

Master of Public Health
Integrative Learning Experience Report

A Risk Factor Study on Food Establishments in Kansas

by

Crystal Futrell
MPH Candidate

submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

Graduate Committee:

Dr. Sara Gragg
Dr. Justin Kastner
Dr. Londa Nwadike

Public Health Agency Site:

Kansas Department of Agriculture
August 1, 2020 – December 30, 2020

Site Preceptor:

Adam Inman
Food Safety & Lodging Program
Assistant Program Manager

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2021

Summary

The Centers for Disease Control and Prevention (CDC) estimate that foodborne illnesses affect 48 million people in the United States annually. These illnesses result in approximately 128,000 hospitalizations, 3,000 deaths, and an economic burden of more than \$15.5 billion dollars—each year.¹ Most of these diseases are caused by pathogenic bacteria, viruses and parasites, but chemicals and toxins can also cause illness.²

Fortunately, foodborne illnesses are largely preventable, but in order to know how to prevent them, we need to understand where they originate. There are many sources where food can become contaminated and cause a foodborne illness outbreak, but according to the CDC's 2017 Surveillance Report, the single food preparation setting that had over 64% of that year's outbreaks were restaurants with the majority of that percentage being sit-down dining establishments.³ Now, did the restaurants receive contaminated food, or did the food become contaminated because of risky food handler practices? Both are likely possibilities, but CDC surveillance has identified five common practices in food preparation settings that most contribute to foodborne illness. These five areas are:⁴

1. Poor personal hygiene
2. Improper hot/cold holding temperatures
3. Improper cooking temperatures
4. Food from unsafe sources
5. Contaminated equipment/protection from cross contamination

To assess their state's enforcement of food safety practices and their management of the above five areas in food preparation settings, the Kansas Department of Agriculture (KDA) conducted a Risk Factor Study for the Food and Drug Administration (FDA). This study analyzed twenty-seven data points from their inspection reports that best connect to the above five food safety risk factors. These inspections are from restaurants, retail food stores, schools and satellite schools. The intent of this analysis was to analyze previously instated intervention strategies in those settings to assess their effectiveness while also detecting continued and/or additional food safety concerns that would inform potential intervention strategies. These potential interventions include: training, developing standard operating procedures, and utilizing different colored cutting boards for ready-to-eat foods.

My task for this Integrated Learning Experience was to utilize the methods and concepts learned throughout my time as a K-State Master of Public Health (MPH) student to assist KDA with the analysis and development of reports for this Risk Factor Study. This paper is a summary of my findings.

Subject Keywords: food safety, foodborne illness, food establishment, public health, Kansas Department of Agriculture, inspection

Table of Contents

Summary	ii
List of Figures	1
List of Tables	3
Chapter 1 - Literature Review	4
Chapter 2 - Learning Objectives and Project Description	9
Chapter 3 - Results	13
Chapter 4 - Discussion	22
Chapter 5 - Competencies	26
References or Bibliography	34
Appendix	37

List of Figures

Figure 1.1 How Food Gets Contaminated—The Food Production Chain	7
Figure 2.1 Kansas Food Establishment Compliance with Data Point 1: Certification by Accredited Program, etc. for Schools from 2016-2019	12
Figure 3.1 Kansas Food Establishment Compliance with Data Point 8: Adequate Hand Washing Facilities Supplied and Accessible for Restaurants from 2016-2019	13
Figure 3.2 Kansas Food Establishment Compliance with Data Point 8: Adequate Hand Washing Facilities Supplied and Accessible for Retail Food Stores from 2016-2019	13
Figure 3.3 Kansas Food Establishment Compliance with Data Point 10: Food Received at Proper Temperatures for Restaurants from 2016-2019	14
Figure 3.4 Kansas Food Establishment Compliance with Data Point 10: Food Received at Proper Temperatures for Retail Food Stores from 2016-2019	14
Figure 3.5 Kansas Food Establishment Compliance with Data Point 10: Food Received at Proper Temperatures for Schools from 2016-2019	14
Figure 3.6 Kansas Food Establishment Compliance with Data Point 10: Food Received at Proper Temperatures for Satellite Schools from 2016-2019	14
Figure 3.7 Kansas Food Establishment Compliance with Data Point 11: Food in Good Condition, Safe and Unadulterated for Retail Food Stores from 2016-2019	15
Figure 3.8 Kansas Food Establishment Compliance with Data Point 13: Food Separated and Protected for Restaurants from 2016-2019	15

Figure 3.9 Kansas Food Establishment Compliance with Data Point 13: Food Separated and Protected for Retail Food Stores from 2016-2019.....	15
Figure 3.10 Kansas Food Establishment Compliance with Data Point 13: Food Separated and Protected for Schools from 2016-2019.....	15
Figure 3.11 Kansas Food Establishment Compliance with Data Point 14: Food Contact Surfaces Cleaned and Sanitized for Restaurants from 2016-2019.....	16
Figure 3.12 Kansas Food Establishment Compliance with Data Point 14: Food Contact Surfaces Cleaned and Sanitized for Retail Food Stores from 2016-2019.....	16
Figure 3.13 Kansas Food Establishment Compliance with Data Point 16: Proper Cooking Time and Temperature for Restaurants from 2016-2019.....	17
Figure 3.14 Kansas Food Establishment Compliance with Data Point 16: Proper Cooking Time and Temperature for Retail Food Stores from 2016-2019.....	17
Figure 3.15 Kansas Food Establishment Compliance with Data Point 16: Proper Cooking Time and Temperature for Schools from 2016-2019.....	17
Figure 3.16 Kansas Food Establishment Compliance with Data Point 16: Proper Cooking Time and Temperature for Satellite Schools from 2016-2019.....	17
Figure 3.17 Kansas Food Establishment Compliance with Data Point 20: Proper Cold Holding Temperature for Restaurants from 2016-2019.....	18
Figure 3.18 Kansas Food Establishment Compliance with Data Point 20: Proper Cold Holding Temperature for Retail Food Stores from 2016-2019.....	18
Figure 3.19 Kansas Food Establishment Compliance with Data Point 21: Proper Date Marking and Disposition for Restaurants from 2016-2019.....	19
Figure 3.20 Kansas Food Establishment Compliance with Data Point 21: Proper Date Marking and Disposition for Retail Food Stores from 2016-2019.....	19
Figure 3.21 Kansas Food Establishment Compliance with Data Point 21: Proper Date Marking and Disposition for Schools from 2016-2019.....	19
Figure 3.22 Kansas Food Establishment Compliance with Data Point 21: Proper Date Marking and Disposition for Satellite Schools from 2016-2019.....	19
Figure 3.23 Kansas Food Establishment Compliance with Data Point 26: Toxic Substances Properly Identified, Stored and Used for Restaurants from 2016-2019.....	20
Figure 3.24 Kansas Food Establishment Compliance with Data Point 26: Toxic Substances Properly Identified, Stored and Used for Retail Food Stores from 2016-2019.....	20

List of Tables

Table 2.1 KDA Food Establishment Categories	11
Table 2.2 KDA Data Point Description.....	11
Table 5.1 Summary of MPH Foundational Competencies.....	26
Table 5.2 MPH Foundational Competencies and Course Taught In.....	30
Table 5.3 Summary of MPH Emphasis Area Competencies	322

List of Appendix

Appendix 1: Inspection Data Sheet.....	37
Appendix 2: Inspection Analysis Report.....	64
Appendix 3: Standard 9 Report.....	118
Appendix 4: Standard 9 PowerPoint Presentation.....	132

Chapter 1 – Literature Review

The history of foodborne illness is as old as mankind itself. Even Alexander the Great in 323 B.C.E. met his demise, some historians believe, not on a battlefield but sick in bed from a paralytic and gastro-agonizing bout of typhoid fever, a bacterial infection caused by certain *Salmonella* bacteria.⁹ Wherever there is food so, too, is the opportunity for foodborne illness. While laws ensuring the wholesomeness of food have spanned the globe and thousands of years, these historic regulations focused primarily on fair trade negotiations and regulating weights and measures for tax purposes. The enactment and enforcement of regulation to ensure the safety of food and therefore prevent the centuries-old ailment of foodborne illness, however, is relatively new.¹⁰

Upton Sinclair's 1905 novel *The Jungle* is often credited with establishing the need for food safety regulation in America to protect public health. It exposed the insanitary conditions of meat packing facilities which led Congress to pass the Pure Food & Drug Act and the Federal Meat Inspection Act. These laws prohibited profitable manufacturing of impure products and slaughtering animals in insanitary conditions, respectively.¹¹ They were not, however, the first government-mandated food laws. In Medieval Europe, King John of England passed the Assize of Bread law in 1202 prohibiting the adulterating use of ground peas and beans to make bread. This law continued for hundreds of years and was even adopted by colonial Americans in 1646 which later became the Massachusetts Act Against Selling Unwholesome Provisions in 1785—officially America's first food law.⁹

Food safety regulations continue to develop today. Just like the microbial lifeforms it strives to control, this institution and its mission to safeguard the eaters on this planet are an ever-evolving process. The FDA's Food Safety Modernization Act of 2011 is one of the latest and most extensive federal food safety laws, and it is still in development 10 years after its congressional passing.¹² However, most of the food safety regulation in the nation takes place at a local level. In Kansas, food safety enforcement falls under the jurisdiction of the Kansas Department of Agriculture (KDA).

As the nation's first organization committed to supporting the needs of local agricultural endeavors, KDA began as the Kansas Agriculture Society when Kansas was still just a territory. Area farmers recognized the collaborative advantage of regular communication to discuss land claims and share best practices for animal and crop management. When Kansas officially

became a state in 1861, the society organized county fairs to give farmers an opportunity to gather annually to share information, but the farmers felt a once-a-year event was not sufficient, so the society officially became the Kansas State Agricultural Society—the nation’s first state-run department of agriculture—on March 5, 1862.¹³

Today, KDA oversees the administrative, marketing, and regulatory services for twelve departments:

1. Agricultural laboratory
2. Agricultural marketing, advocacy and outreach team
3. Dairy and feed safety program
4. Division of animal health
5. Division of conservation
6. Food safety and lodging program
7. Grain warehouse inspection program
8. Meat and poultry inspection program
9. Pesticide and fertilizer program
10. Plant protection and weed control program
11. Division of water resources
12. Weights and measures program

While KDA’s mission is to support all of Kansas’s agricultural entities, its Food Safety and Lodging program is the regulatory arm for food production and sales. It supervises the inspections for egg production farms, senior meal sites, mobile food units, lodging facilities, food wholesalers, food warehouses, food processors, and food manufacturers. It also manages the inspections for all the state’s restaurants, grocery stores, convenience stores, and schools.¹⁴ Adam Inman serves as this program’s assistant manager, and he was my preceptor for this Integrated Learning Experience (ILE).

Under Inman’s guidance, KDA inspectors utilize the state’s Food Code standards to inform their work in surveying, regulating, and enforcing food safety protocols in public food establishments. Kansas’s Food Code is based on FDA’s Federal Food Code. This nationwide set of food safety standards initially started as the Restaurant Sanitation Program in 1934.¹⁵ As early twentieth century governments became increasingly aware of the linkage between public health and the sanitation of food environments, officials noticed that most documented foodborne

illness outbreaks were traced to sites where public meals were served. ¹⁶ To quell this situation, FDA and the US Public Health services created the Restaurant Sanitation Program that focused on employee hygiene, proper management of perishables, the proper use of chemicals, and offered an incentivized grading system for public display that's still used in some states today. ¹⁵

FDA updates and publishes the Federal Food Code every four years. Each state decides which guidelines to adopt and enforce, but many closely align their individual food code with the federal government's. Some states even have local county or city governments that adopt additional regulations outside of their state's food code that must be complied with by food establishments within that jurisdiction. ¹⁵

Today, food establishments have three kinds of inspections: routine (which happens every six to eighteen months), follow-up inspections (to resolve initial issues discovered during the routine inspection), and consumer complaint inspections. All organizations that manage these inspections have ways for consumers to report complaints. Kansans can report a complaint is by visiting the website: www.foodsafetykansas.org. ¹⁵

The number of inspections a food establishment receives depends on the risk-level of food that the establishment produces. Packaged food retailers will undergo fewer inspections compared to an operation that prepares and sells ready-to-eat, uncooked meals made with fresh produce. During these visits, inspectors observe employees' hygiene behaviors, glove use, hair protection, food and storage temperatures, and managers' knowledge on how to thaw and reheat food. Food preparation practices are also observed to determine if cross-contamination happens and if food-contact surfaces are being properly cleaned and sanitized. Inspectors also want to ensure that all food being served to the public comes from approved sources. One inspection report noted that a kitchen was storing recently killed ducks in the kitchen walk-in refrigerator. According to the report, when the inspector asked the owner where the ducks came from, the owner said he had just recently killed them on a hunting trip. This would be an example of an unapproved source as the owner cannot use his commercial kitchen refrigerator for personal food storage. The ducks were removed. Inspectors also observe dishwasher setups, how toxic chemicals are stored and labeled, the cleanliness of dining rooms and bathrooms, and garbage collection sites. The inspection visits can take up to two hours or longer depending on the violations observed. ¹⁵

Each state has their own terminology to categorize violations. These can include high priority/intermediate/basic; Type 1/Type 2; Critical/Non-Critical. While the terms are different, all violations are categorized by how readily they contribute to foodborne illness. Critical violations pose the most danger to public health and must be fixed under the supervision of the on-site inspector. Some violations require an inspector to shut the establishment down immediately until violations are corrected; examples of these severe violations include no hot water on the premises, a major pest infestation, and/or being an establishment directly linked to a major foodborne illness outbreak.

The main mission for these KDA food inspections, of course, is to prevent the occurrence of foodborne illnesses. Fortunately, foodborne illnesses are largely preventable, but in order to know how to prevent them, we need to understand where they originate. As this CDC “The Food Production Chain” infographic shows, there are many sources where food can become contaminated and cause a foodborne illness outbreak, but according to the CDC’s 2017 Surveillance Report, the single food preparation setting that had over 64% of that year’s outbreaks were restaurants with the majority of that percentage being sit-down dining establishments.³

Now, did the restaurant receive contaminated food, or did the food become contaminated because of risky food handler practices? Both are likely possibilities, but CDC surveillance has identified five common practices in food preparation settings that most contribute to foodborne illness. These five areas are: ⁴

1. Poor personal hygiene
2. Improper hot/cold holding temperatures
3. Improper cooking temperatures
4. Food from unsafe sources
5. Contaminated equipment/protection from cross contamination



Figure 1.1 How Food Gets Contaminated—The Food Production Chain (CDC 2017)

To assess their state's enforcement of food safety practices and their management of the above five areas in food preparation settings, the Kansas Department of Agriculture (KDA) conducted a Risk Factor Study from the Food and Drug Administration (FDA). This study analyzed twenty-seven data points from their inspection reports that best connect to the above five food safety risk factors. These inspections are from restaurants, retail food stores, schools and satellite schools. The intent of this analysis was to analyze previously instated intervention strategies in those settings to assess their effectiveness while also detecting continued and/or additional food safety concerns that would inform potential intervention strategies.

Chapter 2 - Learning Objectives and Project Description

Last fall, I worked with the Kansas Department of Agriculture to help produce the Standard 9 Report for their FDA Risk Factor Study. This study has a total of 9 standards that require analysis of data and the implementation of certain actions. These standards are:

- Standard 1: Regulatory Foundation
- Standard 2: Trained Regulatory Staff
- Standard 3: Inspection Program Based on HACCP Principles
- Standard 4: Uniform Inspection Program
- Standard 5: Foodborne Illness and Food Defense Preparedness and Response
- Standard 6: Compliance and Enforcement
- Standard 7: Industry and Community Relations
- Standard 8: Program Support and Resource
- Standard 9: Program Assessment

A complete description and requirements for completion of each standard can be found on the FDA's website: <https://www.fda.gov/food/voluntary-national-retail-food-regulatory-program-standards/voluntary-national-retail-food-regulatory-program-standards-november-2019>.

The Standard 9 report that I compiled assesses the success of a state's food safety program to protect the public from the five common practices that contribute most to foodborne illness. To do this, I studied the past four years of KDA's food establishment inspection reports and analyzed the twenty-seven data points that inspectors address when doing their routine inspections. These twenty-seven points directly connect to the five food safety risk factors of poor personal hygiene, improper hot/cold holding temperatures, improper cooking temperatures, food from unsafe sources, and contaminated/cross-contaminated equipment and surfaces. The inspections are from restaurants, retail food stores, schools, and satellite schools.

The twenty-seven inspection data points analyzed were:

1. Certification by Accredited Program
2. Management Awareness; Policy Present
3. Proper Use of Reporting, Restriction & Exclusion
4. Proper Eating, Tasting, Drinking or Tobacco Use
5. No Discharge from Eyes, Nose, Mouth

6. Hands Clean and Properly Washed
7. No Bare Hand Contact with RTE Foods, etc.
8. Adequate Hand Washing Facilities Supplied and Accessible
9. Food Obtained from Approved Sources
10. Food Received at Proper Temperatures
11. Food in Good Condition, Safe and Unadulterated
12. Required Records Available: Shellstock Tags, Parasite Destructions
13. Food Separated and Protected
14. Food Contact Surfaces Cleaned and Sanitized
15. Proper Disposition of Returned, Previously Served, Reconditioned and Unsafe Food
16. Proper Cooking Time and Temperature
17. Proper Heating for Hot Holding Procedures
18. Proper Cooling Time and Temperatures
19. Proper Hot Holding Temperatures
20. Proper Cold Holding Temperatures
21. Proper Date Marking and Disposition
22. Time as a Public Health Control—Procedures and Records
23. Consumer Advisory Provided for Raw or Undercooked Foods
24. Pasteurized Foods Used; Prohibited Foods Not Offered
25. Food Additives—Approved and Properly Used
26. Toxic Substances Properly Identified, Stored and Used
27. Compliance with Variance, Specialized Process and HACCP Plan

In addition to the analysis and Standard 9 report, I wanted to create a system that was easy for future analysis and risk factor studies. When I received the data from KDA, it was in an overwhelming excel spreadsheet that was hard to interpret without deep analysis. I made some tweaks to the initial spreadsheet so relevant data would be displayed more prominently and utilized graphics tools to make the data easier to decipher. For example, I converted the actual numbers to percentages for each of the twenty-seven data points. I used percentages instead of numbers because the numbers varied from year to year, and percentages gave us a better way to

compare the data. I also separated each of the twenty-seven data points into their own excel sheet. This made it easier to both input data and also review it rather than endlessly scrolling to find specific entries. I also adjusted the graphs because the minimum and maximum inputs were not standardized in the original spreadsheet. Some minimums started at 0 while others started at 25. The same was true for the maximums. I reset all minimums to 0 and all the maximums to 100 so that graphed data points could be compared equally and true issues of concern could be easily identified. Finally, I colorized the charts to make them easier to interpret. Issues that showed improvement were marked with green text. Issues of concern with red text. Orange text indicates a variance that isn't officially an issue but may indicate a hidden or future problem.

Table 2.1 Kansas Department of Agriculture Food Establishment Categories and the Number of Establishments Inspected Per Category Each Year

Facility Category	Number Inspected
Restaurants	Approximately 5730/year
Retail Food Stores	Approximately 1292/year
Schools	Approximately 2077/year
Satellite Schools	Approximately 546/year

Table 2.2 Kansas Department of Agriculture Inspection Data Point Descriptions for Food Establishment

Data Point	Data Point Description
IN	Data point observed to be “in compliance” with Food Code provisions
OUT	Data point observed to be “out of compliance” with Food Code provisions
N.A.	Data point not applicable in the inspected setting (<i>e.g.</i> raw animal products are not served)
N.O.	Data point is applicable in the inspected setting but was not observed during the inspection

The annual sum of each data point per setting was compared against the other observed years and graphed to visually represent the inspection data as a whole, such that any trends or areas of food safety concern would be highlighted. For example, the graph below plotting the compliance data for “Certification by Accredited Program, Compliance with Code, or Correct Responses; Duties” (Data Point 1 of 27) in school settings shows an improvement over the observed years as this data point has moved towards being “IN” (in compliance) as opposed to being “N.O.” (not observed) which is no longer allowed per Food Code mandates.¹⁷

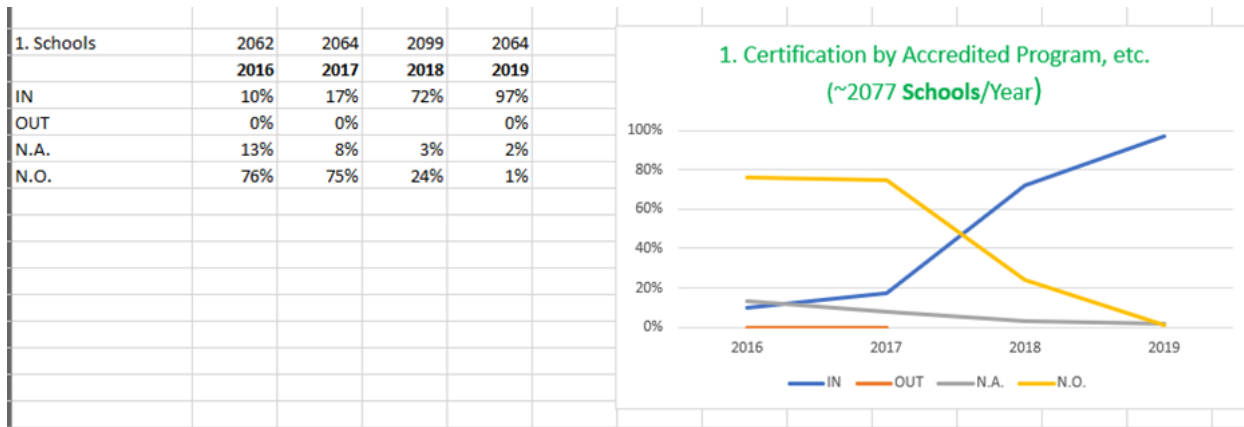


Figure 2.1 Kansas Food Establishment Compliance with Data Point 1: Certification by Accredited Program, etc. for Schools from 2016-2019

In addition to analyzing inspector reports to produce the Standard 9 Report, I also had the opportunity to observe real-time KDA-led inspections. Due to the pandemic and COVID restrictions, all of the inspections I witnessed took place virtually via Zoom software. I observed the inspections of two restaurants, as well as one winery and one convenience store that both sold ready-to-eat foods. I also had the opportunity to speak with the KDA inspectors about their job and what it's like to enforce food safety regulations. Time spent with these inspectors was valuable to my analysis report; it gave action to the reports and showed me what they look for and deal with during their inspections.

Chapter 3 - Results

The first observed concern from this study was Data Point 8's "Adequate Hand Washing Facilities Being Supplied and Accessible". Interestingly, it was not necessarily poor hand washing technique nor infrequency; national studies show only one in three food preparation employees actually wash their hands when necessary.⁵ Kansas's observed handwashing data point received good marks, but there is a problem in both restaurants and food retail stores with having *access* to washing hands properly. This appears to be a consistent problem over the observed years. This data point could be marked OUT for the following reasons:

- Hand washing sinks used for other purposes like washing or soaking utensils
- Hand washing sinks are blocked or not easily accessible
- Hand washing supplies (soap, paper towels) are not adequately stocked at hand washing sinks

This does not seem to be an issue in school or satellite school settings.

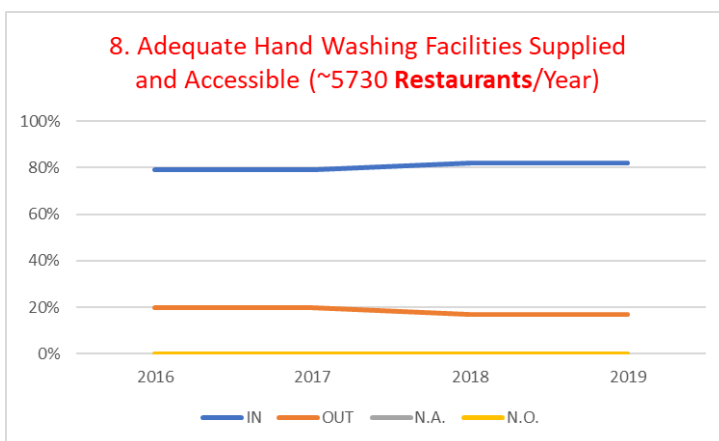


Figure 3.1 Kansas Food Establishment Compliance with Data Point 8: Hand Washing Facilities Supplied and Accessible for Restaurants from 2016-2019

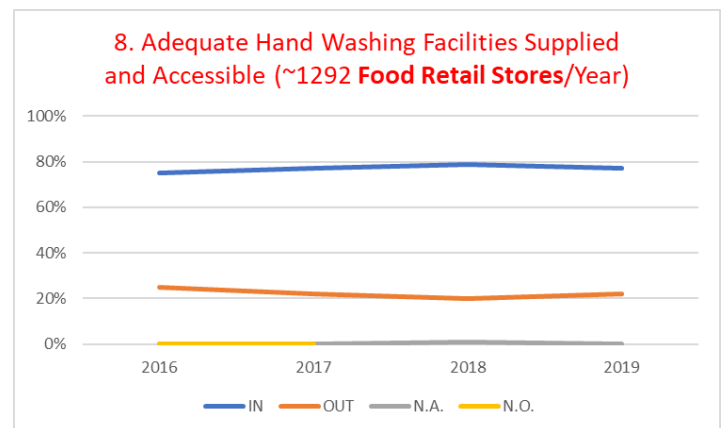


Figure 3.2 Kansas Food Establishment Compliance with Data Point 8: Hand Washing Facilities Supplied and Accessible for Retail Food Stores

The next area of concern was Data Point 10’s “Food Received at Proper Temperatures”. While the data does not show this variance alarmingly out of compliance, this data point is consistently marked “N.O.” (not observed) in all the inspected food settings. This is a concern because receiving safe food is the first step to ensuring the food served by the food establishment is safe. It is understandable that inspections and receiving times do not always coincide, but the data does show that this process is hardly ever observed which makes this practice difficult to verify and enforce.

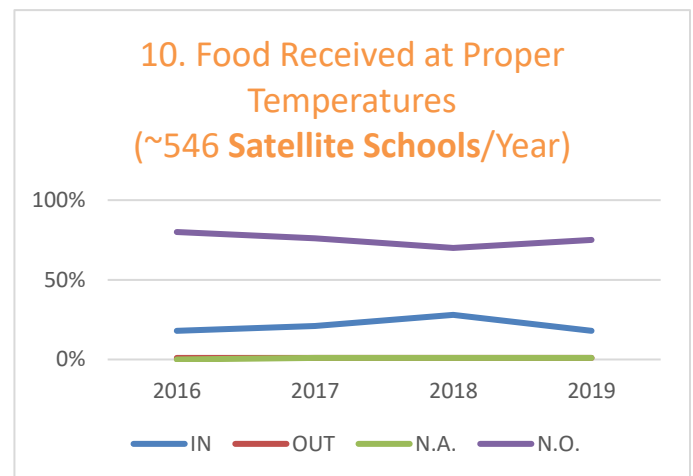
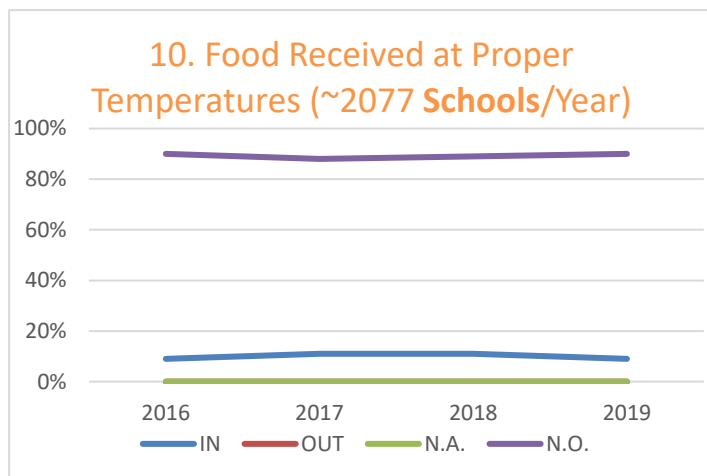
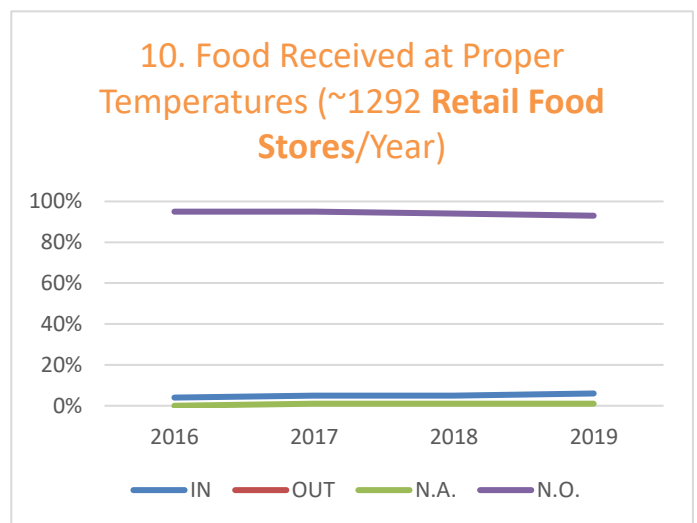
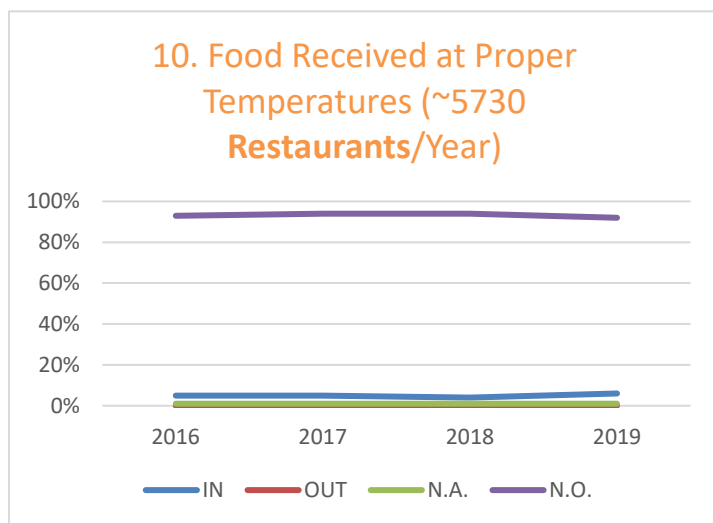


Figure 3.3 Kansas Food Establishment Compliance with Data Point 10: Food Received at Proper Temperatures for Restaurants from 2016-2019

Figure 3.4 Kansas Food Establishment Compliance with Data Point 10: Food Received at Proper Temperatures for Retail Food Stores from 2016-2019

Figure 3.5 Kansas Food Establishment Compliance with Data Point 10: Food Received at Proper Temperatures for Schools from 2016-2019

Figure 3.6 Kansas Food Establishment Compliance with Data Point 10: Food Received at Proper Temperatures for Satellite Schools from 2016-2019

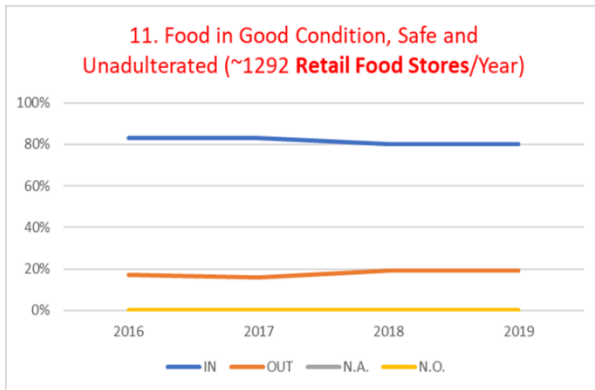


Figure 3.7 Kansas Food Establishment Compliance with Data Point 11: Food in Good Condition, Safe and Unadulterated for Retail Food Stores from 2016-2019

Concerns were noted and red-flagged on Data Point 13’s “Food Separated and Protected” for both restaurants and retail food store settings, and schools received a warning orange-flag. This data point indicates that ready-to-eat (RTE) foods may not be protected from cross contamination with raw animal products. As the data shows, the IN compliance numbers barely topped 80% and have been steadily trending downward in restaurants and retail food stores.

Schools, which had nearly 100% compliance a few years ago, are also showing a downward drift. Failure to comply with this variance increases the opportunity for foodborne illness outbreaks linked to: *Salmonella*, *E. coli*, and other pathogenic microorganisms.

