Standard 8

DRAFT

Current Standard 8 Model

- **Purpose regarding staffing levels:**
  - Assesses the adequacy of a health department's staffing levels, by calculating if it has *an inspection to FTE ratio* within the specified FDA range.
   - ◦ The range is **280 – 320 inspections per inspector**

- **Problem 1:**
  - This range was created with the belief that every food inspection regardless of establishment type would take **4 hours**.

- **Problem 2:**
  - The very existence of a range creates the possibility that a jurisdiction can be **overstaffed**. An overstaffed health department (HD) can create an *inspection to FTE ratio* that goes below the bottom value of a range (thus making the HD fail to meet the standard). Standard 8 is evaluating if a HD has the "necessary" staff to perform the required number of inspections. If a HD has a unique need and the resources available to hire more staff than Standard 8 would require, it is not consistent with the intent of this standard to fail them.

The Logic behind the 4 hour inspection

150 establishments a year per inspector	✕	2 inspections a year	=	300 inspections
8 hours devoted to each establishment a year	✕	150 establishments a year	=	1200 inspection hours a year
1200 inspection hours a year	÷	300 inspection	=	4 hours an inspection
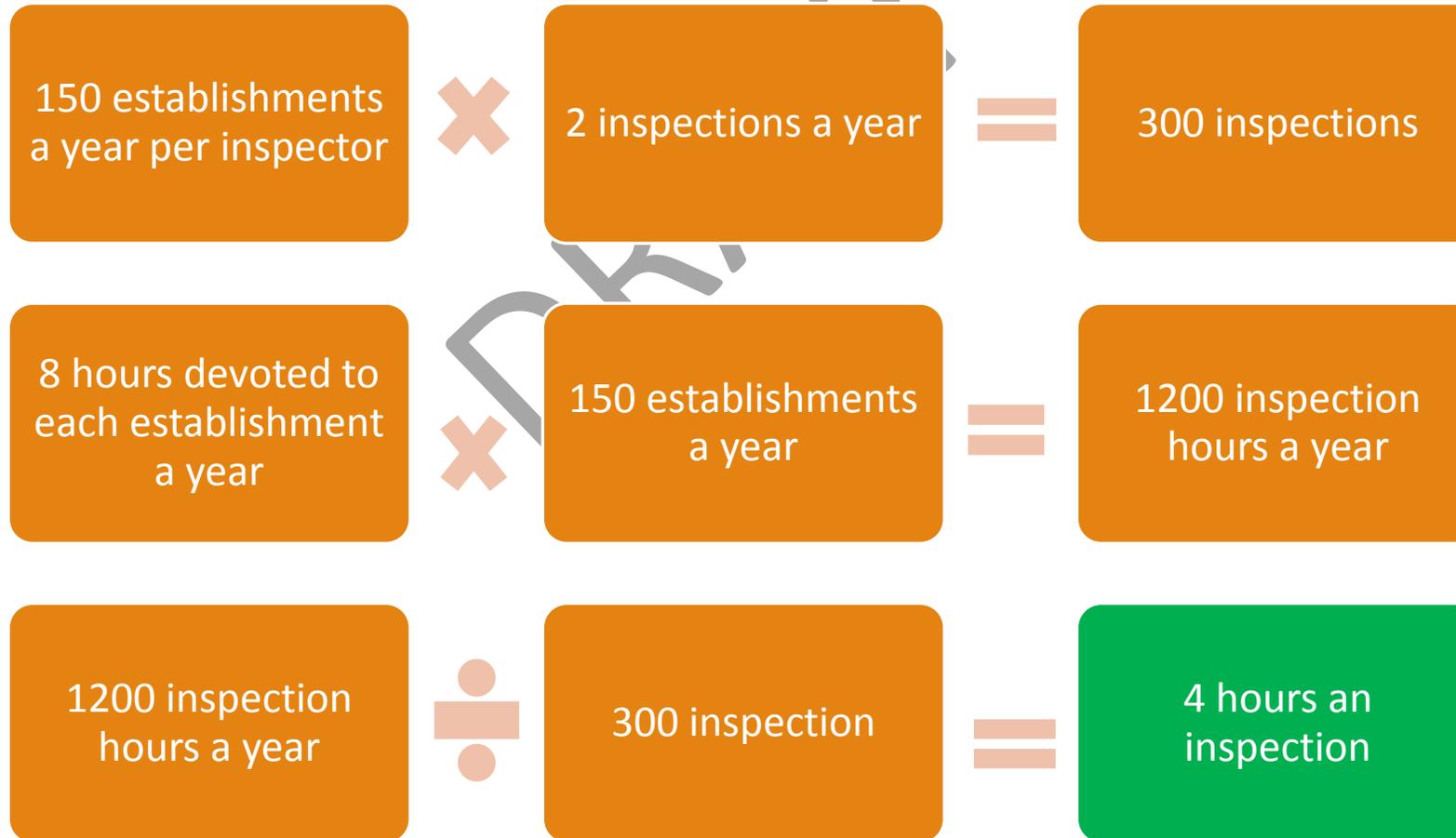
Potential problem with these figures

