Quality Assurance Assignment
Re-standardizing the chef salad
MDI Intern
Food Service Management Ft. Harrison

Issue: The Chef Salads Change Daily Based on the Food Service Employee (FSE) Building the Salad

On the second day of rotating at the VA, it came to my attention that each FSE built their chef salads differently – both size and ingredients. Each variation does not follow the recipe issued by the VA. This matters for a few reasons:

First, having varying ingredients and size can change the nutrient content. Though considerations are made for specific diets - for example, 2 gm sodium patients cannot have any ingredients with added salt – the size of the salad and contents can increase overall sodium, protein and fat content. Most patients order the salad with the intention to be "healthy". The VA standardized the recipe to meet the FDA's heart healthy standards. It is expected that each salad at every VA is made the same way.

Second, different ingredients mean different prices. Additions like olives, beans, different cheeses, and whole hard-boiled eggs adds up. For example, cottage cheese is added to the side of the Chef Salad on some days, adding $0.11/oz to each salad. Celery is added to the side, costing about $0.25 per salad. Neither of these ingredients are listed on the standardized recipe. The salads average costing $0.71 more than the standardized recipe – if the facility if serving 6 salads a day every-day, then they will be spending an $1,550 extra a year on salads alone.

Third, the patients who predominately order the salad are in the behavior health unit. In this unit consistency is key because everyone eats together. Once one patient orders the salad, it sets off a chain reaction of orders (there was one day where there were 12 Chef Salads ordered to that unit). They will notice a difference.

The chief variations between salads:

- Added (not on recipe): olives, celery, carrots, fruit, beans
- Variations between salads: Sliced or shredded cheese; Type of cheese used; cherry or whole, sliced tomatoes; Different salad mixes are used – Ice-burg vs salad mix (with cabbage and carrots); tuna in place of chicken (most people did not eat the salad that day)
- Quality difference: ingredients are eyeballed, not measured; meat on salad is depended on the lunch meat that is ordered for the week
- Not in stock/Not ordered regularly: Green onions, fresh green bell peppers

Chef Salad Recipe

Cost Per Salad: $ 1.42 Source: Vista Recipe Online Manual

Ingredients	Prep	Amount	Cost	Calories (kcal)
Romain Lettuce	Shredded	2 oz	$ 0.12	9
Chicken	Skinned, boned, diced	1 fl oz, 1 Tbsp	$ 0.41	47
Ham	Cooked, frozen, diced or cubed	1 fl oz, 1 Tbsp	$ 0.22	35
Cheese	Mozzarella	2 fl oz	$0.16	144
Fresh Cucumber	slices	1 oz	$ 0.08	4
Fresh Tomatoes	Cherry or sliced	1 oz	$ 0.09	5
Green Bell Pepper	Diced	1 oz	$0.11	6
Fresh Onions	Green	1 – ½ tsp	$0.14	4
Deviled Egg	Sliced	½	$ 0.09	38.5

1. Dice chicken, ham, cheese, green ion ions, green peppers, cucumbers, tomatoes and mix together. Chill
2. Portion 1 c lettuce on place. Spread 1 c. Chicken, ham mixture over the top. Serve with dressing on the side and ½ deviled Egg.

Notice: Diced Turkey can be substituted for chicken

Chef Salad following VA recipe
12 minutes to build 1



FSE #1 Chef Salad



FSE #1 Chef Salad



FSE #2 - Vegetarian Chef Salad



FSE #2 Chef Salad



FSE #3 Chef Salad



Cost analysis of Chef Salads :
To find the average variation in salads, salads made by the two full-time employees were measured.