Data Point 11’s “Food in Good Condition, Safe and Unadulterated” seems to be an issue only for the retail food store settings. Over the years, it appears the IN compliance is slightly trending downward while the OUT compliance is trending upward. According to the Food Code, this could indicate that food packages in these settings have been compromised or the true appearance, color or quality of food items have been intentionally altered.¹⁷

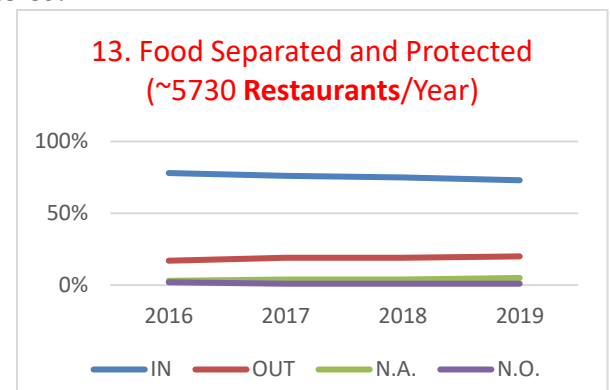


Figure 3.8 Kansas Food Establishment Compliance with Data Point 13: Food Separated and Protected for Restaurants from 2016-2019

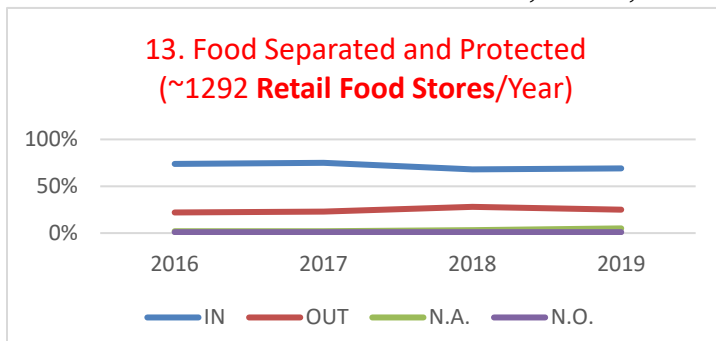


Figure 3.9 Kansas Food Establishment Compliance with Data Point 13: Food Separated and Protected for Retail Food Stores from 2016-2019

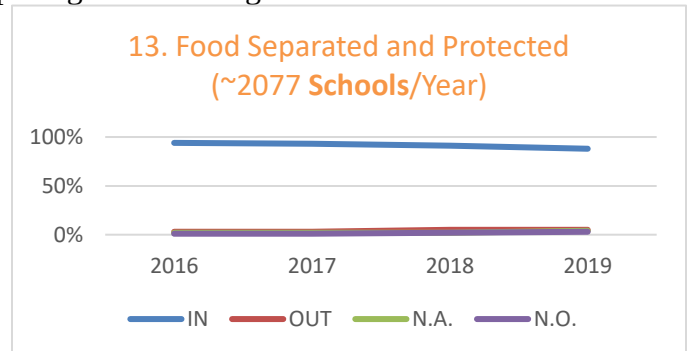


Figure 3.10 Kansas Food Establishment Compliance with Data Point 13: Food Separated and Protected for Schools from 2016-2019

While recent years show an observed improvement for Data Point 14’s “Food Contact Surfaces Cleaned and Sanitized” in both restaurant and retail food store settings, about a third of inspected facilities still report this data point as OUT. Cleaning is not the same as sanitizing, but both practices are vital for killing germs and maintaining a food safe environment.¹⁷ Doing one without the other or instead of the other or doing either improperly can create dangerous situations for pathogenic microbes to spread.

This does not seem to be an issue in school and satellite school settings.

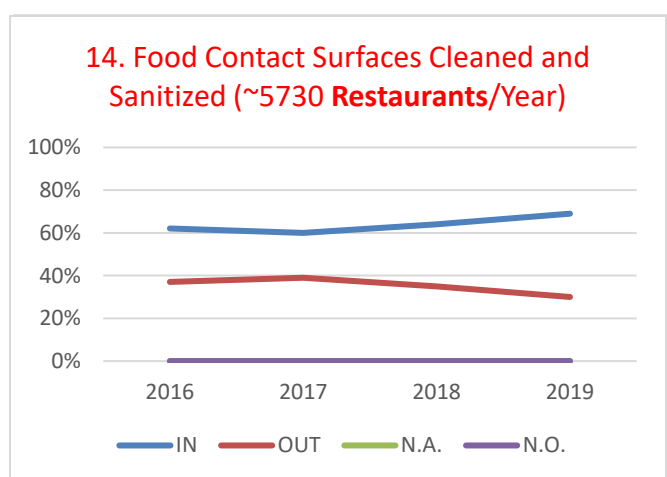


Figure 3.11 Kansas Food Establishment Compliance with Data Point 14: Food Contact Surfaces Cleaned and Sanitized for Restaurants from 2016-2019

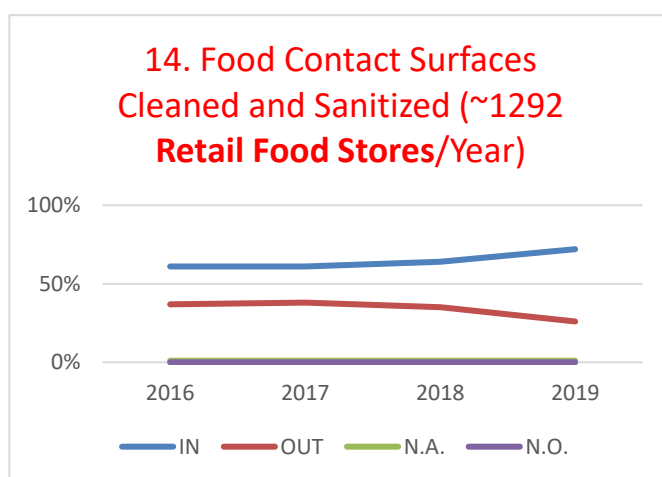


Figure 3.12 Kansas Food Establishment Compliance with Data Point 14: Food Contact Surfaces Cleaned and Sanitized for Retail Food Stores from 2016-2019

Data Point 16's "Proper Cooking Time and Temperature" was largely unobserved across all food establishments and therefore received an orange warning flag. According to the Food Code, N.O. (not observed) should only be marked when the inspector is unable to determine the cooking temperature of any food.¹⁷ This would imply that no cooking was happening during the inspection period. However, most of these settings prepare food on-site, so it seems odd that many of them would not be cooking anything worthy of a temperature check during inspector visits. This is especially important in environments that prepare animal-based foods which naturally contain pathogenic bacteria that cannot be seen, smelled or tasted.¹⁸ The only way to ensure the destruction of these harmful microbes is to verify that the product has reached a safe, minimum, internal temperature as read by a calibrated meat thermometer.⁶

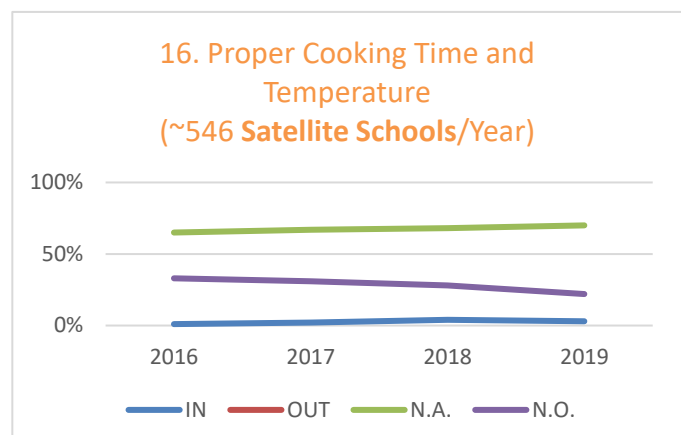
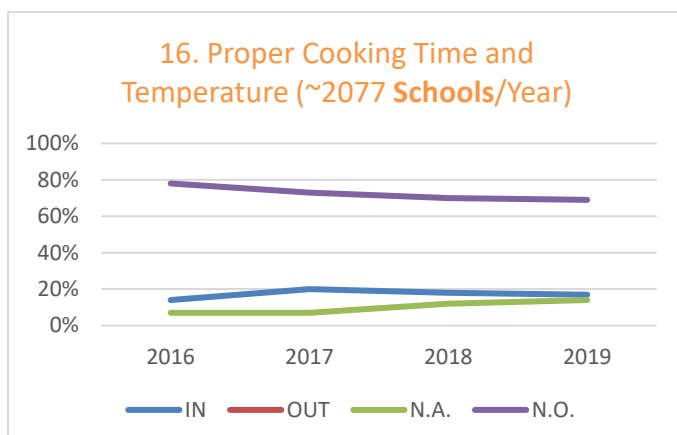
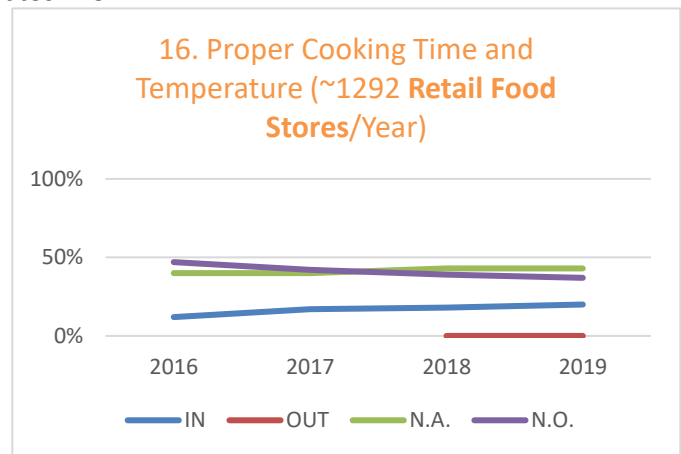
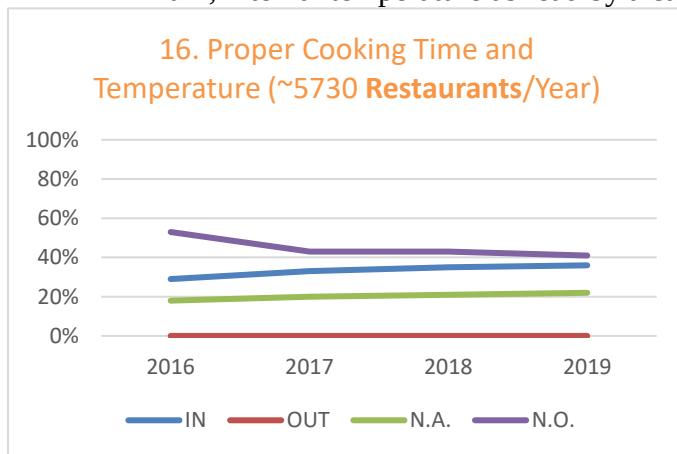


Figure 3.13 Kansas Food Establishment Compliance with Data Point 16: Proper Cooking Time and Temperature for Restaurants from 2016-2019

Figure 3.14 Kansas Food Establishment Compliance with Data Point 16: Proper Cooking Time and Temperature for Retail Food Stores from 2016-2019

Figure 3.15 Kansas Food Establishment Compliance with Data Point 16: Proper Cooking Time and Temperature for Schools from 2016-2019

Figure 3.16 Kansas Food Establishment Compliance with Data Point 16: Proper Cooking Time and Temperature for Satellite Schools from 2016-2019

Inspection results show that Data Point 20’s “Proper Cold Holding Temperatures” are getting worse in both restaurant and retail food store settings. This data point is marked “OUT” when a potentially hazardous food that must be time and/or temperature-controlled for safety is not being managed properly. These specific foods include dairy, meat, cut leafy greens, cut tomatoes and baked potatoes; they must be held at temperatures $\leq 41^{\circ}\text{F}$. Holding foods above this temperature increases the opportunity for harmful bacteria to grow, contaminate the food, and spread disease.⁷ This does not seem to be an issue in school and satellite school settings. There are many potential reasons why this data point would be marked “OUT” including:

- Lack of employee training
- Malfunctioning equipment
- Cold-holding equipment adjacent to heat intensive equipment
- Poor ventilation in hot kitchens

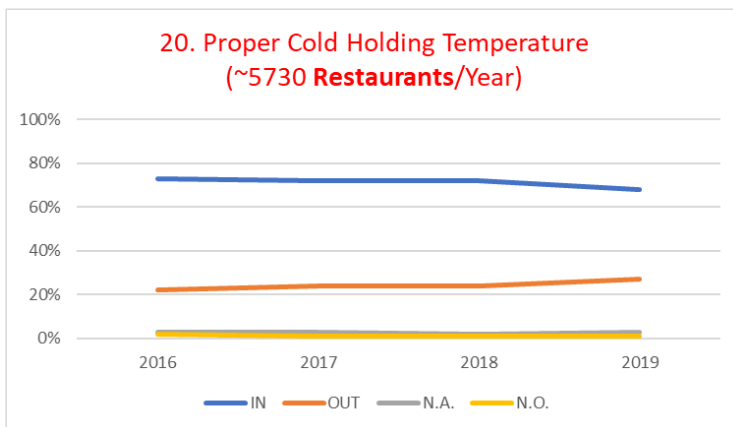


Figure 3.17 Kansas Food Establishment Compliance with Data Point 20: Proper Cold Holding Temperature for Restaurants from 2016-2019

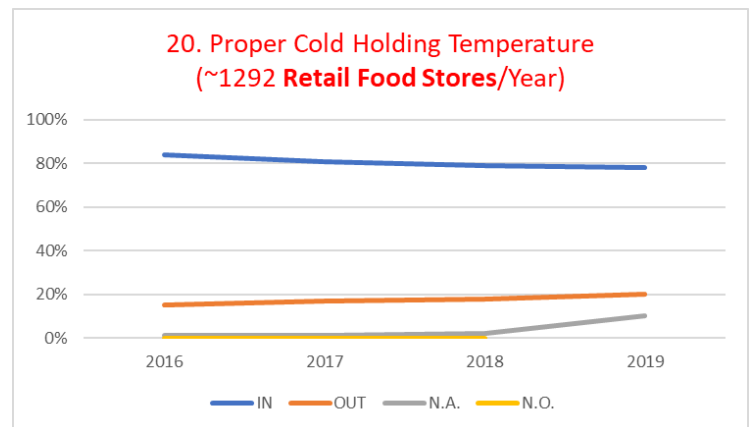


Figure 3.18 Kansas Food Establishment Compliance with Data Point 20: Proper Cold Holding Temperature for Retail Food Stores from 2016-2019

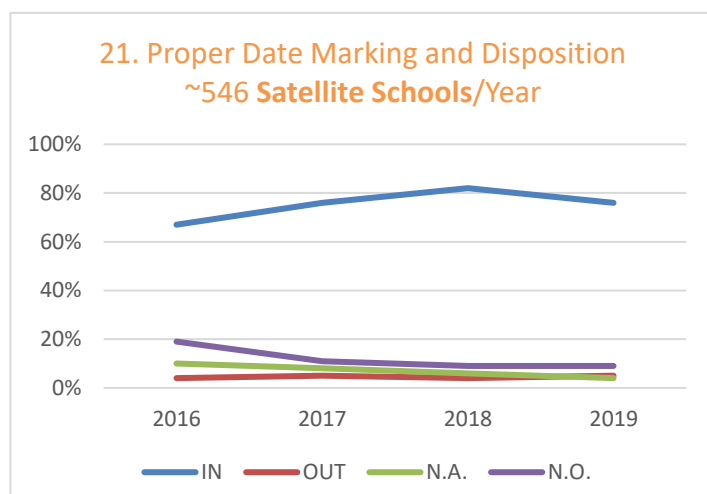
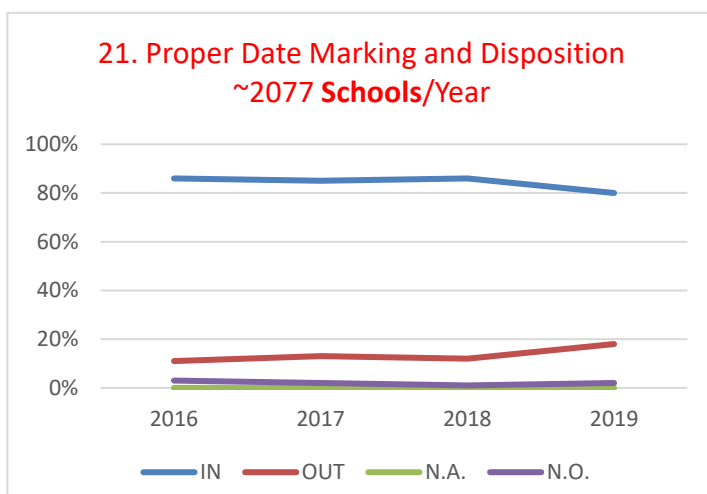
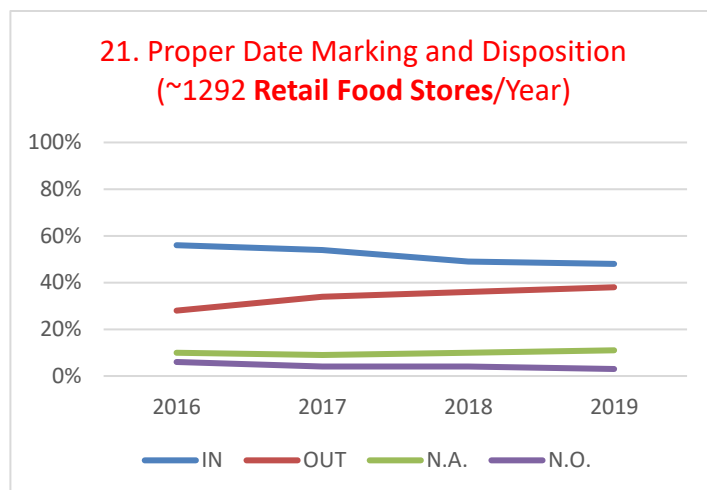
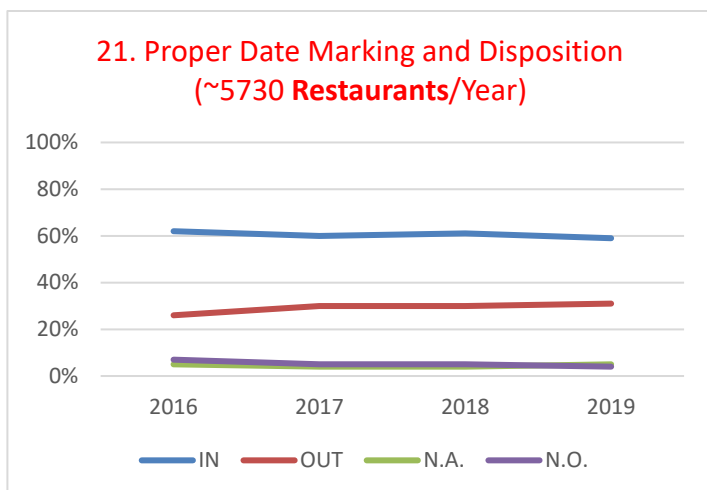


Figure 3.19 Kansas Food Establishment Compliance with Data Point 21: Proper Date Marking and Disposition for Restaurants from 2016-2019

Figure 3.20 Kansas Food Establishment Compliance with Data Point 21: Proper Date Marking and Disposition for Retail Food Stores from 2016-2019

Figure 3.21 Kansas Food Establishment Compliance with Data Point 21: Proper Date Marking and Disposition for Schools from 2016-2019

Figure 3.22 Kansas Food Establishment Compliance with Data Point 21: Proper Date Marking and Disposition for Satellite Schools from 2016-2019

All inspected food settings show some concern with Data Point 21’s “Proper Date Marking and Disposition.” Developing, maintaining and enforcing a clear system for marking and managing potentially hazardous food that is being held for longer than twenty-four hours plays a large role in keeping food safe. Even when food is held at proper cold-holding temperatures of $\leq 41^{\circ}\text{F}$, bacteria will continue to grow but at a much slower pace. After several days, however, enough bacteria can accumulate to make products contaminated and unsafe to

eat. Without an effective system in place, it's hard to keep track of how long one has held leftover food.

Unfortunately, inspection reports show a downward trend of compliance in this variance. Data demonstrates a third of all inspected restaurant and retail stores are OUT of compliance. Even school settings, which tend to do well with other inspection data points, seem to struggle with this practice in recent years. Reasons for this struggle could include:

- Disorganized management
- System being implemented is too complex
- Date marking supplies are not available or accessible
- Staff does not speak/write in English or cannot read/write at all
- A misunderstanding of which date to mark on the label

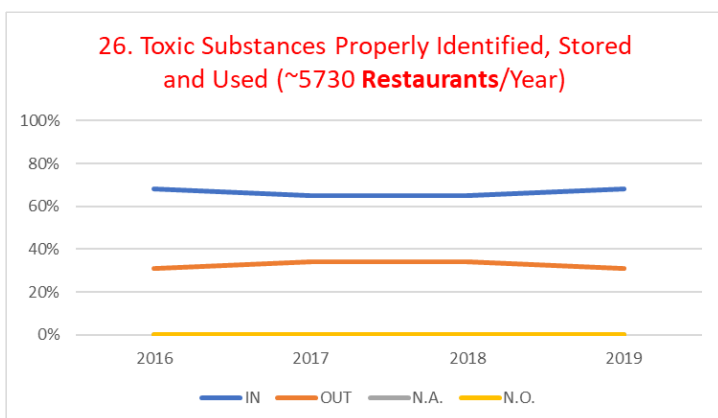


Figure 3.23 Kansas Food Establishment Compliance with Data Point 26: Toxic Substances Properly Identified, Stored and Used for Restaurants from 2016-2019

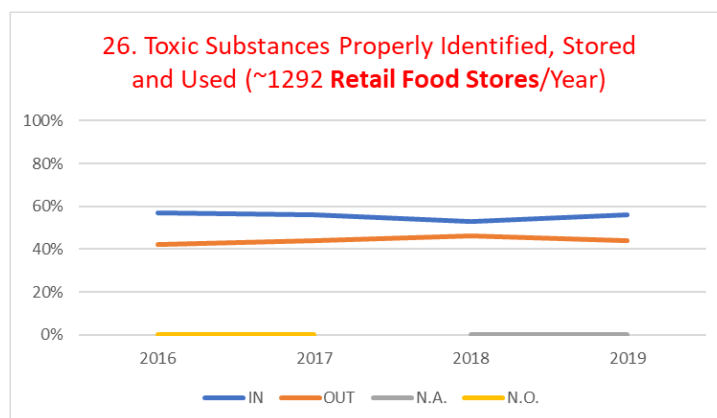


Figure 3.24 Kansas Food Establishment Compliance with Data Point 26: Toxic Substances Properly Identified, Stored and Used for Retail Food Stores from 2016-2019

The final observed concern this report will address is Data Point 26's "Toxic Substances Properly Identified, Stored and Used". This variance is marked "OUT" when toxic substances (e.g. cleaning agents and sanitizers) are not properly labeled, do not contain the correct concentration strengths, are not stored separately from all food and food-contact items, and/or are not properly used. Consistently, restaurants and retail food stores have failed to comply with this mandate. Data illustrates this is especially an issue with retail settings which show almost

50% non-compliance in inspected stores. This does not seem to be an issue in school and satellite school settings. Reasons for non-compliance with this data point include:

- Labeling supplies not available or accessible
- Staff does not speak/write in English or cannot read/write at all
- Disorganized environment
- Minimal or disorganized storage space
- Misunderstanding instructions for correct concentration strength
- Poor cleaning and sanitizing practices
- Lack of employee training
- Sanitize solutions not being tested to prove correct concentration strength

In addition to analyzing inspection data to deduce areas of food safety concern, I was asked to evaluate the data to measure past intervention strategies. One strategy employed in 2017 was revising and translating KDA's "Focus on Food Safety" handbook to both Spanish and Chinese. Besides English, Spanish and Chinese are two of the most common languages spoken in Kansas.⁸ Language barriers make training and understanding food safety principles difficult. These handbooks were administered during inspection visits and at on-site "Focus on Food Safety" training presentations. Was this intervention helpful? In assessing the data to see if changes were made after 2017, the following improvements were noted:

- **Data Point 1: Certification by Accredited Program**
 - Restaurants went from 7% to 97% compliance
 - Retail food stores went from 6% to 98% compliance
 - Schools went from 10% to 97% compliance
 - Satellite schools went from 13% to 94% compliance
 - Improvement detail: there was a shift from N.O. to IN; N.O. is not allowed by Food Code for this Data Point¹⁷
- **Data Point 2: Management Awareness; Policy Present**
 - Restaurants went from 79% to 99% compliance
 - Retail food stores went from 77% to 100% compliance
 - Schools went from 80% to 99% compliance
 - Satellite schools went from 80% to 95% compliance

- Improvement detail: there was a shift from N.O. to IN; N.O. is not allowed by Food Code for this Data Point¹⁷
- **Data Point 3: Proper Use of Reporting, Restriction and Exclusion**
 - Restaurants went from 56% to 99% compliance
 - Retail food stores went from 50% to 96% compliance
 - Schools went from 55% to 96% compliance
 - Satellite schools went from 56% to 94% compliance
 - Improvement detail: there was a shift from N.O. to IN; N.O. is not allowed by Food Code for this Data Point¹⁷
- **Data Point 15: Proper Disposition of Returned, Previously Served, Reconditioned and Unsafe Food**
 - Restaurants went from 37% to 67% compliance
 - Retail food stores went from 44% to 70% compliance
 - Schools went from 37% to 68% compliance
 - Satellite schools went from 46% to 70% compliance
 - Improvement detail: there was a shift in this Data Point from N.O. to IN; N.O. is not allowed by Food Code for this Data Point, but approximately 26% of inspections continue to be marked N.O.¹⁷

The remaining 23 Data Points did not see significant improvements. Most of the points remained consistently IN or OUT of compliance in their inspection data over the years reviewed for this study. While some Data Points made moderate improvements, there were points that showed a decline in compliance. This implies additional intervention strategies might be appropriate to address these stagnant and worsening issues.

Chapter 4 - Discussion

After giving the Standard 9 report presentation to the KDA staff, I asked them about the phenomenon that schools tend to rarely be out of compliance compared to restaurants and retail food establishments. My preceptor, Adam Inman, explained that schools benefit from a secondary regulatory body—the Department of Education—which provides both oversight and training for their food service operations.

Based on my analysis, I proposed the following intervention strategies for their respective Data Points:

- **Data Point 10: Food Received at Proper Temperatures**
 - This point was consistently marked N.O. (not observed) in all four food establishment settings (restaurants, retail food stores, schools, satellite schools)
 - Receiving safe food is the first step in ensuring the food served by the food preparation establishment is safe
 - This practice is difficult to verify/enforce since it is hardly ever observed
 - **Suggested Intervention Strategy:** Internally review importance of observing this Data Point with KDA inspector staff and strategize ways to increase opportunities to observe
- **Data Point 16: Proper Cooking Time and Temperatures**
 - This point was consistently marked N.O. (not observed) in all four settings
 - The only way to ensure the destruction of harmful microbes is to verify that the product has reached a safe, minimum, internal temperature as read by a calibrated meat thermometer ⁶
 - N.O. should only be marked when the inspector is unable to determine the cooking temperature of any food, but most of these settings prepare food on-site, so it seems odd that many of them would not be cooking anything worthy of a temperature check during inspector visits
 - **Suggested Intervention Strategy:** Internally review importance of observing this Data Point with KDA inspector staff and strategize ways to increase opportunities to observe
- **Data Point 20: Proper Cold Holding Temperatures**

- Inspection reports revealed a gradual decline in compliance for this Data Point at restaurant and retail food store settings
- Specific foods including dairy, meat, cut leafy greens, cut tomatoes and stored baked potatoes must be held at temperatures $\leq 41^{\circ}\text{F}$
- Holding foods above this temperature increases the opportunity for harmful bacteria like *Listeria monocytogenes* to grow, contaminate food, and spread disease ⁷
- **Suggested Intervention Strategies:**
 - Re-train KDA staff to emphasize the importance of explaining cold-holding procedures
 - Create and/or distribute graphic prompts showing correct cold-holding procedures and how/when to measure temperature
 - Incorporate personal stories into training presentations demonstrating tragic effects of contacting *Listeria monocytogenes* or other pathogens
- **Data Point 21: Proper Date Marking and Disposition**
 - Inspection reports revealed a gradual decline in compliance for this Data Point at restaurant, retail food store, and school settings
 - After several days, bacteria can accumulate to make products contaminated and unsafe to eat
 - Without an effective system in place, it's hard to keep track of how long one has held leftover food.
 - **Suggested Intervention Strategies:**
 - Re-train KDA staff to emphasize the importance of explaining proper date marking and disposition procedures
 - Create and/or distribute graphic prompts showing correct date marking and disposition procedures
 - Emphasize the importance of FIFO (First In First Out) concept and practice in training presentations

After proposing these intervention strategies, I received the following email from KDA's Program Quality Manager, Elizabeth Shafer:

Good Morning,

I hope you had a great Thanksgiving break! We have decided that our intervention strategies for the Risk Factor study will be focused on proper date marking and cold holding. We will be updating those handouts and will give out a physical handout for all cold holding and date marking violations.

On February 22, 2021, KDA presented a webinar entitled “Choosing the Right Practice: Cooling and Reheating Foods”. This webinar was promoted to all KDA staff that work in their Food Safety and Lodging department as well as food business operators, managers, and workers.

Chapter 5 - Competencies

Table 5.1 Summary of MPH Foundational Competencies

Number and Competency	Description
2 Evidence-based Approaches to Public Health	<i>Select quantitative and qualitative data collection methods appropriate for a given public health context.</i> This competency was developed on all four products: • Inspection Data Sheet • Inspection Analysis Report • Standard 9 Report • Standard 9 PowerPoint Presentation In developing the Inspection Data Sheet, I had to first comb through layers of data and decide what was applicable to the end of goal of completing the Standard 9 Report. I also wanted to create a system that would allow KDA to easily input pertinent data for future analyses and reports that would accurately interpret findings. Their original data sheet was not organized in an effective manner which made it difficult to understand what the data was saying. Even my preceptor, Adam Inman, admitted during one conversation that the data was overwhelming. With this Inspection Data Sheet, KDA now has a spreadsheet that is organized and identifies precisely the data needed to be inputted in order to interpret the relevant findings. I created the Inspection Analysis Report to help me better understand the 27 high-risk behaviors and how they connected to the data in the Inspection Data Sheet. Breaking the data into categories helped me not only easily identify trends but also areas that were being overlooked. For instance, many inspection reports were not observing certain

		behaviors that were required to be observed. This was a red flag to me and helped me communicate this oversight to KDA. This product was only intended to help me in writing the Standard 9 Report, but KDA felt it was another way to tell their story. The Standard 9 Report was the main product for my APE. Through analyzing both the quantitative and qualitative data that was organized and displayed in the Inspection Data Sheet and the Inspection Analysis Report, I was able to connect information to help KDA understand the public health concerns of potential food safety risks in food establishments. The Standard 9 PowerPoint Presentation was another layer of analysis. To assemble this product, I had to assess relevant information from all prior products to convey a message that was succinct but effective.
4	Evidence-based Approaches to Public Health	<i>Interpret results of data analysis for public health research.</i> This competency was developed on all four products: • Inspection Data Sheet • Inspection Analysis Report • Standard 9 Report • Standard 9 PowerPoint Presentation Gathered quantitative and qualitative evidence was used to inform and create all four products. From the evidence analyzed in the Inspection Data Sheet and Inspection Analysis Report, I developed both the Standard 9 Report and the Standard 9 PowerPoint Presentation. These products became evidential proof for the need to develop proper date marking and cold-holding intervention strategies for KDA-inspected food establishments.