- **150 establishments a year per inspector** came from the 1961 International City Managers' Association the *Administration of Community Health Services* book sharing that "there is no widely accepted formula on which to base the number of staff persons" but that "some local agencies" use 150

- **2 inspections a year** came from the *1976 Food Service Sanitation Manual* that acknowledges the above 150 establishment number and adds without evidence that "a minimum of two inspections of each establishment per year is required"

- **8 hours devoted to each establishment** comes from the 1993 FDA Food code which suggests "8 to 10 hours be allocated per establishment year" also without evidence or clear reasoning

Conclusion: There appears to be no strong justification for any of these values based on real data and research making it problematic that they are the criteria from which the 4 hour inspection time is based

Our Solution

- **We are arguing that it is more accurate to assess a health department's staffing levels by:**

  1. categorizing their establishments into 3 risk categories: low, moderate, high

  2. use a standardized frequency each risk type should be inspected a year

  3. use a standardized inspection time required for each risk type
  4. calculate how many FTEs it *"should"* take to complete all of these inspections

  5. calculate how many FTEs the health department *"currently"* has

  6. If the health department currently has an equal or greater number of FTEs than our new standard would require they would be considered sufficiently staffed

Note: The inspection to FTE ratio and the range which sets the standard would no longer be needed and would be removed from the Standard 8 Staffing Level assessment.

Why categorize establishments

- Standard 8 states that a "process should exist for the regulated food establishments to be grouped into at least 3 categories based on food safety risk" – VNRFRPS 2017 pg. 8-2

- The FDA recommends categorizing food establishments into risk categories because:
  - "By focusing inspections on the control of foodborne illness risk factors, inspectors can be assured that they are making a great impact on reducing foodborne illness" –FDA Food Code 2017 pg. 590

  - "Studies have shown that the types of food served, the food preparation processes used, the volume of food, and the population served all have a bearing on the occurrence of foodborne illness risk factors in retail and foodservice establishments" – FDA Food Code 2017 pg. 592

  - "With limited resources, creating a variable inspection frequency for each category will allow inspection staff to effectively spend more time in high risk establishments that pose the greatest potential risk of causing foodborne illness." – FDA Food Code 2017 pg. 592

How our FTE model categorizes

1. Following FDA recommendations it would require that a health department (HD) group their establishments into 3 categories: **low, moderate, and high risk.**

2. If a HD is unsure how to put their current risk category scale into a 3 category model, refer to **Annex 5 – Risk Categorization of Food Establishments Table**. In this table there are 4 risk categories with descriptions. Risk 1 category would be low risk. Risk category 2-3 would be moderate risk. Risk category 4 would be high risk.

3. If a HD **only has 2 risk categories** put them in the most appropriate categories out of low, moderate, or high. E.g. low and high, moderate and high, etc.

