

Improving the Safety of Dysphagia Trays
in Clinical Foodservice

Lily McNair

NSC 558

December 2022

Section I: Executive Summary

This Quality Improvement project was designed to increase the safety when preparing and delivering dysphagia trays prepared by Sodexo employees at Yuma Regional Medical Center. This project was initiated when a wrong dysphagia tray was delivered to a patient and caught by the nurse after failing the fail-safes designed by organization to ensure safe dysphagia tray service. The project had two main components to identify weak operational areas that increased risk of error and identify interventions that supported existing practices or implement new practices to increase safety when preparing and serving dysphagia trays to patients.

This project was completed under the guidance of the Sodexo General Manager and Clinical Nutrition Manager with insight from the Patient Services manager and Kitchen Supervisor for all Sodexo employees who work at Yuma Regional medical Center. A problem analysis was completed according to organizational guidelines. After a targeted review of appropriate and current literature, two new interventions were implemented: ensuring that tray passers actively participated and were accountable to check for that dysphagia trays were appropriately prepared and participate in appropriate corrective action. as well as new training for all foodservice employees to reinforce and update employees' practice of safe preparation and delivery dysphagia tray.

Findings from survey conducted after training indicated that employees were more knowledgeable post-survey about the importance of everyone being aware of best practices for dysphagia trays, the role of the tray passer in dysphagia tray service, and necessary corrective action to ensure patients were safely provided nutrition. A monitoring plan was developed to ensure a sustainable continuous quality improvement environment by management and employees to ensure patient safety when preparing and development dysphagia trays.

Section II: Introduction and Literature Review

The purpose of this study is to identify and implement the best practices at Yuma Regional Medical Center (YRMC) in safely preparing and delivering dysphagia trays by the food service contractor, Sodexo. This is important to ensuring that patients with dysphagia are served the correct dysphagia trays (correct level of thickness and texture) and increase patient's safety and quality of life. The goal of this study is to identify areas for improvement when serving dysphagia trays and implement best practices in a clinical foodservice setting in order to increase safety and accountability through strengthening existing safety practices and developing new trainings for employees.

Yuma Regional Medical Center is a not-for-profit organization, including the 406-bed county hospital. The food service department is managed by Sodexo, an international food service and management company. The hospital serves patients with dysphagia, a disorder that describes an individual's difficulty swallowing of foods and liquids and increases an individual's time and effort to consume adequate nutrients.³ Modified diets include texture-modified foods and thickened liquids are prescribed specifically to a patient's swallowing abilities.⁴ Modified diets are essential to the patient's safety by reducing risk of choking, aspiration, prevalence of malnutrition, and pneumonia and increasing survival.^{5,6} They also increase a patient's ability to eat more comfortably and increase quality of life.^{5,6}

The hospital diet follows the International Dysphagia Diet Standardisation Initiative (IDDSI) framework guidelines which were developed with the goal of developing globally standardized terminology and definitions for texture-modified foods for all ages, care settings, and cultures.⁶ Drinks/Liquids range from Level 1 to Level 4 with increasing thickness and foods are prepared from Level 3-Level 7 texture, liquidized to regular textures respectively.⁶

The hospital currently prepares foods from Level 5 (minced and moist) – Level 7 (regular) in the kitchen and purchases Level 3 (liquidized) and level 4 (pureed) from a third-party organization. All liquids are prepared in the kitchen using SimplyThick EasyMix nectar. All cooks receive intensive dysphagia training and routine competency checks, while patient services employees are provided with general dysphagia awareness education and training on preparing thickened beverages. Test dysphagia trays are also ordered and evaluated on a monthly basis. Staff education and IDDSI meal tests by staff are in line with current recommendation for accurate and effective IDDSI implementation in an in-patient setting.^{4,8}

The procedure up to December 2022 was that when a patient with dysphagia orders a meal, the HealthTouch diet ordering system limits the foods a patient can order to foods that can be modified according to IDDSI guidelines. The HealthTouch is a validated software for accurately ensuring the correct diet is ordered while allowing patient freedom of food choice.⁸ Once ordered, a paper ticket is printed with the rest of the trays from the floor at a set time and on the ticket, the dysphagia level is demarcated on the ticket. Both the cooks and tray line employees receive the tickets and are responsible for preparing the food and tray according to dysphagia guidelines, which includes proper texture and thickness for foods and beverages and appropriate changes to silverware and dishware. Before the tray is served to the patient, the cook and food service manager must sign the ticket in order to acknowledge that the tray was prepared safely. The tray passer may then take the tray to the floor and serve it to the patient.

In the past month, however, an incident occurred in which a dysphagia tray was incorrectly prepared and served to a patient. The ticket was missing both manager and chef signature. The tray was prepared such that patient harm could have occurred, so the texture and

thickness of the food was too difficult for the patient to swallow. This mistake was caught by the patient's nurse and failed all the procedures set by the hospital to ensure patient safety.

While current procedures align with current recommendations, this incident has exposed a weak area in the YRMC food service process. There is a need to identify areas that are at risk for error, support best food safety practices and procedures in the food service kitchen, explore new evidence-based strategies for implementing the IDDSI framework, and implement new practices to promote safe preparation and delivery of dysphagia trays.

