# Illustration of the Usefulness of Archival Versions of a Food and Nutrient Database to Track Trends in the Sodium Content of Menus at Leading Fast Food Restaurants

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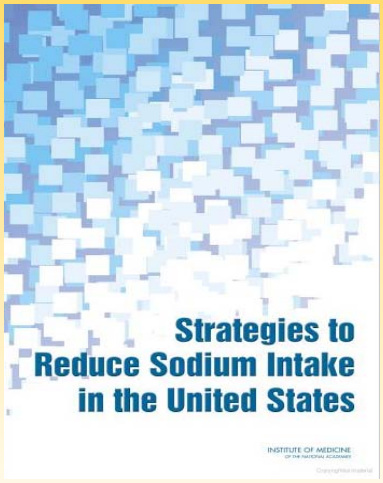
## The Sodium Challenge

- 1969, the first health concern relating high sodium intake to hypertension emerged and triggered health initiatives to address this issue
- 2009, despite the many attempts, the sodium intake of the U.S. population remains high, IOM convenes to revisit the problem



# Fast Food Stats

- Fast food accounts for 15% of American's daily sodium intake[a]
- Frequent fast food consumption has been associated with higher sodium intake[b]

[a]Source:http://www.ers.usda.gov/Briefing/DietQuality/Data/foodandnutrient/index.htm
[b]Source: Preventive Medicine 48 (2009) 284-287



## The Role of Food and Nutrient Databases in Monitoring the Compliance and Impact of Health Initiatives to Promote Healthy Diets

- Traditional role of food and nutrient databases: assess the quality and quantity of dietary intake, and potentially identify nutrients associated with diet-related diseases
- New use: tools to look at the diet-related activities of the food industry and monitor compliance with regulations and policies
- This case study is an illustration of how a food and nutrient database can be utilized to perform this type of analysis

## Tracking Sodium Trends of Menus at Eight Leading Fast Food Restaurants

- **Objective**
  To illustrate the usefulness of an existing food and nutrient database to track trends in the sodium content of eight fast food restaurant menu offerings between the periods 1997/98 and 2009/10
- **Method**
  Dataset was assembled using archival versions of the University of Minnesota Nutrition Coordinating Center (NCC) Food and Nutrient Database



## Details about NCC Food and Nutrient Database

- Contains over 18,000 foods including menu offerings at 22 leading fast food restaurants
- For each food, the database includes 162 nutrients, nutrient ratios, and other food components
- Food serving counts assigned for foods in database (e.g. fruit, vegetable, grain, dairy, etc. servings)
- Updated annually, although not all foods updated every year - fast food restaurants updated biannually on an alternating schedule

## NCC Food and Nutrient Database Maintenance Rules for Restaurant Menu Items

- All menu items except seasonal/promotional items are included in the database


- Order size information is generally included in the database (e.g. small, medium, large French fries) except for few items (e.g. chicken nuggets are listed as “nugget”)

- The database only includes restaurants that provide nutrient composition and ingredient information




## Inclusion Criteria for Present Analysis

- Included in the NCC Food and Nutrient Database since 1997
- Restaurant has defined set of food items, composed of fixed ingredients over time, on menu

## Fast Food Restaurant Sales Information, 2010

| | Rank | U.S. Sales ($Mil) | Number U.S. locations |
|---|---|---|---|
| McDonald's | 1 | 32,395 | 14,027 |
| Burger King | 3 | 8,600 | 7,253 |
| Wendy's | 4 | 8,340 | 6,576 |
| Taco Bell | 6 | 6,900 | 5,634 |
| KFC | 9 | 4,700 | 5,055 |
| Arby's | 14 | 3,010 | 3,649 |
| Jack in the Box | 15 | 2,935 | 2,206 |
| Dairy Queen | 16 | 2,660 | 4,514 |

Source: Quick Service Restaurant Magazine, Top 50, published August 2011, http://www.qsrmagazine.com



## Data Analysis

- Breakfast items: excluded from study due to inconsistent availability at fast food restaurants studied
- All other lunch/dinner menu item offerings in the analysis include separate entries for menu items available in more than one serving size (e.g. small, medium, large French fries counted as separate items)
- Means, medians, and inter-quartile ranges for entire menu and by menu item category (e.g. entrees, side dishes) generated
- No statistical tests because 1) complete menu census (no sampling); and 2) no intention to generalize results beyond the specifically selected eight restaurants

