Attitudes & Perceptions of Blenderized Tube Feeding Use Among Physicians & Advanced Practice Providers

Featuring:

Kathleen Eustace, MPH, RD

TRANSCRIPT

Maura Bowen: Hello, listeners and welcome back for the second episode in our three-part podcast series on blenderized tube feeding. In our previous episode we welcomed Dr. Teresa Johnson from Troy University, who talked about the prevalence and the efficacy and the safety of these types of feedings. Now, if you missed Dr. Johnson's interview you can find it on the AHNI Power of Nutrition Spotify page or on ANHI.org, under Resources > Podcasts and Videos.

I'm Maura Bowen and joining me today is Kathleen Eustace, an instructor in the Department of Clinical Nutrition at the University of Texas Southwestern in Dallas, Texas. Now, Kat and her colleagues recently published an article titled Attitudes and Perceptions of Blenderized Tube Feeding Use Among Physicians and Advanced Practice Providers. You can find this article in the February 1-7, 2021 edition of ASPEN's Journal of Parenteral and Enteral Nutrition or on ANHI.org, under Resources > Podcasts and Videos. With all that said let's get started. I'm Maura Bowen, with Abbott Nutrition Health Institute, and I am delighted to introduce you to Kat Eustace. Kat, thanks for joining us.

Kathleen Eustace: Absolutely, thank you for having me.

Maura Bowen: Great. Before we begin, know that I'm recording in the studio and Kat is dialing in from her office in Dallas so you may notice some slight differences in tonality across this recording. And then, Kat, let's get this started the right way. I want to make sure that I take a few minutes to properly introduce you. So, can you tell us a bit about yourself and your background?

Kathleen Eustace: Absolutely. I am a registered dietitian nutritionist. I have a BS in dietetics and a Master's in public health actually from UT Health Science Center in Houston. I also completed my dietetic internship through UT Health Science Center and I have actually been a clinical dietitian for a majority of my career until about 2018. I actually started at UT Southwestern Medical in the Gastroenterology, Digestive & Liver Disease Clinic, which was a wonderful experience and really got me started in enteral and parenteral nutrition and

specifically in GI disorders and diseases where I got my first taste of people wanting to switch over to more natural, holistic options and diet options.

Um, I did that for many years and then I moved actually over to Children's Health, Dallas, where again, I was in the digestive and liver disease clinic. And this is where I was introduced to blenderized tube feeding. When I first started that position I knew that I was going to be taking on a large volume of enteral patients more than I had ever taken on before, but I'm still extremely surprised when I had patients come to me and ask to do home blenderized tube feedings, as this was not something that I was really educated on in my dietetic internship Masters' program.

I had to learn quickly how to support these patients. We actually really didn't even have a protocol in the hospital at that time and I did end up at my time building a protocol and the educational resources for the other dietitians to support our families who wanted to provide blenderized tube feeds to their children. I eventually moved over to home infusion, and then I took this position at UT Southwestern, where ~~I'm out doing...~~ I'm actually doing outpatient counseling, doing enteral feeds as well as some nutrition counseling. I also teach in our master's program, but unsurprisingly, I have a large volume of GI patients and I always have a portion of those who are interested in blenderized tube feeding.

Maura Bowen: Oh, thank you. That's such a great background and it's such a pleasure to have you here today, because as you said, this topic is really gaining traction among our listeners so it's an important thing for us to cover that. Let's start with a foundational question, can you tell us a little bit about blenderized or real food tube feeding? Just explain to us what it is.

Kathleen Eustace: So real blenderized or real food tube feeding is whole foods blended and provided via an enteral tube. It is mostly up until this point been home-blenderized tube feed. With a variety of ingredients, we create a recipe and then the patient uses… Or their caregiver uses a high-powered blender to create a basically an enteral formula, a liquid formula out of foods that they just have in their home. Most recipes consist of a protein source, whether it be canned chicken or meat source or for our vegan vegetarian families we could have used quinoa, almond butter. Certainly, there's options for use of Greek yogurt and things like that for vegetarians and it also has a starch, selected fruits and vegetables, and usually a liquid that we use for blending.