19	Communication	<i>Communicate audience-appropriate public health content, both in writing and through oral presentation.</i> This competency was developed with the following products: • Inspection Data Sheet • Standard 9 Report • Standard 9 PowerPoint Presentation While the Inspection Data Sheet seems to be merely an Excel spreadsheet, it's actually a communication tool. When I first received the data from KDA, it was also formatted into an Excel spreadsheet, but they were enormous files, and the information was overwhelming. It didn't feel efficient or valuable. My goal in creating the new spreadsheet was to organize the information in a way that was easily interpretable. I had to decipher which information was necessary and also figure out a way, using Excel's graphic tools, to visually communicate the data in an impactful way. I also wanted the spreadsheet to be in a format that was easy to reuse for future analytical studies and reports. The Standard 9 Report is all about communicating the analysis results in a written manner that is factual, succinct and readable. The Standard 9 PowerPoint Presentation combined the visual elements from the Inspection Data Sheet and the written components from the Standard 9 Report into a slideshow presentation that allowed me to develop the competency of public speaking communication. My aim with this product was to convey relevant information that was engaging and concise.
----	---------------	--

21	Interprofessional Practice	<i>Perform effectively on interprofessional teams</i> This competency was developed with the following products: • Inspection Data Sheet • Standard 9 Report With both the Inspection Data Sheet and Standard 9 Report products, I had the opportunity to develop competent interprofessional skills. I relied heavily on the KDA staff to guide my knowledge accrual and expectations for both products. I wanted to be confident that I was providing products that would be beneficial to them, but at the same time I didn't want to annoy with questions or feedback requests. I had to sense which staff members could answer which questions and also develop the appropriate and efficient communication methods that would both meet my needs in creating these products while not becoming a burden and overextending their graciousness.
22	Systems Thinking	<i>Apply systems thinking tools to a public health issue</i> This competency was developed on all four products: • Inspection Data Sheet • Inspection Analysis Report • Standard 9 Report • Standard 9 PowerPoint Presentation All four products were the results of analyzing complex situations and demanded the use of systems thinking tools. The Inspection Data Sheet product was essentially a series of maps that revealed public health concerns across food establishments over a 4-year period. The Inspection Analysis Report took the results from those maps and showed how they connected to the 27 high-risk concerns. And both the

		Standard 9 Report and the Standard 9 PowerPoint Presentation expanded the concepts found in the prior products to create a compilation of feedback loops that informed potential strategies for future interventions.
--	--	---

Below is a list of the 22 Public Health Foundational Competencies, the competency number, the courses they are taught in to facilitate completing the table above.

Table 5.2 MPH Foundational Competencies and Course Taught In

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	x		x		
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	x	x	x		
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	x	x	x		
4. Interpret results of data analysis for public health research, policy or practice	x		x		
Public Health and Health Care Systems					
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings		x			
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels					x
Planning and Management to Promote Health					
7. Assess population needs, assets and capacities that affect communities' health		x		x	
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs					x
9. Design a population-based policy, program, project or intervention			x		
10. Explain basic principles and tools of budget and resource management		x	x		

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
11. Select methods to evaluate public health programs	x	x	x		
Policy in Public Health					
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence		x	x	x	
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes		x		x	
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations		x			x
15. Evaluate policies for their impact on public health and health equity		x		x	
Leadership					
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making		x			x
17. Apply negotiation and mediation skills to address organizational or community challenges		x			
Communication					
18. Select communication strategies for different audiences and sectors	DMP 815, FNDH 880 or KIN 796				
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	DMP 815, FNDH 880 or KIN 796				
20. Describe the importance of cultural competence in communicating public health content		x			x
Interprofessional Practice					
21. Perform effectively on interprofessional teams		x			x
Systems Thinking					
22. Apply systems thinking tools to a public health issue			x	x	

Student Attainment of MPH Emphasis Area Competencies

Each student must document and address how the selected competencies were attained and utilized during the culminating experience. Each emphasis area has five competencies that may be addressed.

Table 5.3 Summary of MPH Emphasis Area Competencies

MPH Emphasis Area: Food Safety & Biosecurity		
Number and Competency		Description
1	Food Safety and Biosecurity	This experience with KDA gave me a front row seat into how this organization tries to protect Kansans from threats to their food system in the realm of grocery stores, restaurants and convenience stores. They are the enforcement body for this state's food safety and biosecurity measures in public food establishments.
2	Threats to the Food System	I witnessed firsthand through collected data and virtual observance of real time food inspections that lack of food safety knowledge and compliance can threaten our state's food safety and public health.
3	Food Safety Laws and Regulations	One of KDA's appointments is to serve as the regulatory oversight for all of Kansas's food production and sales. Staff that work in their Food Safety and Lodging department enforce and also develop and present educational curriculums on the food safety laws adopted by Kansas's Food Code.
4	Food Safety Policy and the Global Food System	In observing the KDA inspectors, I got a true sense that while these inspectors do act as enforcers of food safety regulations they also are teachers. They never came across as an aggressive entity hoping to catch someone committing an offense. Their approach was always encouraging. Their first commitment was to upholding food safety standards, and their next mission was to ensure the food managers had an understanding and appreciation for the food safety policies and how they related to both public health and the success of their business.
5	Multidisciplinary Leadership	The entire inspection system at KDA was a true collaboration of different leaders with varying layers of expertise and priorities but each are bound together with the overarching goal to produce and deliver safe food. There

		is the administration staff at the state level which supervises and analyzes the enforcement of adopted food safety regulation. There is the team of food inspectors that serve as the face of state and federal regulations. Finally, there are the managers of food establishments that are being asked to learn, understand and uphold the food safety regulations. This three-tier system truly works together. The managers at the bottom tier inform, via the middle-tier of food safety inspectors, the top-tier state administrators whether regulations are understood and practiced. The top-tier state administrators develop strategies, employed via the middle-tier food safety inspectors, to help further the understanding and compliance of food safety concepts. Each tier operates with different competencies. The top-tier utilizes analytical and administrative skills to enforce regulations. The middle-tier employs communication strategies to assess and inform. And the third tier interprets and manifests the above tiers' information through practical and managerial methods.
--	--	---

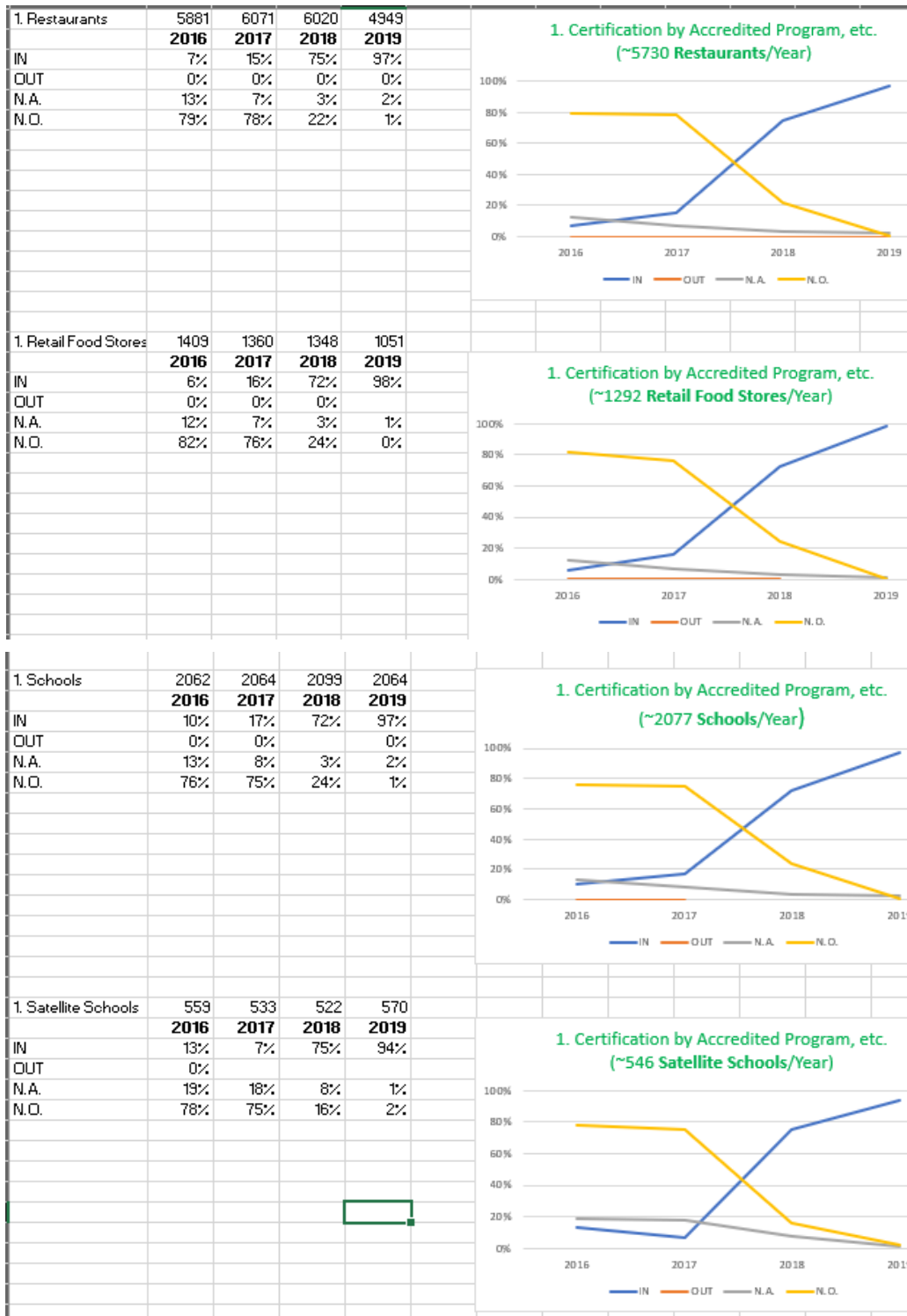
References

1. Hoffman S. (2015, September 8). *Quantifying the Impacts of Foodborne Illnesses*. Economic Research Service, U.S. Department of Agriculture. Retrieved February 26, 2021, <https://www.ers.usda.gov/amber-waves/2015/september/quantifying-the-impacts-of-foodborne-illnesses/>
2. Centers for Disease Control and Prevention. (2020, March 18). *Foodborne Germs and Illnesses*. Retrieved February 26, 2021, <https://www.cdc.gov/foodsafety/foodborne-germs.html>
3. Centers for Disease Control and Prevention. (2019, September 11). *Food Disease Outbreak Surveillance System*. Retrieved February 26, 2021, <https://www.cdc.gov/fdoss/annual-reports/2017-report-highlights.html>
4. U.S. Food and Drug Association. (2018, November). *FDA Report on the Occurrence of Foodborne Illness Risk Factors in Fast Food and Full-Service Restaurants, 2013-2014*. Retrieved February 26, 2021, <https://www.fda.gov/media/117509/download>
5. Centers for Disease Control and Prevention. (2020, August 26). *Food Worker Hand Washing in Restaurants*. Retrieved February 26, 2021, https://www.cdc.gov/nceh/ehs/ehsnet/plain_language/food-worker-handwashing-in-restaurants.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fnceh%2Fehs%2Fehsnet%2Fplain_language%2Ffood-worker-handwashing-food-preparation.htm
6. United States Department of Agriculture Food Safety Inspection Service. (2020, May 11). *Safe Minimum Internal Temperature Chart*. Retrieved February 26, 2021, <https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/food-safety-basics/safe-temperature-chart>

7. Kansas Restaurant and Hospitality Association. (2015, December 3). *Food Safety Tip—Cold Holding*. Retrieved February 26, 2021, <https://www.krha.org/news/263003/Food-Safety-Tip---Cold-Holding.htm>
8. Data USA. *Kansas*. Retrieved February 26, 2021, <https://datausa.io/profile/geo/kansas#demographics>
9. Institute of Food Technologist. (2019, September 10). *A historical look at food safety*. <https://www.ift.org/news-and-publications/blog/2019/september/a-historical-look-at-food-safety>
10. Thoma, L. (2016, October 25). *Evolution of U.S. Food Regulations: Earliest Food Safety Laws*. Food Quality and Safety. <https://www.foodqualityandsafety.com/article/evolution-u-s-food-regulations-earliest-food-safety-laws/>
11. United States Department of Agriculture Food Safety and Inspection Service. (2012, May 3). *FSIS history*. <https://www.fsis.usda.gov/wps/portal/informational/aboutfsis/history>
12. National Sustainable Agriculture Coalition. *What is the food safety modernization act (FSMA)?* Retrieved February 26, 2021, <https://sustainableagriculture.net/fsma/overview-and-background/>
13. Kansas Historical Society. (2013, March). *Kansas Department of Agriculture*. <https://www.kshs.org/kansapedia/kansas-department-of-agriculture/12113>
14. Kansas Department of Agriculture. *Agency Information*. Retrieved February 26, 2021, <https://agriculture.ks.gov/about-kda/agency-info>
15. Roos, D. (2021, February 19). *How restaurant health inspections work*. How Stuff Works. <https://recipes.howstuffworks.com/tools-and-techniques/restaurant-health-inspections1.htm>

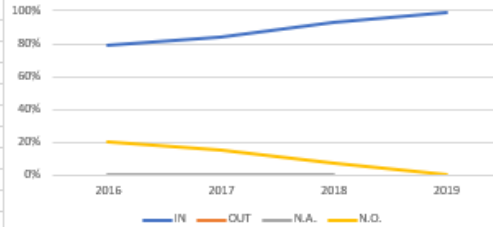
16. Fuchs, A. W. (1942, August). *The U.S. Public Health Service Restaurant Sanitation Program*. American Journal of Public Health, 32(8), 848-852.
<https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.32.8.848>
17. Kansas Department of Agriculture. (2012). *Kansas Food Code*.
https://agriculture.ks.gov/docs/default-source/fsl--handouts/2012_kda_food_code_12_14_12.pdf
18. Centers for Disease Control and Prevention. (2020, October 1). *Foods That Can Cause Food Poisoning*. Retrieved March 22, 2021, <https://www.cdc.gov/foodsafety/foods-linked-illness.html#:~:text=Raw%20meat%20may%20contain%20Salmonella,and%20does%20not%20prevent%20illness>.

Appendix 1: Inspection Data Sheet



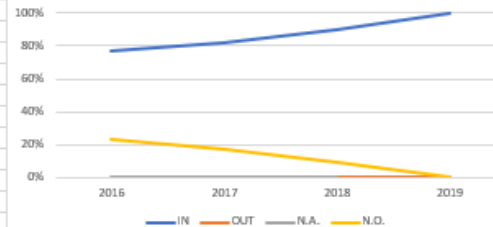
2. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
IN	79%	84%	93%	99%
OUT	0%		0%	
N.A.	0%	0%	0%	
N.O.	20%	15%	7%	0%

2. Management Awareness; Policy Present (~5730 Restaurants/Year)



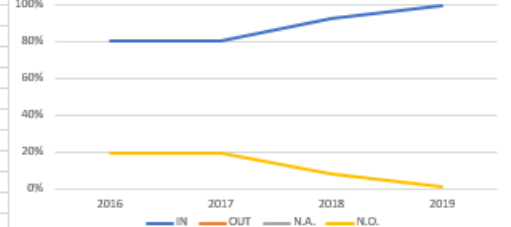
2. Retail Food Stor	1409	1360	1348	1051
	2016	2017	2018	2019
IN	77%	82%	90%	100%
OUT			0%	0%
N.A.	0%	0%	0%	
N.O.	23%	17%	9%	0%

2. Management Awareness; Policy Present (~1292 Retail Food Stores/Year)



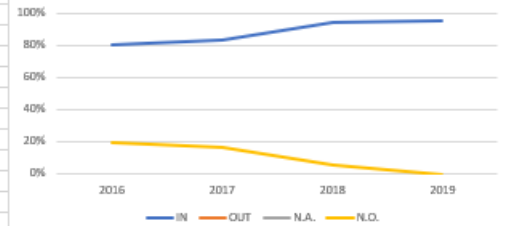
2. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	80%	80%	92%	99%
OUT				
N.A.		0%		
N.O.	19%	19%	8%	1%

2. Management Awareness; Policy Present (~2077 Schools/Year)



2. Satellite School:	559	533	522	570
	2016	2017	2018	2019
IN	80%	83%	94%	95%
OUT				
N.A.		0%		
N.O.	20%	17%	6%	0%

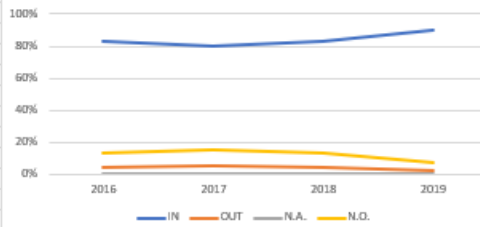
2. Management Awareness; Policy Present (~546 Satellite Schools/Year)





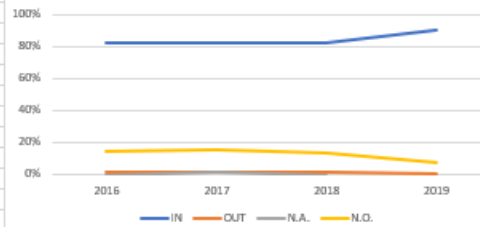
4. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
IN	83%	80%	83%	90%
OUT	4%	5%	4%	2%
N.A.	0%	0%	0%	0%
N.O.	13%	15%	13%	7%

4. Proper Eating, Tasting, Drinking or Tobacco Use
(~5730 Restaurants/Year)



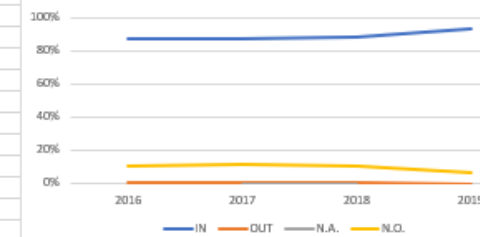
4. Retail Food Stor	1409	1360	1348	1051
	2016	2017	2018	2019
IN	82%	82%	82%	90%
OUT	2%	2%	2%	1%
N.A.	0%	2%	0%	0%
N.O.	15%	16%	14%	8%

4. Proper Eating, Tasting, Drinking or Tobacco Use
(~1292 Retail Food Stores/Year)



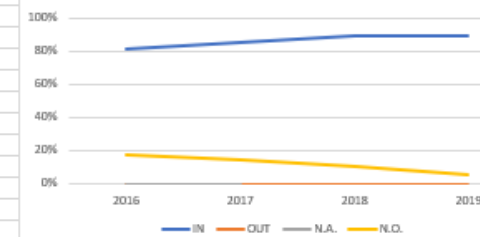
4. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	87%	87%	88%	93%
OUT	1%	1%	1%	0%
N.A.	0%	0%	0%	0%
N.O.	11%	12%	11%	7%

4. Proper Eating, Tasting, Drinking or Tobacco Use
(~2077 Schools/Year)



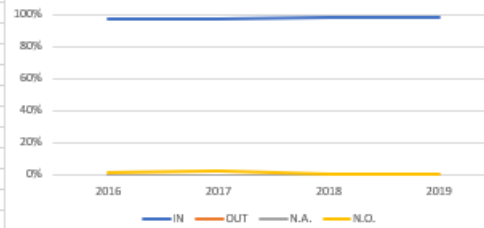
4. Satellite School:	559	533	522	570
	2016	2017	2018	2019
IN	81%	85%	89%	89%
OUT	0%	0%	0%	0%
N.A.	0%	0%	0%	0%
N.O.	18%	15%	11%	6%

4. Proper Eating, Tasting, Drinking or Tobacco Use
(~546 Satellite Schools/Year)



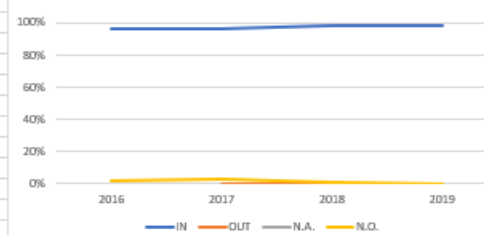
5. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
IN	97%	97%	98%	98%
OUT	0%	0%	0%	
N.A.	0%	0%	0%	0%
N.O.	2%	3%	1%	1%

5. No Discharge From Eyes, Nose, Mouth
(~5730 Restaurants/Year)



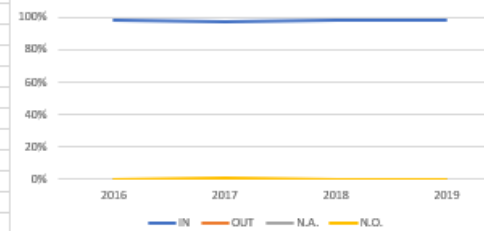
5. Retail Food Stor	1409	1360	1348	1051
	2016	2017	2018	2019
IN	97%	97%	99%	99%
OUT		0%	0%	
N.A.	0%		0%	
N.O.	2%	3%	1%	0%

5. No Discharge From Eyes, Nose, Mouth
(~1292 Retail Food Stores/Year)



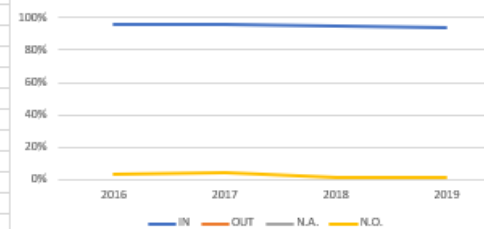
5. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	99%	98%	99%	99%
OUT		0%		
N.A.	0%	0%	0%	0%
N.O.	0%	1%	0%	0%

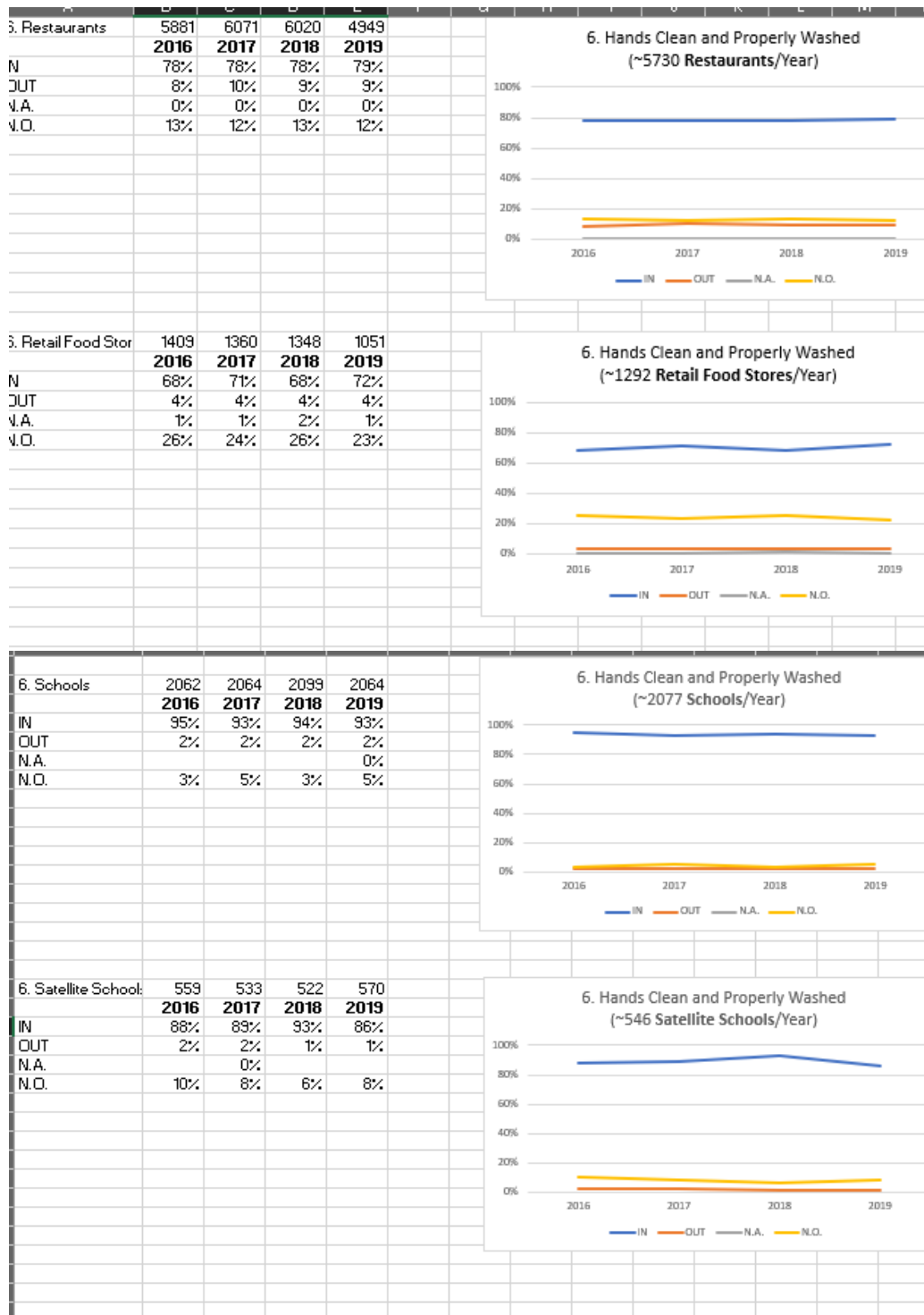
5. No Discharge From Eyes, Nose, Mouth
(~2077 Schools/Year)



5. Satellite School:	559	533	522	570
	2016	2017	2018	2019
IN	96%	96%	95%	94%
OUT				
N.A.	1%		0%	
N.O.	3%	4%	1%	1%

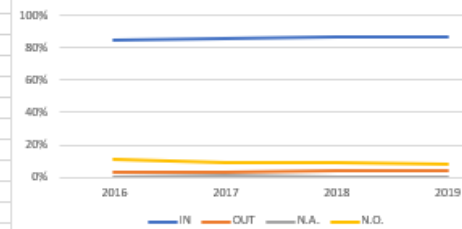
5. No Discharge From Eyes, Nose, Mouth
(~546 Satellite Schools/Year)





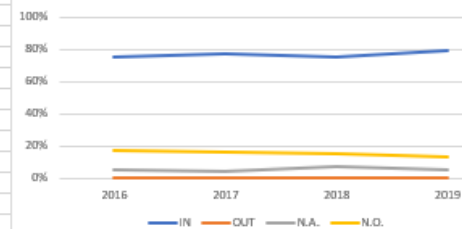
7. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
IN	85%	86%	87%	87%
OUT	3%	3%	4%	4%
N.A.	0%	1%	0%	0%
N.O.	11%	9%	9%	8%

7. No Bare Hand Contact with RTE Foods, etc.
(~5730 Restaurants/Year)



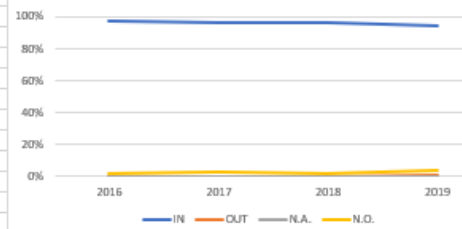
7. Retail Food Stor	1409	1360	1348	1051
	2016	2017	2018	2019
IN	75%	77%	75%	73%
OUT	1%	1%	1%	1%
N.A.	6%	5%	8%	6%
N.O.	18%	17%	16%	14%

7. No Bare Hand Contact with RTE Foods, etc.
(~1292 Retail Food Stores/Year)



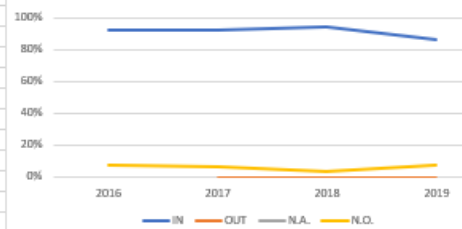
7. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	98%	97%	97%	95%
OUT	0%	0%	0%	1%
N.A.	0%	0%	0%	0%
N.O.	2%	3%	2%	4%

7. No Bare Hand Contact with RTE Foods, etc.
(~2077 Schools/Year)



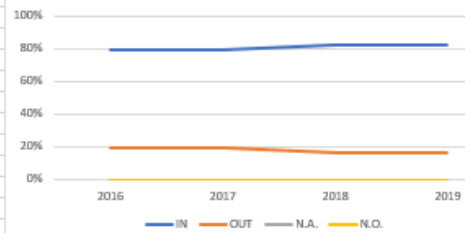
7. Satellite School	559	533	522	570
	2016	2017	2018	2019
IN	92%	92%	94%	86%
OUT		0%	0%	0%
N.A.		0%		
N.O.	8%	7%	4%	8%

7. No Bare Hand Contact with RTE Foods, etc.
(~546 Satellite Schools/Year)



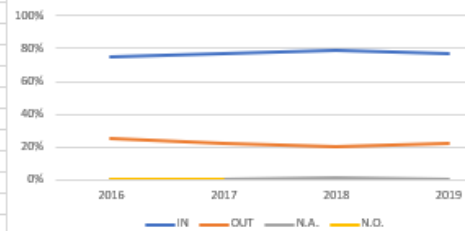
8. Restaurants	5881	6071	6020	4943
	2016	2017	2018	2019
IN	79%	79%	82%	82%
OUT	20%	20%	17%	17%
N.A.	0%	0%	0%	0%
N.O.	0%	0%	0%	0%

8. Adequate Hand Washing Facilities Supplied and Accessible (~5730 Restaurants/Year)



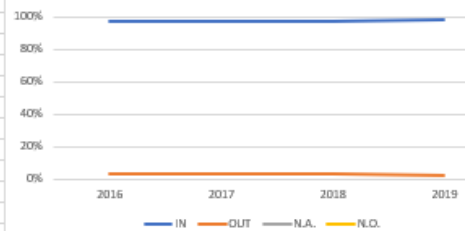
8. Retail Food Stor	1409	1360	1348	1051
	2016	2017	2018	2019
IN	75%	77%	79%	77%
OUT	25%	22%	20%	22%
N.A.	0%	0%	1%	0%
N.O.	0%	0%	0%	0%

8. Adequate Hand Washing Facilities Supplied and Accessible (~1292 Food Retail Stores/Year)



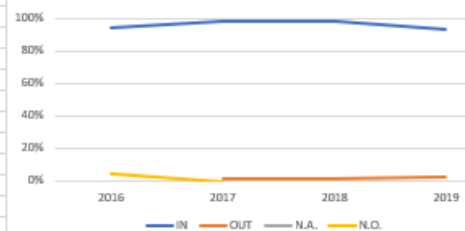
8. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	97%	97%	97%	98%
OUT	3%	3%	3%	2%
N.A.	0%	0%	0%	0%
N.O.	0%	0%	0%	0%

8. Adequate Hand Washing Facilities Supplied and Accessible (~2077 Schools/Year)



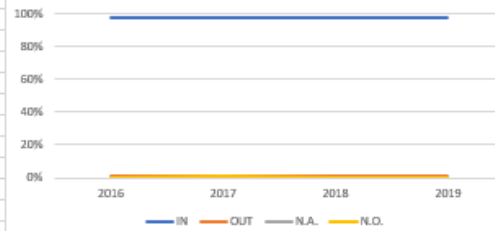
8. Satellite School:	559	533	522	570
	2016	2017	2018	2019
IN	94%	98%	98%	93%
OUT	0%	2%	2%	3%
N.A.	0%	0%	0%	0%
N.O.	5%	0%	0%	0%

8. Adequate Hand Washing Facilities Supplied and Accessible (~546 Satellite Schools/Yr)



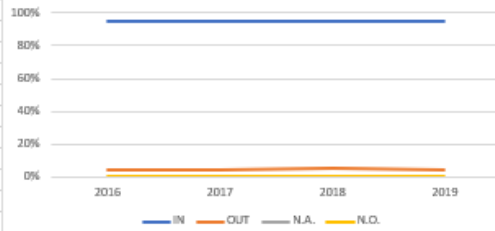
Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
J	98%	98%	98%	98%
OUT	1%	1%	1%	1%
I.A.	0%	0%	0%	0%
I.O.	0%	1%	0%	0%

9. Food Obtained From Approved Sources (~5730 Restaurants/Year)



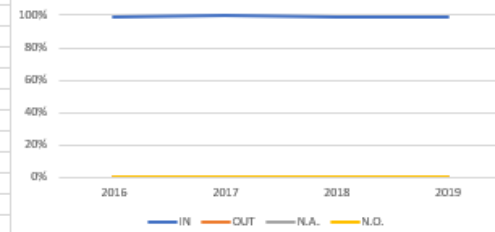
Retail Food Stores	1409	1360	1348	1051
	2016	2017	2018	2019
J	95%	95%	95%	95%
OUT	4%	4%	5%	4%
I.A.	0%	0%	0%	0%
I.O.	0%	0%	0%	0%

9. Food Obtained From Approved Sources (~1292 Retail Food Stores/Year)



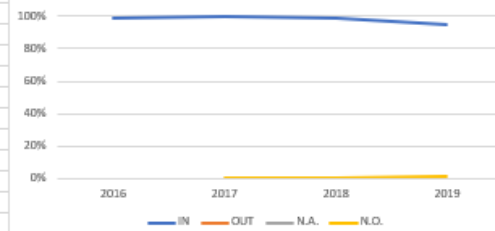
9. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	99%	100%	99%	99%
OUT	0%	0%	0%	0%
N.A.	0%	0%	0%	0%
N.O.	0%	0%	0%	0%