Weighed FSE #3 Salad: 22.62oz
Ingredient Cost: $ 2.51

Item	Amount	Cost	Calories (Kcal)
Lettuce	7.05 oz	$ 0.44	33
Celery	2.8oz, 4 sticks	$ 0.25	7
Carrots	1.3oz, 4 sticks	$ 0.08	15
Cucumber	1.65oz, 4 slices	$ 0.15	7
Tomato	1.75oz, ½ tomato	$ 0.15	9
Hard-Boiled Egg	1.7oz, 1 egg	$ 0.18	77
Ham	2.85 oz	$ 0.62	99.75
Olives	1.05 oz	$ 0.34	34
Cheese	0.4 oz	$ 0.07	42
Cottage Cheese	2.07 oz	$ 0.23	42

28 minutes for 6 salads = 0.46 hours pay for 6 salads = 0.08 hours pay per salad

Weighted FSE #2 Salad: 15.55oz
Ingredient Cost: $1.79

Item	Amount	Cost	Calories (kcal)
Lettuce	5.30oz	$0.28	29
Zucchini	0.75 oz	$0.06	4.4
Carrots	0.2 oz	$0.01	2.3
Red onion	0.2 oz	$0.01	6.4
Hard-Boiled Egg	1.7oz, 1 egg	$0.18	77
Chicken	1.9 oz	$0.38	89
Olives	0.3 oz	$0.10	9.7
Cheese	0.9 oz	$0.16	89
Apple	0.8oz	$0.07	14
Strawberry	1.05 oz	$0.20	10
Tangerine	0.6 oz	$0.08	6
Blueberries	0.35 oz	$0.12	6
Beans	0.3 oz	$0.14	8

73 minutes for 6 salads = 1.22 hours of pay for 6 salad = 0.20 hours pay per salad

	Weight (oz)	Cost	Calories (kcal)	Fat (g)	Carbs (g)	Fiber (g)	Protein (g)	Sodium (mg)	Cholesterol (mg)
VA Recipe	9.88	$ 1.37	292.5	14.15	9.8	2.2	32.75	759	181
FSM #3	22.62	$ 2.51	365.75	16.15	23.275	6.8	36.16	1766.9	266.75
FSM #1	15.55	$ 1.79	350.80	16.2	19.29	7.46	34.2	417.4	276

Red = more than VA recipe
Green = less than VA Recipe

Food waste analysis:
The salads made on different days were weighed before being sent up to the floors. When the truck returned, the salads were weighed again to see how much remained. The plates were cleaned off then weighed to find the base weight of the plate; from there we could extrapolate the final weight of food waste from the salads.

	Weight (out)	Weight (in) Lunch	Weight (in) Dinner	Plate Weight	Food Waste (oz)	% waste
FSE #3	76.05	13.8	14.6	4.8	18.8	28.3%
FSE #1	35.75	22.65	-	9.65	13.1	50.2%

This analysis has a couple aspect that could have increased the margin for error. First, the salads did have salad dressing added to them, which adds to the total weight of the salad – impacting the error in the %waste and overall food waste. The meal being served could impact the salad consumption. For example, one of the salads was measured on the night where the "Student October Harvest Meal" was served. Since a "special" meal was served, it could have impacted how much that patient ate. Evidently this experiment has error that has been overlooked, however it is clear that the salads are producing expensive waste.

Plan for Improvement: How Can the Food Service Staff Make the Same Salad?
The new salad recipe will be laminated and placed above the salad making station. This will help the FSE identify which ingredients to use. I then made a comprehensive amount of each portion, just so the FSE do not have to weight each salad as they build it.

By implementing a new way of building a salad, there will be minor training needed. There will be an overview of the changes to the salad covered in the monthly meeting. By having each employee build salads with the same ingredients and in the same amount, it should decrease ingredient costs spend on salads per year. By having less variation in the ingredients, the FSE will no longer have to individually prepare what they are putting on their salads. The same ingredients will be prepared; therefore, it is projected that the overall labor costs will decrease.

The kitchen supervisor will be in charge of ensuring these changes are implemented and followed. By checking the salads once a week on different days, they will be able to see if there are variations based on who is making them. Each salad that is built also is labeled by the FSE who made it, so if they are not compliant it will be easily identified. Monitoring the salads will follow the same format used to inspect the kitchen to VA standards.