I would say that it's been coming around last five years or so where we've really had a lot more options and selections. But these again are mostly whole foods although you will see some protein isolates and other type of ingredients that maybe we wouldn't see in actual kitchens, but they're very similar in profile.

Maura Bowen: Thank you, that was really helpful. And I wanted to ask it, because you're a dietitian working within the clinical area, are you personally seeing an increase in its usage and why do you think that is?

I am personally seeing an increase and I've been interested to watch that. And as you so eloquently put it, it has gained traction. And I don't know that it's been a surprise, I think the first time I heard it, I thought, wow, I think this is going to be one of the few times I deal with this and then just that was completely wrong. And no matter where I go, I see more and more of it. Certainly, in pediatrics, it's a higher percentage and now that I'm in the adult world, I'm seeing it quite frequently. And there's a lot of different reasons why. That... There's a lot of different contributing factors to this.

Most of the ones I see are improved GI tolerance, the avoidance of synthetic ingredients. There are some social and emotional reasons so the families, they want to just feed what they're eating. They want to use whole foods; they want to be more involved in the process of caring and nurturing through food. I've seen some avoidance of allergens, preferences for religious preferences or social preferences.

Maura Bowen: (silence. Question missing)

Kathleen Eustace: No, I would say it's all caregivers and patients. I have only had one physician in my career who would discuss with me the possibility of starting home blenderized tube feed. So, one, in a decade, I have found that physicians are supportive and so I think that that's nice but that's the driving force behind my research, but it really is caregiver- and patient-driven.

There isn't research out there that just show how dietitians feel about blenderized tube feeding and many of them are supportive but again there's a lot of apprehension because of some of the barriers of blenderized tube feed.

Maura Bowen: So, it sounds like an opportunity for this kind of education, this conversation today is to be shared with clinicians. With that in mind, what are some of the advantages in your mind of using blenderized or real food tube feeding just based on what you've seen through your own practice and the other side of that coin is what are some of the disadvantages?

Kathleen Eustace: Well, I think the advantages are parallel with reason the usage has increased. There are a lot of good reports on increased in GI-tolerance, increased enteral tolerance. Unfortunately, a lot of that research is in pediatrics, but I have seen it anecdotally with my adult patients. I do see a lot of patients who... They just have decreased GI upset, decreased reflux. They're able to handle their feeds a little bit better, they don't have as much discomfort. And so, I think that that's a huge benefit for our patients because they're just more relaxed. They feel better and you can never put a price on quality of life, and I think that that's a huge driver and that's a huge advantage of blenderized tube feed.

Kathleen Eustace: And among that, I think that it's nice to have flexibility of ingredients, religious, personal preference. So many of our oncology patients are searching for more-natural options, better food options

and they look to blenderized tube feed in order to meet that need and we are able to help them meet that need. And so much discomfort comes along with chemotherapy and radiation and so we're able to give them better outcomes or their enteral feeds less pain, less discomfort, that is an advantage.

There's also the advantage of being able to include them with family meals. There is social impact and there is psychological impact of enteral feeding that we never want to discount because we always want to treat the patient as a whole. And blenderized tube feeding, I see it raise the patient up as a whole and raise the family up as a whole together oftentimes, and that's something that we just don't think about when we're so focused on medical treatment of a disease and its outcome. And so, there are a lot of benefits to blenderized tube feeding, although you've asked this, and certainly there are disadvantages, both risk and with requirements. It requires a lot of specific equipment, a high-power blender, storage equipment, freezer and refrigerator space.

Obviously, the food is not covered. You would have to have financial means to purchase everything that you need. The patients and the caregiver who want to do this, they need to be referred to a dietitian who is familiar with this who can provide them with a recipe, education on sanitation and preparation and provision so that we can prevent all the risks which come along with blenderized tube feed. Which is actually can be poor, a microbial overload. There can be some risk with occlusion. There's definitely a risk with inadequate nutrient provision. And so, it's really important that we have a lot of resources and education and that we come together as a field to actually to reduce and prevent these risks and these disadvantages of blenderized tube feed.