9. Food Obtained From Approved Sources (~2077 Schools/Year)



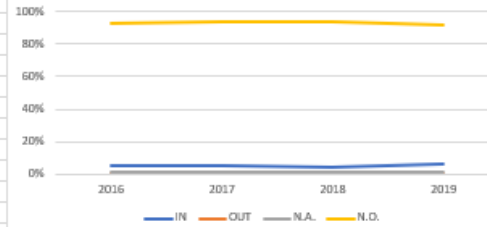
9. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
IN	99%	100%	99%	95%
OUT	0%	0%	0%	0%
N.A.	0%	0%	0%	0%
N.O.	0%	0%	0%	1%

9. Food Obtained From Approved Sources (~546 Satellite Schools/Year)



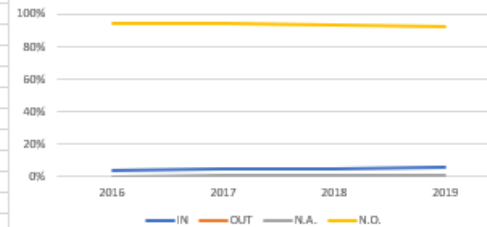
J. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
J	5%	5%	4%	6%
JUT	0%	0%	0%	0%
I.A.	1%	1%	1%	1%
I.O.	93%	94%	94%	92%

10. Food Received at Proper Temperatures (~5730 Restaurants/Year)



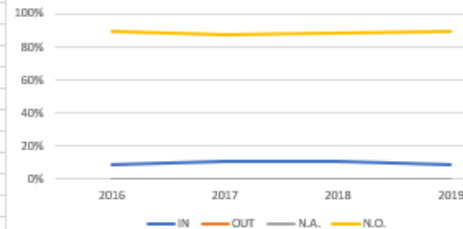
J. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
J	4%	5%	5%	6%
JUT	0%	0%	0%	0%
I.A.	0%	1%	1%	1%
I.O.	95%	95%	94%	93%

10. Food Received at Proper Temperatures (~1292 Retail Food Stores/Year)



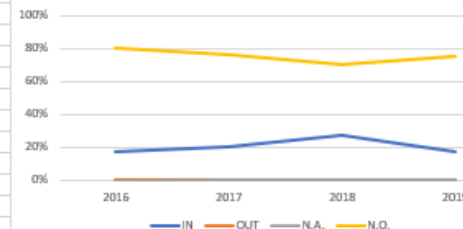
10. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	9%	11%	11%	9%
OUT	0%	0%	0%	0%
N.A.	0%	0%	0%	0%
N.O.	90%	88%	89%	90%

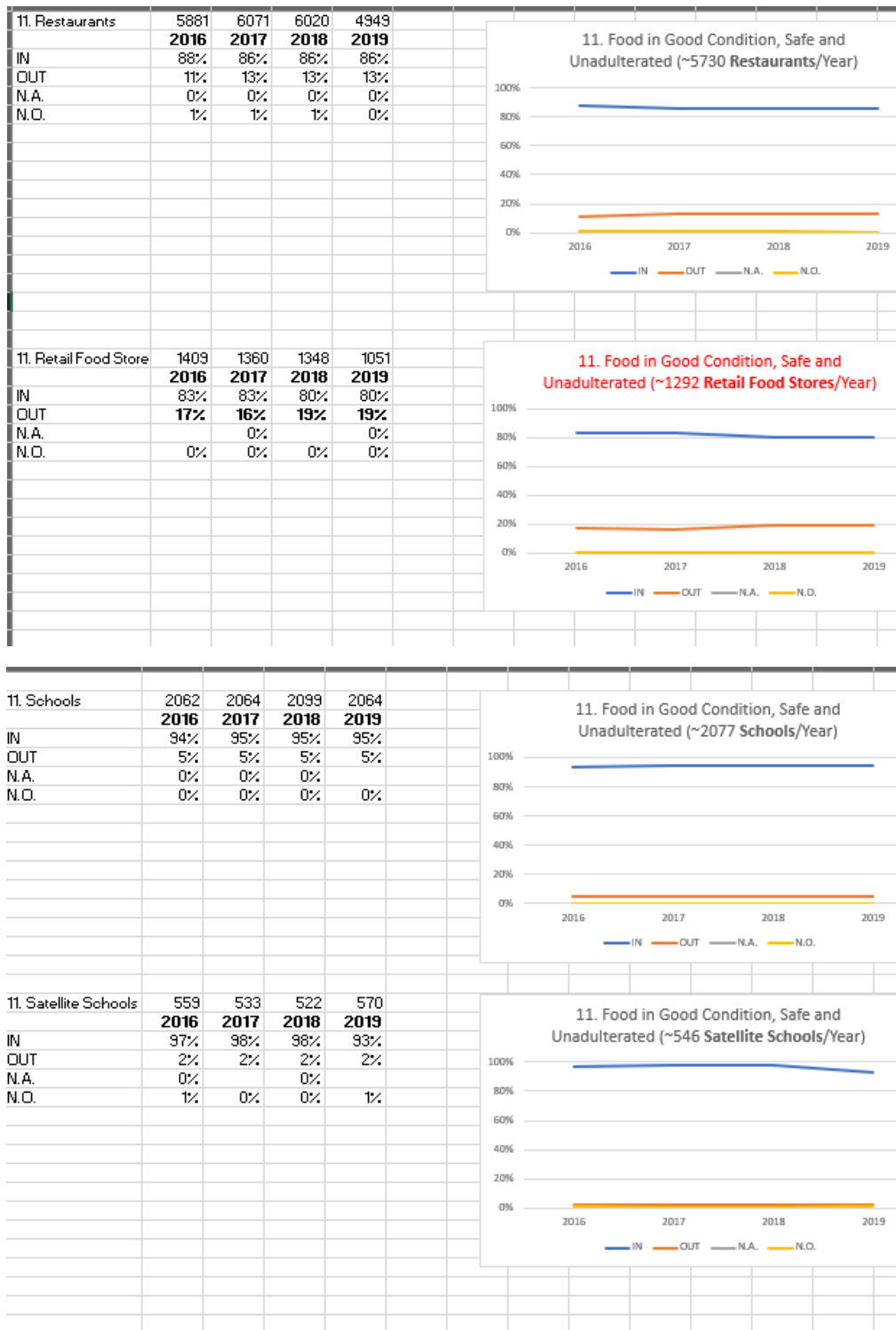
10. Food Received at Proper Temperatures (~2077 Schools/Year)



10. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
IN	18%	21%	28%	18%
OUT	1%	1%	1%	1%
N.A.	0%	1%	1%	1%
N.O.	80%	76%	70%	75%

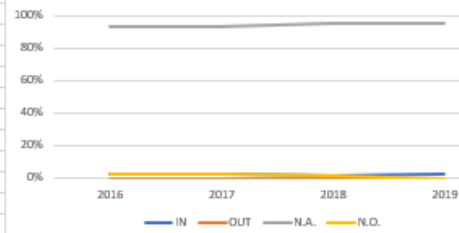
10. Food Received at Proper Temperatures (~546 Satellite Schools/Year)





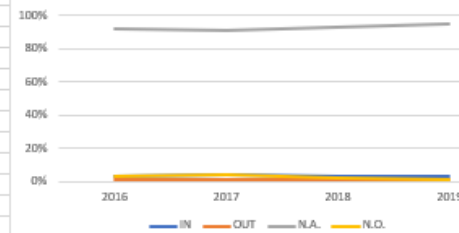
2. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
J	3%	3%	2%	3%
JUT	0%	0%	0%	0%
I.A.	93%	93%	95%	95%
I.O.	3%	3%	2%	0%

12. Required Records Available: Shellstock Tags, Parasite Destructions (~5730 Restaurants/Year)



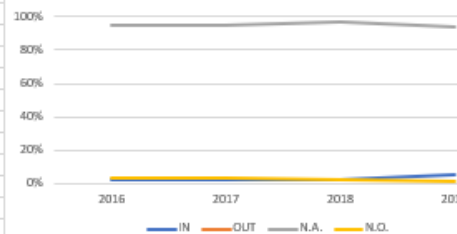
2. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
J	3%	4%	3%	3%
JUT	1%	1%	1%	1%
I.A.	92%	91%	93%	95%
I.O.	3%	4%	2%	1%

12. Required Records Available: Shellstock Tags, Parasite Destructions (~1292 Retail Food Stores/Yr)



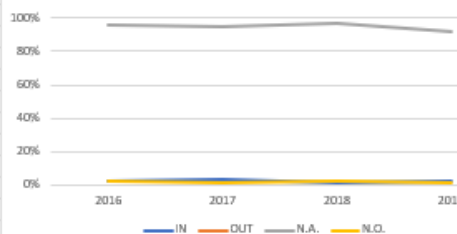
12. Schools	2062	2064	2039	2064
	2016	2017	2018	2019
IN	2%	2%	2%	5%
OUT				0%
N.A.	95%	95%	97%	94%
N.O.	3%	3%	2%	1%

12. Required Records Available: Shellstock Tags, Parasite Destructions (~2077 Schools/Year)



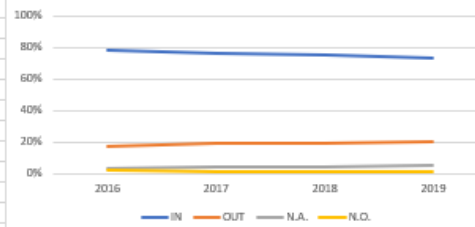
12. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
IN	2%	3%	1%	2%
OUT				
N.A.	96%	95%	97%	92%
N.O.	2%	1%	2%	1%

12. Required Records Available: Shellstock Tags, Parasite Destructions (~546 Satellite Schools/Yr)



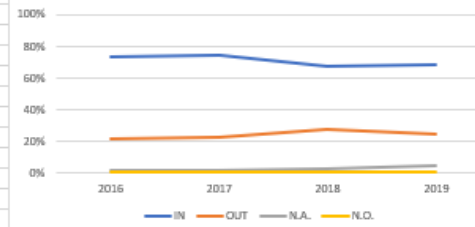
	2016	2017	2018	2019
IN	78%	76%	75%	73%
OUT	17%	19%	19%	20%
N.A.	3%	4%	4%	5%
N.O.	2%	1%	1%	1%

13. Food Separated and Protected
(~5730 Restaurants/Year)



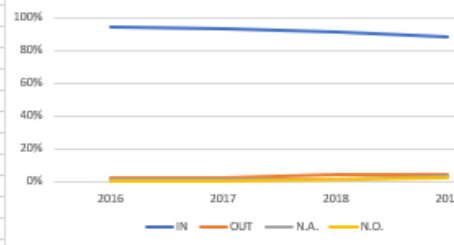
13. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
IN	74%	75%	68%	69%
OUT	22%	23%	28%	25%
N.A.	2%	2%	3%	5%
N.O.	1%	1%	1%	1%

13. Food Separated and Protected
(~1292 Retail Food Stores/Year)



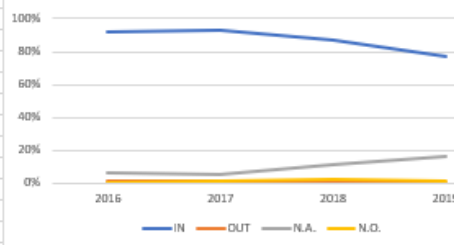
13. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	94%	93%	91%	88%
OUT	3%	3%	5%	5%
N.A.	2%	2%	2%	4%
N.O.	1%	1%	2%	3%

13. Food Separated and Protected
(~2077 Schools/Year)



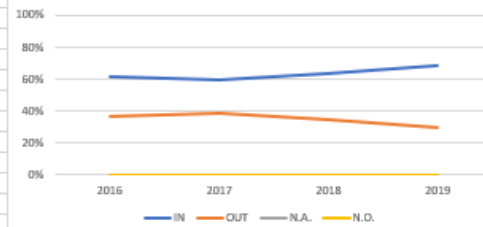
13. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
IN	92%	93%	87%	77%
OUT	1%	1%	1%	0%
N.A.	6%	5%	11%	16%
N.O.	0%	1%	2%	1%

13. Food Separated and Protected
(~546 Satellite Schools/Year)



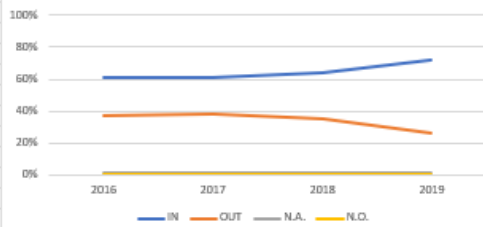
4. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
J	62%	60%	64%	63%
JUT	37%	39%	35%	30%
I.A.	0%	0%	0%	0%
I.O.	0%	0%	0%	0%

14. Food Contact Surfaces Cleaned and Sanitized
(~5730 Restaurants/Year)



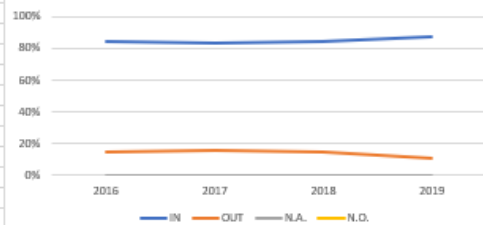
4. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
J	61%	61%	64%	72%
JUT	37%	38%	35%	26%
I.A.	1%	1%	1%	1%
I.O.	0%	0%	0%	0%

14. Food Contact Surfaces Cleaned and Sanitized
(~1292 Retail Food Stores/Year)



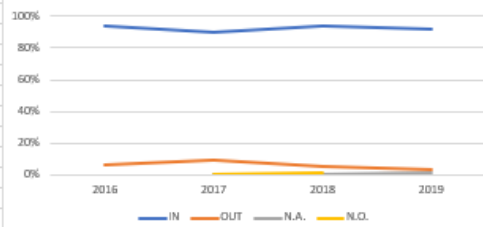
4. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
J	85%	84%	85%	88%
JUT	15%	16%	15%	11%
I.A.	0%	0%	0%	0%
I.O.	0%	0%	0%	0%

14. Food Contact Surfaces Cleaned and Sanitized
(~2077 Schools/Year)



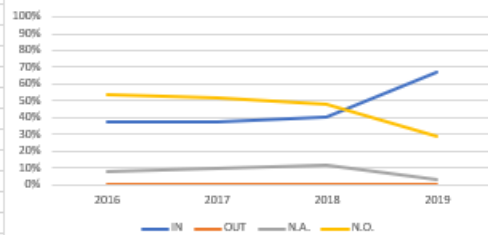
4. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
J	94%	90%	94%	92%
JUT	6%	9%	5%	3%
I.A.	0%	0%	0%	1%
I.O.	0%	0%	1%	0%

14. Food Contact Surfaces Cleaned and Sanitized
(~546 Satellite Schools/Year)



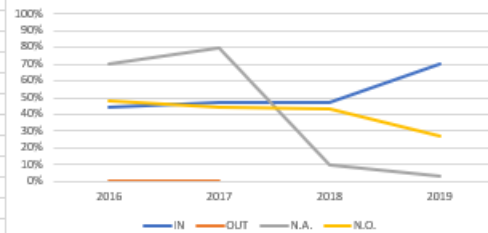
15. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
IN	37%	37%	40%	67%
OUT	0%	0%	0%	0%
N.A.	8%	10%	12%	3%
N.O.	54%	52%	48%	29%

15. Proper Disposition of Returned, Previously Served, Reconditioned and Unsafe Food (~5730 Restaurants/Yr)



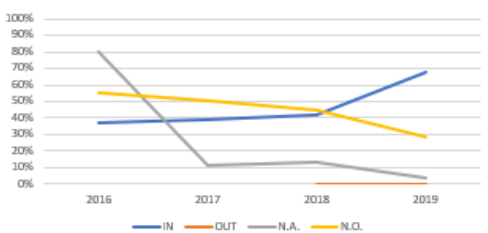
15. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
IN	44%	47%	47%	70%
OUT	0%	0%	0%	0%
N.A.	70%	80%	10%	3%
N.O.	48%	44%	43%	27%

15. Proper Disp. of Returned, Previously Served, Recond'ed & Unsafe Food (~1292 Retail Food Stores/Yr)



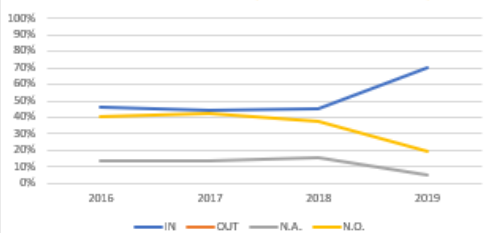
15. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	37%	39%	42%	68%
OUT	0%	0%	0%	0%
N.A.	80%	11%	13%	4%
N.O.	55%	50%	45%	28%

15. Proper Disposition of Returned, Previously Served, Reconditioned and Unsafe Food (~2077 Schools/Yr)

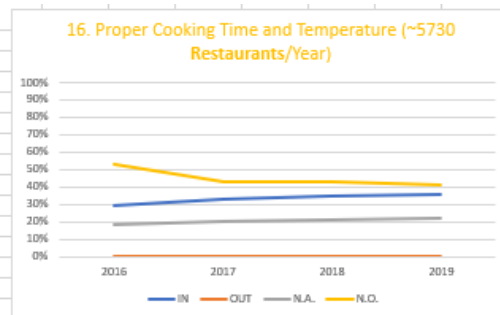


15. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
IN	46%	44%	45%	70%
OUT	0%	0%	0%	0%
N.A.	14%	14%	16%	5%
N.O.	40%	42%	38%	19%

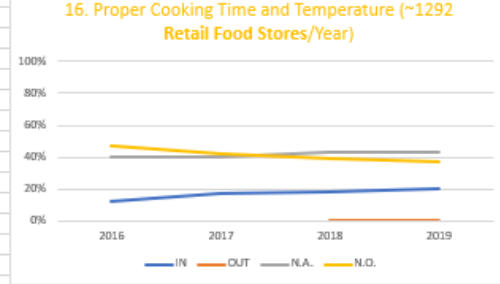
15. Proper Disposition of Returned, Previously Served, Recond'ed and Unsafe Food (~546 Satellite Schools/Yr)



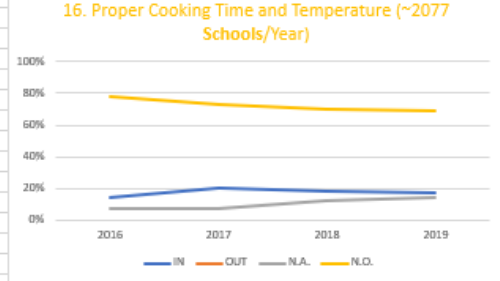
I6. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
N	29%	33%	35%	36%
OUT	0%	0%	0%	0%
✓A.	18%	20%	21%	22%
✓O.	53%	43%	43%	41%



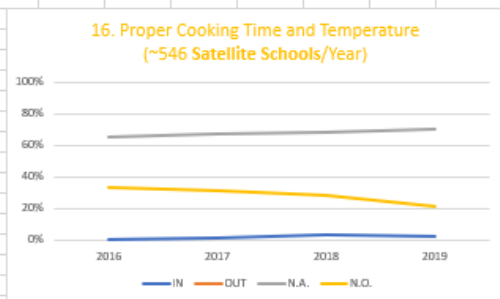
I6. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
N	12%	17%	18%	20%
OUT	0%	0%	0%	0%
✓A.	40%	40%	43%	43%
✓O.	47%	42%	39%	37%



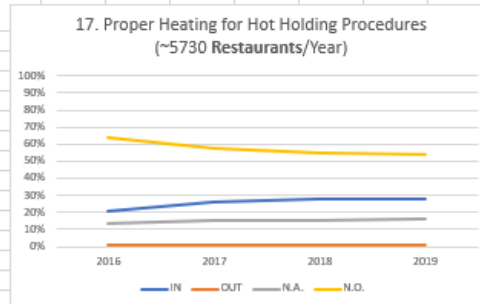
I6. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
N	14%	20%	18%	17%
OUT	0%	0%	0%	0%
✓A.	7%	7%	12%	14%
✓O.	78%	73%	70%	69%



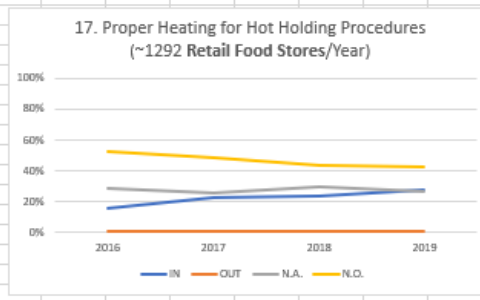
I6. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
N	1%	2%	4%	3%
OUT	0%	0%	0%	0%
✓A.	65%	67%	68%	70%
✓O.	33%	31%	28%	22%



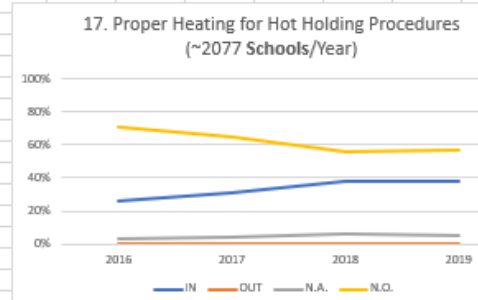
17. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
IN	21%	26%	28%	28%
OUT	1%	1%	1%	1%
N.A.	14%	15%	15%	16%
N.O.	64%	58%	55%	54%



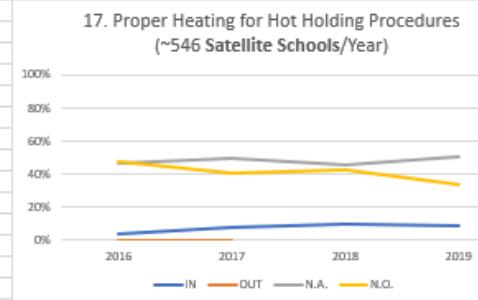
17. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
IN	16%	23%	24%	28%
OUT	1%	1%	1%	1%
N.A.	29%	26%	30%	27%
N.O.	53%	49%	44%	43%



17. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
N	26%	31%	38%	38%
OUT	0%	0%	0%	0%
N.A.	3%	4%	6%	5%
N.O.	71%	65%	56%	57%

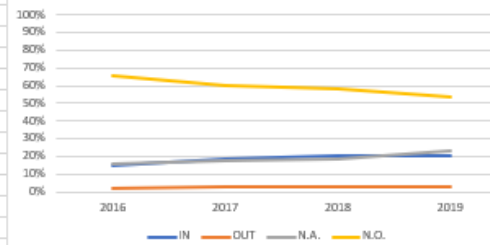


17. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
N	4%	8%	10%	9%
OUT	0%	0%	0%	0%
N.A.	47%	50%	46%	51%
N.O.	48%	41%	43%	34%



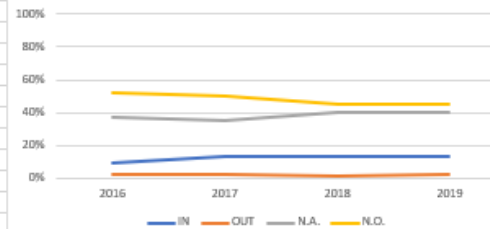
18. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
N	15%	19%	20%	20%
OUT	2%	3%	3%	3%
N.A.	16%	18%	19%	23%
N.O.	66%	60%	58%	54%

18. Proper Cooling Time and Temperatures
(~5730 Restaurants/Year)



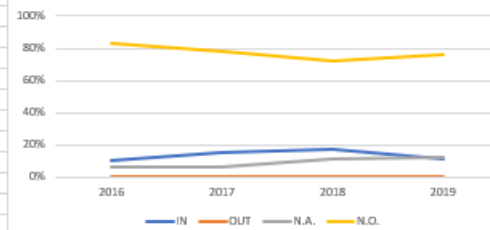
18. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
N	9%	13%	13%	13%
OUT	2%	2%	1%	2%
N.A.	37%	35%	40%	40%
N.O.	52%	50%	45%	45%

18. Proper Cooling Time and Temperatures
(~1292 Retail Food Stores/Year)



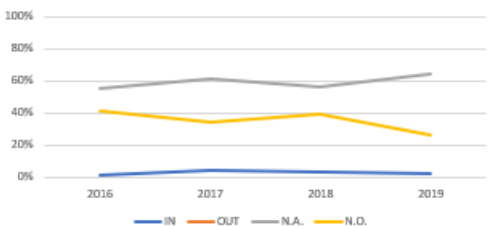
18. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	10%	15%	17%	11%
OUT	0%	0%	0%	0%
N.A.	6%	6%	11%	12%
N.O.	83%	78%	72%	76%

18. Proper Cooling Time and Temperatures
(~2077 Schools/Year)



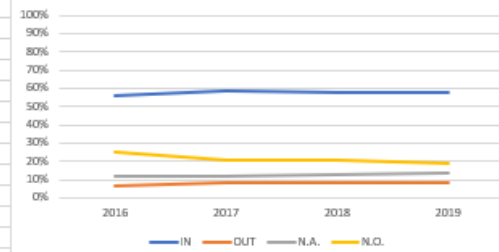
18. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
IN	2%	5%	4%	3%
OUT				
N.A.	55%	61%	56%	64%
N.O.	42%	35%	40%	27%

18. Proper Cooling Time and Temperatures
(~546 Satellite Schools/Year)



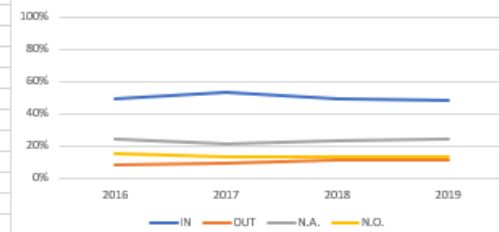
19. Restaurants	5881	6071	6020	4349
	2016	2017	2018	2019
IN	56%	53%	58%	58%
OUT	7%	8%	8%	8%
N.A.	12%	12%	13%	14%
N.O.	25%	21%	21%	19%

19. Proper Hot Holding Temperatures
(~5730 Restaurants/Year)



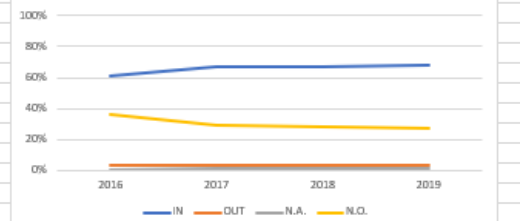
19. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
IN	49%	53%	49%	48%
OUT	9%	10%	12%	12%
N.A.	25%	22%	24%	25%
N.O.	16%	14%	14%	14%

19. Proper Hot Holding Temperatures
(~1292 Retail Food Stores/Year)



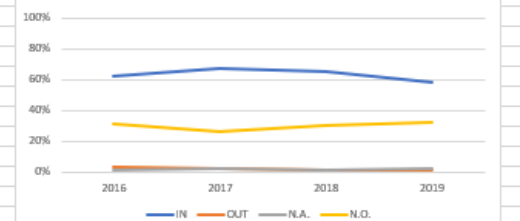
19. Schools	2062	2064	2039	2064
	2016	2017	2018	2019
IN	61%	67%	67%	68%
OUT	3%	3%	3%	3%
N.A.	0%	1%	1%	1%
N.O.	36%	29%	28%	27%

19. Proper Hot Holding Temperatures
(~2077 Schools/Year)



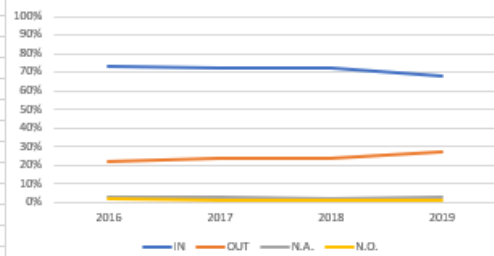
19. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
IN	62%	67%	65%	58%
OUT	4%	3%	2%	2%
N.A.	2%	3%	2%	3%
N.O.	31%	27%	30%	32%

19. Proper Hot Holding Temperatures
(~546 Satellite Schools/Year)



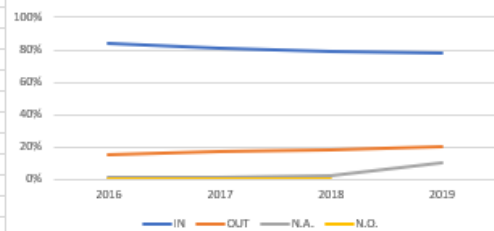
20. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
N	73%	72%	72%	68%
OUT	22%	24%	24%	27%
N.A.	3%	3%	2%	3%
N.O.	2%	1%	1%	1%

20. Proper Cold Holding Temperature
(~5730 Restaurants/Year)



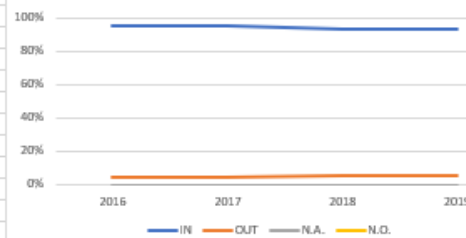
20. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
N	84%	81%	79%	78%
OUT	15%	17%	18%	20%
N.A.	1%	1%	2%	10%
N.O.	0%	0%	0%	0%

20. Proper Cold Holding Temperature
(~1292 Retail Food Stores/Year)



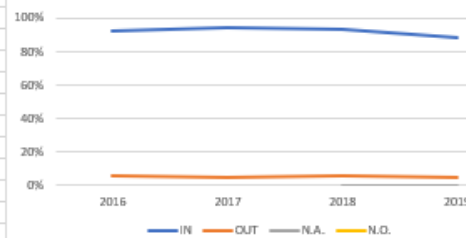
20. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	95%	95%	93%	93%
OUT	5%	5%	6%	6%
N.A.	0%	0%	0%	0%
N.O.				0%

20. Proper Cold Holding Temperature
(~2077 Restaurants/Year)

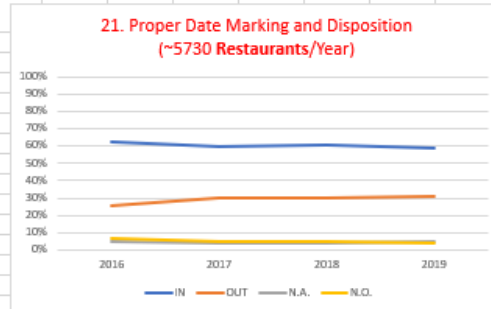


20. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
IN	93%	95%	94%	89%
OUT	6%	5%	6%	5%
N.A.			0%	0%
N.O.	0%			1%

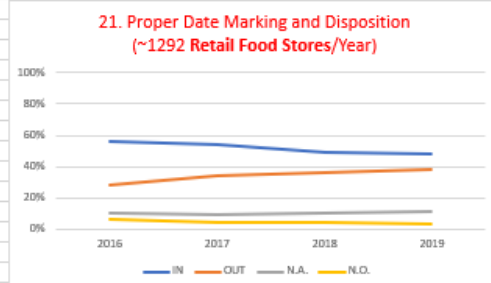
20. Proper Cold Holding Temperature
(~546 Satellite Schools/Year)



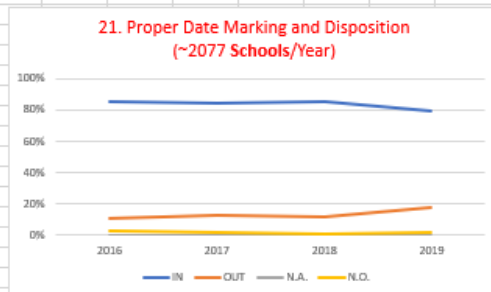
21. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
IN	62%	60%	61%	59%
OUT	26%	30%	30%	31%
N.A.	5%	4%	4%	5%
N.O.	7%	5%	5%	4%



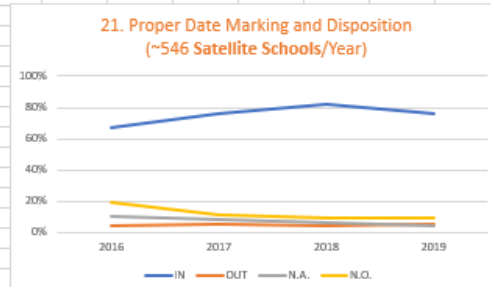
21. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
IN	56%	54%	49%	48%
OUT	28%	34%	36%	38%
N.A.	10%	9%	10%	11%
N.O.	6%	4%	4%	3%



21. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	86%	85%	86%	80%
OUT	11%	13%	12%	18%
N.A.	0%	0%	0%	0%
N.O.	3%	2%	1%	2%

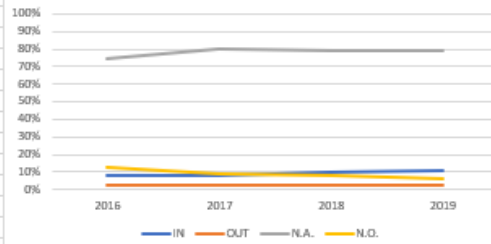


21. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
IN	67%	76%	82%	76%
OUT	4%	5%	4%	5%
N.A.	10%	8%	6%	4%
N.O.	19%	11%	9%	9%



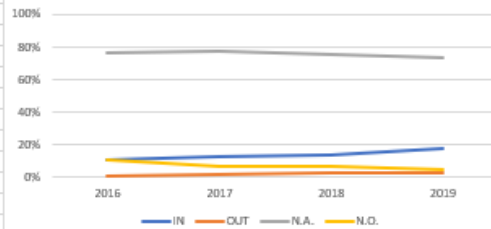
22. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
IN	8%	8%	10%	11%
OUT	3%	3%	3%	3%
N.A.	75%	80%	79%	79%
N.O.	13%	9%	8%	6%

22. Time as a Public Health Control: Procedures and Record (~5730 Restaurants/Year)



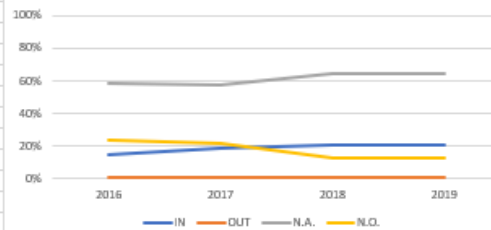
22. Retail Food Stores	1409	1360	1348	1051
	2016	2017	2018	2019
IN	11%	13%	14%	18%
OUT	1%	2%	3%	3%
N.A.	77%	78%	76%	74%
N.O.	11%	7%	7%	5%

22. Time as a Public Health Control: Procedures and Record (~1292 Retail Food Stores/Year)



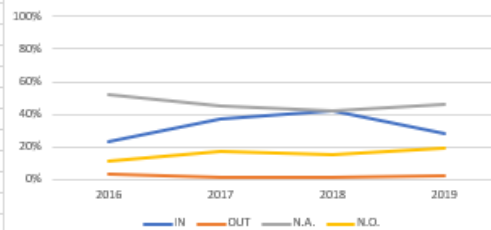
22. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	15%	19%	21%	21%
OUT	1%	1%	1%	1%
N.A.	59%	58%	65%	65%
N.O.	24%	22%	13%	13%

22. Time as a Public Health Control: Procedures and Record (~2077 Schools/Year)



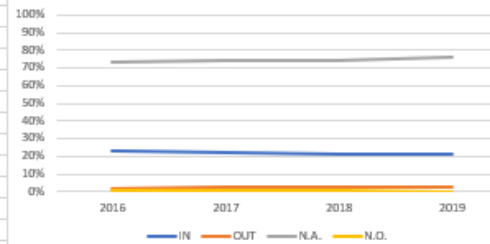
22. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
IN	23%	37%	42%	28%
OUT	3%	1%	1%	2%
N.A.	52%	45%	42%	46%
N.O.	11%	17%	15%	19%

22. Time as a Public Health Control: Procedures and Record (~546 Satellite Schools/Year)



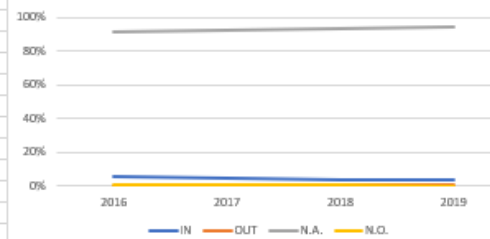
23. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
IN	23%	22%	21%	21%
OUT	2%	3%	3%	3%
N.A.	73%	74%	74%	76%
N.O.	1%	1%	1%	0%

23. Consumer Advisory Provided for Raw or Undercooked Foods (~5730 Restaurants/Year)



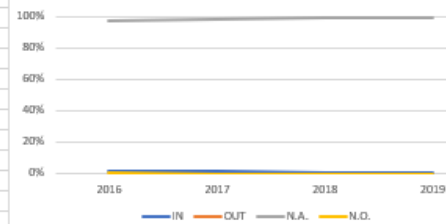
23. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
IN	6%	5%	4%	4%
OUT	0%	1%	1%	1%
N.A.	92%	93%	94%	95%
N.O.	1%	1%	1%	0%

23. Consumer Advisory Provided for Raw or Undercooked Foods (~1292 Retail Food Stores/Yr)



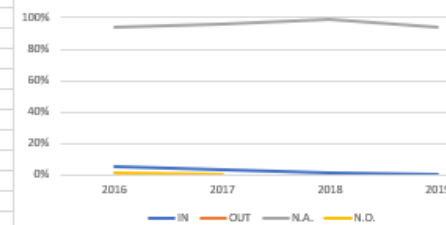
23. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	2%	2%	1%	1%
OUT				
N.A.	97%	98%	99%	99%
N.O.	1%	0%	0%	0%

23. Consumer Advisory Provided for Raw or Undercooked Foods (~2077 Schools/Year)

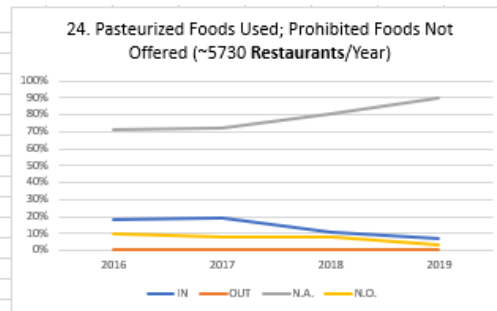


23. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
IN	5%	3%	1%	0%
OUT				
N.A.	94%	96%	99%	94%
N.O.	1%	0%		0%

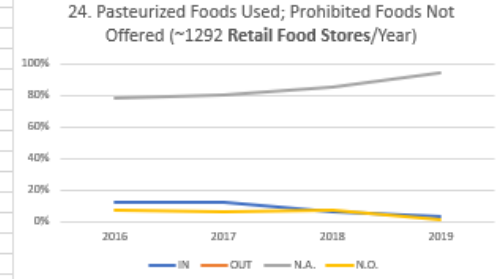
23. Consumer Advisory Provided for Raw or Undercooked Foods (~546 Satellite Schools/Year)



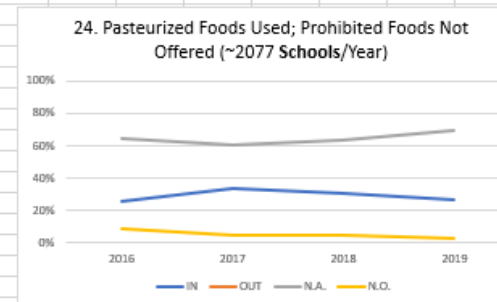
24. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
IN	18%	19%	11%	7%
OUT	0%	0%	0%	0%
N.A.	71%	72%	81%	90%
N.O.	10%	8%	8%	3%



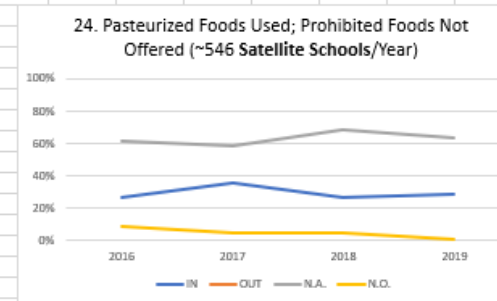
24. Retail Food Stores	1409	1360	1348	1051
	2016	2017	2018	2019
IN	13%	13%	7%	4%
OUT				
N.A.	78%	80%	85%	94%
N.O.	8%	7%	8%	2%



24. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	26%	34%	31%	27%
OUT				
N.A.	65%	61%	64%	70%
N.O.	9%	5%	5%	3%

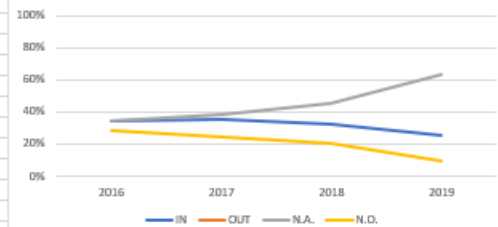


24. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
IN	27%	36%	27%	29%
OUT				
N.A.	62%	59%	63%	64%
N.O.	9%	5%	5%	1%



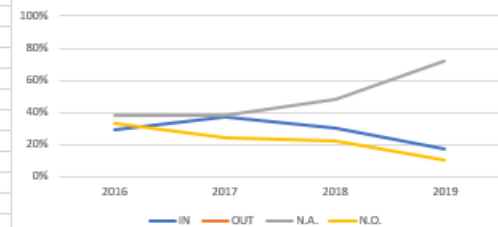
25. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
IN	35%	36%	33%	26%
OUT			0%	
N.A.	35%	39%	46%	64%
N.O.	29%	25%	21%	10%

25. Food Additives: Approved and Properly Used
(~5730 Restaurants/Year)



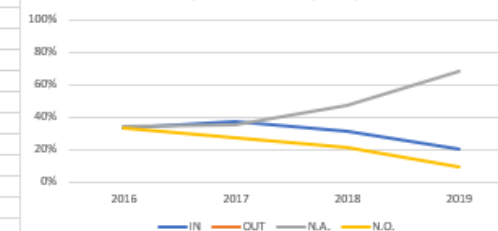
25. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
IN	29%	37%	30%	17%
OUT				
N.A.	38%	38%	48%	72%
N.O.	33%	24%	22%	10%

25. Food Additives: Approved and Properly Used
(~1292 Retail Food Stores/Year)



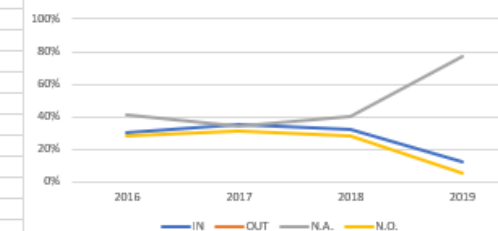
25. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	33%	37%	31%	21%
OUT				
N.A.	34%	35%	47%	68%
N.O.	33%	28%	22%	10%

25. Food Additives: Approved and Properly Used
(~2077 Schools/Year)



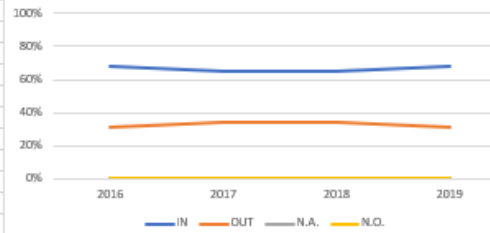
25. Satellite Schools	553	533	522	570
	2016	2017	2018	2019
IN	30%	35%	32%	12%
OUT				
N.A.	41%	34%	40%	77%
N.O.	28%	31%	28%	5%

25. Food Additives: Approved and Properly Used
(~546 Satellite Schools/Year)



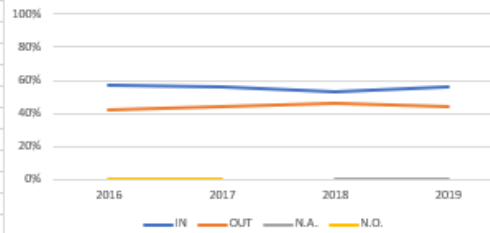
26. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
IN	68%	65%	65%	68%
OUT	31%	34%	34%	31%
N.A.	0%	0%	0%	0%
N.O.	0%	0%	0%	0%

26. Toxic Substances Properly Identified, Stored and Used (~5730 Restaurants/Year)



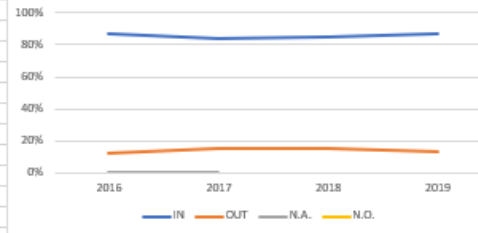
26. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
IN	57%	56%	53%	56%
OUT	42%	44%	46%	44%
N.A.	0%	0%	0%	0%
N.O.	0%	0%	0%	0%

26. Toxic Substances Properly Identified, Stored and Used (~1292 Retail Food Stores/Year)



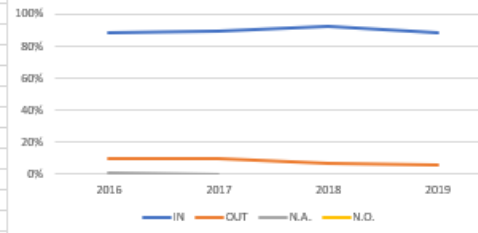
26. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	87%	84%	85%	87%
OUT	12%	15%	15%	13%
N.A.	0%	0%	0%	0%
N.O.	0%	0%	0%	0%

26. Toxic Substances Properly Identified, Stored and Used (~2077 Schools/Year)



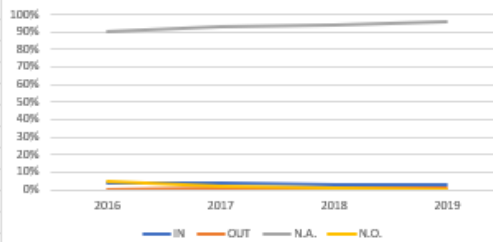
26. Satellite Schools	553	533	522	570
	2016	2017	2018	2019
IN	89%	90%	93%	89%
OUT	10%	10%	7%	6%
N.A.	1%	0%	0%	0%
N.O.	0%	0%	1%	0%

26. Toxic Substances Properly Identified, Stored and Used (~546 Satellite Schools/Year)



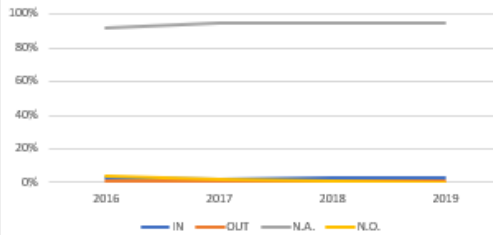
27. Restaurants	5881	6071	6020	4949
	2016	2017	2018	2019
N	4%	4%	3%	3%
OUT	0%	1%	1%	1%
N.A.	90%	93%	94%	96%
N.O.	5%	2%	1%	0%

27. Compliance with Variance, Specialized Process and HACCP plan (~5730 Restaurants/Yr)



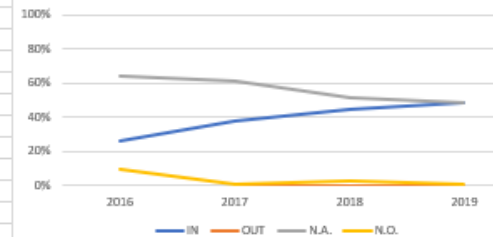
27. Retail Food Store	1409	1360	1348	1051
	2016	2017	2018	2019
N	3%	2%	3%	3%
OUT	1%	1%	1%	1%
N.A.	92%	95%	95%	95%
N.O.	4%	2%	1%	0%

27. Compliance with Variance, Specialized Process and HACCP plan (~1292 Retail Food Stores/Year)



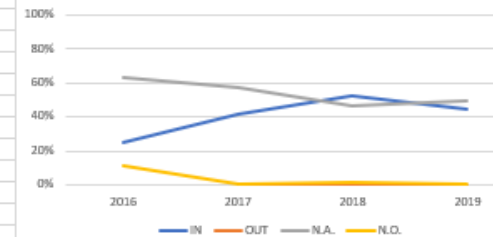
27. Schools	2062	2064	2099	2064
	2016	2017	2018	2019
IN	26%	38%	45%	49%
OUT		0%	0%	0%
N.A.	64%	61%	52%	49%
N.O.	10%	1%	3%	1%

27. Compliance with Variance, Specialized Process and HACCP plan (~2077 Schools/Year)



27. Satellite Schools	559	533	522	570
	2016	2017	2018	2019
IN	25%	42%	52%	45%
OUT		0%	0%	0%
N.A.	63%	57%	47%	49%
N.O.	11%	1%	2%	1%

27. Compliance with Variance, Specialized Process and HACCP plan (~546 Satellite Schools/Year)



Appendix 2: Inspection Analysis Report

1. **Certification by accredited program, compliance with Code, or correct responses; Duties.**
 1. PIC has three assigned responsibilities:
 1. Presence
 2. Demonstration of Knowledge
 3. Duties - marked OUT when PIC cannot ensure employees are complying with the necessary duties—requires judgement on overall observation
 4. This item marked OUT of compliance if there if any one of the responsibilities is not met
 2. marked OUT if PIC not present
 3. marked IN if at least one of these three is met:
 1. certification by an ACCREDITED PROGRAM
 2. having no violations of priority items during current inspection
 3. correct responses to inspector's questions regarding public health practices and principles
 4. Cannot be marked N.A.
 5. Cannot be marked N.O.

Notes:

- Did KS Food Code change to “cannot be marked N.O./N.A.” around 2017?

1. Certification by Accredited Program, Compliance with Code, or Correct Responses;
Duties

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	427 (7%)	901 (15%)	4501 (75%)	4784 (97%)
OUT	5 (0%)	7 (0%)	15 (0%)	10 (0%)
N.A.	748 (13%)	426 (7%)	178 (3%)	96 (2%)
N.O.	4674 (79%)	4720 (78%)	1307 (22%)	40 (1%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	79 (6%)	215 (16%)	974 (72%)	1033 (98%)
OUT	1 (0%)	1 (0%)	4 (0%)	no data
N.A.	170 (12%)	98 (7%)	39 (3%)	13 (1%)
N.O.	1158 (82%)	1040 (76%)	326 (24%)	3 (0%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	211 (10%)	347 (17%)	1520 (72%)	2026 (97%)
OUT	1 (0%)	5 (0%)	no data	2 (0%)
N.A.	266 (13%)	159 (8%)	69 (3%)	35 (2%)
N.O.	1577 (76%)	1549 (75%)	508 (24%)	15 (1%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	17 (13%)	37 (7%)	394 (75%)	534 (94%)
OUT	1 (0%)	no data	no data	no data
N.A.	104 (19%)	96 (18%)	47 (8%)	7 (1%)
N.O.	435 (78%)	398 (75%)	83 (16%)	2 (0%)

2. Management awareness; policy present.

1. cannot be marked N.O.
2. marked OUT when no PIC present and certified food protection manager or certificate is not from an accredited source

Notes:

- Did KS Food Code change to “cannot be marked N.O./N.A.” around 2017?

2. Management Awareness; Policy Present

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	4647 (79%)	5118 (84%)	5601 (93%)	4911 (99%)
OUT	1 (0%)	No Data	1 (0%)	No Data
N.A.	7 (0%)	8 (0%)	1 (0%)	No Data
N.O.	1202 (20%)	933 (15%)	404 (7%)	19 (0%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	1078 (77%)	1120 (82%)	1213 (90%)	1046 (100%)
OUT	no data	no data	2 (0%)	1 (0%)
N.A.	1 (0%)	2 (0%)	1 (0%)	no data
N.O.	328 (23%)	236 (17%)	126 (9%)	3 (0%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	1657 (80%)	1656 (80 %)	1931 (92%)	2065 (99%)
OUT	no data	no data	no data	no data
N.A.	no data	2 (0%)	no data	no data
N.O.	401 (19%)	402 (19%)	168 (8%)	14 (1%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	446 (80%)	440 (83%)	491 (94%)	540 (95%)
OUT	no data	no data	no data	no data
N.A.	no data	1 (0%)	no data	no data
N.O.	110 (20%)	92 (17%)	29 (6%)	2 (0%)

3. Proper use of reporting, restriction and exclusion.

1. Cannot be marked N.A.
2. Cannot be marked N.O.
3. PIC has informed employees about their responsibility to report certain symptoms of illness
4. IN if can verify employees have attended training that demonstrates this reporting requirement

Notes:

- Did KS Food Code change to “cannot be marked N.O./N.A.” around 2017?

3. Proper Use of Reporting, Restriction and Exclusion

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	3309 (56%)	4759 (78%)	5612 (93%)	4793 (97%)
OUT	No Data	No Data	1 (0%)	No Data
N.A.	No Data	6 (0%)	3 (0%)	No Data
N.O.	2528 (43%)	1292 (21%)	389 (6%)	132 (3%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	703 (50%)	1040 (76%)	1245 (92%)	1013 (96%)
OUT	no data	no data	2 (0%)	no data
N.A.	2 (0%)	2 (0%)	1 (0%)	no data
N.O.	703 (50%)	316 (23%)	97 (7%)	35 (3%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	1143 (55%)	1457 (71%)	1910 (91%)	2002 (96%)
OUT	1 (0%)	no data	no data	no data
N.A.	no data	5 (0%)	no data	no data
N.O.	915 (44%)	599 (29%)	188 (9%)	77 (4%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	312 (56%)	387 (73%)	487 (93%)	536 (94%)
OUT	no data	no data	no data	no data
N.A.	1 (0%)	no data	no data	no data
N.O.	245 (44%)	146 (27%)	33 (6%)	6 (1%)

4. Proper eating, tasting, drinking, or tobacco use.

1. Cannot be marked N.A.
2. Only marked N.O. when inspector does not observe employees eating
3. based on observations of employees drinking from a closed beverage container subsequently stored on a non-food-contact surface and separate from exposed food
4. OUT when employees improperly taste, eat, drink and smoke; open container for drinking on line

4. Proper Eating, Tasting, Drinking or Tobacco Use

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	4854 (83%)	4870 (80%)	5004 (83%)	4452 (90%)
OUT	217 (4%)	276 (5%)	226 (4%)	117 (2%)
N.A.	6 (0%)	6 (0%)	2 (0%)	1 (0%)
N.O.	760 (13%)	892 (15%)	770 (13%)	354 (7%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	1162 (82%)	1112 (82%)	1109 (82%)	951 (90%)
OUT	27 (2%)	29 (2%)	32 (2%)	9 (1%)
N.A.	6 (0%)	2 (0%)	2 (0%)	no data
N.O.	212 (15%)	213 (16%)	193 (14%)	86 (8%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	1801 (87%)	1793 (87%)	1839 (88%)	1930 (93%)
OUT	16 (1%)	17 (1%)	16 (1%)	8 (0%)
N.A.	no data	1 (0%)	2 (0%)	no data
N.O.	237 (11%)	248 (12%)	237 (11%)	139 (7%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	450 (81%)	451 (85%)	463 (89%)	505 (89%)
OUT	1 (0%)	1 (0%)	1 (0%)	1 (0%)
N.A.	1 (0%)	1 (0%)	no data	no data
N.O.	103 (18%)	80 (15%)	57 (11%)	36 (6%)

5. No discharge from eyes, nose and mouth.

1. Cannot be marked N.A.
2. Can be marked N.O. if no food employees present
3. marked OUT when food employee has persistent sneezing, coughing or runny nose that causes discharge from the eyes, nose or mouth.

5. No Discharge From Eyes, Nose, Mouth

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	5691 (97%)	5866 (97%)	5908 (98%)	4872 (98%)
OUT	1 (0%)	No Data	1 (0%)	No Data
N.A.	6 (0%)	6 (0%)	4 (0%)	3 (0%)
N.O.	137 (2%)	176 (3%)	78 (1%)	47 (1%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	1371 (97%)	1317 (97%)	1331 (99%)	1045 (99%)
OUT	no data	1 (0%)	1 (0%)	no data
N.A.	2 (0%)	no data	2 (0%)	no data
N.O.	29 (2%)	38 (3%)	7 (1%)	5 (0%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	2043 (99%)	2032 (98%)	2080 (99%)	2065 (99%)
OUT	no data	2 (0%)	no data	no data
N.A.	2 (0%)	2 (0%)	2 (0%)	1 (0%)
N.O.	6 (0%)	23 (1%)	10 (0%)	10 (0%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	537 (96%)	511 (96%)	515 (95%)	535 (94%)
OUT	no data	no data	no data	no data
N.A.	3 (1%)	no data	1 (0%)	no data
N.O.	16 (3%)	22 (4%)	4 (1%)	6 (1%)

6. Hands clean and properly washed.

1. Cannot be marked N.A.
2. Only marked N.O. if no food employees present, but if PIC touches food, clean equipment or utensils without washing his/her hands, then this item is marked OUT
3. hands must be washed between each change of gloves

Notes:

- Seems like a high number of N.O.

6. Hands Clean and Properly Washed

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	4574 (78%)	4717 (78%)	4667 (78%)	3898 (79%)
OUT	485 (8%)	577 (10%)	531 (9%)	450 (9%)
N.A.	8 (0%)	11 (0%)	10 (0%)	9 (0%)
N.O.	773 (13%)	749 (12%)	789 (13%)	573 (12%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	958 (68%)	967 (71%)	910 (68%)	758 (72%)
OUT	63 (4%)	52 (4%)	60 (4%)	38 (4%)
N.A.	13 (1%)	9 (1%)	24 (2%)	8 (1%)
N.O.	370 (26%)	326 (24%)	349 (26%)	245 (23%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	1964 (95%)	1917 (93%)	1983 (94%)	1945 (93%)
OUT	34 (2%)	41 (2%)	45 (2%)	34 (2%)
N.A.	no data	no data	no data	1 (0%)
N.O.	59 (3%)	103 (5%)	71 (3%)	98 (5%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	491 (88%)	476 (89%)	488 (93%)	489 (86%)
OUT	10 (2%)	10 (2%)	3 (1%)	7 (1%)
N.A.	no data	1 (0%)	no data	no data
N.O.	56 (10%)	45 (8%)	29 (6%)	45 (8%)

7. No bare hand contact with RTE foods or approved alternate method properly followed.

1. only marked N.A. if establishes provides packaged or bulk food items and nothing is RTE
2. only marked N.O. if RTE foods are offered at establishment but no food preparation is performed at the time of inspection

7. No Bare Hand Contact with RTE Foods or Approved Alternate Method Followed Properly

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	4990 (85%)	5244 (86%)	5215 (87%)	4295 (87%)
OUT	198 (3%)	206 (3%)	225 (4%)	197 (4%)
N.A.	25 (0%)	34 (1%)	28 (0%)	22 (0%)
N.O.	625 (11%)	572 (9%)	521 (9%)	409 (8%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	1050 (75%)	1053 (77%)	1015 (75%)	826 (79%)
OUT	10 (1%)	12 (1%)	15 (1%)	8 (1%)
N.A.	85 (6%)	64 (5%)	104 (8%)	66 (6%)
N.O.	260 (18%)	227 (17%)	211 (16%)	149 (14%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	2011 (98%)	1999 (97%)	2037 (97%)	1975 (95%)
OUT	4 (0%)	6 (0%)	6 (0%)	14 (1%)
N.A.	2 (0%)	1 (0%)	1 (0%)	1 (0%)
N.O.	38 (2%)	56 (3%)	49 (2%)	85 (4%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	512 (92%)	490 (92%)	493 (94%)	493 (86%)
OUT	no data	1 (0%)	2 (0%)	2 (0%)
N.A.	no data	2 (0%)	no data	no data
N.O.	44 (8%)	39 (7%)	23 (4%)	46 (8%)

8. Adequate hand washing facilities supplied and accessible.

1. Cannot be marked N.A.
2. Cannot be marked N.O.
3. Must be accessible, reserved only for hand washing, not full of utensils or dishes, adequately stocked with soap and towels, and displays hand washing sign

Notes:

- Easy for these to become low in stock
- Assign this task

8. Adequate Hand Washing Facilities Supplied and Accessible

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	4646 (79%)	4823 (79%)	4962 (82%)	4079 (82%)
OUT	1203 (20%)	1207 (20%)	1030 (17%)	835 (17%)
N.A.	9 (0%)	18 (0%)	10 (0%)	10 (0%)
N.O.	4 (0%)	10 (0%)	7 (0%)	4 (0%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	1052 (75%)	1048 (77%)	1070 (79%)	809 (77%)
OUT	351 (25%)	299 (22%)	268 (20%)	234 (22%)
N.A.	5 (0%)	6 (0%)	9 (1%)	5 (0%)
N.O.	1 (0%)	3 (0%)	no data	no data

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	1990 (97%)	1997 (97%)	2038 (97%)	2032 (98%)
OUT	70 (3%)	62 (3%)	54 (3%)	43 (2%)
N.A.	1 (0%)	no data	2 (0%)	no data
N.O.	no data	no data	no data	1 (0%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	527 (94%)	520 (98%)	510 (98%)	531 (93%)
OUT	no data	11 (2%)	11 (2%)	17 (3%)
N.A.	no data	no data	no data	no data
N.O.	30 (5%)	1 (0%)	no data	no data

9. Food obtained from approved source.

1. Cannot be marked N.A.
2. Cannot be marked N.O.
3. based on direct observations of food products, food labels and packaging, water analyses and discussion with the PIC or other employees
4. Documentation of approved sources include: shipment invoices, buyer specification plans, molluscan tags, proof of regulatory permit/licensure of a food source

9. Food Obtained From Approved Sources

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	5775 (98%)	5956 (98%)	5915 (98%)	4868 (98%)
OUT	54 (1%)	58 (1%)	66 (1%)	45 (1%)
N.A.	4 (0%)	5 (0%)	No Data	4 (0%)
N.O.	21 (0%)	37 (1%)	18 (0%)	10 (0%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	1339 (95%)	1295 (95%)	1278 (95%)	1002 (95%)
OUT	60 (4%)	58 (4%)	63 (5%)	41 (4%)
N.A.	2 (0%)	no data	no data	no data
N.O.	2 (0%)	5 (0%)	3 (0%)	1 (0%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	2040 (99%)	2054 (100%)	2086 (99%)	2073 (99%)
OUT	7 (0%)	3 (0%)	4 (0%)	4 (0%)
N.A.	no data	no data	1 (0%)	no data
N.O.	6 (0%)	6 (0%)	2 (0%)	2 (0%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	555 (99%)	531 (100%)	517 (99%)	539 (95%)
OUT	1 (0%)	no data	1 (0%)	no data
N.A.	1 (0%)	no data	2 (0%)	no data
N.O.	no data	2 (0%)	1 (0%)	3 (1%)

10. Food received at proper temperature.

1. based on actual food temperature measurements of TCS food being received
2. OUT if food out of proper temperature is accepted by establishment
3. N.A. when establishment receives only foods that are not TCS food and that are not frozen
4. N.O. if food is not received during the inspection

Notes:

- What are the implications of receiving food at improper temperatures? Toxin production?