Chef's Salad – Standardized Recipe (Edited)

Ingredient	Amount
Lettuce	Loose Handful (2 oz)
Chicken Skinned, Boned, Diced	Packed 1/3 cup (2 oz)
Bacon	2 Tbsp (0.25 oz)
Cheese	1/3 cup (1 oz)
Fresh Cucumbers	4-5 Slices (1 oz)
Fresh Tomatoes	¼ cup sliced or 4 Cherry Tomatoes
Carrots	4 baby carrots or ¼ cup shredded
Onion	One slice, diced
Boiled Egg	½ Egg per salad

1. Dice chicken, cheese onions, carrots, and tomatoes.
2. Place lettuce on plate
3. Add each item individually around bed of lettuce

Nutrient Analysis

Chef Salad on VISTA - Original

Ingredients	Prep	Amount	kcal	Fat	CHO	Fiber	Protein	Na	Chol.	Cost
Iceberg Lettuce	Shredded	2 oz	9	0.2	1.8	1.2	0.7	0	0	$0.12
Chicken	Skinned, boned, diced	1 fl oz, 1 T	47	1	0	0	8.8	21	24	$0.17
Ham	Ckd, frzn, diced or cubed	1 fl oz, 1 T	35	1	1.5	0	5.6	354	15	$0.22
Cheese	Mozzarella	2 fl oz	144	9	1.8	0	13.9	351	36	$0.35
Fresh Cucumber	slices	1 oz	4	0.1	1	0.1	0.2	<1	0	$0.08
Fresh Tomatoes	Cherry or sliced	1 oz	5	0.1	1.1	0.3	0.2	1	0	$0.09
Green Bell Pepper	Diced	1 oz	6	0.1	1.3	0.5	0.2	1	0	$0.11
Fresh Onions	Green	1 – ½ tsp	4	<0.1	1	0.1	<0.1	<1	0	$0.14
Deviled Egg	Sliced	½	38.5	2.65	0.3	0	3.15	31	106	$0.09
Total Per Salad		9.88	292.5	14.15	9.8	2.2	32.75	759	181	**$1.37**

Chef Salad – Edited Version

Ingredients	Amount (oz)	kcal	Fat (g)	Carbs	Fiber	Protein	Sodium	Cholesterol	Cost
Lettuce	2	9.36	0.17	1.82	1.16	0.68	4.54	0	$ 0.12
Chicken	2	94	2	0	0	17.6	42	48	$ 0.33
Bacon	0.25	46	3.6	0.1	0	3.1	196	9	$ 0.07
Shredded Jack Cheese	1	105	8.5	0.25	0	7	152.5	25	$ 0.18
Fresh Cucumber	1	4	0.1	1	0.1	0.2	<1	0	$ 0.08
Fresh Tomato	1	5	0.1	1.1	0.3	0.2	1	0	$ 0.09
Onion	0.3	4	<0.1	1	0.1	<0.1	<1	0	$ 0.14
Shredded Carrots	1.3	15	0	3.5	0.9	0.4	26	0	$ 0.08
Total	8.85	282.36	14.47	8.77	2.56	29.18	422.04	82.00	**$ 1.09**

Minor edits to the original salad can lead to reduced labor and ingredient costs. This edited version decreases calories, sodium and cholesterol, while incorporating aspects from the chef salads that are currently being made. First, instead of having both ham and chicken for protein, the ham was substituted by a smaller portion of bacon. Bacon is available throughout the week, where as ham is not. This substitution decreases variability of the salads, as well as the sodium and cholesterol content. The original recipe called for 2 oz of cheese, but when weighing the current salads there was an average of 0.65oz on both plates. The amount was adjusted to 1oz (¼ cup) for the edited chef salad. This dramatically decreased the sodium content. The current salad production practice uses shredded jack cheese instead of mozzarella cheese. Though shredded jack contains more sodium and fat than mozzarella, it costs the same and with the adjusted measurements, the overall fat and sodium are reduced.