Annex 5 Descriptions of Risk Categories

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Risk 1: Examples include most convenience store operations, hot dog carts, and coffee shops. Establishments that serve or sell only pre-packaged, non- time/temperature control for safety (TCS) foods. Establishments that prepare only non-TCS foods. Establishments that heat only commercially processed, TCS foods for hot holding. No cooling of TCS foods. Establishments that would otherwise be grouped in Category 2 but have shown through historical documentation to have achieved active managerial control of foodborne illness risk factors.	**Risk 2:** Examples may include retail food store operations, schools not serving a highly susceptible population, and quick service operations. Limited menu. Most products are prepared/cooked and served immediately. May involve hot and cold holding of TCS foods after preparation or cooking. Complex preparation of TCS foods requiring cooking, cooling, and reheating for hot holding is limited to only a few TCS foods. Establishments that would otherwise be grouped in Category 3 but have shown through historical documentation to have achieved active managerial control of foodborne illness risk factors. Newly permitted establishments that would otherwise be grouped in Category 1 until history of active managerial control of foodborne illness risk factors is achieved and documented.
Risk 3: An example is a full service restaurant. Extensive menu and handling of raw ingredients. Complex preparation including cooking, cooling, and reheating for hot holding involves many TCS foods. Variety of processes require hot and cold holding of TCS food. Establishments that would otherwise be grouped in Category 4 but have shown through historical documentation to have achieved active managerial control of foodborne illness risk factors. Newly permitted establishments that would otherwise be grouped in Category 2 until history of active managerial control of foodborne illness risk factors is achieved and documented.	**Risk 4:** Examples include preschools, hospitals, nursing homes, and establishments conducting processing at retail. Includes establishments serving a highly susceptible population or that conduct specialized processes, e.g., smoking and curing; reduced oxygen packaging for extended shelf-life.

Setting the standard for frequency and inspection time by risk category

Methodology:

- In 2017 HCPH surveyed 400 health departments (HD) asking them for average inspection times and frequencies per the 3 risk categories. Received 100 complete responses.

- To create a standard we categorized these HD by the # of standards they achieved in the past 5 years

- **Statistical techniques demonstrated** that their was **no relationship** between the # of standards a HD achieved and their times or frequencies

- Thus there is no rational for emphasizing inspection times of HDs that passed more standards

- Plotting and visualizing the data demonstrated to us that **using the median for frequencies and times was most appropriate**