Section III: Materials and Methods

This quality improvement project was proposed by the dietetic intern and approved by the Sodexo general manager (GM) and clinical nutrition manager (CNM). The dietetic intern worked with the GM, CNM, as well as patient services manager and kitchen supervisor to analyze the problem and develop an appropriate intervention for all food service employees to be aware and participate in as appropriate. The project followed the Plan-Do-Check-Act cycle to ensure that there was adequate strategic and sustainable planning as seen in Appendix A. The process included (1) identifying the issue, (2) providing background and initial measurement of the issue, (3) completing a problem analysis, (4) developing a target condition and countermeasures to achieve target condition, (5) testing the intervention, and (6) creating and offering an implementation and (7) designing a follow-up plan.

The issue was first clearly identified that dysphagia trays were not clearly highlighted as distinctive from other patient trays so dysphagia-specific modifications are more likely to be missed during tray preparation and delivery, including wrong level of thickness prepared, as well as missing a manager's signature to ensure correct diet order is served to patient and prevent patient harm. The problem analysis found that since the only distinction between dysphagia and regular

trays was the ticket, the trays were much likely to appear the same, especially during busy meal rush times. It was also identified that tray passers needed more training to understand the importance of their role as the last food service employee with the tray.

The target condition is that dysphagia trays should be distinctive in order to lower the risk of error thereby increasing patient safety. Yellow paper placemats were ordered and placed on all dysphagia trays to better highlight differences. Using colors during kitchen organizations is recommended to support IDDSI framework.⁴ A new procedure was also developed for tray passers to actively participate and be accountable to check for correct dysphagia tray preparation procedures and appropriate corrective action.

Training was provided to all Sodexo employees on the existing and new procedures (see Appendix B for training slides). This training was provided by the dietetic intern to 22 Sodexo foodservice employees (tray passers, chefs/cooks, tray line staff, registered dietitians, and retail food service employees) during the monthly staff meeting and was provided to remaining employees by patient service manager later in the week. A follow-up plan was designed for patient services manager to audit dysphagia trays during tray passers evaluations. This plan was updated post-intervention and is discussed in Section V: Discussion and Recommendations.

A pre/post-intervention survey composed of multiple choice and true/false questions was also developed to ensure that employees were aware of the importance of safely preparing and delivering dysphagia trays, as well as new and existing procedures with an emphasis on how to recognize dysphagia meals and highlighted role of the tray passer (see Appendix C for survey and survey answer key). This quantitative data were collected via paper survey to 22 employees and input by intern into Google Forms to evaluate trends and changes in knowledge comprehension and retention from pre-intervention to post-intervention data.

Section IV: Results

Specific data findings per question that were collected and analyzed can be found in Appendix D. The average of the survey increased from a non-passing rate of 68.18% prior to training to the passing rate of 75.45% post-training. The question addressing importance that all employees should be aware of and practice when applicable best practices for dysphagia trays had a 0.5% increasing correct responses with a post-intervention average of 100%.

Answers to question describing the existing procedure that required signatures from chef and manager prior to delivery had no change in accuracy with the final average of correct responses being 95.5%. The other question regarding an existing procedure about how dysphagia trays diets were categorized to help increase easy identification of dysphagia trays (“*levels*”) had a 4.5% increase in correct responses, but final correct answer average answers was 13.6.%.

The last two questions on the survey were related to new practices related to tray passers. The answer to the question who the last food service employee was responsible for checking dysphagia trays had a 13.5% increase in correct answers with the final average of correct answers being 72.7%. And the questions regarding correct step if a tray passer find that there is no signature on the ticket while delivering trays on the floor had a 22.7% increase to a correct answer average of 100% post-intervention. Due to the limited time frame, a cost benefit analysis was unable to be calculated, however additional quantitative benefits of this intervention reduced patient risk and decreased liability for organization and employees through safe practices.

Employees who participated in training also later reported to the intern that they learned new things about dysphagia trays, why dysphagia was important, and now understood the purpose of the yellow placemat indicating an increase in confidence applying knowledge promoting accuracy and safety of dysphagia tray deliveries.

Section V: Discussion and Recommendations

Current service performance does align with contemporary evidence-based professional procedures for delivering dysphagia trays in a clinical food safety practice. However, due to a higher-than-normal rate of new employees and fluctuating busy dinner times related to in-patient aspect of this organization, it is important to strengthen the existing strategies. The most important variation needed was to include a way to highlight an easily visible difference for dysphagia trays and involving tray passers as an essential team member of dysphagia safety.

The results indicated that after intervention there was 100% knowledge that all employees should recognize the importance of dysphagia trays and participate in best practices when necessary. It is important to continue reinforce and monitor that all employees know what signatures (manager and chef) belong on a dysphagia diet order before it can be delivered, since there was no change post-intervention, but was also already at high correct average. It is important to reemphasize the importance of employees checking for the word “level” on dysphagia trays in order to more quickly identify dysphagia trays with higher accuracy, since there was an increase in correct answers, but average was still low. Management should continue to reinforce this concept during daily operations.

There was an increase in staff knowing that the last food service employee responsible for checking dysphagia trays is tray passers, which is important since the traditional concept was this role was left to tray expeditors in the kitchen. The questions regarding appropriate corrective action by tray passers if a dysphagia tray was not properly signed received 100% correct answers. It is important for employees to realize this question reinforces the previous, that tray passers are responsible for the “final” checking for signature and initiating corrective action, wherever they are, before serving to patient.