A couple changes could be made to inventory to decrease overall costs. Switching from baby to shredded carrots, for example, would reduce costs because they are less labor intensive and more cost efficient. Another money saver would be by using cherry tomatoes rather than whole tomatoes. Again,

they are less labor intensive and cost less per unit. Currently, the lettuce used changed throughout the week. There is pre-shredded salad mix that is used or the FSE will cut a head of lettuce themselves. This is a minor variance, but one that was noted. Based off US Foods, it would be more price efficient to purchase pre-shredded iceberg or romaine lettuce. It is difficult to decide if it would be more beneficial to make that switch, as the lettuce heads are also used on days where sandwiched or burgers are being served. Pre-cut lettuce could be provided for those items, it simply a matter of preference. Additionally, the shelf life of the lettuce could be decreased by receiving it pre-cut. Those are factors that would have to be further assessed to determine their overall cost, however pre-cut does reduce ingredient and labor costs.

Other Considerations:
The Chef Salads are most commonly ordered by the Behavior Health Unit for a patients' lunch and/or dinner, every day. One concern that was expressed is by standardizing the recipe, these patients will have the exact same meal for lunch and/or dinner every day. It is projected that the repetition will decrease their appetite and increase food waste. Therefore, in addition to standardizing the chef salad I have made a couple alternative salads that could rotate into the chef salad cycle. Each salad has had the nutrient content analyzed and priced. Due to the ingredients and simplicity of the salads, the labor cost would either remain or decrease based on the salad.

Garden Salad	Amount	Calories	Fat	Carbs	Fiber	Protein	Sodium	Cholesterol	Cost
Romain Lettuce	2 oz	9	0.2	1.8	1.2	0.7	0	0	$ 0.12
Tomatoes	1 oz	5	0.1	1.1	0.3	0.2	1	0	$ 0.14
Carrots	1.3 oz	15	0	3.5	0.9	0.4	26	0	$ 0.08
Cucumbers	1 oz	4	0.1	1	0.1	0.2	<1	0	$ 0.08
Red Peppers	1 oz	6	<0.1	1.6	0.5	0.2	<1	0	$ 0.11
Chicken	2 oz	94	2	0	0	17.6	42	48	$ 0.33
Croutons	0.5oz	60	2	10	0	2	190	0	$ 0.07
	Total	193	4.4	19	3	21.3	259	48	**$ 0.83**

Spinach Salad	Amount	Calories	Fat	Carbs	Fiber	Protein	Sodium	Cholesterol	Cost
Spinach	3.5 oz	23	0.39	3.63	2.2	2.9	79	0	$ 0.32
Feta	1 oz	70	21.28	1	0	5	340	20	$ 0.20
Bacon	0.5 oz	92	7.2	0.2	0	6.2	392	18	$ 0.14
Strawberries	1.05 oz	10	0.1	2.3	0.6	0.2	1	0	$ 0.20
	Total	195	28.97	7.13	2.8	14.3	812	38	**$ 0.87**

Caesar Salad	Amount	Calories	Fat	Carbs	Fiber	Protein	Sodium	Cholesterol	Cost
Chicken	1/3 cup	23.5	0.5	0	0	4.4	10.5	12	$ 0.33
Mozzarella	1/4 cup	72	4.5	0.9	0	6.95	175.5	18	$ 0.18
Romain Lettuce	2 oz	9	0.2	1.8	1.2	0.7	0	0	$ 0.20
Tomatoes	1/4 cup	5	0.1	1.1	0.3	0.2	1	0	$ 0.14
Croutons	0.5oz	60	2	10	0	2	190	0	$ 0.07
	Total	169.5	7.3	13.8	1.5	14.25	377	30	**$ 0.92**