10. Food Received at Proper Temperatures

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	279 (5%)	291 (5%)	257 (4%)	285 (6%)
OUT	10 (0%)	8 (0%)	10 (0%)	7 (0%)
N.A.	66 (1%)	57 (1%)	56 (1%)	72 (1%)
N.O.	5489 (93%)	5690 (94%)	5672 (94%)	4563 (92%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	59 (4%)	63 (5%)	64 (5%)	61 (6%)
OUT	no data	no data	no data	no data
N.A.	6 (0%)	8 (1%)	10 (1%)	7 (1%)
N.O.	1341 (95%)	1286 (95%)	1271 (94%)	982 (93%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	178 (9%)	230 (11%)	223 (11%)	196 (9%)
OUT	9 (0%)	2 (0%)	5 (0%)	1 (0%)
N.A.	6 (0%)	8 (0%)	7 (0%)	6 (0%)
N.O.	1861 (90%)	1817 (88%)	1862 (89%)	1876 (90%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	100 (18%)	113 (21%)	144 (28%)	105 (18%)
OUT	7 (1%)	7 (1%)	5 (1%)	8 (1%)
N.A.	1 (0%)	6 (1%)	3 (1%)	3 (1%)
N.O.	445 (80%)	406 (76%)	368 (70%)	427 (75%)

11. Food in good condition, safe and unadulterated.

1. Cannot be marked N.A.
2. Cannot be marked N.O.
3. based on observations of the integrity of product packaging, wholesomeness, and signs of adulteration and hermetic seals have not been breached
4. OUT when integrity of food packaging has been compromised or the true appearance, color or quality of a food has been intentionally altered

11. Food in Good Condition, Safe, and Unadulterated

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	5157 (88%)	5213 (86%)	5167 (86%)	4235 (86%)
OUT	639 (11%)	770 (13%)	788 (13%)	665 (13%)
N.A.	4 (0%)	4 (0%)	7 (0%)	3 (0%)
N.O.	47 (1%)	56 (1%)	32 (1%)	24 (0%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	1167 (83%)	1132 (83%)	1081 (80%)	844 (80%)
OUT	237 (17%)	215 (16%)	254 (19%)	203 (19%)
N.A.	no data	1 (0%)	no data	1 (0%)
N.O.	1 (0%)	3 (0%)	4 (0%)	2 (0%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	1941 (94%)	1951 (95%)	1987 (95%)	1974 (95%)
OUT	101 (5%)	101 (5%)	100 (5%)	99 (5%)
N.A.	3 (0%)	1 (0%)	3 (0%)	no data
N.O.	5 (0%)	3 (0%)	2 (0%)	1 (0%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	543 (97%)	520 (98%)	509 (98%)	529 (93%)
OUT	10 (2%)	10 (2%)	9 (2%)	10 (2%)
N.A.	1 (0%)	no data	1 (0%)	no data
N.O.	3 (1%)	1 (0%)	2 (0%)	3 (1%)

12. Required records available: shellstock tags, parasite destructions.

1. based on direct observations of fish in storage, shellstock tags, and/or records of freezing of fish for parasite destruction, or has documents from supplier saying fish has been frozen for parasite destruction
2. Some fish are exempt from freezing (molluscan shellfish or shallop products consisting only of the shucked abductor muscle)
3. N.A. when shellstock are not used and the only fish sold as raw, raw-marinated or undercooked is the tuna species or aquaculture fish listed as exempted from freezing in the Food Code
4. N.O. when inspected item not being sold at the time of inspection and prior compliance through tags, invoice or purchase records cannot be verified

12. Required Records Available: Shellstock Tags, Parasite Destructors

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	156 (3%)	177 (3%)	147 (2%)	163 (3%)
OUT	21 (0%)	27 (0%)	27 (0%)	20 (0%)
N.A.	5495 (93%)	5652 (93%)	5690 (95%)	4720 (95%)
N.O.	166 (3%)	188 (3%)	129 (2%)	18 (0%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	43 (3%)	52 (4%)	46 (3%)	33 (3%)
OUT	14 (1%)	13 (1%)	15 (1%)	9 (1%)
N.A.	1298 (92%)	1236 (91%)	1260 (93%)	999 (95%)
N.O.	46 (3%)	53 (4%)	22 (2%)	6 (1%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	37 (2%)	48 (2%)	32 (2%)	110 (5%)
OUT	no data	no data	no data	1 (0%)
N.A.	1957 (95%)	1962 (95%)	2027 (97%)	1955 (94%)
N.O.	60 (3%)	52 (3%)	37 (2%)	11 (1%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	11 (2%)	17 (3%)	5 (1%)	14 (2%)
OUT	no data	no data	no data	no data
N.A.	536 (96%)	509 (95%)	507 (97%)	523 (92%)
N.O.	9 (2%)	6 (1%)	9 (2%)	3 (1%)

13. Food separated and protected.

1. based on direct observation of food storage and food handling practices
2. OUT when RTE cross contaminates with raw animal products
3. N.A. when no raw animal foods are used in the facility and only prepackaged foods are sold
4. N.O. when raw animal foods are used or served seasonally and you are unable to determine compliance

13. Food Separated and Protected

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	4587 (78%)	4607 (76%)	4487 (75%)	3626 (73%)
OUT	982 (17%)	1150 (19%)	1166 (19%)	966 (20%)
N.A.	188 (3%)	213 (4%)	257 (4%)	269 (5%)
N.O.	95 (2%)	83 (1%)	87 (1%)	63 (1%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	1049 (74%)	1016 (75%)	922 (68%)	722 (69%)
OUT	314 (22%)	306 (23%)	376 (28%)	262 (25%)
N.A.	35 (2%)	26 (2%)	37 (3%)	52 (5%)
N.O.	11 (1%)	8 (1%)	10 (1%)	13 (1%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	1929 (94%)	1924 (93%)	1908 (91%)	1833 (88%)
OUT	66 (3%)	72 (3%)	98 (5%)	109 (5%)
N.A.	36 (2%)	36 (2%)	44 (2%)	80 (4%)
N.O.	26 (1%)	30 (1%)	48 (2%)	56 (3%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	517 (92%)	496 (93%)	452 (87%)	439 (77%)
OUT	3 (1%)	5 (1%)	5 (1%)	2 (0%)
N.A.	35 (6%)	29 (5%)	56 (11%)	94 (16%)
N.O.	3 (0%)	3 (1%)	8 (2%)	5 (1%)

14. Food-contact surfaces: cleaned and sanitized.

1. observe practice, measurements/readings of chemical sanitize concentration, hot water sanitizing temperature, pH, hardness, water pressure, test strips
2. OUT when major food allergen was not cleaned and sanitized prior to use for other types of raw animal foods
3. N.A. when there is no requirement to clean equipment and utensils bc only prepackaged foods sold
4. Cannot be marked N.O.

Notes:

- Schools seem better at managing this—because dedicated person? Not as much going on?
- Language barrier? Way to do demographics on school kitchen staff?
- Are they cleaning but not sanitizing?

14. Food Contact Surfaces Cleaned and Sanitized

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	3626 (62%)	3663 (60%)	3855 (64%)	3414 (69%)
OUT	2193 (37%)	2367 (39%)	2116 (35%)	1490 (30%)
N.A.	9 (0%)	5 (0%)	9 (0%)	7 (0%)
N.O.	22 (0%)	21 (0%)	8 (0%)	8 (0%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	859 (61%)	827 (61%)	858 (64%)	759 (72%)
OUT	523 (37%)	516 (38%)	470 (35%)	272 (26%)
N.A.	17 (1%)	9 (1%)	7 (1%)	15 (1%)
N.O.	6 (0%)	3 (0%)	6 (0%)	3 (0%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	1753 (85%)	1724 (84%)	1778 (85%)	1835 (88%)
OUT	304 (15%)	334 (16%)	316 (15%)	233 (11%)
N.A.	1 (0%)	2 (0%)	1 (0%)	7 (0%)
N.O.	no data	4 (0%)	no data	1 (0%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	523 (94%)	482 (90%)	491 (94%)	524 (92%)
OUT	34 (6%)	46 (9%)	25 (5%)	15 (3%)
N.A.	no data	2 (0%)	1 (0%)	3 (1%)
N.O.	no data	1 (0%)	4 (1%)	no data

15. Proper disposition of returned, previously served, reconditioned and unsafe food.

1. Cannot be marked N.A.
2. Cannot be marked N.O.
3. OUT if food found unsafe, adulterated, not honestly presented, from an unapproved source, RTE foods contaminated by employees and is not discarded or reconditions according to an approved procedure, previously served unwrapped and unprotected food is observed being re-served

15. Proper Disposition of Returned, Previously Served, Reconditioned and Unsafe Food

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	2184 (37%)	2228 (37%)	2389 (40%)	3297 (67%)
OUT	10 (0%)	3 (0%)	3 (0%)	1 (0%)
N.A.	452 (8%)	627 (10%)	701 (12%)	161 (3%)
N.O.	3183 (54%)	3174 (52%)	2889 (48%)	1457 (29%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	620 (44%)	644 (47%)	630 (47%)	733 (70%)
OUT	1 (0%)	1 (0%)	no data	1 (0%)
N.A.	104 (7%)	111 (8%)	136 (10%)	28 (3%)
N.O.	677 (48%)	594 (44%)	575 (43%)	285 (27%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	762 (37%)	800 (39%)	882 (42%)	1417 (68%)
OUT	no data	no data	1 (0%)	1 (0%)
N.A.	160 (8%)	219 (11%)	270 (13%)	80 (4%)
N.O.	1127 (55%)	1036 (50%)	936 (45%)	576 (28%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	258 (46%)	234 (44%)	234 (45%)	400 (70%)
OUT	no data	no data	1 (0%)	no data
N.A.	77 (14%)	72 (14%)	86 (16%)	30 (5%)
N.O.	221 (40%)	224 (42%)	196 (38%)	110 (19%)

16. Proper cooking time and temperatures

1. Can be IN if facility has an approved Consumer Advisory posting or an approved variance with HACCP plan for that food item, but must this explanation must be documented on inspector's form.
2. N.A. when no animal foods are cooked
3. N.O. when unable to determine cooking temp of any food—but should be able to measure at least one cooked item

Notes:

- *why are the percentage so high in N.O.? Not part of KS adopted food code? What is the percentage of non-cooking restaurants? weird.

16. Proper Cooking Time and Temperatures

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	1698 (29%)	2032 (33%)	2077 (35%)	1803 (36%)
OUT	7 (0%)	15 (0%)	17 (0%)	24 (0%)
N.A.	1045 (18%)	1190 (20%)	1290 (21%)	1084 (22%)
N.O.	3092 (53%)	2816 (46%)	2615 (43%)	2018 (41%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	176 (12%)	233 (17%)	236 (18%)	207 (20%)
OUT	4 (0%)	no data	4 (0%)	2 (0%)
N.A.	558 (40%)	542 (40%)	575 (43%)	450 (43%)
N.O.	669 (47%)	577 (42%)	527 (39%)	390 (37%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	295 (14%)	416 (20%)	377 (18%)	344 (17%)
OUT	no data	no data	1 (0%)	no data
N.A.	153 (7%)	141 (7%)	248 (12%)	287 (14%)
N.O.	1609 (78%)	1503 (73%)	1471 (70%)	1448 (69%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	7 (1%)	10 (2%)	19 (4%)	16 (3%)
OUT	no data	no data	no data	no data
N.A.	366 (65%)	359 (67%)	354 (68%)	400 (70%)
N.O.	184 (33%)	163 (31%)	148 (28%)	126 (22%)

17. Proper reheating for hot holding procedures.

1. IN/OUT based on actual temperature readings after observing a reheating process and prior to product being placed in hot-holding device
2. OUT if out of compliance and not reheated within 2 hours of hot holding
3. N.A. when food are not held over for a second service or reheating for hot holding is not performed
4. N.O. when foods are held over for a second service but no foods are reheated during the time of inspection.

17. Proper Heating for Hot Holding Procedures

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	1227 (21%)	1608 (26%)	1660 (28%)	1407 (28%)
OUT	47 (1%)	49 (1%)	88 (1%)	49 (1%)
N.A.	812 (14%)	895 (15%)	928 (15%)	802 (16%)
N.O.	3758 (64%)	3500 (58%)	3319 (55%)	2665 (54%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	227 (16%)	312 (23%)	326 (24%)	292 (28%)
OUT	15 (1%)	10 (1%)	13 (1%)	15 (1%)
N.A.	415 (29%)	360 (26%)	406 (30%)	285 (27%)
N.O.	751 (53%)	673 (49%)	598 (44%)	456 (43%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	526 (26%)	634 (31%)	793 (38%)	783 (38%)
OUT	1 (0%)	2 (0%)	5 (0%)	3 (0%)
N.A.	65 (3%)	81 (4%)	123 (6%)	101 (5%)
N.O.	1462 (71%)	1344 (65%)	1173 (56%)	1191 (57%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	25 (4%)	44 (8%)	51 (10%)	52 (9%)
OUT	1 (0%)	1 (0%)	no data	no data
N.A.	261 (47%)	267 (50%)	242 (46%)	293 (51%)
N.O.	270 (48%)	221 (41%)	226 (43%)	196 (34%)

18. Proper cooling time and temperatures.

1. Food must go from 135°F to 70°F in 2 hours or less and then 70°F to 41°F within the remaining (up to 4) hours. (example: if chili went from 135°F to 70°F in 1.5 hours, then facility has 4.5 hours to get it down to 41°F) — this is for TCS foods
2. N.A. if does not receive raw eggs, shellstock or milk, prepares no TCS food from ambient temperature ingredients that require cooling, and does not cool cooked TCS foods
3. N.O. when establishment does cool cooked TCS foods but proper cooling per the prescribed temperature and time parameters cannot be determined during the length of the inspection

18. Proper Cooling Time and Temperatures

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	887 (15%)	1159 (19%)	1212 (20%)	1001 (20%)
OUT	144 (2%)	169 (3%)	169 (3%)	138 (3%)
N.A.	943 (16%)	1097 (18%)	1147 (19%)	1114 (23%)
N.O.	3864 (66%)	3626 (60%)	3470 (58%)	2669 (54%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	131 (9%)	181 (13%)	174 (13%)	138 (13%)
OUT	24 (2%)	23 (2%)	11 (1%)	22 (2%)
N.A.	519 (37%)	473 (35%)	544 (40%)	417 (40%)
N.O.	733 (52%)	678 (50%)	613 (45%)	471 (45%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	216 (10%)	316 (15%)	357 (17%)	236 (11%)
OUT	3 (0%)	2 (0%)	4 (0%)	8 (0%)
N.A.	120 (6%)	127 (6%)	227 (11%)	241 (12%)
N.O.	1715 (83%)	1617 (78%)	1511 (72%)	1592 (76%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	13 (2%)	24 (5%)	20 (4%)	17 (3%)
OUT	no data	no data	no data	no data
N.A.	309 (55%)	323 (61%)	294 (56%)	366 (64%)
N.O.	234 (42%)	186 (35%)	207 (40%)	156 (27%)

19. Proper hot holding temperatures

1. Based on actual food temperature measurements
2. OUT if only one food being hot held is out of compliance—unless Time as a Public Health Control (TPHC) is used for that TCS food.
3. N.A. if establishment does not hot hold food
4. N.O. if establishment does hold hot food but was not holding it during time of inspection

19. Proper Hot Holding Temperatures

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	3302 (56%)	3568 (59%)	3494 (58%)	2875 (58%)
OUT	396 (7%)	478 (8%)	507 (8%)	411 (8%)
N.A.	693 (12%)	728 (12%)	761 (13%)	708 (14%)
N.O.	1451 (25%)	1282 (21%)	1243 (21%)	935 (19%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	696 (49%)	723 (53%)	666 (49%)	506 (48%)
OUT	121 (9%)	138 (10%)	166 (12%)	129 (12%)
N.A.	357 (25%)	301 (22%)	329 (24%)	268 (25%)
N.O.	231 (16%)	194 (14%)	184 (14%)	146 (14%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	1259 (61%)	1380 (67%)	1413 (67%)	1420 (68%)
OUT	54 (3%)	64 (3%)	71 (3%)	72 (3%)
N.A.	6 (0%)	11 (1%)	17 (1%)	21 (1%)
N.O.	737 (36%)	608 (29%)	596 (28%)	566 (27%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	348 (62%)	357 (67%)	338 (65%)	330 (58%)
OUT	21 (4%)	15 (3%)	13 (2%)	11 (2%)
N.A.	13 (2%)	15 (3%)	12 (2%)	18 (3%)
N.O.	174 (31%)	146 (27%)	159 (30%)	184 (32%)

20. Proper cold holding temperatures - this is getting worse

1. Based on actual food temperature measurements
2. OUT if only one food being cold held is out of compliance—unless Time as a Public Health Control (TPHC) is used for that TCS food.
3. N.A. if establishment does not cold hold food
4. N.O. if establishment does hold cold food but was not holding it during time of inspection

Notes

- This is getting worse in restaurants and retail
- Not so bad at schools — why?

20. Proper Cold Holding Temperature

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	4303 (73%)	4356 (72%)	4331 (72%)	3383 (68%)
OUT	1294 (22%)	1444 (24%)	1461 (24%)	1342 (27%)
N.A.	161 (3%)	182 (3%)	149 (2%)	149 (3%)
N.O.	105 (2%)	79 (1%)	64 (1%)	61 (1%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	1183 (84%)	1103 (81%)	1062 (79%)	821 (78%)
OUT	206 (15%)	235 (17%)	249 (18%)	212 (20%)
N.A.	19 (1%)	17 (1%)	28 (2%)	15 (1%)
N.O.	1 (0%)	1 (0%)	3 (0%)	no data

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	1952 (95%)	1957 (95%)	1962 (93%)	1944 (93%)
OUT	106 (5%)	105 (5%)	133 (6%)	135 (6%)
N.A.	2 (0%)	1 (0%)	2 (0%)	1 (0%)
N.O.	no data	no data	no data	3 (0%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	522 (93%)	506 (95%)	489 (94%)	509 (89%)
OUT	36 (6%)	27 (5%)	32 (6%)	31 (5%)
N.A.	no data	no data	1 (0%)	2 (0%)
N.O.	1 (0%)	no data	no data	3 (1%)

21. Proper date marking and disposition - this is getting worse

1. IN when there is a system for date marking all foods that are required to be date marked and is verified through observation—PIC needs to describe this system
2. IN if foods being used are in accordance with this system
3. OUT if foods being used are not following the system
4. OUT if date marking not done
5. N.A. when there is no RTE TCS foods prepared on-premise and held or commercial containers of RTE TCS food are opened and held over 24 hours in an establishment
6. N.O. when establishment does handle foods requiring date marking but there are no foods requiring date marking in the facility at the time of inspection

Notes:

- Percentage is lower in schools, but it still seems to be an issue

21. Proper Date Marking and Disposition

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	3631 (62%)	3650 (60%)	3645 (61%)	2940 (59%)
OUT	1551 (26%)	1848 (30%)	1815 (30%)	1524 (31%)
N.A.	265 (5%)	269 (4%)	236 (4%)	231 (5%)
N.O.	402 (7%)	310 (5%)	298 (5%)	222 (4%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	784 (56%)	728 (54%)	667 (49%)	500 (48%)
OUT	400 (28%)	456 (34%)	490 (36%)	395 (38%)
N.A.	139 (10%)	121 (9%)	140 (10%)	118 (11%)
N.O.	83 (6%)	50 (4%)	48 (4%)	35 (3%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	1770 (86%)	1748 (85%)	1801 (86%)	1674 (80%)
OUT	222 (11%)	266 (13%)	261 (12%)	366 (18%)
N.A.	7 (0%)	5 (0%)	9 (0%)	7 (0%)
N.O.	54 (3%)	39 (2%)	27 (1%)	32 (2%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	373 (67%)	406 (76%)	426 (82%)	435 (76%)
OUT	20 (4%)	24 (5%)	22 (4%)	29 (5%)
N.A.	55 (10%)	42 (8%)	29 (6%)	24 (4%)
N.O.	105 (19%)	60 (11%)	45 (9%)	53 (9%)

22. Time as a public health control: procedures and record

1. Based on observation, record review, discussion with PIC
2. IN if there is a written procedure at the establishment that identifies the types of food products that will be held using time only, describes the procedure and does not exceed the 4-hour limit at any temperature or 6-hour limit at 70* or less
3. N.A. if establishment does not use this process
4. N.O. if not in practice at the time of inspection

22. Time as a Public Health Control: Procedures and Record

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	495 (8%)	499 (8%)	609 (10%)	543 (11%)
OUT	154 (3%)	160 (3%)	184 (3%)	164 (3%)
N.A.	4428 (75%)	4870 (80%)	4741 (79%)	3908 (79%)
N.O.	768 (13%)	519 (9%)	459 (8%)	311 (6%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	160 (11%)	174 (13%)	188 (14%)	187 (18%)
OUT	16 (1%)	27 (2%)	37 (3%)	28 (3%)
N.A.	1079 (77%)	1055 (78%)	1027 (76%)	778 (74%)
N.O.	151 (11%)	97 (7%)	92 (7%)	56 (5%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	315 (15%)	386 (19%)	435 (21%)	434 (21%)
OUT	28 (1%)	16 (1%)	24 (1%)	15 (1%)
N.A.	1208 (59%)	1193 (58%)	1370 (65%)	1363 (65%)
N.O.	502 (24%)	463 (22%)	268 (13%)	261 (13%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	131 (23%)	199 (37%)	218 (42%)	159 (28%)
OUT	16 (3%)	6 (1%)	6 (1%)	9 (2%)
N.A.	292 (52%)	239 (45%)	220 (42%)	263 (46%)
N.O.	116 (11%)	88 (17%)	78 (15%)	109 (19%)

23. Consumer advisory provided for raw or undercooked foods

1. Does not exempt the requirement for freezing for parasite control
2. N.A. if establishment does not serve a food that requires this advisory statement
3. Cannot be marked N.O.

23. Consumer Advisory Provided for Raw or Undercooked Foods

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	1332 (23%)	1314 (22%)	1261 (21%)	1018 (21%)
OUT	117 (2%)	187 (3%)	199 (3%)	127 (3%)
N.A.	4295 (73%)	4473 (74%)	4478 (74%)	3769 (76%)
N.O.	80 (1%)	57 (1%)	50 (1%)	14 (0%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	85 (6%)	69 (5%)	54 (4%)	44 (4%)
OUT	5 (0%)	8 (1%)	11 (1%)	7 (1%)
N.A.	1303 (92%)	1270 (93%)	1267 (94%)	995 (95%)
N.O.	9 (1%)	8 (1%)	10 (1%)	2 (0%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	48 (2%)	37 (2%)	18 (1%)	18 (1%)
OUT	no data	no data	no data	no data
N.A.	1991 (97%)	2016 (98%)	2078 (99%)	2060 (99%)
N.O.	11 (1%)	5 (0%)	2 (0%)	1 (0%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	27 (5%)	18 (3%)	5 (1%)	2 (0%)
OUT	no data	no data	no data	no data
N.A.	524 (94%)	512 (96%)	517 (99%)	536 (94%)
N.O.	4 (1%)	2 (0%)	no data	1 (0%)

Pasteurized foods used; prohibited foods not offered

4. Based on discussions with PIC and food employees about practices in an establishment that serves a highly susceptible population
5. IN if treated/pasteurized juice beverages are served; only pasteurized eggs are used in undercooked egg recipes; or there is a HACCP plan to control Salmonella enteritidis; no raw or partially cooked animal foods or raw seed sprouts are served and no unopened packaged food is re-served following service to patients in medical isolation or quarantine
6. N.A. if highly susceptible population is not served
7. **Cannot be marked N.O.**

24. Pasteurized Foods Used; Prohibited Foods Not Offered

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	1073 (18%)	1152 (19%)	655 (11%)	324 (7%)
OUT	1 (0%)	1 (0%)	2 (0%)	2 (0%)
N.A.	4153 (71%)	4391 (72%)	4892 (81%)	4465 (90%)
N.O.	617 (10%)	507 (8%)	452 (8%)	138 (3%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	184 (13%)	171 (13%)	89 (7%)	41 (4%)
OUT	no data	no data	no data	no data
N.A.	1103 (78%)	1087 (80%)	1149 (85%)	986 (94%)
N.O.	118 (8%)	92 (7%)	108 (8%)	21 (2%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	538 (26%)	710 (34%)	653 (31%)	566 (27%)
OUT	no data	no data	no data	no data
N.A.	1339 (65%)	1255 (61%)	1338 (64%)	1459 (70%)
N.O.	178 (9%)	94 (5%)	106 (5%)	53 (3%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	152 (27%)	1910 (36%)	139 (27%)	167 (29%)
OUT	no data	no data	no data	no data
N.A.	349 (62%)	317 (59%)	359 (69%)	364 (64%)
N.O.	52 (9%)	25 (5%)	24 (5%)	8 (1%)

24. Food additives: approved and properly used

1. Based on direct observations of food ingredients in storage and listed as product ingredients supplemented by discussion with the PIC
2. IN if sulfites on premises but not applied to fresh fruits/vegetables for raw consumption
3. N.A. if establishment does not use any additives or sulfites on the premises
4. **Cannot be marked N.O. — all years have significant percentages of N.O.**

25. Food Additives: Approved and Properly Used

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	2057 (35%)	2186 (36%)	1983 (33%)	1266 (26%)
OUT	no data	no data	1 (0%)	no data
N.A.	2052 (35%)	2368 (39%)	2770 (46%)	3190 (64%)
N.O.	1732 (29%)	1498 (25%)	1244 (21%)	473 (10%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	412 (29%)	509 (37%)	401 (30%)	182 (17%)
OUT	no data	no data	no data	no data
N.A.	533 (38%)	511 (38%)	648 (48%)	754 (72%)
N.O.	458 (33%)	333 (24%)	296 (22%)	108 (10%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	672 (33%)	759 (37%)	643 (31%)	448 (21%)
OUT	no data	no data	no data	no data
N.A.	708 (34%)	713 (35%)	985 (47%)	1421 (68%)
N.O.	677 (33%)	586 (28%)	468 (22%)	211 (10%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	167 (30%)	188 (35%)	165 (32%)	71 (12%)
OUT	no data	no data	no data	no data
N.A.	229 (41%)	179 (34%)	208 (40%)	440 (77%)
N.O.	157 (28%)	166 (31%)	147 (28%)	29 (5%)

25. Toxic substances properly identified, stored and used - no real improvement

1. IN when bulk and working containers of cleaning agents and sanitizers are labeled; sanitizing solutions are not exceeding the maximum concentrations; personal care items, first aid supplies, medicines, and chemicals are stored separate from and not above food, equipment, utensils, linens, and single-service and single-use articles
2. N.A. if establishment does not hold poisonous or toxic materials for retail sale.
3. Cannot be marked N.O.
4. High percentage of inspections "OUT" of compliance

26. Toxic Substances Properly Identified, Stored and Used.

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	3999 (68%)	3975 (65%)	3920 (65%)	3385 (68%)
OUT	1843 (31%)	2057 (34%)	2061 (34%)	1530 (31%)
N.A.	6 (0%)	2 (0%)	16 (0%)	12 (0%)
N.O.	7 (0%)	20 (0%)	5 (0%)	5 (0%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	808 (57%)	761 (56%)	717 (53%)	584 (56%)
OUT	594 (42%)	594 (44%)	625 (46%)	465 (44%)
N.A.	2 (0%)	no data	2 (0%)	1 (0%)
N.O.	1 (0%)	3 (0%)	no data	0 (0%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	1792 (87%)	1741 (84%)	1786 (85%)	1803 (87%)
OUT	256 (12%)	313 (15%)	313 (15%)	275 (13%)
N.A.	8 (0%)	6 (0%)	no data	4 (0%)
N.O.	1 (0%)	no data	no data	no data

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	498 (89%)	479 (90%)	483 (93%)	508 (89%)
OUT	57 (10%)	51 (10%)	37 (7%)	34 (6%)
N.A.	3 (1%)	1 (0%)	no data	no data
N.O.	no data	no data	1 (0%)	no data

26. Compliance with variance, specialized process and HACCP plan

1. Except for fish, HACCP plan is not required when a TCS food is packaged using a reduced oxygen packaging method and is labeled with production time and date, held at required cold holding temp and removed from ROP (reduced oxygen packaging) packaging within 48 hours after packaging at the food establishment
2. OUT if specialized food processes that are not approved by the regulatory authority are performed or not conducted in accordance with the approved variance or a HACCP plan was not submitted to the regulatory authority prior to engaging in a ROP operation without a variance.
3. N.A. if not required by the regulatory authority to have a variance or HACCP plan, juice is not packaged or reduced oxygen packaging is not done on the premises.
4. Cannot be marked N.O.

27. Compliance with Variance, Specialized Process and HACCP plan.

Restaurants	2016	2017	2018	2019
Inspected	5881	6071	6020	4949
IN	260 (4%)	257 (4%)	195 (3%)	140 (3%)
OUT	23 (0%)	38 (1%)	52 (1%)	41 (1%)
N.A.	5782 (90%)	5650 (93%)	5679 (94%)	4729 (96%)
N.O.	267 (5%)	100 (2%)	71 (1%)	13 (0%)

Retail Food Stores	2016	2017	2018	2019
Inspected	1409	1360	1348	1051
IN	41 (3%)	31 (2%)	34 (3%)	35 (3%)
OUT	13 (1%)	8 (1%)	10 (1%)	10 (1%)
N.A.	1298 (92%)	1296 (95%)	1287 (95%)	1002 (95%)
N.O.	52 (4%)	21 (2%)	14 (1%)	1 (0%)

Schools	2016	2017	2018	2019
Inspected	2062	2064	2099	2084
IN	532 (26%)	777 (38%)	941 (45%)	1029 (49%)
OUT	3 (0%)	3 (0%)	2 (0%)	10 (0%)
N.A.	1313 (64%)	1250 (61%)	1084 (52%)	1020 (49%)
N.O.	209 (10%)	28 (1%)	63 (3%)	20 (1%)

Satellite Schools	2016	2017	2018	2019
Inspected	559	533	522	570
IN	142 (25%)	225 (42%)	269 (52%)	255 (45%)
OUT	no data	1 (0%)	2 (0%)	1 (0%)
N.A.	350 (63%)	302 (57%)	243 (47%)	279 (49%)
N.O.	61 (11%)	5 (1%)	8 (2%)	6 (1%)

Appendix 3: Standard 9 Report

The Centers for Disease Control and Prevention (CDC) estimate that foodborne illnesses affect 48 million people in the United States annually. These illnesses result in approximately 128,000 hospitalizations, 3,000 deaths, and an economic burden of more than \$15.5 billion dollars—each year. ¹ Most of these diseases are caused by pathogenic bacteria, viruses and parasites, but chemicals and toxins can also cause illness. ²

Fortunately, foodborne illnesses are largely preventable, but in order to know how to prevent them, we need to understand where they originate. As this CDC “The Food Production Chain” infographic shows, there are many sources where food can become contaminated and cause a foodborne illness outbreak, but according to the CDC’s 2017 Surveillance Report, the single food preparation setting that had over 64% of that year’s outbreaks were restaurants with the majority of that percentage being sit-down dining establishments.³

Now, did the restaurant receive contaminated food, or did the food become contaminated because of risky food handler practices? Both are likely possibilities, but CDC surveillance has identified five common practices in food preparation settings that most contribute to foodborne illness. These five areas are: ⁴

6. Poor personal hygiene
7. Improper hot/cold holding temperatures
8. Improper cooking temperatures
9. Food from unsafe sources
10. Contaminated equipment/protection from contamination

To assemble Kansas’s Risk Factor Study to determine the state’s status of managing the above five areas in food preparation settings, the Kansas Department of Agriculture compiled and analyzed twenty-seven data points from their inspection reports that best connect to the above food safety risk factors. The inspections are from restaurants, retail food stores, schools and satellite schools. The intent of this analysis was to analyze previously instated intervention



How Food Gets Contaminated—The Food Production Chain (CDC 2017)

strategies in those settings to assess their effectiveness while also detecting continued and/or additional food safety concerns that would inform potential intervention strategies.

