

Wolfson JA, Moran AJ, Jarlenski MP, Bleich SN. Trends in sodium content of menu items in large chain restaurants in the U.S. Am J Prev Med. 2018;54(1):28–36.



The editorial office has been notified of the following error.

While updating their Menustat dataset with the 2017 data, the authors found an error in how the 2016 data were imported. There were missing data for PF Chang's in that year. This accounts for a very small percentage of menu items (<1%), but the authors reran all of the analyses for the paper with the corrected dataset to ensure the results were not affected. The results were mainly the same (+/– 5 mg), but there were some differences when comparing menu items only in 2012 to items newly introduced in 2016 for salads and full-service restaurants.

Including the 2016 menu items from P.F Chang's added 75 new menu items to the dataset (bringing the total from 21,557 to 21,632) and increased the number of items on the menu in all years in full-service restaurants by 106 items. This caused some small fluctuations in predicted mean sodium, which were very small overall, but slightly larger in full-service restaurants, and most notably when comparing salads only in 2012 to salads newly introduced in 2016. The interpretation of the results is unchanged.

Figure 1, Table 2, Table 3, Appendix Table 1, and Appendix Table 2 have been updated. Figure 1 is presented in full, and affected portions of Table 2, Table 3, Appendix Table 1, and Appendix Table 2 are presented below.

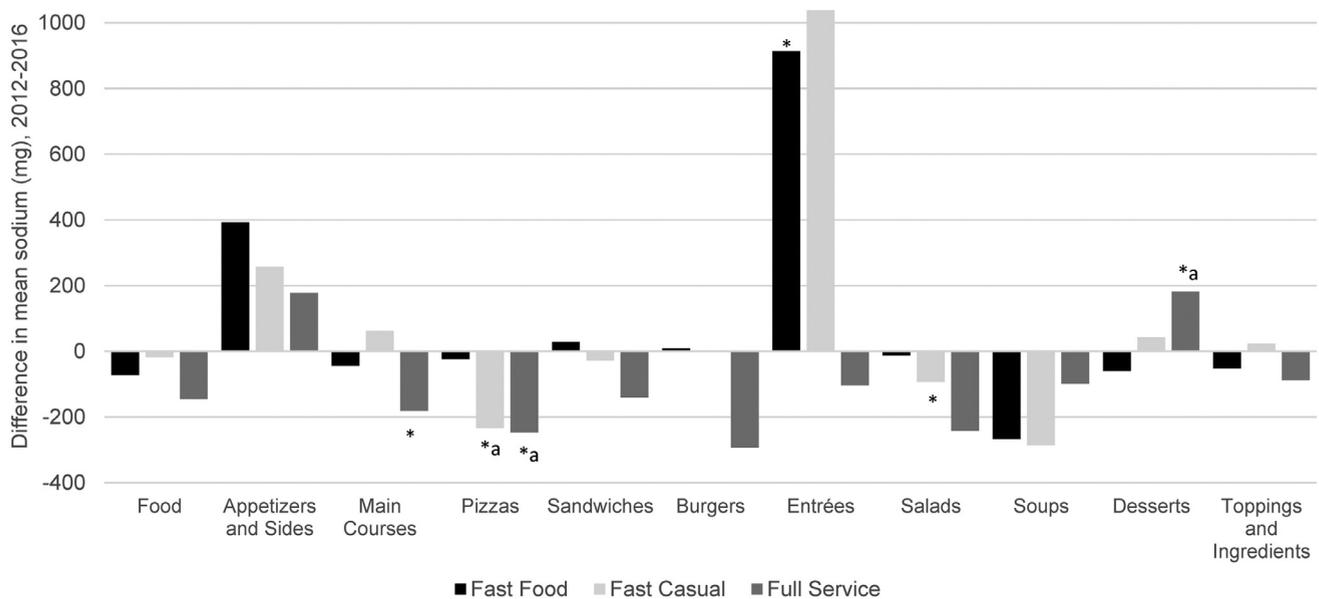


Figure 1. Difference in mean per-item sodium (mg) among menu items on the menu only in 2012 versus newly introduced items in 2016, by restaurant type.

Note: Mean per-item sodium in each year is adjusted for total calories, children's menu item status, whether a restaurant chain is national, and restaurant type (fast food, full service, fast casual). Per-item sodium refers to the mean sodium content of all items in a given menu category, after adjustment for calorie content and other covariates. SEs are clustered to account for correlation within restaurants.

*Change between 2012 and 2016 is statistically significant at $p < 0.05$.

^aChange between 2012 and 2016 is statistically significantly different from the change in fast food restaurants at $p < 0.05$.

Table 2. Predicted Mean Per-item Calorie Adjusted Sodium Content Among Items on Menus in 2012–2016, Overall and Stratified by Menu Category (Revised Portion)

Menu category	No. of items	Mean sodium, mg					p-value for trend
		2012	2013	2014	2015	2016	
Restaurant Type							
Full service, overall	1,778	925	930	978	958	968	0.24

Note: Mean per-item sodium in each year is adjusted for total calories, children’s menu item status, whether a restaurant chain is national, and restaurant type (fast food, full service, fast casual). Post-estimation margins commands were used to generate predicted mean, per-item sodium in each year. Per-item sodium refers to the mean sodium content of all items in a given menu category, after adjustment for calorie content and other covariates. SEs are clustered to account for correlation of items within restaurants.