Maura Bowen: Those are all fabulous points. And I wanted to just take a step back for a moment because you mentioned the body of research, and I know that you and your colleagues recently published a study in the Journal of Parenteral and Enteral Nutrition, I think in February, 2021, that was the one I mentioned in the introduction called Attitudes and Perceptions of Blenderized Tube Feeding Use Among Physicians and Advanced Practice Providers. So, since we have you on the line, could you tell us why you conducted this research and why you focused on physicians and advanced practice providers?

Kathleen Eustace: I took this position at UT Southwestern and I was a brand new faculty member, brand new to education, brand new to really research. I hadn't had the opportunity to do a lot of research in my clinical field as I was mostly focused on patient care. And I was talking to some of my students about blenderized tube feed. They were asking me questions. And one of them asked me, "How do you get the doctors to buy into this?" And I stopped for a minute and I thought about it and I said, "That's a really good question. I don't know if it's buy-in in so much as discussion, because most of the time physicians they don't know that much about it, even if they are familiar with it at all."

And so, we had a quick conversation about whether physicians really know anything about this and what it would be like and I actually didn't have that many answers for them. And I thought, "Well, that would be a really interesting survey, there's nothing out there about this. We should look into it." And they thought, yes, let's do this. This whole research just came out of the discussion but if you think about it it's so important, you have to have physician and advanced practice providers involved because they are the head of the multi-disciplinary team and that they are the ones that write orders for enteral nutrition, that go to durable medical equipment companies, DME companies. They're the ones who adjust medications to support reduction in discomfort for GI and tolerance.

They are involved in this care and something so big as blenderized tube feeding that can affect so much in a patient's life and the physician or the advanced practice provider knows nothing about it. They don't know how to help them, they don't know how to support it, they don't know how it's affecting them. That's a huge disconnect. I was really interested to see, well, where do these physicians stand? What are their thoughts about it? Do they have any familiarity with it? And if they do, are they willing to support patients who are interested?

It grew out of that conversation and then we created the survey because we know as we've said before in this conversation, this is gaining traction and it's probably not going to go away. It's important for many of these patients and they want to home-blend or use commercial blenderized tube feed and so we need to have every member of the interdisciplinary team aware and involved. I really wanted to see exactly what we should do and really where these physicians and advanced practice providers were at regarding the topic of blenderized tube feeders.

Maura Bowen: What can you tell us about your study sample? How many physicians and advanced practice providers did you survey for this research?

Kathleen Eustace: A little less than 1200. We only sent to specialties that we knew were going to be involved in enteral nutrition, GI, internal medicine oncology. We drew from all the major networks in Texas, a little bit from Louisiana as well.

So, we actually just did an across the board survey. We had a 17% response rate which is actually pretty similar to most survey literature. We had planned for a 15 to 20% response rate. Truth is I was actually pretty disappointed in the advanced-practice practitioner response. But there could have been some limitations to that. Perhaps there were just not that many in the clinics or that the ratio of advanced practitioners in these specialties compared to the number of physicians was just out of range or there were just more physicians than APPs. But I'd hope to get more information because certainly here in Texas we have a large increase of advanced practice providers coming onto the scene and supporting patients as a primary caregiver. So we had a fairly good response rate. If I had to do it again I think that I would have pulled out all pediatric

physicians and APPs, and I think I would have focused on adults, but certainly that's just an area now that I might continue on with research.

Maura Bowen: Your study found some interesting results related to clinician familiarity with blenderized tube feedings and formal training on the subject. Can you speak to those results for us?