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## Median Na Content (mg/item) of Entrees Across Fast Food Restaurants Between Beginning and Ending Study Year Periods


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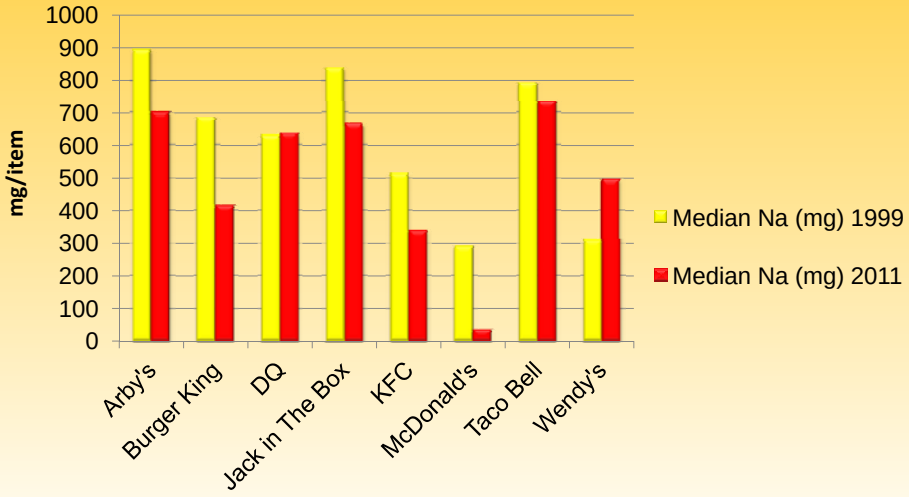
## Median Na Content (mg/item) of Sides Across Fast Food Restaurants Between Beginning and Ending Study Year Periods

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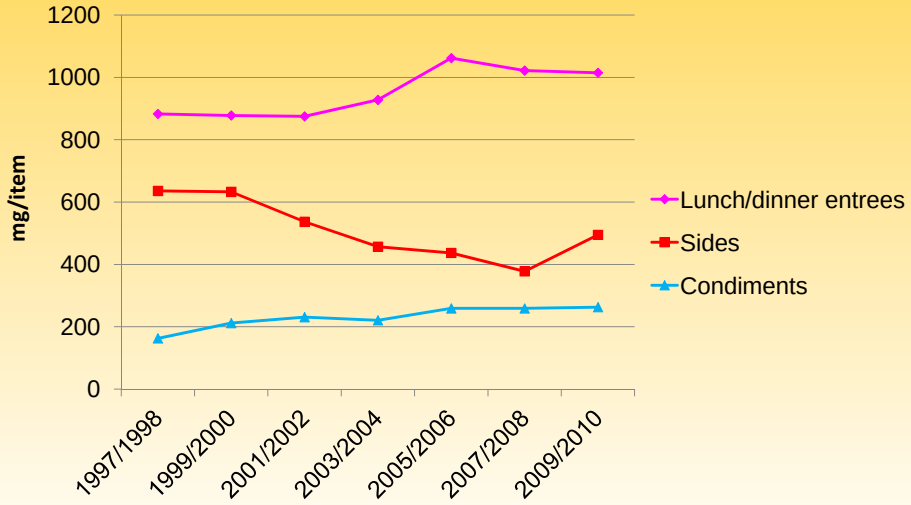
## Median Na Content (mg/item) of Menu Offerings by Selected Food Category