Plots of # Standards met, Times, & Frequencies
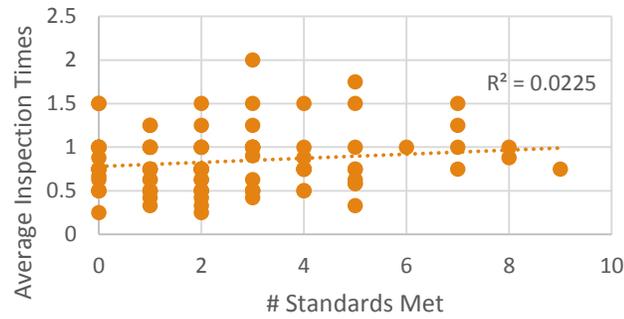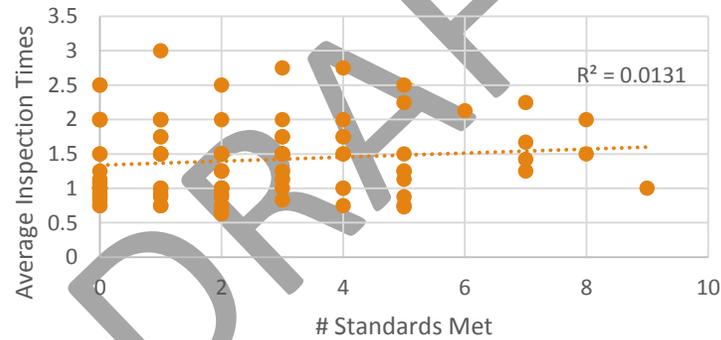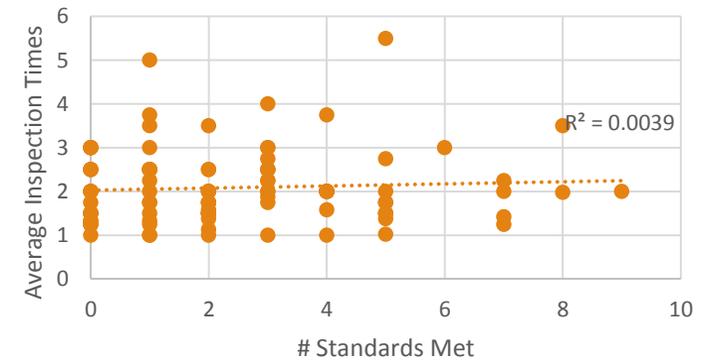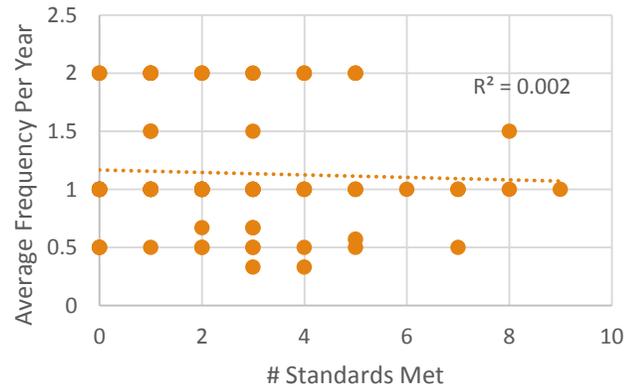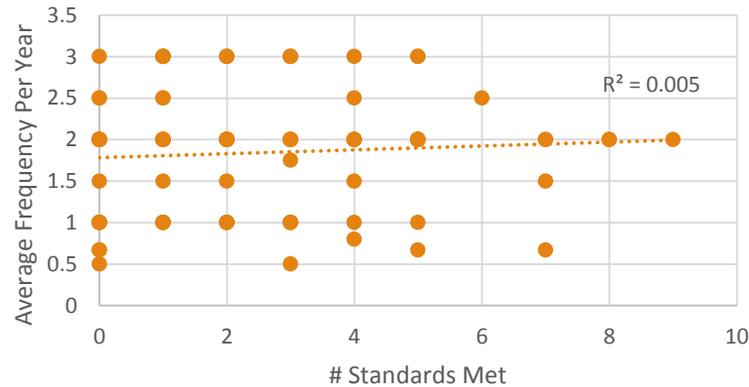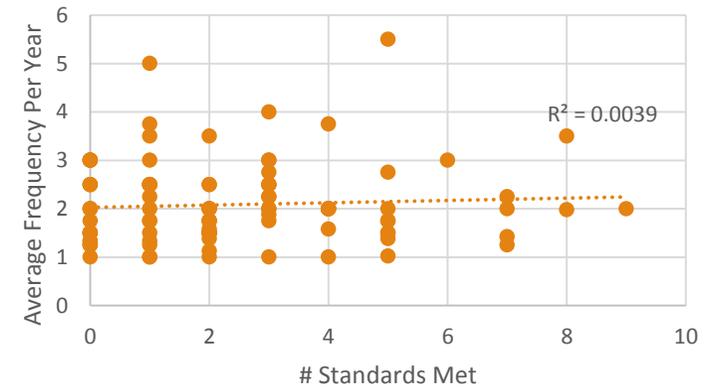
Statistical Relationship with # Standards, Times, & Frequencies

Linear Regression Results Example:

Residuals:

    Min   1Q Median   3Q   Max

-0.8056 -0.1670 -0.1461 0.2394 0.8853

Coefficients:

        Estimate Std. Error t value Pr(>|t|)

(Intercept) 1.16702   0.07978 14.627 <2e-16 ***

x   -0.01047   0.02416 -0.433   **0.666**

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.5054 on 92 degrees of freedom

Multiple R-squared: 0.002036, Adjusted R-squared: -0.008811

F-statistic: 0.1877 on 1 and 92 DF, p-value: **0.6658**

Indendent Variable	Dependent Variable	P-Value	Pearson's Correlation Coefficient
# Stds. Met	Low Risk Freq.	0.66	-0.045
# Stds. Met	Low Risk Time	0.15	0.15
# Stds. Met	Mod Risk Freq.	0.49	0.07
# Stds. Met	Mod Risk Time	0.27	0.11
# Stds. Met	High Risk Freq.	0.24	0.12
# Stds. Met	High Risk Time	0.54	0.063

Note:

Statistically Significant Relationship = P-Value < .05

Pearson's Correlation Coefficient: Perfect positive relationship =1, Perfect negative relationship = -1