The goal to identify areas for improvement was achieved through a literature review about current dysphagia tray practices in clinical food service and adaptations made for facility through problem analysis and discussion with GM, CNM, and patient services manager. Best practices were implemented by adding yellow placemats to dysphagia trays, strengthening the role and accountability of the tray passers in delivering dysphagia trays, and providing appropriate training in order to increase to reach the goal of patient safety.

A monitoring plan was developed and updated to ensure that this process will be fully implemented. Incorporate monitoring of dysphagia tray service into 6-month evaluations by Patient Services Manager who observes tray passer delivering trays on floor, to promote monitoring. It included bi-annual training during the monthly staff meeting to reinforce best practices for serving dysphagia trays with knowledge evaluated using pre/post-survey. Random audits should be done on dysphagia trays at least 4 times a year (each quarter) by manager obtaining number of dysphagia orders for day from call center, managers recording how many orders they signed on tray pass, and then evaluating numbers at end of day to see if they reconcile. If there is a missing diet order, an investigation should begin and first make sure that all dysphagia orders were made and served and that none were cancelled. Then all order numbers for dysphagia trays and check with Vocera tracking which expeditor was on duty and which tray passer was responsible for serving that tray. If error was made, this must be documented, and follow-up training and other corrective action should be completed.










Including the managers and supervisor in the development of the quality improvement project, design of interventions, and employee training promotes a continuous quality improvement. It is expected that this intervention will be sustained and improve the safety of dysphagia trays in clinical foodservice.

Section VI: References

1. About Us. YRMC.org. Accessed December 11, 2022.
<https://www.yumaregional.org/About-Us>
2. About Us. Sodexo.com. Accessed December 11, 2022. <https://us.sodexo.com/about-us.html>
3. Gallegos C, Brito-de la Fuente E, Clavé P, Costa A, Assegehegn G. Nutritional Aspects of Dysphagia Management. *Adv Food Nutr Res*. 2017;81:271-318.
doi:10.1016/bs.afnr.2016.11.008
4. Lam P, Stanschus S, Zaman R, Cichero JAY. The International Dysphagia Diet Standardization Initiative (IDDSI) framework: The Kempen pilot. *BJNN*. 2017; S18-S26.
<https://doi.org/10.12968/bjnn.2017.13.Sup2.S18>
5. Kim D, Lee KE. Nutrition Care Management Practices for In-Patients with Dysphagia in Korean Clinical Settings. *Clin Nutr Res*. 2019;8(4):272-283. Published 2019 Oct 29.
doi:10.7762/cnr.2019.8.4.272
6. Su M, Zheng G, Chen Y, et al. Clinical applications of IDDSI framework for texture recommendation for dysphagia patients. *J Texture Stud*. 2018;49(1):2-10.
doi:10.1111/jtxs.12306
7. Cichero JA, Lam P, Steele CM, et al. Development of International Terminology and Definitions for Texture-Modified Foods and Thickened Fluids Used in Dysphagia Management: The IDDSI Framework. *Dysphagia*. 2017;32(2):293-314.
doi:10.1007/s00455-016-9758-y
8. Piera L, Rioles S. Developing an IDDSI-Compliant Dysphagia Diet. *ASHAWire*. 2018; 24(4); 38-40. <https://doi.org/10.1044/leader.OTP.24042019.38>

Section VII: Appendices

Appendix A

ISSUE Dysphagia trays were not clearly highlighted as distinctive from other patient trays so dysphagia-specific modifications area more likely to be missed during tray preparation and delivery, including wrong level of thickness prepared, as well missing a manager's signature to ensure correct diet order is served to patient and prevent patient harm.		TARGET CONDITION 		Date: 11/30/22 To: By: James Tanner Email: jtanner@sodexo.com Project Title: Improving Safety of Dysphagia Tray Delivery																																											
BACKGROUND/MEASUREMENT In the past month, one dysphagia tray was delivered to a patient that was not the correct thickness according to diet order and did not have the manager's signature. This error was not caught until it reached the patient's room by the nurse.						  																																									
CURRENT CONDITION    		COUNTERMEASURES Place yellow placemat on all dysphagia trays. Train tray passers to check each dysphagia tray for signature before delivering - if no signature, they will have to keep it with them and not deliver until a manager has approved and signed it. Train Sodexo employees on new dysphagia tray preparation and delivery practices.		TEST Put the above countermeasures into practice for a two week period and monitor																																											
PROBLEM ANALYSIS Dysphagia trays are indistinctive and could be more easily overlooked by expediter and tray passer leading to patient safety issues.		FOLLOW UP Ensure that all dysphagia trays are being prepared with yellow placemats. Keep log of any time a manager has to be called to a floor to sign and include dysphagia tray audits during routine evaluation.																																													
IMPLEMENTATION PLAN																																															
		<table border="1"> <thead> <tr> <th>What</th> <th>Who</th> <th>When</th> <th>Outcome</th> </tr> </thead> <tbody> <tr> <td>Obtain yellow placemats</td> <td>Tara Lovinger</td> <td>November 7, 2022</td> <td>Completed</td> </tr> <tr> <td>Train Employees on New Process</td> <td>Lily McNair</td> <td>12/06/22</td> <td>Completed</td> </tr> <tr> <td>Begin New Process</td> <td>All</td> <td>12/12/22</td> <td>Completed</td> </tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		What	Who	When	Outcome	Obtain yellow placemats	Tara Lovinger	November 7, 2022	Completed	Train Employees on New Process	Lily McNair	12/06/22	Completed	Begin New Process	All	12/12/22	Completed																												
What	Who	When	Outcome																																												
Obtain yellow placemats	Tara Lovinger	November 7, 2022	Completed																																												
Train Employees on New Process	Lily McNair	12/06/22	Completed																																												
Begin New Process	All	12/12/22	Completed																																												
Why?: Dysphagia and regular trays appear the same; only distinction is on ticket																																															
Why?: Tray line employees are more likely not to see dysphagia on ticket orders during busy meal rush times																																															
Why?: Tray passers need more training in order to ensure safely delivery of dysphagia trays																																															
		OCI Validation Date: Impact Category: 		Completed By: Internal ID: 																																											
		BENEFIT/WASTE RECOGNITION SECTION																																													
		Department Name: Type of Saving: 		Cost Center: Subaccount: 																																											
		If Type of Savings = Hard Dollar, please indicate Area of Savings: 																																													
		Dollar Amount: DS Validation: 		One-Time: <input type="checkbox"/> Completed by: 																																											