The twenty-seven inspection data points analyzed are:

1. Certification by Accredited Program
2. Management Awareness; Policy Present
3. Proper Use of Reporting, Restriction & Exclusion
4. Proper Eating, Tasting, Drinking or Tobacco Use
5. No Discharge from Eyes, Nose, Mouth
6. Hands Clean and Properly Washed
7. No Bare Hand Contact with RTE Foods, etc.
8. Adequate Hand Washing Facilities Supplied and Accessible
9. Food Obtained from Approved Sources
10. Food Received at Proper Temperatures
11. Food in Good Condition, Safe and Unadulterated
12. Required Records Available: Shellstock Tags, Parasite Destructors
13. Food Separated and Protected
14. Food Contact Surfaces Cleaned and Sanitized
15. Proper Disposition of Returned, Previously Served, Reconditioned and Unsafe Food
16. Proper Cooking Time and Temperature
17. Proper Heating for Hot Holding Procedures
18. Proper Cooking Time and Temperatures
19. Proper Hot Holding Temperatures
20. Proper Cold Holding Temperatures
21. Proper Date Marking and Disposition
22. Time as a Public Health Control—Procedures and Record
23. Consumer Advisory Provided for Raw or Undercooked Foods
24. Pasteurized Foods Used; Prohibited Foods Not Offered
25. Food Additives—Approved and Properly Used
26. Toxic Substances Properly Identified, Stored and Used
27. Compliance with Variance, Specialized Process and HACCP plan

Methodology

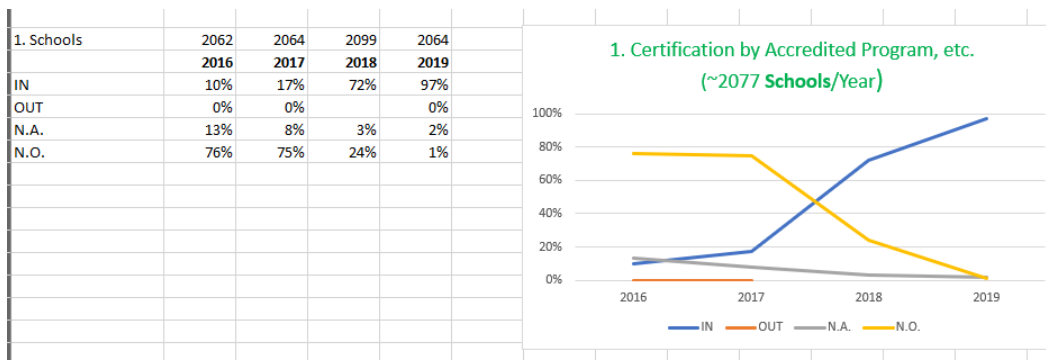
Data from 2016-2019 inspection reports on the following facilities were collected, organized and analyzed:

Facility Category	Number Inspected
Restaurants	Approximately 5730/year
Retail Food Stores	Approximately 1292/year
Schools	Approximately 2077/year
Satellite Schools	Approximately 546/year

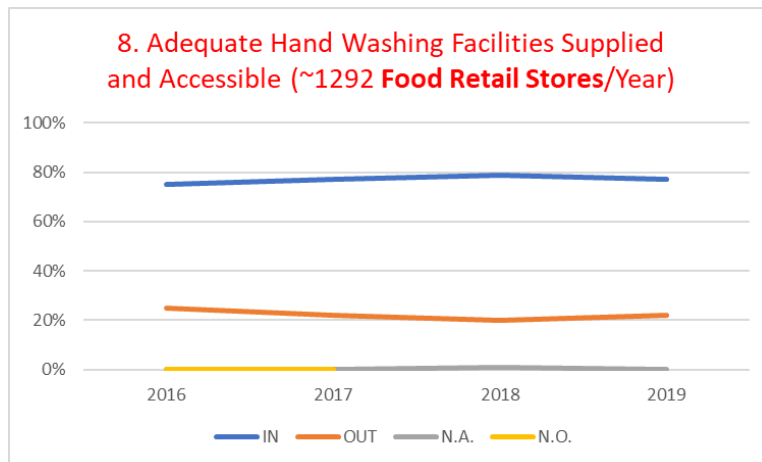
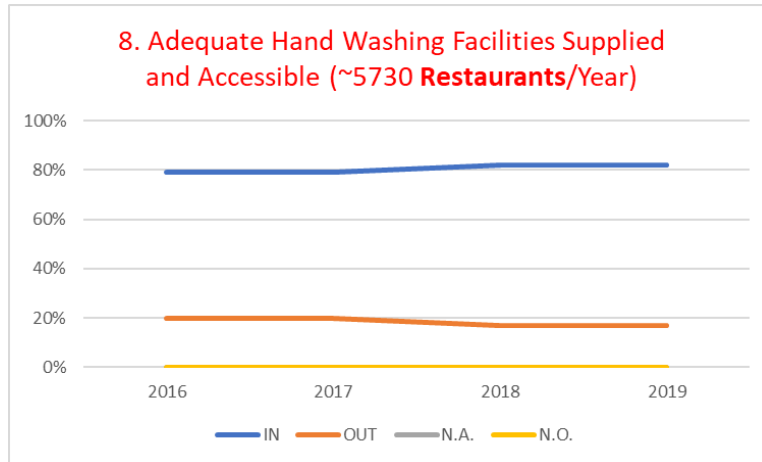
Data during inspections was collected as:

Data Point	Data Point Description
IN	Data point observed to be “in compliance” with Food Code provisions
OUT	Data point observed to be “out of compliance” with Food Code provisions
N.A.	Data point not applicable in the inspected setting (i.e. raw animal products are not served)
N.O.	Data point is applicable in the inspected setting but was not observed during the inspection

The annual sum of each data point per setting was compared against the other observed years and graphed to visual represent the inspection data as a whole and hopefully highlight any trends or areas of food safety concern. For example, the graph below plotting the compliance data for “Certification by Accredited Program, Compliance with Code, or Correct Responses; Duties” (Data Point 1 of 27) in school settings shows an improvement over the observed years as this data point has moved towards being “IN” as opposed to being “N.O.” which is no longer allowed per Food Code mandates.



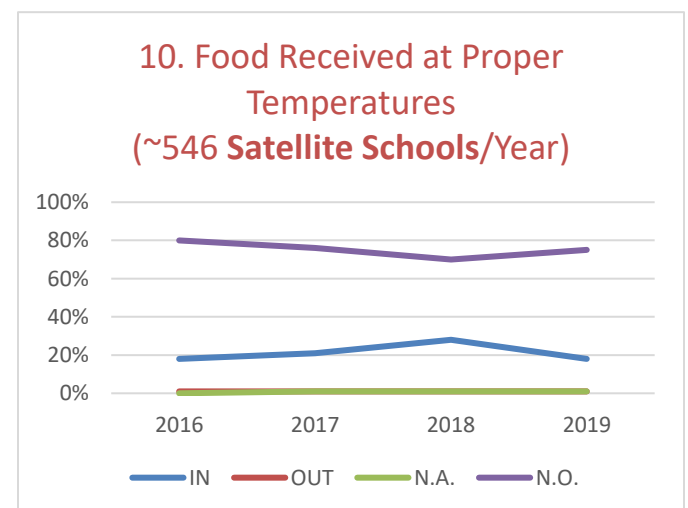
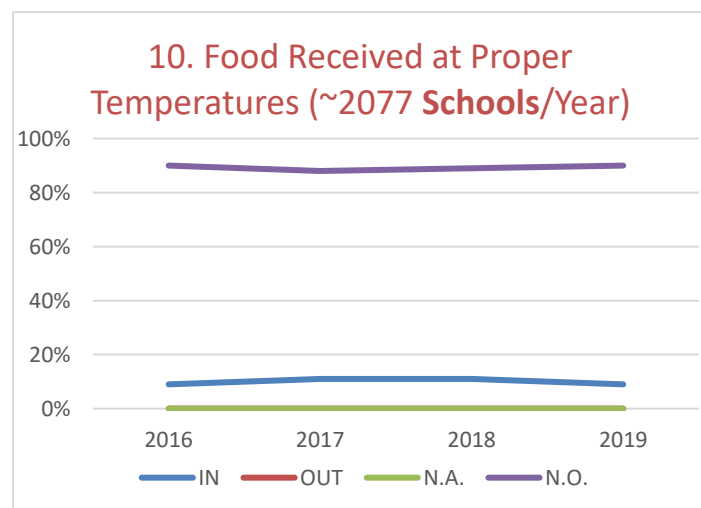
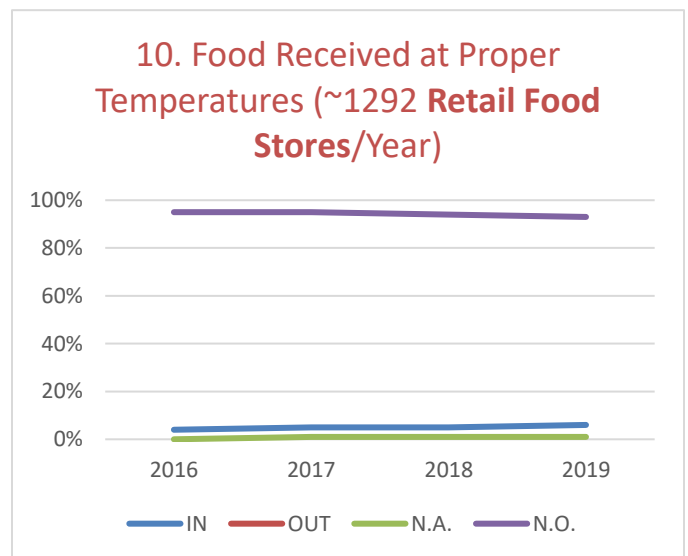
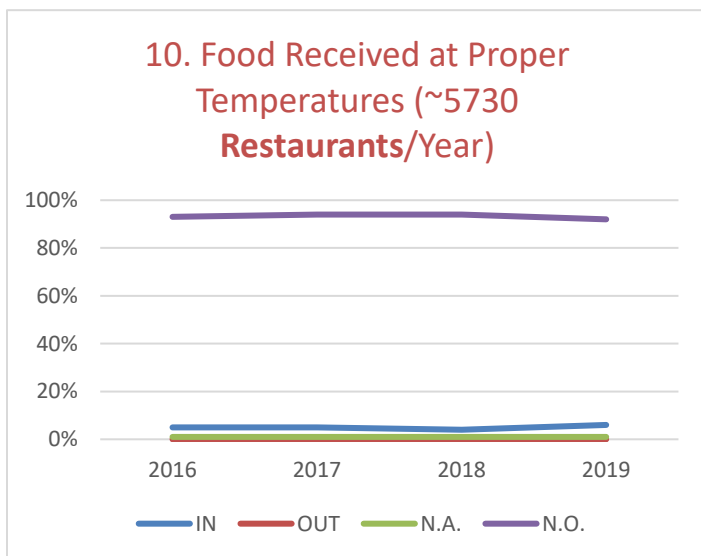
Findings

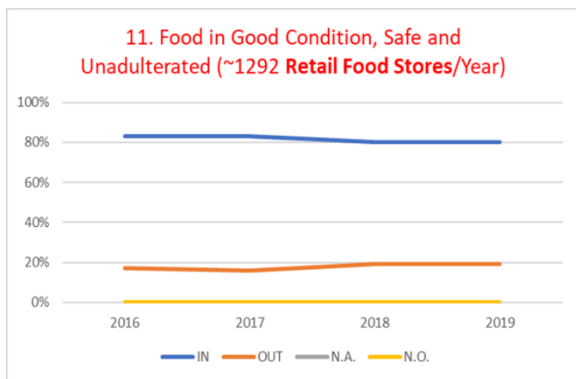


The first observed concern from this study was Data Point 8’s “Adequate Hand Washing Facilities Being Supplied and Accessible”. Interestingly, it was not necessarily poor hand washing; national studies show only one in three foods workers actually washes their hands when necessary.⁵ In fact, Kansas’s observed handwashing data point received good marks, but there is a problem in both restaurants and food retail stores with having access to washing hands properly. And this appears to be a consistent problem over the observed years. This data point could be marked OUT for the following reasons:

- hand washing sinks used for other purposes like washing or soaking utensils
- hand washing sinks are blocked or not easily accessible
- hand washing supplies (soap, paper towels) not adequately stocked at hand washing sinks

The next area of concern was Data Point 10's "Food Received at Proper Temperatures". While the data does not show this variance alarmingly out of compliance, this data point, however, is consistently marked "N.O." in all the inspected food settings. This is a concern because receiving safe food is the first step in ensuring the food served by the food preparation establishment is safe. It is understandable that inspections and receiving times do not always coincide, but the data does show that this process is hardly ever observed which makes this practice difficult to enforce.

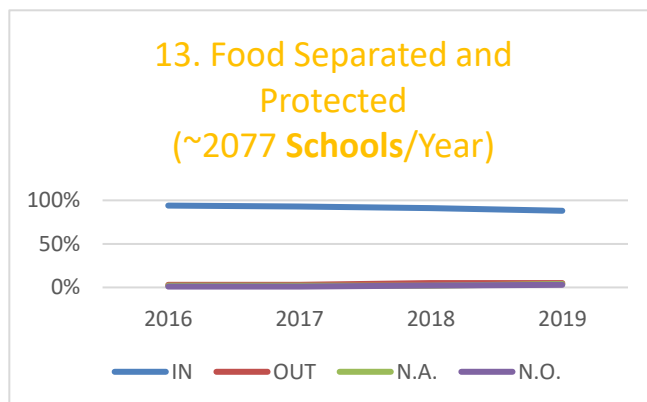
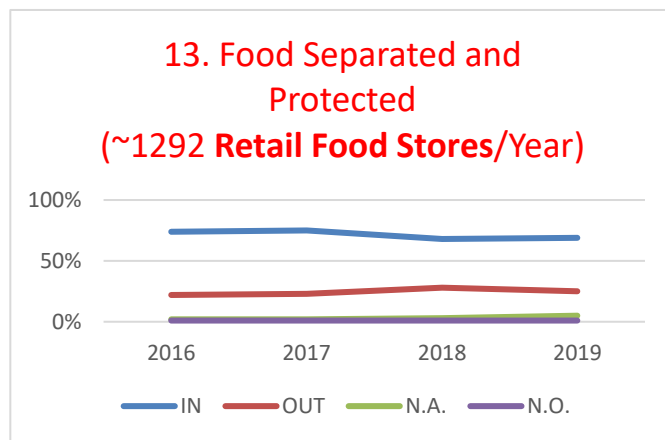
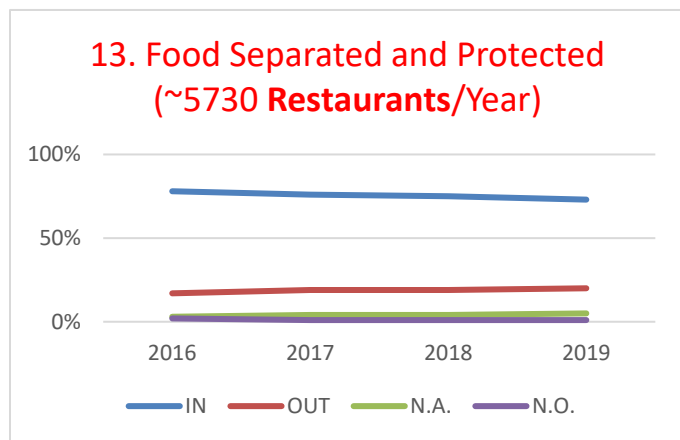




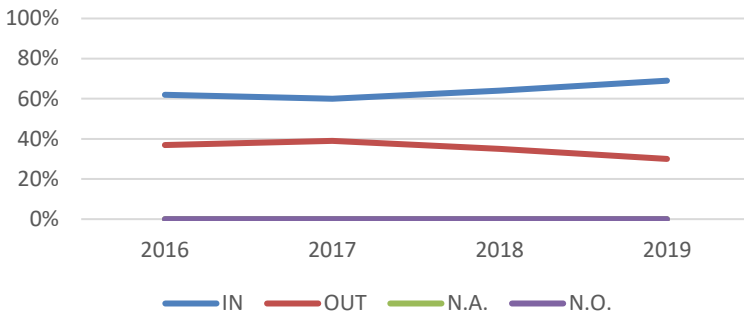
Data Point 11’s “Food in Good Condition, Safe and Unadulterated” was the next area of concern but only for the retail food store settings. Over the years, it appears the IN compliance is slightly trending downward while the OUT compliance is trending up. According to the Food Code, this could indicate that food packages in these settings have been compromised or the true appearance,

color or quality of food items have been intentionally altered.

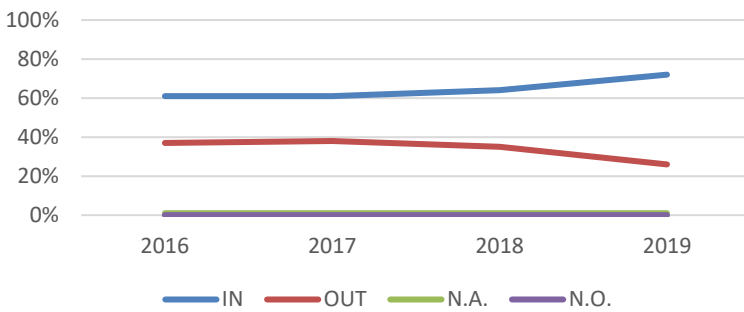
Concerns were noted and red-flagged on Data Point 13’s “Food Separated and Protected” for both restaurants and retail food store settings, and schools received a warning orange-flag. This data point indicates that ready-to-eat (RTE) foods may not be protected from cross contamination with raw animal products. As the data shows, the IN compliance numbers barely topped 80% and have been steadily trending downward in restaurants and retail food stores. Schools, which had nearly 100% compliance a few years ago, are also showing a downward drift. Failure to comply with this variance increases the opportunity for foodborne illness outbreaks linked to: *Salmonella*, *E. coli*, other pathogenic bacteria.



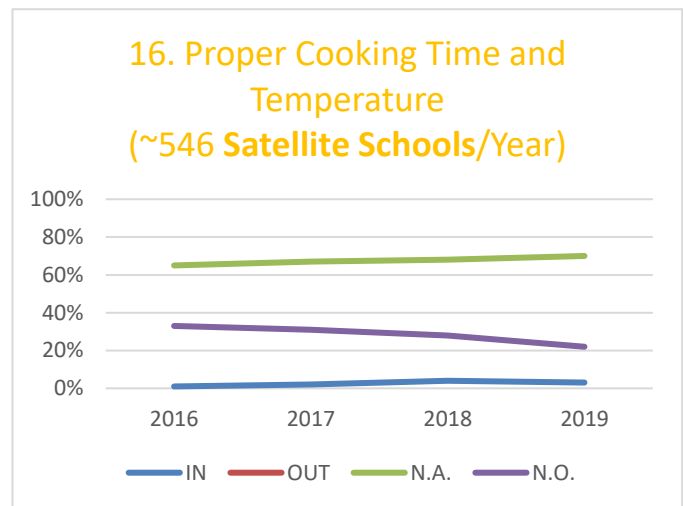
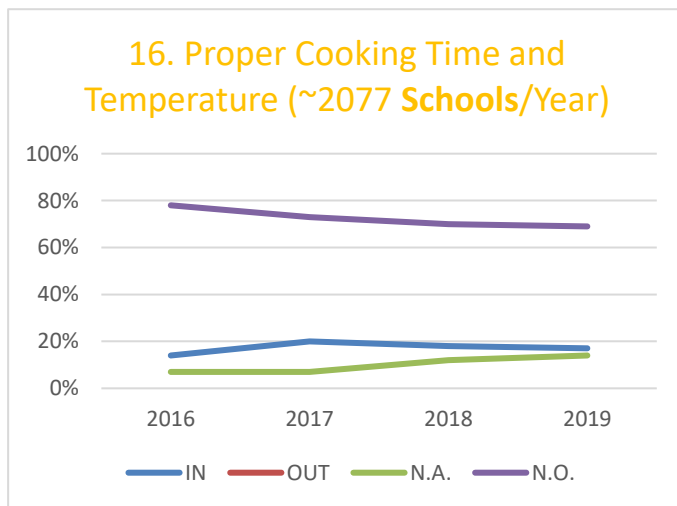
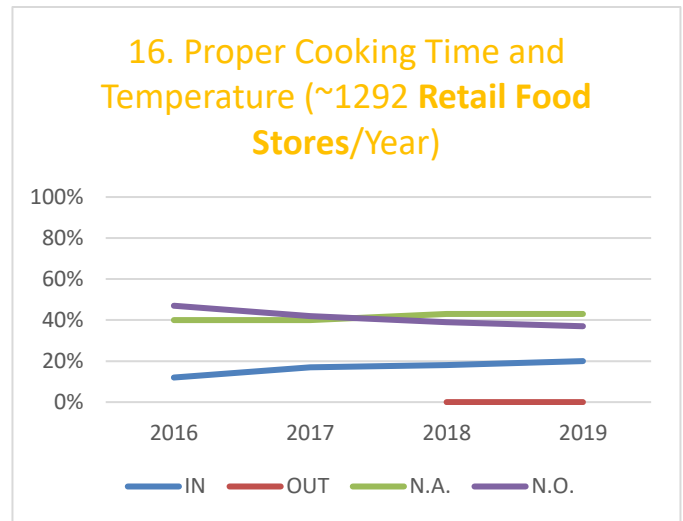
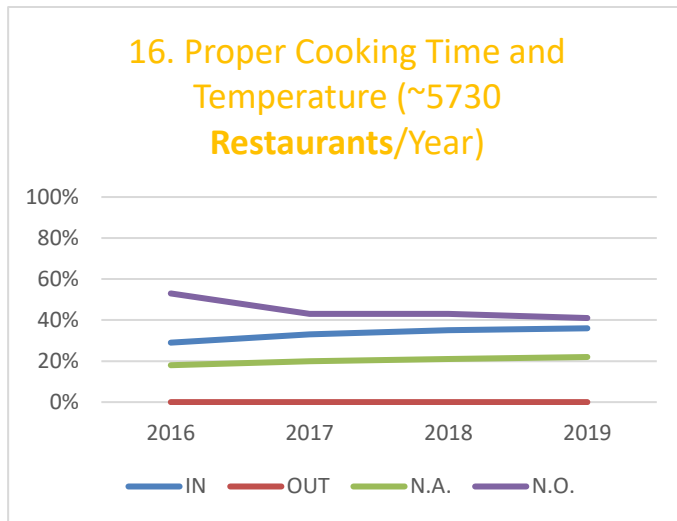
14. Food Contact Surfaces Cleaned and Sanitized (~5730 Restaurants/Year)



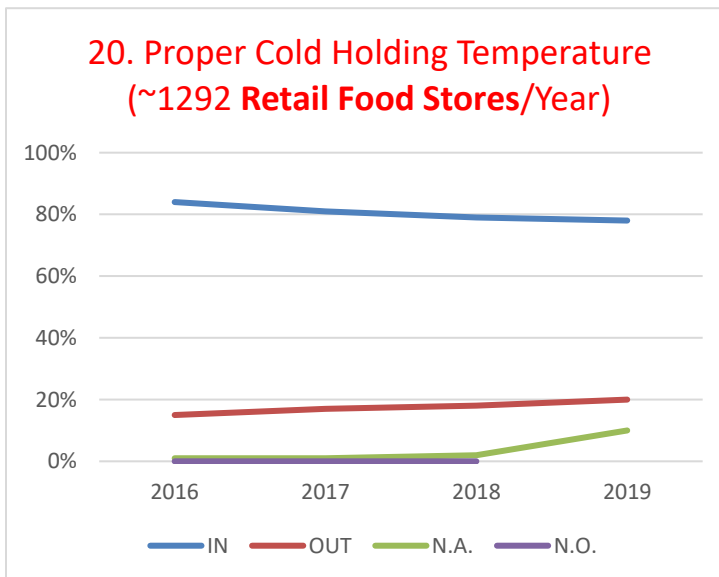
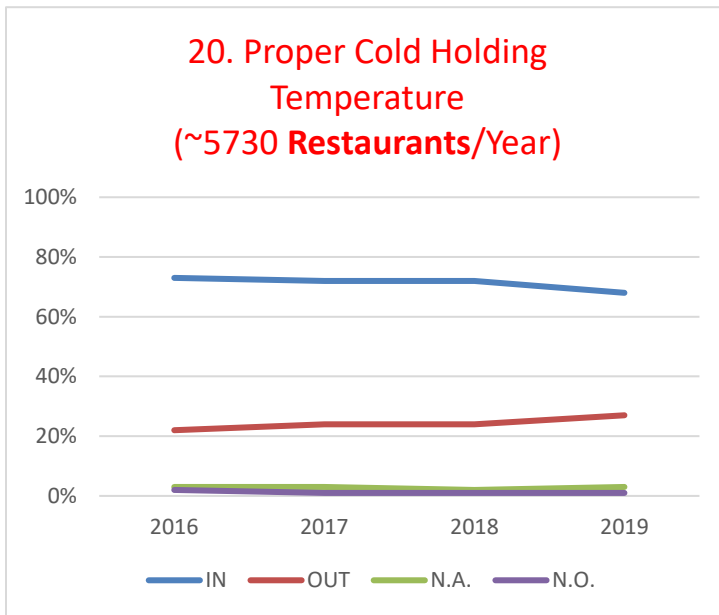
14. Food Contact Surfaces Cleaned and Sanitized (~1292 Retail Food Stores/Year)



While recent years show an observed improvement for Data Point 14's "Food Contact Surfaces Cleaned and Sanitized" in both restaurant and retail food store settings, about a third of inspected facilities still report this data point as OUT. Cleaning is not the same as sanitizing, but both practices are vital for killing germs and maintaining a food safe environment. Doing one without the other or instead of the other or doing either improperly can create dangerous situations for



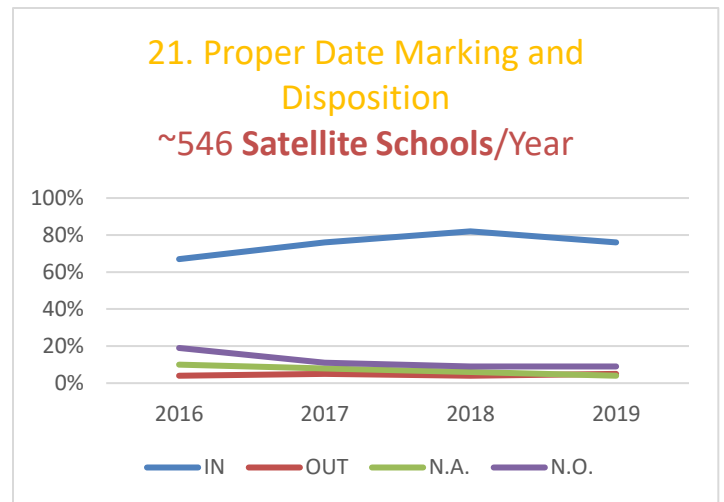
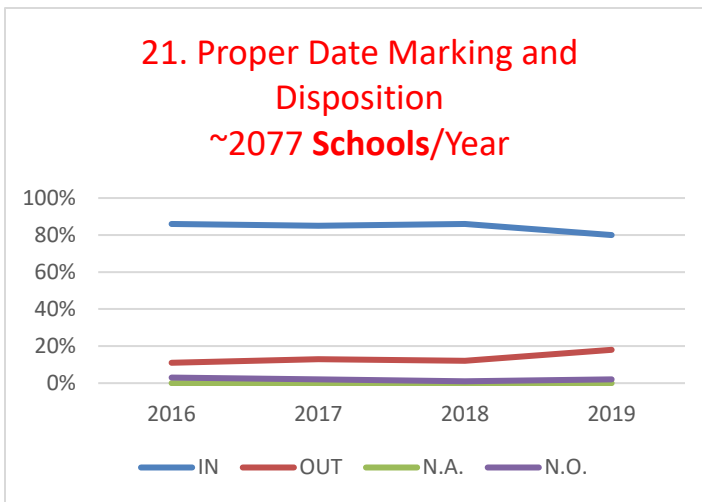
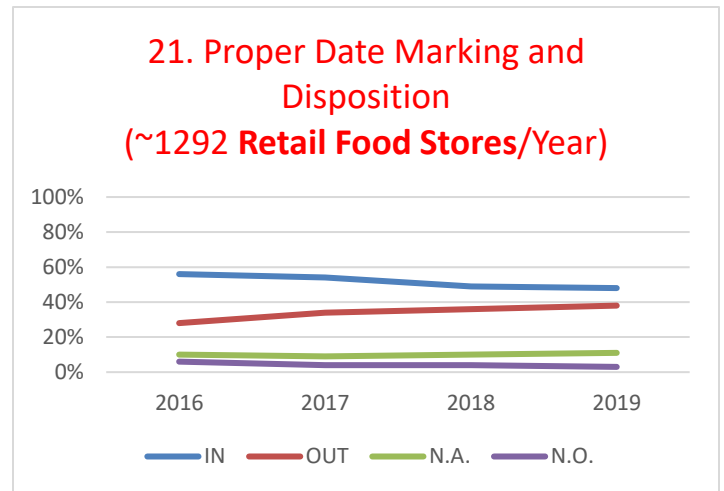
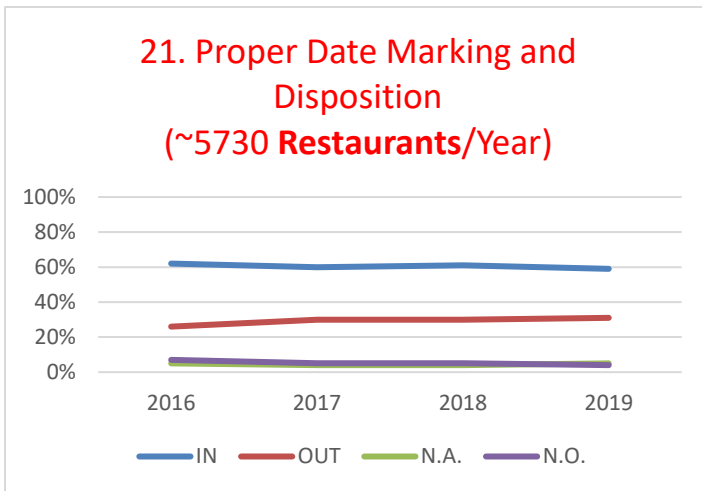
Data Point 16's "Proper Cooking Time and Temperature" received an orange warning flag in all food preparation settings due to the large number of N.O. data points. According to the Food Code, N.O. should only be marked when the inspector is unable to determine the cooking temperature of any food. This would imply that no cooking was happening during the inspection period. However, most of these settings prepare food on-site, so it seems odd that many of them would not be cooking anything worthy of a temperature check during inspector visits. This is especially important in environments that prepare animal-based foods which naturally contain pathogenic bacteria that cannot be seen, smelled or tasted. The only way to ensure the destruction of these harmful microbes is to verify that the product has reached a safe, minimum, internal temperature as read by a calibrated meat thermometer. ⁶



Inspection results show that Data Point 20's "Proper Cold Holding Temperatures" are getting worse in both restaurant and retail food store settings. This data point is marked "OUT" when a potentially hazardous food that must be time and/or temperature-controlled for safety is not being managed properly. These specific foods include dairy, meat, cut leafy greens, cut tomatoes and baked potatoes; they must be held at temperatures $\leq 41^{\circ}\text{F}$. Holding foods above this temperature increases the opportunity for harmful bacteria to grow, contaminate the food, and spread disease.⁷

There are many potential reasons why this data point would be marked "OUT" including:

- lack of employee training
- malfunctioning equipment
- cold-holding equipment adjacent to heat intensive equipment
- poor ventilation in hot kitchens.

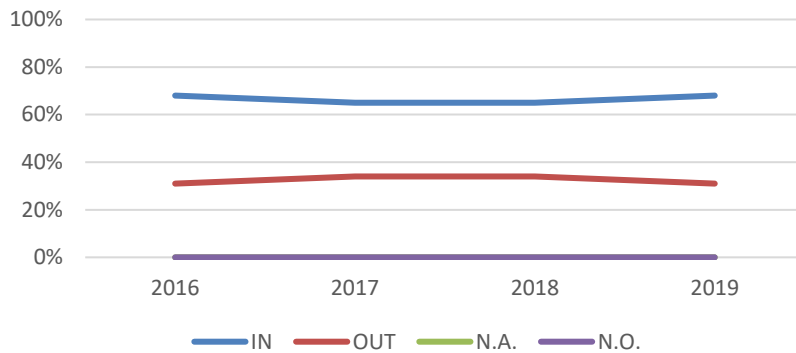


All inspected food settings show some concern with Data Point 21’s “Proper Date Marking and Disposition.” Developing, maintaining and enforcing a clear system for marking and managing potentially hazardous food that is being held for longer than twenty-four hours plays a large role in keeping food safe. Even when food is held at proper cold-holding temperatures of $\leq 41^{\circ}\text{F}$, bacteria will continue to grow but at a much slower pace. After several days, however, enough bacteria can accumulate to make products contaminated and unsafe to eat. Without an effective system in place, it’s hard to keep track of how long one has held leftover food.

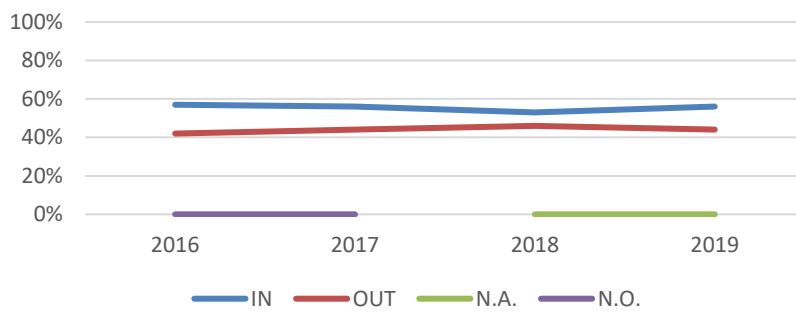
Unfortunately, inspection reports show a downward trend of compliance in this variance. Data demonstrates a third of all inspected restaurant and retail stores are OUT of compliance. Even school settings, which tend to do well with other inspection data points, seem to struggle with this practice in recent years. Reasons for this struggle could include:

- disorganized management

26. Toxic Substances Properly Identified, Stored and Used (~5730 Restaurants/Year)



26. Toxic Substances Properly Identified, Stored and Used (~1292 Retail Food Stores/Year)



The final observed concern this report will address is Data Point 26’s “Toxic Substances Properly Identified, Stored and Used”. This variance is marked “OUT” when toxic substances (i.e. cleaning agents and sanitizers) are properly labeled, contain the correct concentration, stored separately from all food and food-contact items, and are properly used. Consistently, restaurants and retail food stores have failed to comply with this mandate. Data illustrates this is especially an issue with retail settings which show almost 50% non-compliance in inspected stores.