Kathleen Eustace: Absolutely. It was really an even split between familiarity and not, which I thought was interesting. Personally, I thought there was actually going to be less familiarity, so I was happy and surprised to see a nice 50/50 split. What I found most interesting is that within those that were familiar, most would recommend or support blenderized tube feeds for their patients, but they reported that their confidence was very poor. 25% of those surveyed who responded had greater than 25% of their patients on EN and almost two thirds of these were very positive and their response for recommending blenderized tube feed and 100% were willing to support a patient who came to them and requested blenderized tube feed. Which I thought was very exciting to hear, which means we don't have a lot of pushback on blenderized tube feeds, but unfortunately almost 100%, exactly 95% of those surveyed had absolutely no formal training and we had a very, very high percentage of poor or lack of confidence in their ability to support patients.

Kathleen Eustace: It wasn't unexpected, and it's certainly hinders the process of supporting patients. And I think that our physicians and APPS that were surveyed really saw... Well, I really felt that they would go out and support, but they just didn't know how to do that. We finished this manuscript and right as it was being published, the American Society of Parenteral and Enteral Nutrition released a video series, a series about blenderized tube feeds and I would sure be interested to see how that changed some of the responses about resources.

Maura Bowen: With all of that in mind, thinking about your study what did it show in terms of the most perceived benefits and barriers to using blenderized or real food tube feeding?

Kathleen Eustace: Well, I was not surprised by confidence and those who were surveyed, the training they had, that didn't surprise me. But I thought that perceived barriers and benefits was very surprising. The most perceived benefits were a tailoring of the diet and then the psychological benefits. Where the most perceived barrier was actually occlusions followed by inadequate resources and research to support use which that actually reflected the survey reports of lack of confidence and inability to support a patient and no formal training, so that goes all in line together.

Nutrition and adequacy were actually barriers that were the third highest reported, however, weight gain and weight loss were the lowest-perceived benefit and barrier respectively, which is very interesting because nutrition inadequacy usually leads to weight loss as well as macro- and micro- nutrient deficiencies. I thought

that there was a little bit of a disconnect there where the concern was nutritional inadequacy, but they didn't see it as a risk for weight loss.

And actually, an article was published in 2020, a review article looking at nutrition status, weight, BMI, for arm circumference, BMI. And they actually concluded that blenderized tube feed should not be appropriate for patients who are at risk or have malnutrition, or for certain patients who have high-risk diagnoses that are at higher risk for malnutrition. And those actually include some GI diagnoses and some cancer diagnoses. I'm sure other registered dietitians and physicians would say, "Those are the patients that are most interested in blenderized tube feeding." And so that's a complication that deserves some exploration.

It's, the perceived barriers and benefits I think we're very interesting, but the reason I included those in the study was I really thought that that would help guide further research on what we need in order, one, to know where the weaknesses are in regards to understanding of blenderized tube feeds and what we need to focus on to strengthen in the area of blenderized tube feeds.

Maura Bowen: That is so interesting, and I also read that your results show that, and this is a quote, "95.1% of respondents noted having access to a registered dietitian nutritionist" which is phenomenal. Although whether these nutrition experts had any previous experience with or education on blenderized tube feeding is unknown. Can you talk to us about that statement and what it means to you?

Kathleen Eustace: Oh, absolutely. Registered dietitians, registered dietitian nutritionists, we are a far-arching field. And I don't know how many people realize this, but when you graduate from a dietetic internship, you can actually go into outpatient, inpatient, food services management, you can go to long-term care. We have this huge breadth of areas where a dietitian becomes a specialist. Say you decide to go into inpatient care, usually blenderized tube feeds are not available in inpatient care. We use commercial formulas in inpatient care. When I say inpatient, I mean acute hospitals and acute care, I mean inpatient hospitals.

And so those dietitians although they have direct patient care are less likely to be familiar with blenderized tube feeds because it's not something that would be involved in the hospital. Although now we're seeing some commercial blenderized tube feeds work their way into the hospital, but that's still very, very small volumes and so those dietitians are not likely to have a lot of experience. The same thing with outpatient dietitians, just because a physician can refer a patient to you, does it mean that you as a dietitian are an expert in the field?