Table 3. Predicted Mean Per-Item Calorie Adjusted Sodium Content, Among Menu Items on the Menu Only in 2012 Versus Newly Introduced Items in 2013, 2014, 2015, and 2016 (Revised Portion)

Menu category	n	Mean sodium, mg					Difference 2012–2016	p-value
		2012 only	New in 2013	New in 2014	New in 2015	New in 2016		
Overall	12,357	1,158	1,055	1,028	1,036	1,058	–100	0.02
Food ^a	9,607	1,386	1,263	1,231	1,239	1,273	–113	<0.05
Children’s menu	710	531	541	581	472	468	–63	0.24
Menu category								
Appetizers and sides	1,078	1,009	977	1,125	1,191	1,275	265	<0.01
Main courses ^b	7,098	1,549	1,519	1,464	1,425	1,434	–115	0.02
Pizzas	668	953	902	850	831	828	–126	<0.01
Sandwiches	2,298	1,623	1,621	1,666	1,603	1,632	9	0.93
Burgers	518	1,587	1,557	1,660	1,682	1,429	–158	0.34
Entrees	2,736	1,591	1,560	1,514	1,616	1,665	73	0.77
Salads	607	1,188	1,088	1,089	1,034	1,028	–160	0.12
Soups	272	1,199	1,234	1,164	1,105	1,034	–165	0.04
Desserts ^c	1,431	364	333	328	379	421	57	0.36
Toppings/Ingredients	2,750	358	312	312	312	336	–22	0.65
Restaurant type								
Fast food, overall	6,117	1,061	911	926	895	978	–83	0.16
Fast casual, overall	1,424	650	705	686	659	631	–19	0.83
Full service, overall	4,816	1,421	1,369	1,278	1,323	1,269	–151	0.07

Note: Boldface indicates statistical significance ($p < 0.05$). Mean per-item sodium in each year is adjusted for total calories, children’s menu item status, whether a restaurant chain is national, and restaurant type (fast food, full service, fast casual). SEs are clustered to account for correlation of items within restaurants. Post-estimation margins commands were used to generate predicted mean, per-item sodium in each year. Per-item sodium refers to the mean sodium content of all items in a given menu category, after adjustment for calorie content and other covariates.

^aIncludes all menu categories except toppings/ingredients.

^bIncludes burgers, entrees, pizza, sandwiches, and salads and soups that are not categorized as appetizers or side dishes.

^cIncludes desserts and other baked goods.

Appendix Table 1. Mean Per-item Calorie Adjusted Sodium Content (mg) Among Menu Items in 66 Large Chain Restaurants, by Restaurant Type, 2012–2016 (Revised Portion)

Menu category	n	Mean sodium, mg					p-value for trend
		2012	2013	2014	2015	2016	
Full Service							
Food ^a	1,460	1,079	1,084	1,145	1,121	1,132	0.23
Appetizers and sides	301	688	701	729	726	761	0.10
Main courses ^b	969	1,361	1,366	1,449	1,412	1,418	0.29
Pizzas	75	1,269	1,264	1,288	1,275	1,272	0.89
Sandwiches	58	1,827	1,769	1,815	1,791	1,777	0.68
Burgers	43	1,601	1,733	1,905	1,921	2,091	<0.05
Entrees	599	1,389	1,391	1,479	1,433	1,435	0.41
Salads	111	1,054	1,087	1,083	1,028	1,034	0.30
Soups	83	1,256	1,229	1,333	1,332	1,299	0.42
Desserts ^c	190	265	266	270	271	268	0.44
Toppings/Ingredients	318	231	228	227	229	232	0.80

Note: Mean per-item sodium in each year is adjusted for total calories, children's menu item status, and whether a restaurant chain is national. SEs are clustered to account for correlation within restaurants. Post estimation margins commands were used to generate predicted mean, per-item sodium in each year. Boldface indicates statistical significance ($p < 0.05$).

^aIncludes all menu categories except toppings/ingredients.

^bIncludes burgers, entrées, pizza, sandwiches, and salads and soups that are not categorized as appetizers or side dishes.

^cIncludes desserts and other baked goods.

Appendix Table 2. Mean Per-item Calorie Adjusted Sodium Content (mg) Among Menu Items on the Menu Only in 2012 Versus Newly Introduced Items in 2013, 2014, 2015, and 2016 by Restaurant Type (Table Associated with Figure 1) (Revised Portion)

Menu category	n	Mean sodium, mg					Difference 2012–2016	p-value
		2012 only	New in 2013	New in 2014	New in 2015	New in 2016		
Full Service								
Food ^a	4,273	1,532	1,509	1,394	1,437	1,387	–145	0.11
Menu category								
Appetizers and sides	577	966	905	995	1,025	1,145	178	0.06
Main courses ^b	3,338	1,731	1,685	1,557	1,599	1,550	–181	<0.05
Pizzas	324	1,237	1,387	1,068	993	990	–247	<0.001
Sandwiches	309	2,102	1,991	2,045	1,804	1,961	–141	0.34
Burgers	180	2,136	2,326	1,961	2,396	1,842	–294	0.34
Entrees	2,112	1,711	1,700	1,673	1,786	1,608	–103	0.73
Salads	322	1,391	1,205	1,146	1,170	1,149	–242	0.14
Soups	92	1,150	1,181	1,874	1,093	1,051	–99	0.34
Desserts ^c	358	280	455	393	480	462	182	0.01
Toppings/Ingredients	543	457	376	337	408	369	–88	0.36

Note: Mean per-item sodium in each year is adjusted for total calories, children's menu item status, and whether a restaurant chain is national. SEs are clustered to account for correlation within restaurants. Post estimation margins commands were used to generate predicted mean, per-item sodium in each year. Boldface indicates statistical significance ($p < 0.05$).

^aIncludes all menu categories except toppings/ingredients.

^bIncludes burgers, entrées, pizza, sandwiches, and salads and soups that are not categorized as appetizers or side dishes.

^cIncludes desserts and other baked goods.