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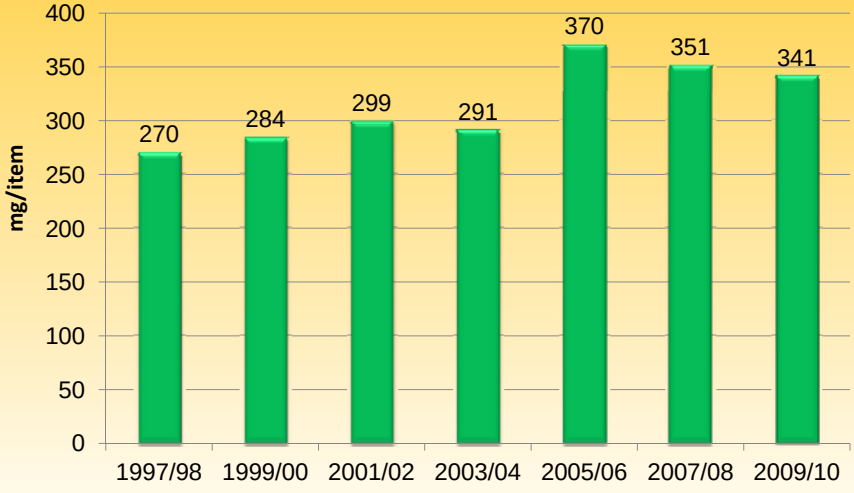
## Summary of Finding: Median Na Content (mg/item) of Menu Offerings Across the Fast Food Restaurants

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## Cons of Using Archival Versions of a Food and Nutrient Database to Track Trends in the Sodium Content of Foods

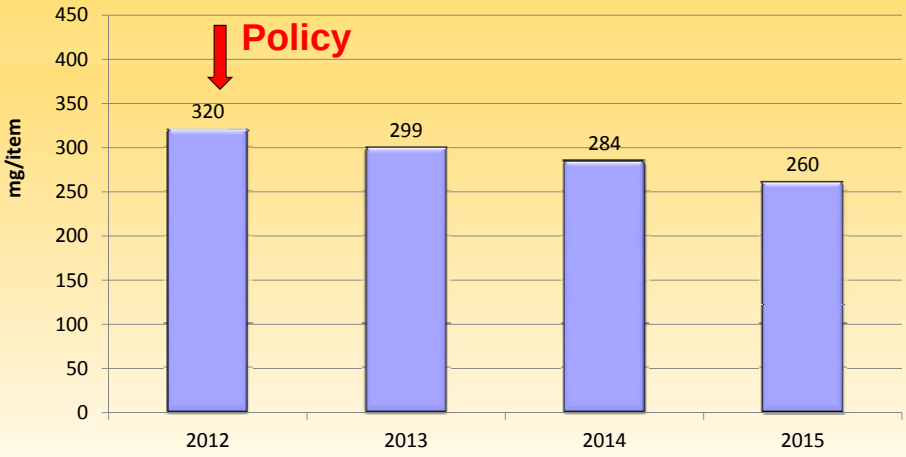
- Heavy reliance on manufacturers for nutrition info - either incomplete or missing
- Archival database only useful if food categories of interest are updated over time period of interest
- Brand name products not available for all product categories
- Generally only leading brands included, thus findings may not be reflective of marketplace as a whole



## Pros of Using Archival Versions of a Food and Nutrient Database to Track Trends in the Sodium Content of Foods

- Long-term trends can be captured, importance: changes in trends relative to initiation of nutrition-related health initiatives/policies or announcement by industry can be better evaluated

## Fictitious Data: Median Sodium Content of Food Category X, 2012-2015

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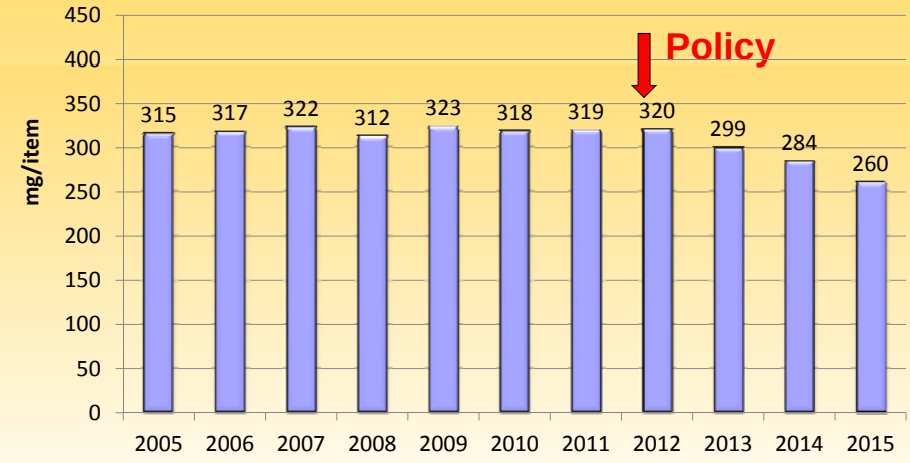