Dysphagia Trays

Background: **dysphagia** describes difficulty swallowing of foods and liquids → increases an individual's time and effort

Relevance: Preparing foods according to **different levels of thickness and textures** increases the patient's safety and quality of life

• Current Policy:

- Food for dysphagia trays is made according to the International Dysphagia Diet Standardization Initiative
- All tickets for dysphagia trays must be signed by manager before dysphagia tray is delivered to patient



Dysphagia Trays

• Updated Practice:

- Food for dysphagia trays is made according to the International Dysphagia Diet Standardization Initiative
- All tickets for dysphagia trays must be signed by manager before dysphagia tray is delivered to patient
- **All dysphagia trays must have a yellow placemat**
- **Tray passers are responsible for checking if a manager's signature is on all dysphagia tray tickets before delivering**
 - *If there is no signature, tray passer must keep tray in possession until manager can come to floor to check meal and sign*
- **Strategies:** Check if ticket says "Level [#]", make note of any dysphagia trays before leaving kitchen



Appendix C

Improving Safety of Dysphagia Trays – Pre-Survey

1. All employees should be aware of and when applicable, participate in safe practices for preparing and delivering dysphagia trays safely. True/False
2. All tickets for dysphagia trays must be signed by manager before being delivered to patient. True/False
3. Dysphagia trays are divided into “grades”, which are different categories of texture and thickness. True/False
4. The last food service employee responsible for checking dysphagia trays before delivering to patients is:
 - a. Tray Expediter
 - b. Tray Passer
 - c. Chef/Cook
 - d. Tray Starter
5. If tray passer discovers there is no signature on ticket, they should
 - a. Leave the dysphagia tray outside of the room
 - b. Deliver the dysphagia tray after checking the food themselves
 - c. Notify the manager on duty and keep the dysphagia tray in their cart until the manager can come to the floor to check meal and sign
 - d. Ask nurse or PCA to check meal and deliver if they say it’s okay

Improving Safety of Dysphagia Trays – Post-Survey

1. All employees should be aware of and when applicable, participate in safe practices for preparing and delivering dysphagia trays safely. True/False
2. All tickets for dysphagia trays must be signed by manager before being delivered to patient. True/False
3. Dysphagia trays are divided into “grades”, which are different categories of texture and thickness. True/False
4. The last food service employee responsible for checking dysphagia trays before delivering to patients is:
 - a. Tray Expediter
 - b. Tray Passer
 - c. Chef/Cook
 - d. Tray Starter
5. If tray passer discovers there is no signature on ticket, they should
 - a. Leave the dysphagia tray outside of the room
 - b. Deliver the dysphagia tray after checking the food themselves
 - c. Notify the manager on duty and keep the dysphagia tray in their cart until the manager can come to the floor to check meal and sign
 - d. Ask nurse or PCA to check meal and deliver if they say it’s okay

**Improving Safety of Dysphagia Trays – Pre/Post Survey
Answer Key**

1. All employees should be aware of and when applicable, participate in safe practices for preparing and delivering dysphagia trays safely. **True/False**
2. All tickets for dysphagia trays must be signed by manager before being delivered to patient. **True/False**
3. Dysphagia trays are divided into “grades”, which are different categories of texture and thickness. **True/False – called levels and this is what employees should be checking for on trays**
4. The last food service employee responsible for checking dysphagia trays before delivering to patients is:
 - a. Tray Expediter
 - b. Tray Passer**
 - c. Chef/Cook
 - d. Tray Starter
5. If tray passer discovers there is no signature on ticket, they should
 - a. Leave the dysphagia tray outside of the room
 - b. Deliver the dysphagia tray after checking the food themselves
 - c. Notify the manager on duty and keep the dysphagia tray in their cart until the manager can come to the floor to check meal and sign**
 - d. Ask nurse or PCA to check meal and deliver if they say it’s okay