Maura Bowen: Now, that was perfect and so interesting. And I wanted to ask you too, you also found that, and I'm quoting the study here, "the majority of respondents agreed that their perception of blenderized tube feeding would change citing increased willingness to recommend it if evidence-based guidelines existed regarding safety and efficacy and the steps for initiation and administration." You also wrote that "guidelines

and resources supporting these concepts are available, including those provided by ASPEN." However, this research highlights overall lack of awareness of available resources and the need for better dissemination. So, can you talk to us about this and what can be done going forward to help increase the awareness of these resources to other healthcare professionals?

Kathleen Eustace: There different available guidelines to help assess if a patient is appropriate for blenderized tube feed, there's been a couple of research papers with an algorithm deciding about blenderized tube feed and if they're appropriate for your patients. They are out there. There are resources on the Oley Foundation, but they're kind of obscure, meaning that you would have to literally go search for them, seek them out to read them. They're not going to just come across in an everyday interesting read in an article that you may find in a journal that you frequently read or in just an in a magazine that you may frequent on online. These things aren't just going to come across a physician table. And I don't mean just a general magazine I mean oftentimes we read things... Like for me I read things like Today's Dietitian and the Food & Nutrition Magazine from the Academy of Nutrition and Dietetics.

And there are those type of publications for certain types of physicians and things like that. And you don't really see articles in those type of publications. These physicians just really don't have exposure, which now lends me to the second question, which is how do we expose them? How do we gain awareness?

Kathleen Eustace: A surprising trend is gaining traction: will you see it in your practice and how can you be prepared for it? So, publications and articles and those type of publications would create a sense of awareness. Providing CME activities for physicians is a great first step, in my opinion. I do continuing medical education hours in regards to malnutrition, enteral nutrition, parenteral nutrition for the internal medicine and GI group here at UT Southwestern. I'll come in a couple of times in a year and now educate over a topic and they pop in for the hours.

And on the flip side I also think it would be nice if we had back-sheets that our patients could print out and give to physicians. They would be physician-oriented but it could be a handout from a resource that a patient who's interested, maybe it's on the Oley Foundation, maybe it's on another website where they can print it and take it to the physician and advocate for themselves because it helps when patients can print this handout, take it to the physician and it has resources and explanations and maybe a little quick blurb on barriers and benefits and maybe a website where they can find referrals in their area, something along those lines. Now, we would do something like that in our area and then you would have different places in your area and obviously there are logistics you'd have to work out. And it's maybe not my favorite means of generating familiarity but it would certainly be a nice grassroots effort.

Maura Bowen: Well, I definitely love that idea and it gives me the chance to plug the ANHI.org website because we do in fact have a blenderized tube feeding series of infographics for patients that would meet the

exact purpose you just expressed. So that's just a nice little note, I think, for our listeners to go on ANHI.org and go to the Podcast and Videos page but also go to Resources > Printable Materials, type in "blenderized tube feeding," and that's how you can find that infographic set. Based on your previous answer, it's making me think, because I think you're hinting toward this already, did your research change the practice or attitudes of the physicians in your study along with the other advanced practice providers at your institution and in what ways?

Kathleen Eustace: The intent was not to change anything with the resource and with the research, the intent was to gather information for utilization. I wanted to know where to focus my research for blenderized tube feed support and then just generally wanted to know where providers stand. When you know where someone stands then you can start to build resources, reach out, have discussions, and see where you're at, how far you need to go. So this was really about informational purposes rather than making a significant change. But you have to have information to build resources and know how to make change. And so really this was about answering a question so that we could then move forward.

Maura Bowen: I know earlier in the conversation you said something about continued research in this particular topic. Do you personally plan any future work in this area and what additional research do you think still needs to be conducted?

Kathleen Eustace: Oh, yeah. Oh, yeah. There's just the paucity of research on blenderized tube feed is pretty overwhelming. The review article that I was talking about earlier actually only found five decent articles to review regarding outcomes for adult blenderized tube feeding. I would like to continue my research in adult care, there's a lot in pediatrics, but unfortunately there's just not a lot for adult care. And as amazing as pediatrics is and they do a great job and look at the research, I really now that I'm an adult care would really like to be part of that in supporting adults.