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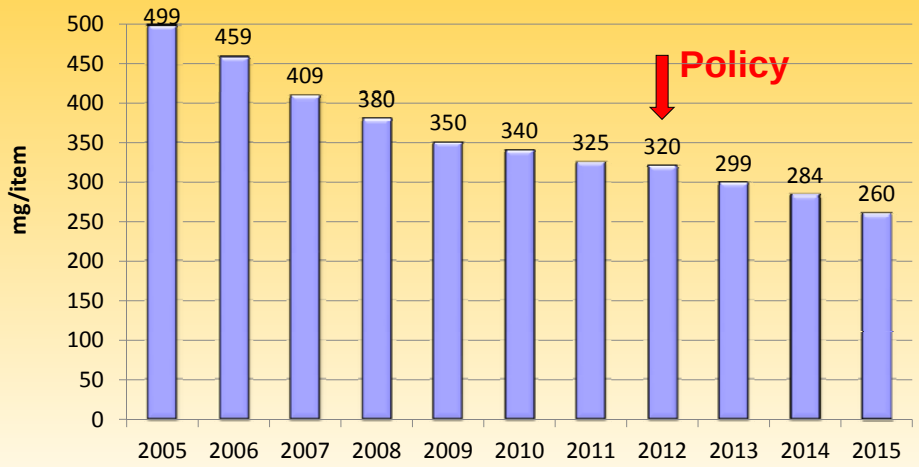


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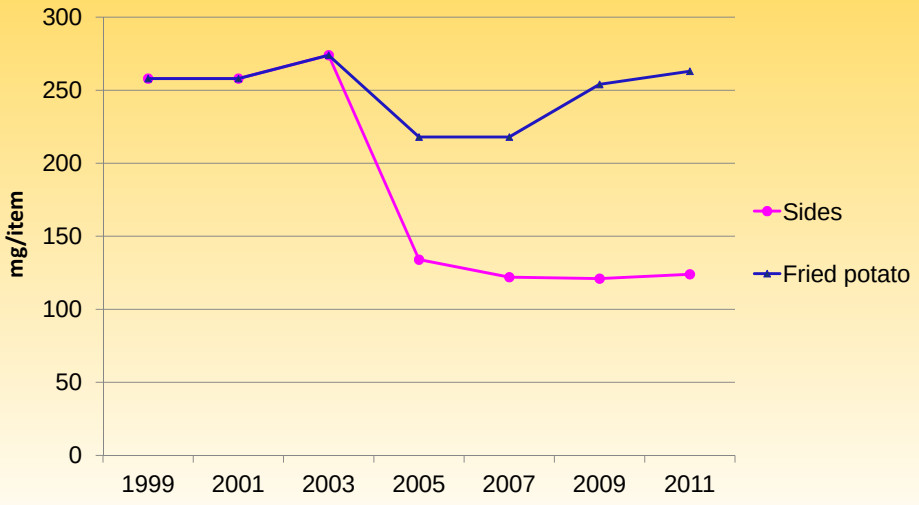
## Mean Na Content (mg/item) of Selected Items at McDonald's Over the Study Period

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## Additional Pros of Using Archival Versions of a Food and Nutrient Database to Track Trends in the Sodium Content of Foods

- Long-term trends can be captured, importance: changes in trends relative to initiation of nutrition-related health initiatives/policies or announcement by industry can be better evaluated
- Economically feasible and efficient
- Assurance of data integrity
- Depending on how the database is structured, popular food categories can be studied (i.e. frozen entrees, ready-to-eat cereals, etc.)



## Conclusion

- Archival versions of a food and nutrient database - useful tools for studies that are trying to evaluate food marketplace trends
- However, improvements needed to optimize quality and timeliness of tracking nutrient trends in the marketplace to efficiently support evaluation of health initiatives
- With proper financial resources and better manufacturer info, existing food and nutrient databases may be enhanced to allow for the evaluation of food marketplace trends of interest