Appendix D

Results and Analysis

Pre-Survey

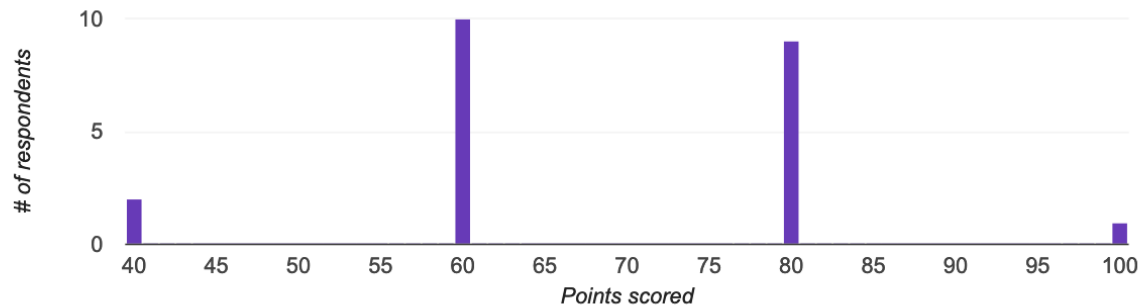
Insights

Average
68.18 / 100 points

Median
60 / 100 points

Range
40 - 100 points

Total points distribution



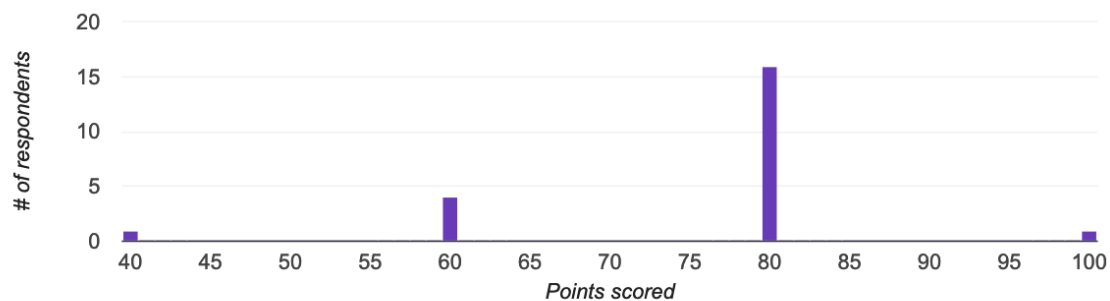
Insights

Average
75.45 / 100 points

Median
80 / 100 points

Range
40 - 100 points

Total points distribution

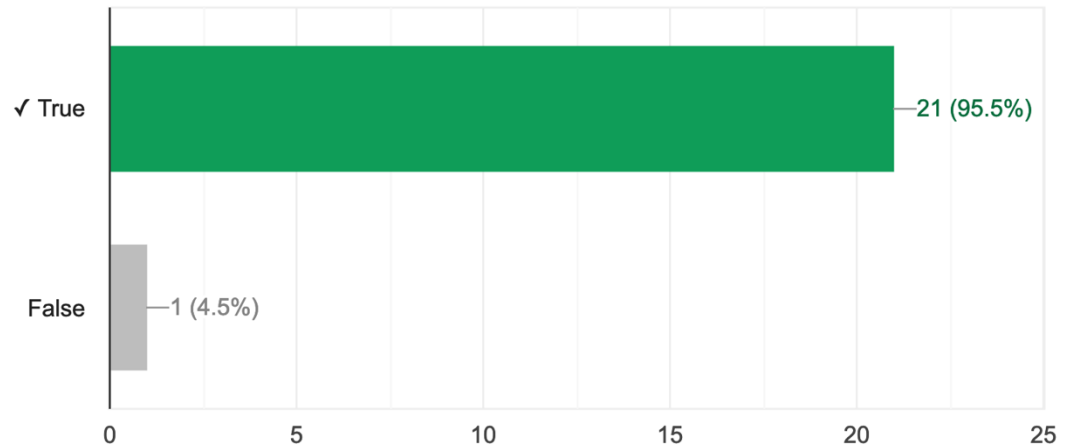


AVERAGE: increased by 10.27 points → **FINAL AVERAGE:** 75.45% (passing rate from non-passing prior to intervention)

Pre-Survey

All employees should be aware of and when applicable, participate in safe practices for preparing and delivering dysphagia trays safely. True/False

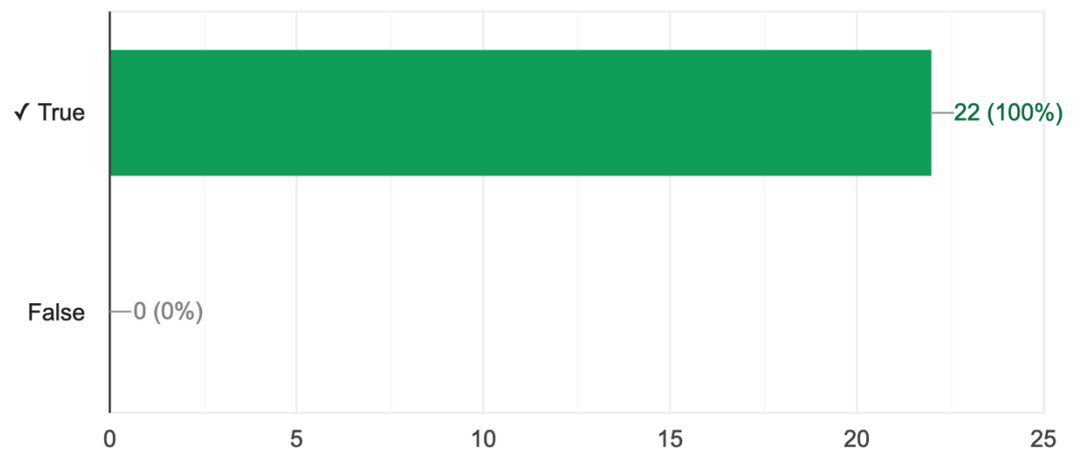
21 / 22 correct responses



Post-Survey

All employees should be aware of and when applicable, participate in safe practices for preparing and delivering dysphagia trays safely. True/False

