result, ASPEN worked in collaboration with the FDA to develop the filtration recommendations.

Filtration poses challenges such as decreased flow rates, occlusion alarms and air locks. Cost has also been cited as a barrier to consistent use. Use of only 1.2-micron filters reduces the risk of errors associated with using 2 different types of filters not only by nurses but also by home care patients receiving PN and reduces cost. ASPEN provides procedural steps for the use of filters. In addition to the Position Paper, ASPEN has created a 2-page fact sheet that includes best practices for filter use, helpful illustrations, and guidance in trouble-shooting high pressure/occlusion alarms and potentially occluded filters.⁶ For more detailed information access the fact sheet at: www.nutritioncare.org/uploadedFiles/Documents/Guidelines_and_Clinical_Resources/IV-Filters-For%20PN-Factsheet.pdf.

REFERENCES

1. Gorski LA, Hadaway L, Hagle ME, et al. Infusion therapy standards of practice. *J Infus Nurs*. 2021;44(suppl 1):S1-S224. doi:10.1097/NAN.0000000000000396
2. Worthington P, Gura KM, Kraft MD, et al. Update on the use of filters for parenteral nutrition: an ASPEN position paper. *Nutr Clin Pract*. 2021;36(1):29-39. doi:10.1002/ncp.10587 Mirtallo J,
3. Canada T, Johnson D, et al. Safe practices for parenteral nutrition. *JPEN J Parenter Enteral Nutr*. 2004;28(6):S39-S69.
4. Ayers P, Adams S, Boullata J, et al. American Society for Parenteral and Enteral Nutrition. A.S.P.E.N. Parenteral nutrition safety consensus recommendations. *JPEN J Parenter Enteral Nutr*. 2014;38(3):296-333.
5. Lumpkin MM. Safety alert: hazards of precipitation associated with parenteral nutrition. *Am J Hosp Pharm*. 1994;51(11):1427-1428.
6. ASPEN Parenteral Nutrition Safety Committee. Update on the use of filters for parenteral nutrition. American Society for Parenteral and Enteral Nutrition; 2021. Accessed May 7, 2021. https://www.nutritioncare.org/uploadedFiles/Documents/Guidelines_and_Clinical_Resources/IV-Filters-For%20PN-Factsheet.pdf

ADDITIONAL CORRECTIONS

Abbreviations and Acronyms

ILE [Page S10]

The corrected definition for ILE should be injectable lipid emulsion.

Standard 33, Vascular Access Site and Skin Antisepsis

Practice Recommendation D [Page S96]

The original statement reads:

Use a single-use sterile applicator containing sterile solution, not a multiple use product (eg, bottle of antiseptic solution).^{3,5} (IV)

In the corrected statement below, the word *sterile* has been removed:

Use a single-use applicator containing antiseptic solution, not a multiple use product (eg, bottle of antiseptic solution).^{3,5} (IV)

Standard 46, Phlebitis

Table 2. Visual Phlebitis Scale [Page S139]

The corrected scale should range from 0 to 5 as shown here:

TABLE 2	
Visual Infusion Phlebitis Scale ^a	
Score	Observation
0	IV site appears healthy
1	One of the following is evident: Slight pain near IV site OR slight redness near IV site
2	Two of the following are evident: <ul style="list-style-type: none">• Pain at IV site• Erythema• Swelling
3	All of the following signs are evident: <ul style="list-style-type: none">• Pain along path of cannula• Induration
4	All of the following signs are evident and extensive: <ul style="list-style-type: none">• Pain along path of cannula• Erythema• Induration• Palpable venous cord
5	All of the following signs are evident and extensive: <ul style="list-style-type: none">• Pain along path of cannula• Erythema• Induration• Palpable venous cord• Pyrexia

Abbreviation: IV, intravenous.
^aData from Jackson.⁵⁹ Reprinted with permission.

REFERENCE

Gorski LA, Hadaway L, Hagle ME, et al. Infusion therapy standards of practice. *J Infus Nurs.* 2021;44(suppl1):S1-S224. doi:10.1097/NAN.0000000000000396