

MORNING REPORT

A Nut By Any Other Name...

Kevin Smith, MD; Alfred Burger, MD; Christian Dankers, MD; Christina Lee, MD; and Dan Steinberg, MD

Dr. Smith is assistant professor of medicine and pediatrics and a hospitalist at Loyola University Medical Center, Dr. Burger is associate director of the Internal Medicine Residency Program at Mount Sinai Beth Israel, and Dr. Dankers is assistant medical director for Quality and Safety at Brigham and Women's Hospital. The case is presented by Dr. Lee, chief internal medicine resident at Mount Sinai Beth Israel, and Dr. Steinberg, vice-chair of Education and the Internal Medicine Residency Program Director at Mount Sinai Beth Israel.

A medical resident ate a turkey salad prepared by the hospital food service and developed immediate abdominal pain and urticaria. The resident had previous anaphylaxis to nuts. She recognized her symptoms and went to the hospital's emergency department where she was treated for anaphylaxis. After discussion with food services it was determined that the turkey salad contained nuts but was not labeled as such. On further investigation, it was determined that three other items on the menu also were not properly labeled as containing nuts. As the prevalence of nut and/or peanut allergies in the general population is reported as high as 1.4%, the resident and department leadership were concerned that patients with nut allergies could be at risk for anaphylaxis, creating a potential patient safety issue. A root cause analysis was undertaken to prevent future events.

A root cause analysis (RCA) is a tool that was originally developed in psychology and systems engineering to determine the obvious and more hidden factors that influence the occurrence of an error or a near-miss. It has been used successfully in high-reliability organizations such as the aviation industry. RCAs were brought into health care in the 1990s through the work of James Bagian at the US Department of Veterans Affairs and Rick Croteau at the Joint Commission. This tool is designed to explore three questions—what happened, why did it happen, and how to prevent it from happening again? The Joint Commission requires that all organizations perform RCAs for all sen-

Table 1. Root Cause Analysis to Improve Food Safety Related to Nut Allergies

Proximate Cause	Contributing Factors	Action Plan
Patient with nut allergy could unknowingly ingest food containing nuts	Food not labeled properly	1) Label all foods containing nuts with a clear yellow label that states "contains nuts" 2) Clearly mark foods containing nuts with an * symbol on the menu
Food not labeled properly	1) No clear process to identify foods that contain nuts 2) Incomplete communication between cooks and labelers about foods that contain nuts 3) Lack of understanding among food service staff about the prevalence and severity of nut allergies 4) No process to indicate foods that contain nuts in menu printing service	1) Educate food service staff on the importance of food allergies 2) Print all recipes with nuts on yellow paper so that food containing nuts is identified early in the process 3) Select one employee per shift to communicate directly with other shifts about labeling foods with nuts immediately after preparation
Patients with nut allergies could potentially still receive food that contains nuts	1) Food service software does not communicate allergy information directly with CPOE software 2) Manual entry of food allergies is needed for the food service software 3) No clear process for identifying the food service employee responsible for entering food allergy information into the system 4) Food service is very busy, which delays entry of food allergies in the software system	1) Change software system to create improved communication between systems 2) Remove all nuts from food supplied by food service

tinel events. Many institutions also perform RCAs on near-misses. However, health care providers report limited actual participation in RCAs,² and few studies have evaluated the effectiveness of RCAs in improving safety and reducing costs.³ Training medical students, residents, and faculty members in how to perform an RCA may increase the number of providers who can trigger or partici-

pate in this important safety process, and ideally promote the development of future leaders in patient safety.

RCAs can be performed in different ways to uncover factors contributing to an error. The goal of an RCA should be to address system issues that influenced the error rather than focus on blame on individuals, as this does not lead to sustainable

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improvement. RCAs aim to develop recommendations for change that have a high likelihood of reducing harm, such as redesigning processes, rather than weak change agents such as reeducation. Different techniques include the “Ask Why Five Times” technique, a fishbone diagram, a causal tree, and a flow chart. Regardless of the technique, the four steps include data collection, causal factor charting, root cause identification, and recommendation generation and implementation.⁴ Data collection includes interviewing all members involved to obtain an accurate understanding of the event without an atmosphere of blame. The rest of the steps will be explained below.

In this case, a multidisciplinary team was comprised of the affected resident, the internal medicine residency program director, the director of food services and the director of nutrition. Two main areas of concern were identified. The first concern was that there were issues with the communication between the institution’s food service software and the computerized physician order entry (CPOE) software. Rather than automatically transferring food allergy information between systems, it was discovered that food allergies must be manually entered into the food service software. This manual entry

may create a delay of up to 12 hours during which time a patient with a food allergy may still receive food containing the allergen. The second issue was that items containing nuts were not labeled as such. For this case, a possible RCA is illustrated in Table 1.

Since modification of the two computer systems to allow better communication was not feasible, two possible solutions were considered: 1) consistent labeling of all foods containing nuts or 2) removal of nuts from all food served in the hospital. The latter was chosen as it was more reliable, simpler, and did not result in any loss of nutritional value. Within days, food service was able to remove all nuts from all items on the hospital menu. To date, no nut allergies to food prepared in the hospital kitchen have been reported.

This case describes a patient safety issue that arose due to the lack of proper labeling of food containing nuts. At first glance, the most obvious solution would seem to be simply to require better food labeling. However, an RCA was able to uncover a key second issue—that two hospital software systems were not communicating adequately—and that simply improving food labeling alone would not solve the problem. An RCA is an easy tool to comprehensively study the factors that led to a

near-miss or adverse event. The most important, yet difficult, goal of an RCAs is the development of appropriate solutions. With training and experience, all physicians should be able to signal the need for or participate in an RCA. As more physicians acquire competence with RCAs, their quality and appropriate use should increase and result in improved safety for all patients.

References

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