22 / 22 correct responses

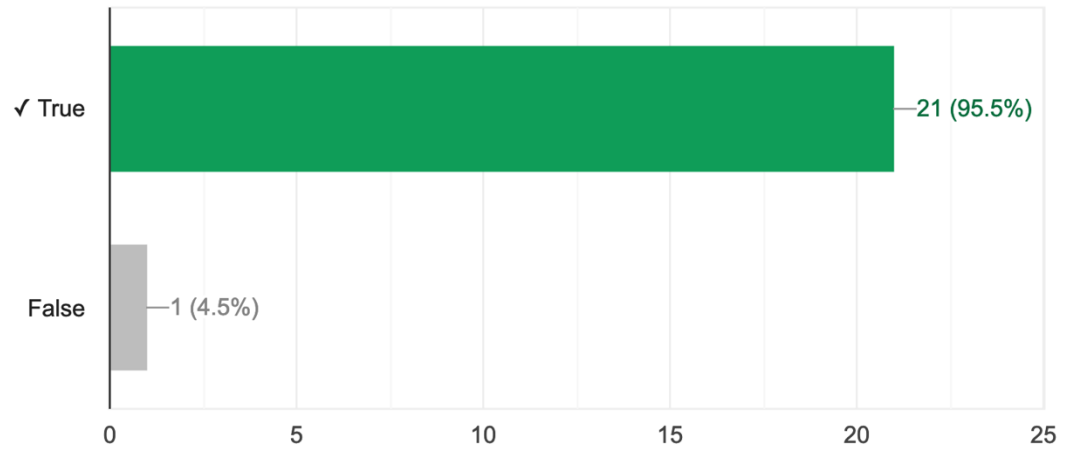


Δ AVERAGE: 0.5% increase → FINAL Average w/ Correct Answer: 100%

Pre-Survey

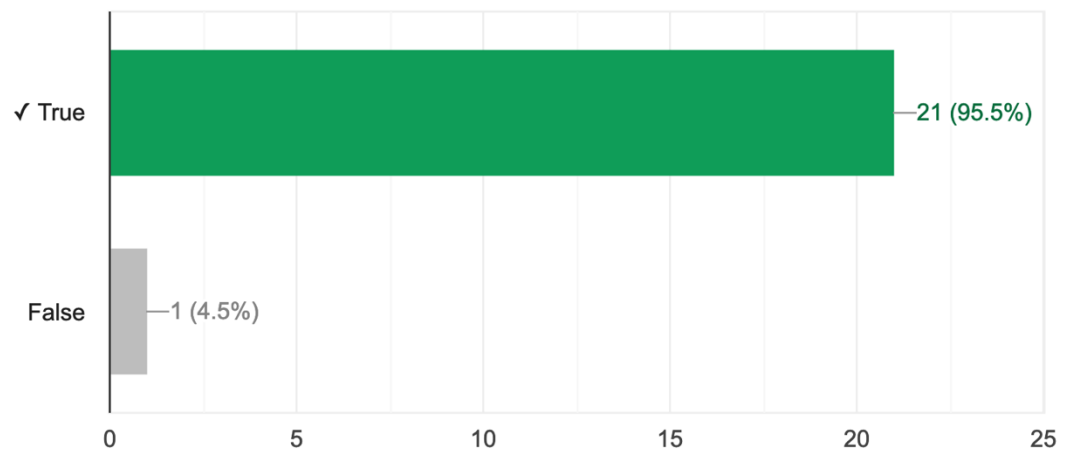
All tickets for dysphagia trays must be signed by manager and chef before being delivered to patient.

21 / 22 correct responses

Post-Survey

All tickets for dysphagia trays must be signed by manager and chef before being delivered to patient.

