J of Nuclear Medicine Technology, first published online April 24, 2019 as doi:10.2967/jnmt.119.226829

By Mario T Di Dea, MS, RT (N)
Nuclear Medicine Technical Supervisor
Montefiore Medical Center
111 East 210th Street Bronx,
New York 10467

How do you want your eggs?

In the Spring of 2018, my institution expected the triennial survey by The Joint Commission (TJC). In preparation for the visit, several "mock" surveys were conducted to pre-identify deficiencies. On the very first "mock" inspection of the nuclear medicine department, the surveyor inquired our egg preparation process for gastric emptying scintigraphy (GES). To my surprise, he pointed out the need to verify whether our "cooking" process kills off salmonella in the egg whites.

This was news to me and one of those "What The Heck" moments. Other than package inserts and the consensus guideline related to radiolabeling of the egg whites, I had never seen any other regulations regarding egg preparation. Our protocol simply states to cook the egg whites with Tc-99m labeled sulfur colloid. (1)

However, this is what TJC does. No, I do not mean make our lives difficult. Rather, the goal of TJC is identify potential safety and patient care violations with recommendations on how we can achieve compliance. Nuclear medicine, like other departments such as dietary and the blood bank, are subject to the same overarching risk reduction rules.

To address this issue, we wasted no time contacting our institution's dietary supervisor who assisted us in creating a safe egg cooking procedure that would satisfy a potential TJC surveyor. Actually, the process was much more straightforward than you would think. First, we established a microwave cooking time of two minutes the egg whites reach a minimum internal cooking temperature of 160° F. Temperature measurements are made by inserting the probe directly into the cooked egg whites. Our cooking time of 2 minutes was the actual setting we've been using. Each nuclear medicine department will have to establish their own minimum cooking time which produces firm eggs at or above 160° F. Next, we established a periodic quality control procedure for the digital thermometer to verify proper functioning. We decided to perform a quarterly check using an egg white preparation (over 160°) and ice water (32°F). Finally, we updated our written GES procedure and trained all nuclear medicine technologists about the changes.

One Monday morning in June, the increased activity and strange faces milling about the facility lobby indicated "they" were here; TJC was onsite for an inspection. On day 2, surveyors visited one of our nuclear medicine sites. To no one's surprise, the survey questioned the egg cooking method. After listening to the Lead Technologist's explanation, the surveyor looked up amazed and said, "You stole my thunder!" Our institution's

administrator was present for the exchange and could not have been more pleased with the results.

Before going any further I would like to explain, in greater detail, the egg preparation process being used in my institution. First we confirm the patient's NPO status, with a minimum of 4 hours from the last meal consumed required. In a microwave proof container, approximately 4 oz. of liquid egg whites are combined with 1 mCi of Tc-99m sulfur colloid. The egg is placed in the container first and then the Tc-99m sulfur colloid is distributed throughout (not just squirted in one place). The mixture is given a stirred for at least one minute, covered and placed into a dedicated microwave. Cooking time is set for 120 seconds, with a pause at 1 minute to re-stir the mixture. Liquid egg whites should be cooked until they achieve a firm consistency with no liquid visible. The egg whites are served with 2 slices of bread, 120 ml of water and 30 grams of jelly. Patients are encouraged encourage to consume the entire meal within 10 minutes.

My story does not end here. In June, I attended the 2018 Society of Nuclear Medicine and Molecular Imaging (SNMMI) Annual Meeting in Philadelphia, and I had the opportunity to share the story with fellow technologists. One colleague shared an even more elaborate requirement for preparing the radiolabeled egg whites using a frying pan. At their facility, the "chef du jour" must don a mask and hair net while cooking followed by vigorous cleaning of the pan and utensils using a disposable sponge (one time use).

Some of you may realize your current egg cooking method is not up to snuff. Indeed, there are reports of nuclear medicine department out there using everything from sticky buns, oatmeal, ensure, and good 'ole chicken livers instead of egg whites for GES. However, I caution you to make sure your cooking method meets TJC safety requirements along the SNMMI Procedure Guidelines for GES. (2)

In addition, the new SNMMI Connect community is a good source of information about other nuclear medicine department experiences with not only GES but all things Nuclear Medicine. I encourage you to take a peek. If you lean more toward the "academic" side, I can recommend three helpful articles:

- Bonta DV, Brandon DC, Hernandez J, Patel M, Grant S, Alazraki N. Clinical intervention for quality improvement of gastric-emptying studies. J Nucl Med Technol. 2014
- Knight, Linda C.. "Update on gastrointestinal radiopharmaceuticals and dosimetry estimates." Seminars in Nuclear Medicine" 2012
- Farrell MB, Costello M, McKee JD, Gordon LL, Fig LM. Compliance with Gastric-Emptying Scintigraphy Guidelines: An Analysis of the Intersocietal Accreditation Commission Database. J Nucl Med Technol. 2017

If you have not been visited by TJC in a year or so be ready to take your cooking up a notch!

References

1. Abell TL, Camilleri M, Donohoe K, et al. Consensus recommendations for gastric emptying scintigraphy: a joint report of the American Neurogastroenterology and Motility Society and the Society of Nuclear Medicine. J Nucl Med Technol. 2008
2. Donohoe KJ, Maurer AH, Ziessman HA, et al. Procedure guideline for adult solid-meal gastric-emptying study 3.0. J Nucl Med Technol. 2009