I would love to do this survey again but slightly differently streamlining it to specifically adult care providers. Maybe I would break it up into urban and rural areas as well. Also look at it regarding those physicians who are maybe in ASPEN versus those who aren't directly seeking out information for enteral care and kind of see where the deficits are within the group. I think that would be a great area for research.

So certainly, tailoring where we need to provide resources in the adult care physician and APP population. But then I also think we need to look at the outcomes and benefits and barriers for adult patients. So, nutrition inadequacy and weight loss is a real topic and I think there is a breadth of information that we can get. We need some randomized control trials to see if recipes that are standardized home blenderized tube feeds can meet nutritional adequacy, can help patients gain weight not just relieve symptoms. We definitely want to make sure that we have multiple reproducible research articles that show legitimately blenderized

tube feed can help certain aspects of a patient's overall quality of life, as well as prevent nutritional deficiencies. We want to definitely prove that occlusions can be prevented with appropriate education.

Kathleen Eustace: So, there's a lot of places that we can research to make blenderized tube feeding a safe and acceptable choice for our patients. But there are so many steps before you can say, "Yes, it's safe and accepted." We need to gather that litany of research in order to say that. For example, I've talked about professional groups, ASPEN and AND, and interestingly enough they don't outright come out and recommend blenderized tube feed because the lack of research isn't there, but that is not going to prevent patients for pursuing it. We want to get patients' pursuit of blenderized tube feed and efficacy and reproducibility and positive research, we want to get those in line together.

Maura Bowen: It sounds like some true opportunity for sure.

Kathleen Eustace: Oh, absolutely. And I think that there is a group of people out there and I think you've definitely hooked them in this podcast and to the round table who see blenderized tube feeding both in its positive and negative light, but they have accepted the traction behind it and are building the research that's required not only to gain acceptance for it but also to see how to make it a safer and more robust choice for the patients who are going to do it.

Maura Bowen: And I have one last question for you. We always like to end our recordings with a question about what advice you would offer. So, what advice do you have for clinicians working with patients using blenderized or real food tube feeding from your experience and your research?

Kathleen Eustace: Well, for physicians in APP, I think familiarity with concepts and details, having a list of resources is inappropriate. Knowing those basic concepts: French size and things of that nature, but secondarily know where to refer the patient for help. Does the RD understand blenderized tube feeding and they're familiar with the concept and have everything that they need to support the patient? So we have to have nutrient-analysis programs, we need to be able to show them how to use a high-powered mixer and blending in a specific way and in a specific order, so know whether your RD is prepared to give really, really good support to the patients, that would be my advice.

As far as dietitians who are listening to this podcast and are thinking to themselves, "I'm starting to see this, how can I be more familiar?" I would tell them to read the research, practice your recipes. What I mean by that is create them, analyze them and then try them at home. I actually happen to have a Vitamix, and I have tried several recipes here because it really gives you a great idea of what you're going to be up against and then utilize all available resources to you. I mean, the Abbott Nutrition Institute of Health has great resources, ASPEN has great resources, Oley Foundation, gather them all together so that you have them all the time.

Maura Bowen: That's some great advice. Kat, I'd like to thank you so much for your time today. It's clear you're very passionate about this topic. The information was excellent, and this is a perfect opportunity or a perfect way for us to continue our series on blenderized tube feeding, so I hope you'll join us again sometime soon and thank you again for your time today.

Kathleen Eustace: Thank you. Thank you so much for having me.

Maura Bowen: And for our listeners, if you're looking for more podcasts, we have dozens and dozens across a variety of different nutrition science topics, and you can find them on ANHI.org by clicking Resources at the top of the page then Podcasts and Videos. And we have actually quite a few other blenderized tube feeding-related resources too, including a handful of self-study courses. There's also a tube feeding guide for parents and caregivers and a helpful series of infographics, the one I mentioned earlier in the recording, that we created with families and caregivers in mind. We're also on Spotify now so if you're still inclined you can look for ANHI's Power of Nutrition Podcast and subscribe and tell your colleagues about us. Thanks everyone, stay healthy and safe.