21 / 22 correct responses

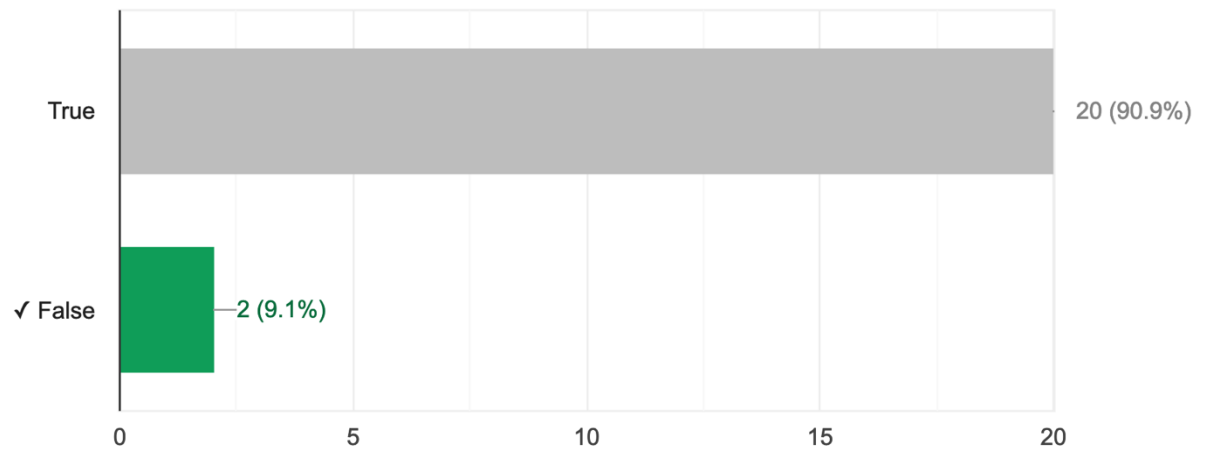


Δ AVERAGE: No change → FINAL Average w/ Correct Answer: 95.5%

Pre-Survey

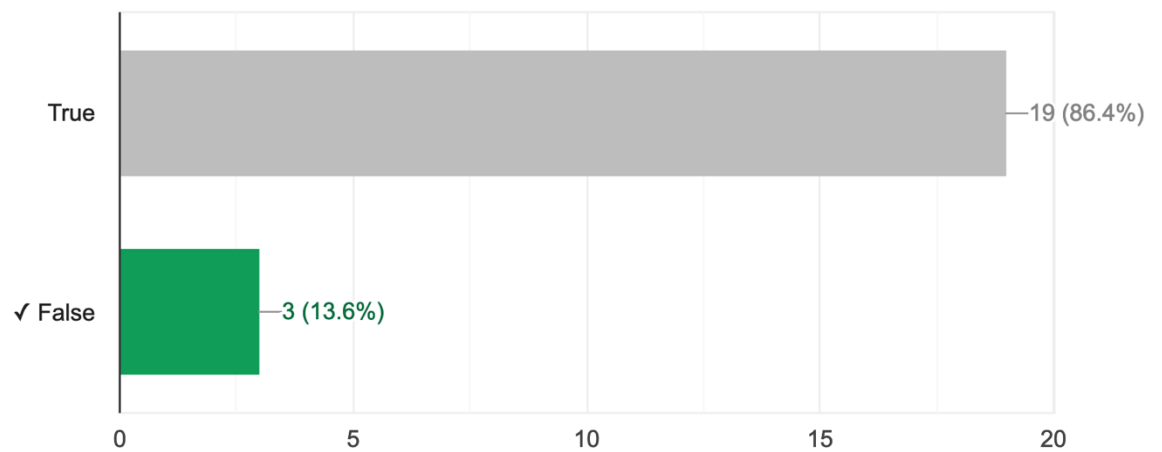
Dysphagia trays are divided into “grades”, which are different categories of texture and thickness.

2 / 22 correct responses

Post-Survey

Dysphagia trays are divided into “grades”, which are different categories of texture and thickness.

3 / 22 correct responses

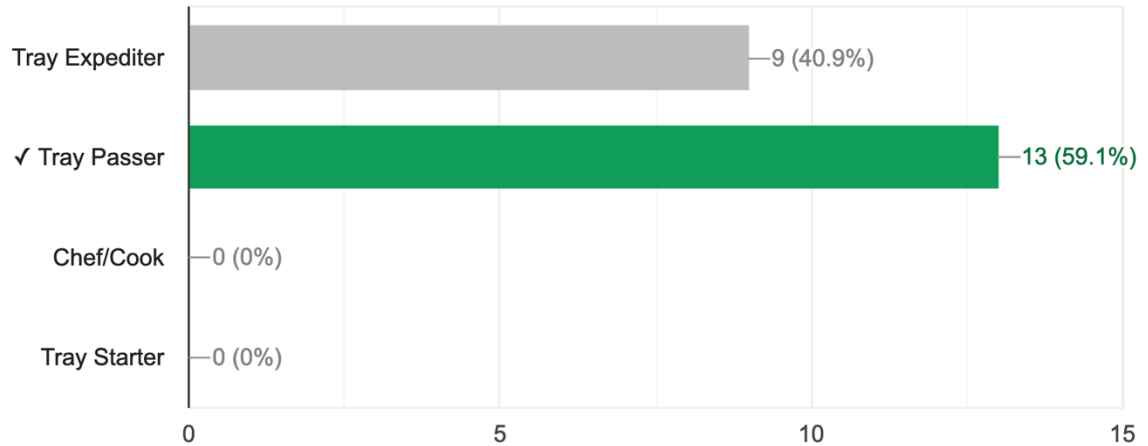


Δ AVERAGE: 4.5% increase → FINAL Average w/ Correct Answer: 13.6%

Pre-Survey

The last food service employee responsible for checking dysphagia trays before delivering to patients is:

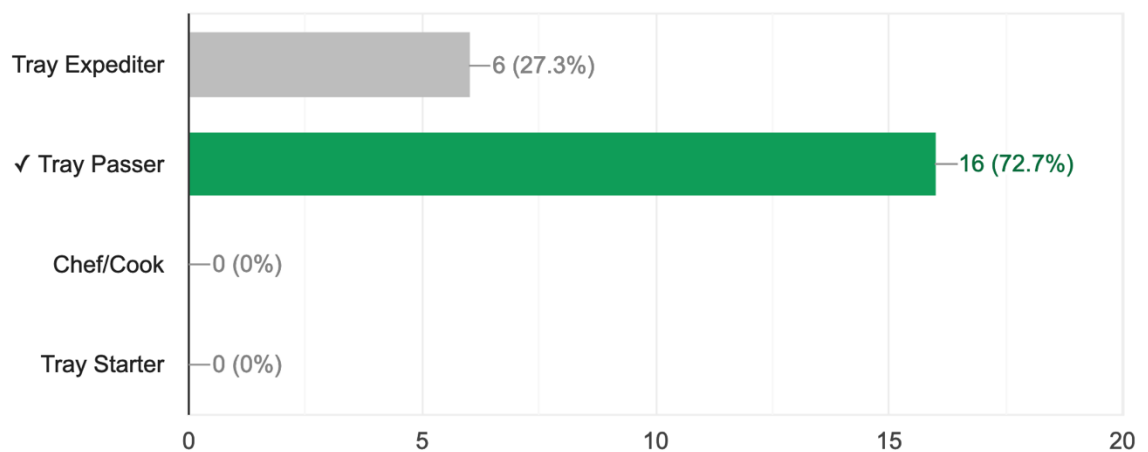
13 / 22 correct responses



Post-Survey

The last food service employee responsible for checking dysphagia trays before delivering to patients is:

16 / 22 correct responses

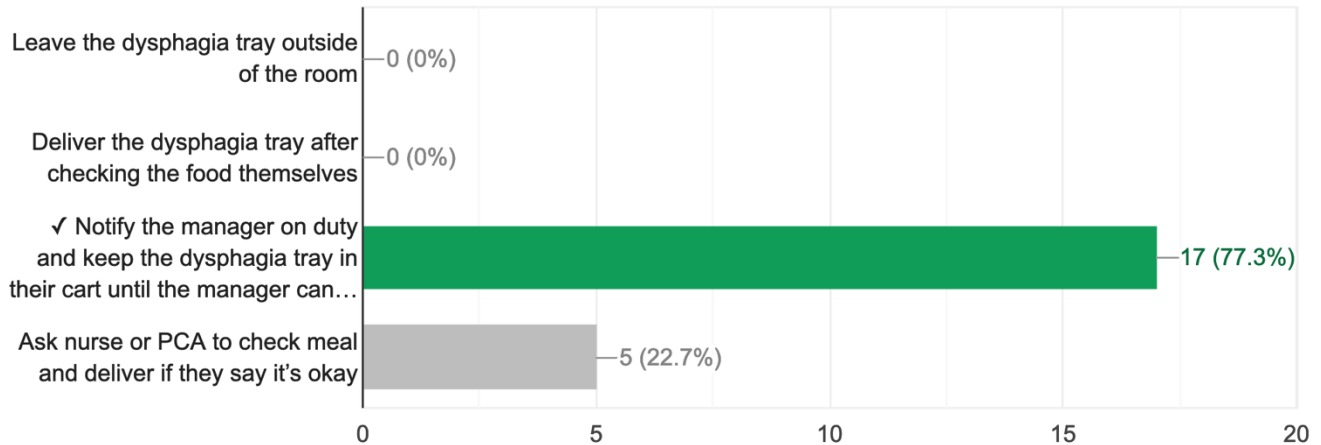


Δ AVERAGE: 13.5% increase → FINAL Average w/ Correct Answer: 72.7%

Pre-Survey

If tray passer discovers there is no signature on ticket, they should:

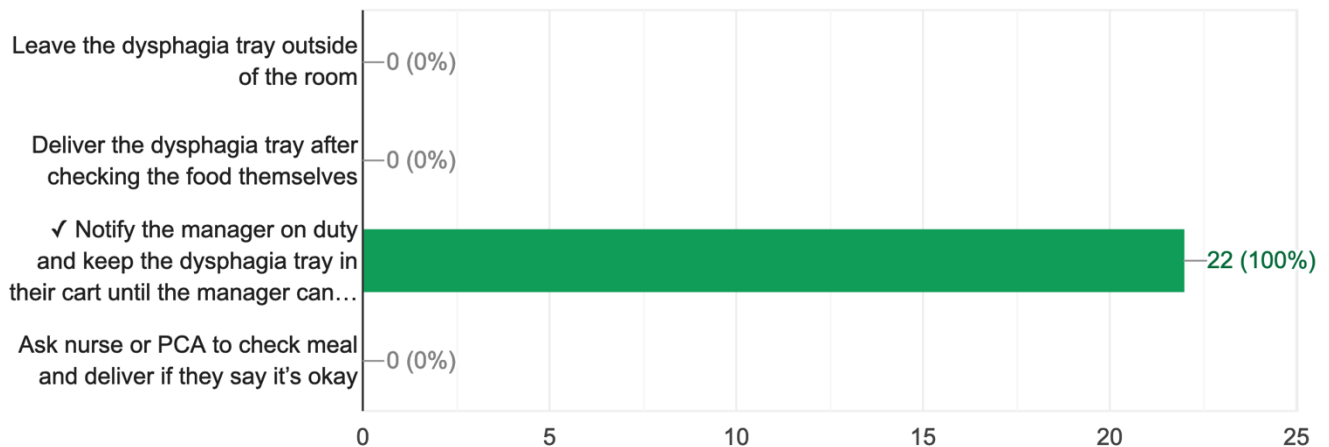
17 / 22 correct responses



Post-Survey

If tray passer discovers there is no signature on ticket, they should:

22 / 22 correct responses



Δ AVERAGE: 22.7% increase → FINAL Average w/ Correct Answer: 100%