Reasons for non-compliance with this data point include:

- labeling supplies not available or accessible
- staff does not speak/write in English or cannot read/write at all
- disorganized environment
- minimal or disorganized storage space
- misunderstanding instructions for correct concentration strength
- poor cleaning and sanitizing

2017 Intervention Strategies

Besides English, Spanish and Chinese are two of the most common languages spoken in Kansas.⁸ Language barriers make training and understanding food safety principles difficult. In an effort to increase food safety awareness and compliance amongst food preparation staff, the following intervention strategies were implemented in 2017:

- The Kansas Department of Agriculture’s “Focus on Food Safety” handbook was revised in 2017 and translated in both Spanish and Chinese.
- These handbooks were administered during inspection visits and at on-site “Focus on Food Safety” training presentations.

Were these interventions helpful? In assessing the data to see if changes were made after 2017, the following improvements were noted:

- Data Point 1: Certification by Accredited Program
 - Restaurants went from 7% to 97% compliance
 - Retail food stores went from 6% to 98% compliance
 - Schools went from 10% to 97% compliance
 - Satellite schools went from 13% to 94% compliance
 - Improvement detail: there was a shift from N.O. to IN; N.O. is not allowed by Food Code for this Data Point.
- Data Point 2: Management Awareness; Policy Present
 - Restaurants went from 79% to 99% compliance
 - Retail food stores went from 77% to 100% compliance
 - Schools went from 80% to 99% compliance
 - Satellite schools went from 80% to 95% compliance
 - Improvement detail: there was a shift from N.O. to IN; N.O. is not allowed by Food Code for this Data Point.
- Data Point 3: Proper Use of Reporting, Restriction and Exclusion
 - Restaurants went from 56% to 99% compliance
 - Retail food stores went from 50% to 96% compliance
 - Schools went from 55% to 96% compliance
 - Satellite schools went from 56% to 94% compliance
 - Improvement detail: there was a shift from N.O. to IN; N.O. is not allowed by Food Code for this Data Point.
- Data Point 15: Proper Disposition of Returned, Previously Served, Reconditioned and Unsafe Food
 - Restaurants went from 37% to 67% compliance
 - Retail food stores went from 44% to 70% compliance
 - Schools went from 37% to 68% compliance
 - Satellite schools went from 46% to 70% compliance

- Improvement detail: there was a shift in this Data Point from N.O. to IN; N.O. is not allowed by Food Code for this Data Point, but approximately 26% of inspections continue to be marked N.O.

The remaining 23 Data Points did not see significant improvements. Most of the points remained consistently IN or OUT of compliance in their inspection data over the years reviewed for this study. While some Data Points made moderate improvements, there were points that showed a decline in compliance. This implies additional intervention strategies might be appropriate to address these stagnant and worsening issues.

Proposed Intervention Strategies

The following Data Points will be our focus for proposed intervention strategies:

- Data Point 10: Food Received at Proper Temperature
 - This point was consistently marked N.O. in all four settings inspected
- Data Point 16: Proper Cooking Time and Temperatures
 - This point was consistently marked N.O. in all four settings
- Data Point 20: Proper Cold Holding Temperatures
 - Inspectors observed a gradual decline in compliance for restaurant and retail food store settings
- Data Point 21: Proper Date Marking and Disposition
 - Inspectors observed a gradual decline in compliance for restaurant retail food store, and school settings

References

1. Hoffman S. (2015) Quantifying the Impacts of Foodborne Illnesses. Economic Research Service, U.S. Department of Agriculture: <https://www.ers.usda.gov/amber-waves/2015/september/quantifying-the-impacts-of-foodborne-illnesses/>. [Accessed 10-15-2020]
 2. Centers for Disease Control and Prevention (2020) Foodborne Germs and Illnesses: <https://www.cdc.gov/foodsafety/foodborne-germs.html>. [Accessed 10-15-2020]
 3. Centers for Disease Control and Prevention (2019) Food Disease Outbreak Surveillance System: <https://www.cdc.gov/fdoss/annual-reports/2017-report-highlights.html>. [Accessed 10-17-2020]
 4. U.S. Food and Drug Association (2018) FDA Report on the Occurrence of Foodborne Illness Risk Factors in Fast Food and Full-Service Restaurants, 2013-2014: <https://www.fda.gov/media/117509/download>. [Accessed 10-17-2020]
 5. Centers for Disease Control and Prevent (2020) Food Worker Hand Washing in Restaurants: https://www.cdc.gov/nceh/ehs/ehsnet/plain_language/food-worker-handwashing-in-restaurants.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fnceh%2Fehs%2Fehsnet%2Fplain_language%2Ffood-worker-handwashing-food-preparation.htm. [Accessed 10-19-2020]
 6. United States Department of Agriculture Food Safety Inspection Service (2020) Safe Minimum Internal Temperature Chart: https://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/safe-food-handling/safe-minimum-internal-temperature-chart/ct_index. [Accessed 10-19-2020]
 7. Kansas Restaurant and Hospitality Association (2015) Food Safety Tip—Cold Holding: <https://www.krha.org/news/263003/Food-Safety-Tip---Cold-Holding.htm>. [Accessed 10-20-2020]
 8. <https://datausa.io/profile/geo/kansas#demographics>
- Illustration:
1. Centers for Disease Control and Prevention (2017) How Food Gets Contaminated—The Food Production Chain: <https://www.cdc.gov/foodsafety/production-chain.html>. [Accessed 10-20-2020]

Appendix 4: Standard 9 PowerPoint Presentation

A PowerPoint slide with a blue header and a grey sidebar. The title 'KDA Inspection Review' is in white text on the blue background. Below the title, it says 'Presented by: Crystal Futrell' and 'K-State MPH candidate' in white text. The grey sidebar is empty.

KDA Inspection Review

Presented by: Crystal Futrell
K-State MPH candidate

A PowerPoint slide with a blue header and a grey sidebar. The title 'Standard 9' is in white text on the blue background. Below the title, there is a bulleted list of foodborne illness risk factors. The grey sidebar is empty.

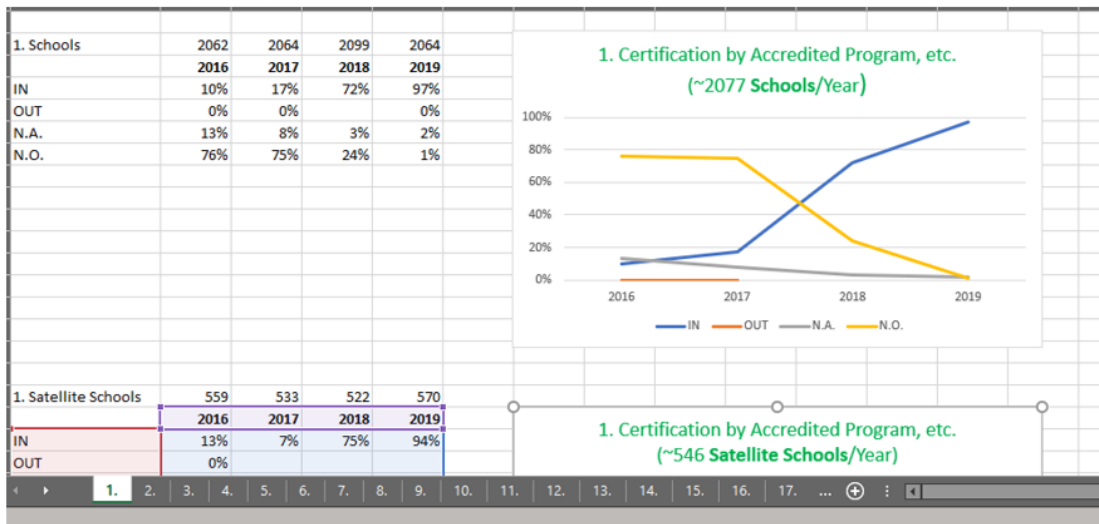
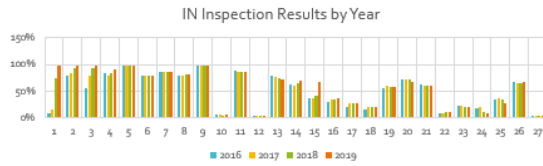
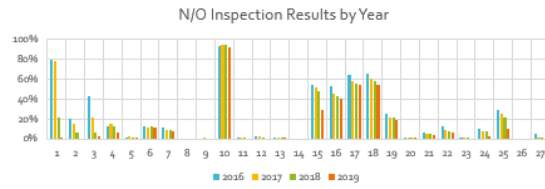
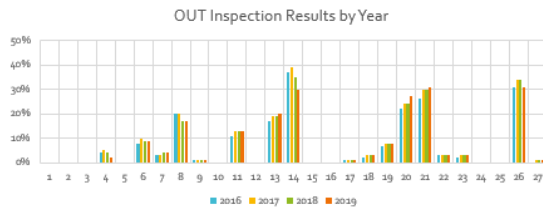
Standard 9

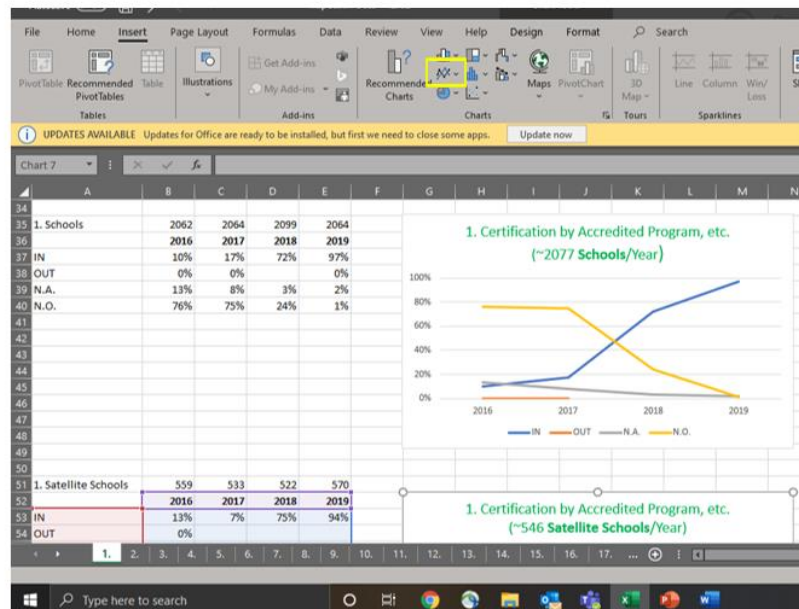
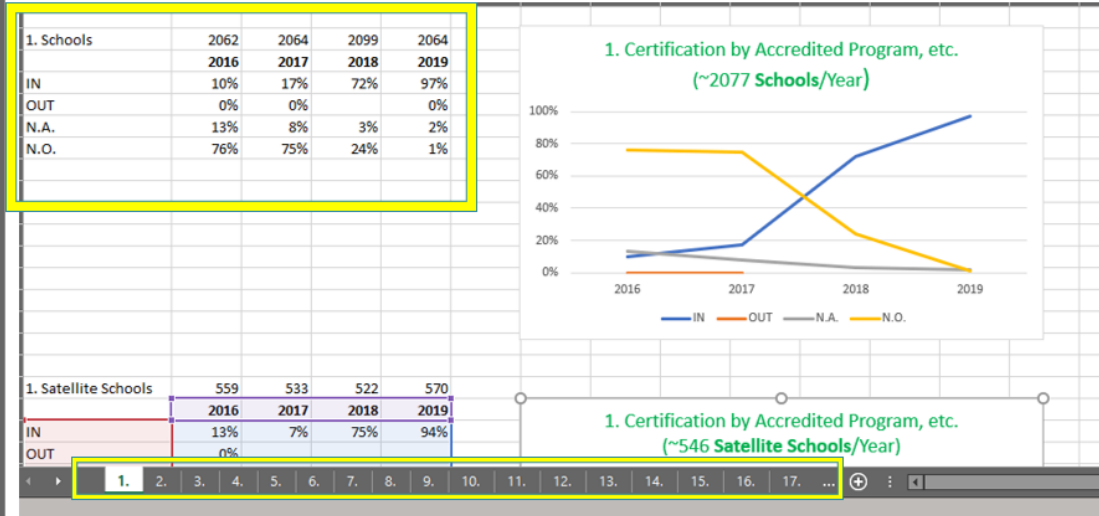
- Measure the success in reducing the occurrence of foodborne illness risk factors
- Measure trends of the top 5 foodborne illness risk factors
 - Poor personal hygiene (leading cause of foodborne illness)
 - Improper holding temperatures
 - Improper cooking temperatures
 - Food from unsafe sources
 - Contaminated equipment/cross-contamination

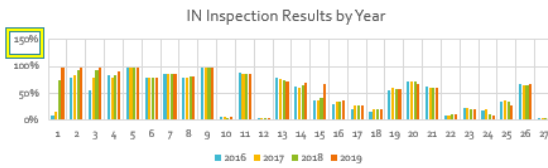
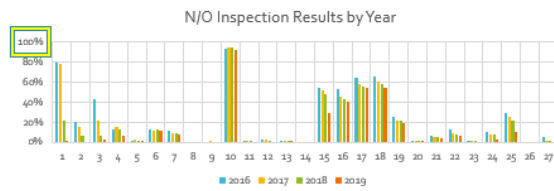
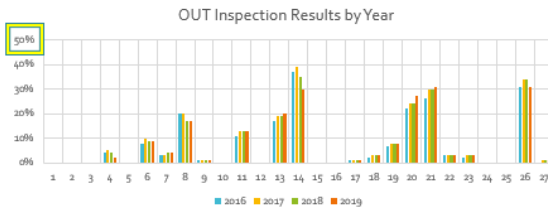
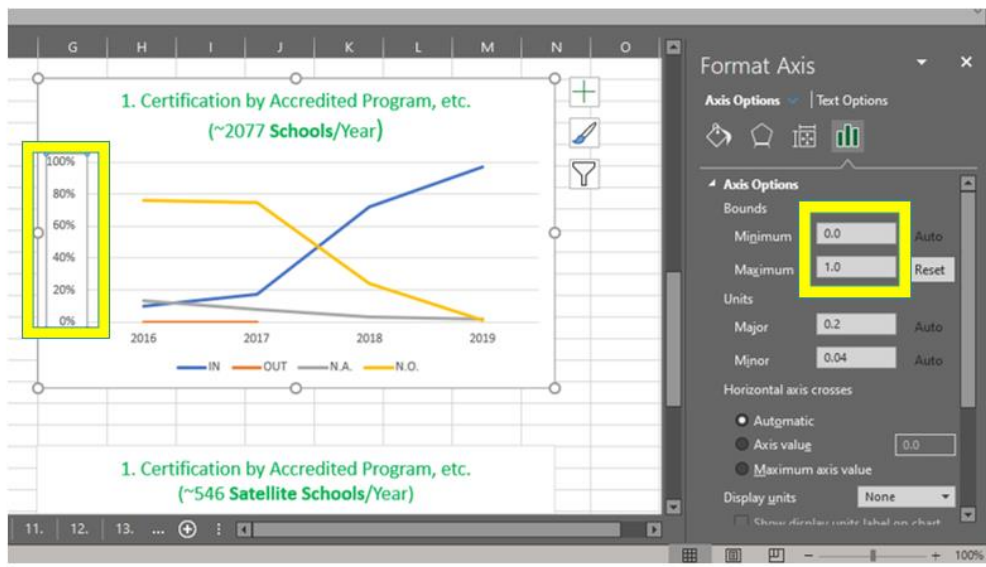
1. Certification by Accredited Program: Restaurants/Retail/School/Satellite
2. Management Awareness, Policy Present: Restaurants/Retail/School/Satellite
3. Proper Use of Reporting, Restriction & Exclusion: Restaurants/Retail/School/Satellite
4. Proper Eating, Tasting, Drinking or Tobacco Use: Restaurants/Retail/School/Satellite
5. No Discharge From Eyes, Nose, Mouth: Restaurants/Retail/School/Satellite
6. Hands Clean and Properly Washed
7. No Bare Hand Contact with RTE Foods, etc.: Restaurants/Retail/School/Satellite
8. Adequate Hand Washing Facilities Supplied and Accessible: Restaurants/Retail/School/Satellite
9. Food Obtained from Approved Sources: Restaurants/Retail/School/Satellite
10. Food Received at Proper Temperatures: Restaurants/Retail/School/Satellite
11. Food in Good Condition, Safe and Unadulterated: Restaurants/Retail/School/Satellite
12. Required Records Available: Shellstock Tags, Parasite Destructors: Restaurants/Retail/School/Satellite
13. Food Separated and Protected: Restaurants/Retail/School/Satellite
14. Food Contact Surfaces Cleaned and Sanitized: Restaurants/Retail/School/Satellite
15. Proper Disposition of Ret'd, Prvsly Served, Recond'ed and Unsafe Food: Restaurants/Retail/School/Satellite
16. Proper Cooking Time and Temperature: Restaurants/Retail/School/Satellite
17. Proper Heating for Hot Holding Procedures: Restaurants/Retail/School/Satellite
18. Proper Cooking Time and Temperatures: Restaurants/Retail/School/Satellite
19. Proper Hot Holding Temperatures: Restaurants/Retail/School/Satellite
20. Proper Cold Holding Temperatures: Restaurants/Retail/School/Satellite
21. Proper Date Marking and Disposition: Restaurants/Retail/School/Satellite
22. Time as a Public Health Control—Procedures and Record: Restaurants/Retail/School/Satellite
23. Consumer Advisory Provided for Raw or Undercooked Foods: Restaurants/Retail/School/Satellite
24. Pasteurized Foods Used; Prohibited Foods Not Offered: Restaurants/Retail/School/Satellite
25. Food Additives—Approved and Properly Used: Restaurants/Retail/School/Satellite
26. Toxic Substances Properly Identified, Stored and Used: Restaurants/Retail/School/Satellite
27. Compliance with Variance, Specialized Process and HACCP plan: Restaurants/Retail/School/Satellite

1. Certification by Accredited Program: Restaurants/Retail/School/Satellite
2. Management Awareness, Policy Present: Restaurants/Retail/School/Satellite
3. Proper Use of Reporting, Restriction & Exclusion: Restaurants/Retail/School/Satellite
4. Proper Eating, Tasting, Drinking or Tobacco Use: Restaurants/Retail/School/Satellite
5. No Discharge From Eyes, Nose, Mouth: Restaurants/Retail/School/Satellite
6. Hands Clean and Properly Washed
7. No Bare Hand Contact with RTE Foods, etc.: Restaurants/Retail/School/Satellite
8. Adequate Hand Washing Facilities Supplied and Accessible: Restaurants/Retail/School/Satellite
9. Food Obtained from Approved Sources: Restaurants/Retail/School/Satellite
10. Food Received at Proper Temperatures: Restaurants/Retail/School/Satellite
11. Food in Good Condition, Safe and Unadulterated: Restaurants/Retail/School/Satellite
12. Required Records Available: Shellstock Tags, Parasite Destructors: Restaurants/Retail/School/Satellite
13. Food Separated and Protected: Restaurants/Retail/School/Satellite
14. Food Contact Surfaces Cleaned and Sanitized: Restaurants/Retail/School/Satellite
15. Proper Disposition of Ret'd, Prvsly Served, Recond'ed and Unsafe Food: Restaurants/Retail/School/Satellite
16. Proper Cooking Time and Temperature: Restaurants/Retail/School/Satellite
17. Proper Heating for Hot Holding Procedures: Restaurants/Retail/School/Satellite
18. Proper Cooking Time and Temperatures: Restaurants/Retail/School/Satellite
19. Proper Hot Holding Temperatures: Restaurants/Retail/School/Satellite
20. Proper Cold Holding Temperatures: Restaurants/Retail/School/Satellite
21. Proper Date Marking and Disposition: Restaurants/Retail/School/Satellite
22. Time as a Public Health Control—Procedures and Record: Restaurants/Retail/School/Satellite
23. Consumer Advisory Provided for Raw or Undercooked Foods: Restaurants/Retail/School/Satellite
24. Pasteurized Foods Used; Prohibited Foods Not Offered: Restaurants/Retail/School/Satellite
25. Food Additives—Approved and Properly Used: Restaurants/Retail/School/Satellite
26. Toxic Substances Properly Identified, Stored and Used: Restaurants/Retail/School/Satellite
27. Compliance with Variance, Specialized Process and HACCP plan: Restaurants/Retail/School/Satellite

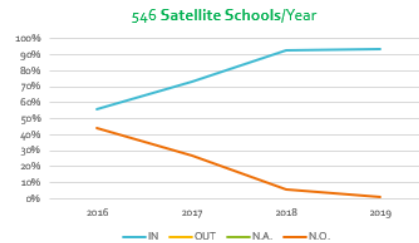
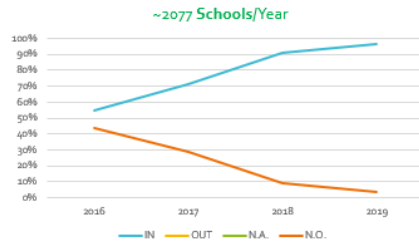
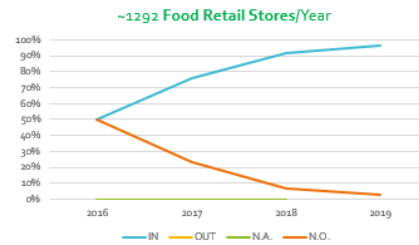
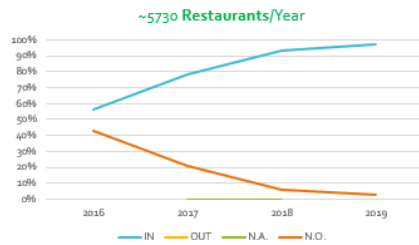
- Red = Needs Improvement
- Orange = Warning
- Green = Improvement





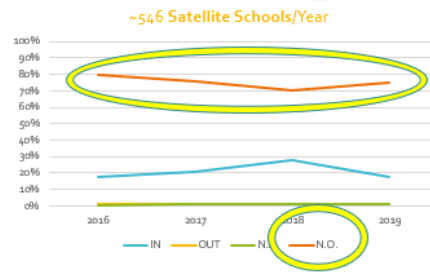
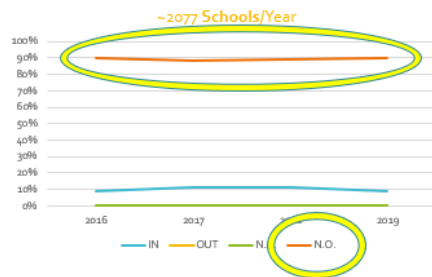
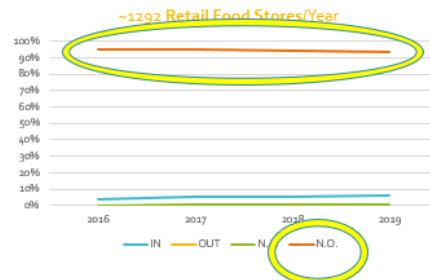
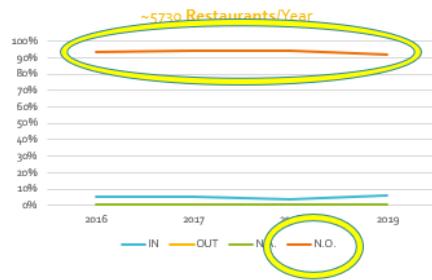


3. Proper Use of Reporting, Restriction & Exclusion



- Numbers have been consistently high
- Reasons for "OUT"
 - Handwashing sink used for other purposes (washing dishes, soaking utensils)
 - Handwashing sink is blocked, not easily accessible
 - Supplies not stocked (no soap, paper towels, etc.)
- Schools
 - Not an issue
 - What are they doing right? Why are they doing it right?

10. Food Received at Proper Temperatures



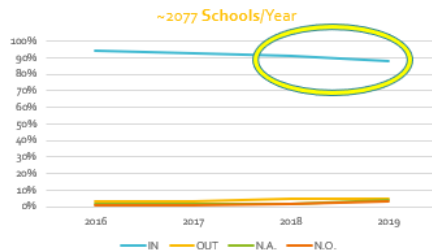
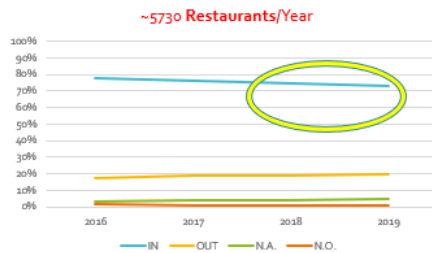
10. Food Received at Proper Temperatures

- Receiving safe food is first step is ensuring food is safe
- Understandable that inspections and receiving times don't always line up
- But...this activity consistently unobserved—over 90% each year for restaurants, retail and schools



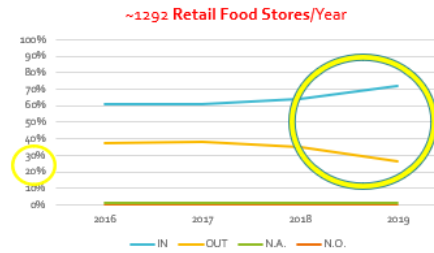
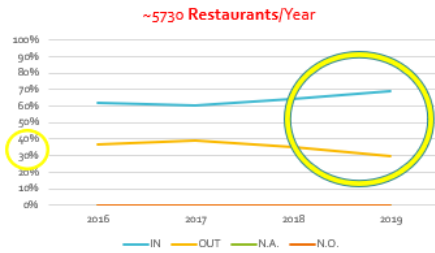


13. Food Separated and Protected



- OUT when RTE foods cross contaminate with raw animal products
- Puts consumers at risk for *Salmonella*, *E. coli*, other bacteria
- Intervention strategy: different color cutting boards and utensil for raw/RTE foods
- Intervention strategy: training in proper cleaning/sanitizing procedures

14. Food Contact Surfaces Cleaned & Sanitized



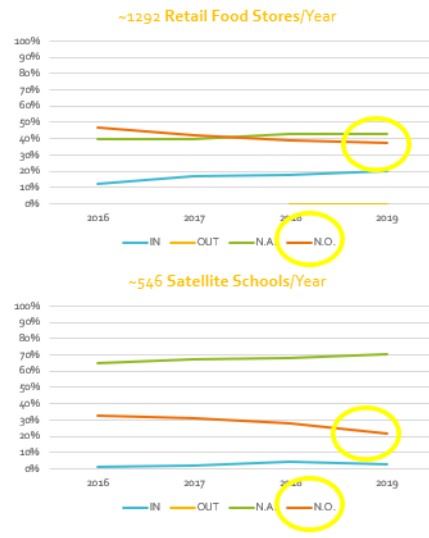
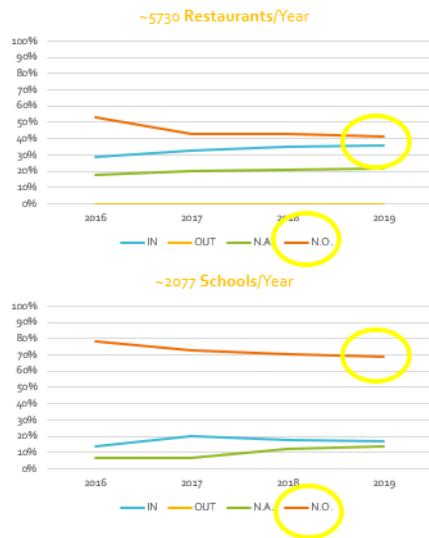
- Most people have trouble understanding the difference between cleaning and sanitizing
- Important to have clear, comprehensible, documented procedures, like SSOPs, developed, applied, and enforced by management
- Consumers' trust of dining establishments depend on regulated food safety inspections and enforcement. It informs their perceived risk and choice of where to eat
- Really important during COVID time
- Intervention Strategy: Create a public disclosure display

Subsection evaluation		
• compliance with food safety regulations	excellent	
• minor noncompliance not considered as food safety risk or misleading	good	
• noncompliance is impacting food safety or misleads consumers	to be corrected	
• noncompliance is jeopardizing food safety or considerably misleads consumers	poor	

- University of Helsinki April 2020 study on consumer perception of smiley face public disclosure display
- Researchers evaluated the Oiva System, which is produced and administered by the Finish Food Authority
- Smiley faces easier to understand than letter grades
- In the study, the 2 lowest grades led to a perceived food safety risk and increased their decisions to not eat at those restaurants



16. Proper Cooking Time and Temperature

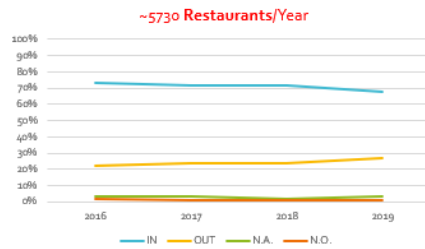


16. Proper Cooking Time and Temperature

- Most food establishments cook food, so seems odd that temperature readings weren't observable during inspection

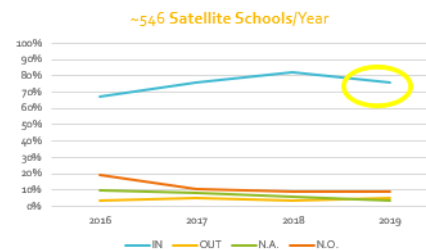
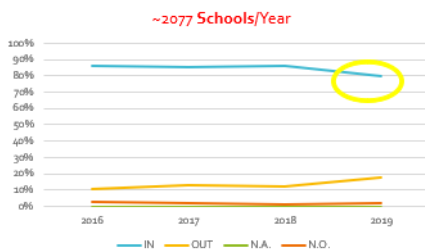
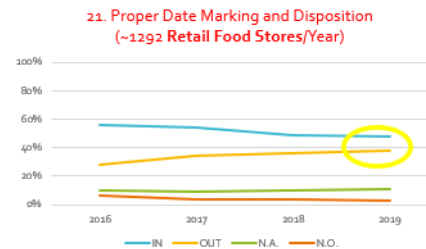
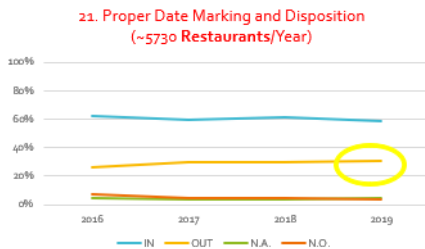


20. Proper Cold Holding Temperatures



- OUT numbers on the rise
- Reasons for "OUT"
 - Equipment issues?
 - Poor ventilation in too hot kitchens?
 - Behavioral issues?
- Schools
 - Not an issue
 - What are they doing right? Why are they doing it right?
- Possible Intervention Strategy: suggest Time as a Public Health Control, if appropriate

21. Proper Date Marking and Disposition

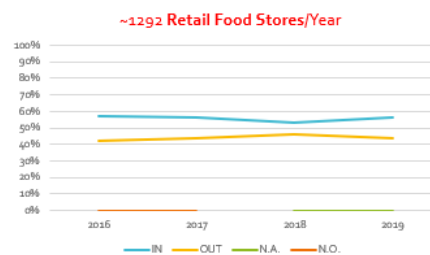
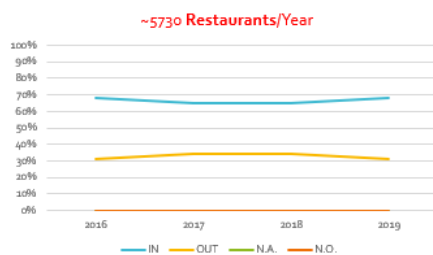


21. Proper Date Marking and Disposition

- Date Marking important to keep food from harboring critical level microbial growth
- Possible reasons for "OUT":
 - No system
 - Staff illiterate, don't speak/write in English
- Possible Intervention Strategies:
 - Part of SOPs
 - Utilize color system



26. Toxic Substances Properly Identified, Stored, and Used



- Numbers have been consistently high
- Reasons for "OUT"
 - Chemical containers not labeled
 - Chemical containers stored with food
 - Misunderstanding how to properly clean/sanitize
- Schools
 - Not an issue
 - What are they doing right?
- Intervention Strategy suggestions:
 - Part of SSOPs