Caprese Salad	Amount	Calories	Fat	Carbs	Fiber	Protein	Sodium	Cholesterol	Cost
Spinach	3.5 oz	23	0.39	3.63	2.2	2.9	79	0	$ 0.32
Chicken	2 oz	94	2	0	0	17.6	42	48	$ 0.33
Mozzarella	1/4 cup	72	4.5	0.9	0	6.95	175.5	18	$ 0.18
Tomato	1 oz	5	0.1	1.1	0.3	0.2	1	0	$ 0.14
Basil	0.5oz	3.33	0.00	0.33	0.17	0.50	0.50	0.00	$ 0.38
	Total	197.33	6.99	5.96	2.67	28.15	298.00	66.00	**$ 1.36**

These salads will allow for variation so the patients and FSE do not get bored of eating/making them. Each salad would cost less than the current Chef Salad found in VISTA. Based off current practices, a labor-to-ingredient cost projection was made. This simply was generated to give an example of the cost comparisons between items. The FSE average making 6 chef salads per day, therefore some of the labor costs are based on that time period. The labor includes prepping ingredients and building the salad with those ingredients. Some of the times are arbitrary, however it gives a rough idea of the overall costs of these salads. Other labor costs are based on the prep-needed to make certain items – i.e. bacon, chicken – as they have to be cooked, cooled and cut. Additionally, the labor cost quantified in this analysis is based off a $15.00 pay wage. I did not feel comfortable asking for the Wage Grade 3 pay rate, as an intern I don't think it is my business. I did provide my preceptor with the excel spreadsheet, if she was to further inquire for the actual costs.

Cost Analysis for Ingredients and Labor

Ingredient	Amount	Cost	Labor Hours	Cost of Labor	Cost to Prep	Total Cost per serving	Time	Total Cost
Iceberg Lettuce								
Head	4/6each	$20.35	0.1	$15.00	$1.50	$0.85	1 head	$2.35
Pre-cut	4/5 lb bag	$15.44	0.03	$15.00	$0.50	$0.58	2 min/6 salads	$1.08
Romaine Lettuce								
Head	24 each	$21.01	0.1	$15.00	$1.50	$0.88	1 Head	$2.38
Pre-cut	6/2lb bags	$18.90	0.03	$15.00	$0.45	$1.18	2 min/6 salads	$1.63

Ingredient	Amount	Cost	Labor Hours	Cost of Labor	Cost to Prep	Total Cost per serving	Time	Total Cost
Cheese								
Mozzarella	4/5lbs bag	$56.23	0.05	$15.00	$0.75	$0.18	3 min/6 salads	$1.80
Shredded Jack	5 lbs	$14.02	0.05	$15.00	$0.75	$0.18	3 min/6 salads	$1.80
Feta	4/2.5 lbs	$32.51	0.05	$15.00	$0.75	$0.20	3 min/6 salads	$1.97
Tomatoes								
Full	20 lbs	$26.21	0.08	$15.00	$1.20	$0.33	4	$1.53
Cherry	10 lbs	$21.76	0.02	$15.00	$0.30	$0.54	24	$0.84
Carrots								
Shredded	4/5lb bag	$19.65	0.02	$15.00	$0.30	$0.08	2 min/6 salads	$0.38
Baby Carrots	4/4lb bag	$20.39	0.08	$15.00	$1.20	$1.28	5 min/6 salads	$2.48
Chicken								
Breast	12lbs	$31.99	0.15	$15.00	$2.25	$0.17	12 min/4 breasts	$2.42
Misc.								
Red Pepper	5 lbs	$8.44	0.16	$15.00	$2.40	$0.05	6 salads	$2.45
Croutons	8/2.5 lb	$41.87	0.02	$15.00	$0.30	$0.07	6 salads	$0.37
Bacon	2/7.5lbs	$57.38	0.15	$15.00	$2.25	$0.07	1 pack	$2.32
Spinach	4/2.5 lbs	$17.06	0.05	$15.00	$0.75	$0.32	6 salads	$1.07
Basil	1 lb	$12.25	0.08	$15.00	$1.20	$0.38	6 salads	$1.58