Setting the standard for inspection times by risk category

Median

Low Risk: 45 minutes

Mod Risk: 75 minutes

High Risk: 120 minutes

Average

Low Risk: 50 minutes

Mod Risk: 85 minutes

High Risk: 125 minutes
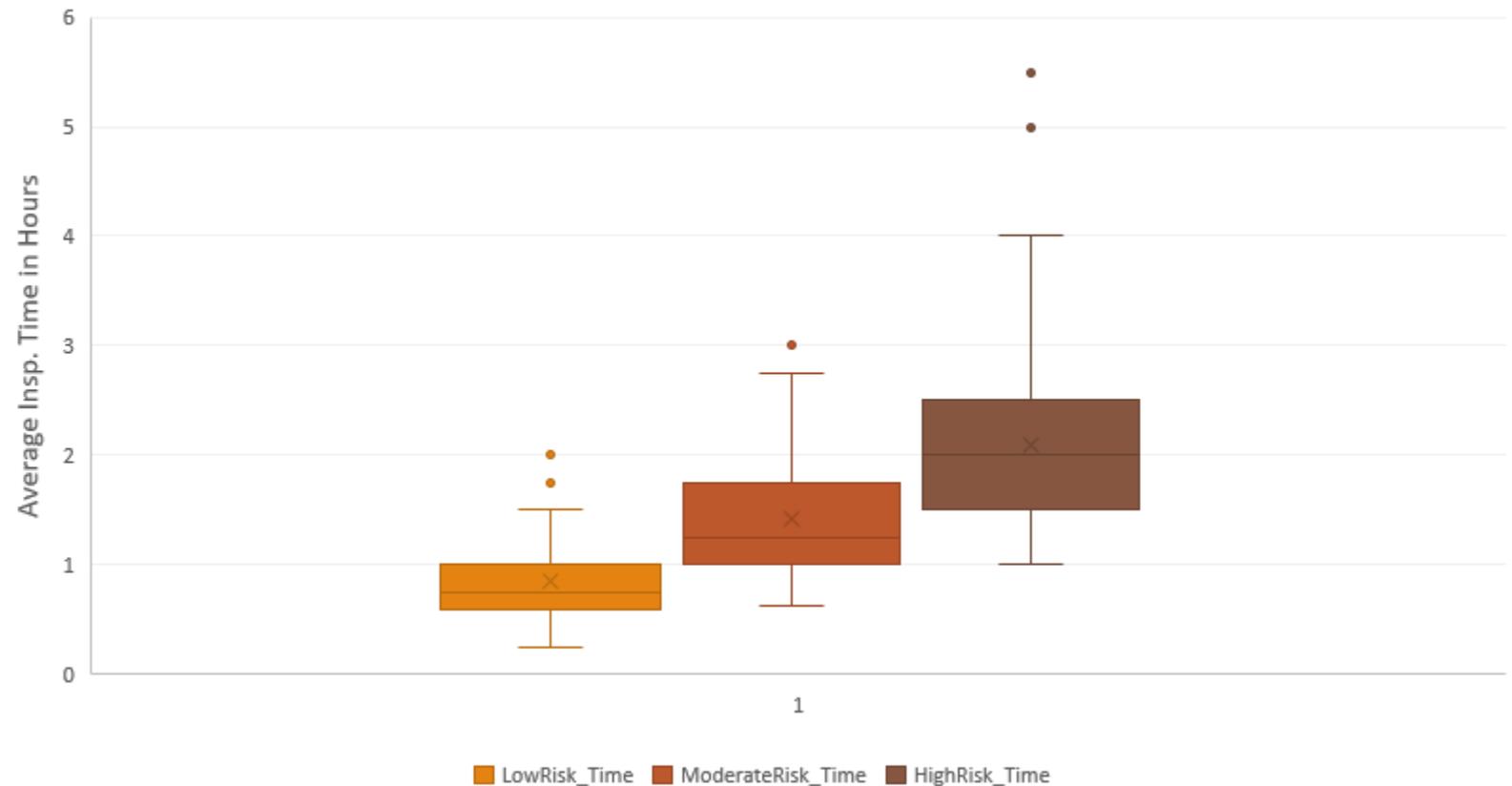
Setting the standard for inspection frequency per year

Median

Low Risk: 1 insp.

Mod Risk: 2 insp.

High Risk: 3 insp.

Average

Low Risk: 1.14 insp.

Mod Risk: 1.84 insp.

High Risk: 2.68 insp.
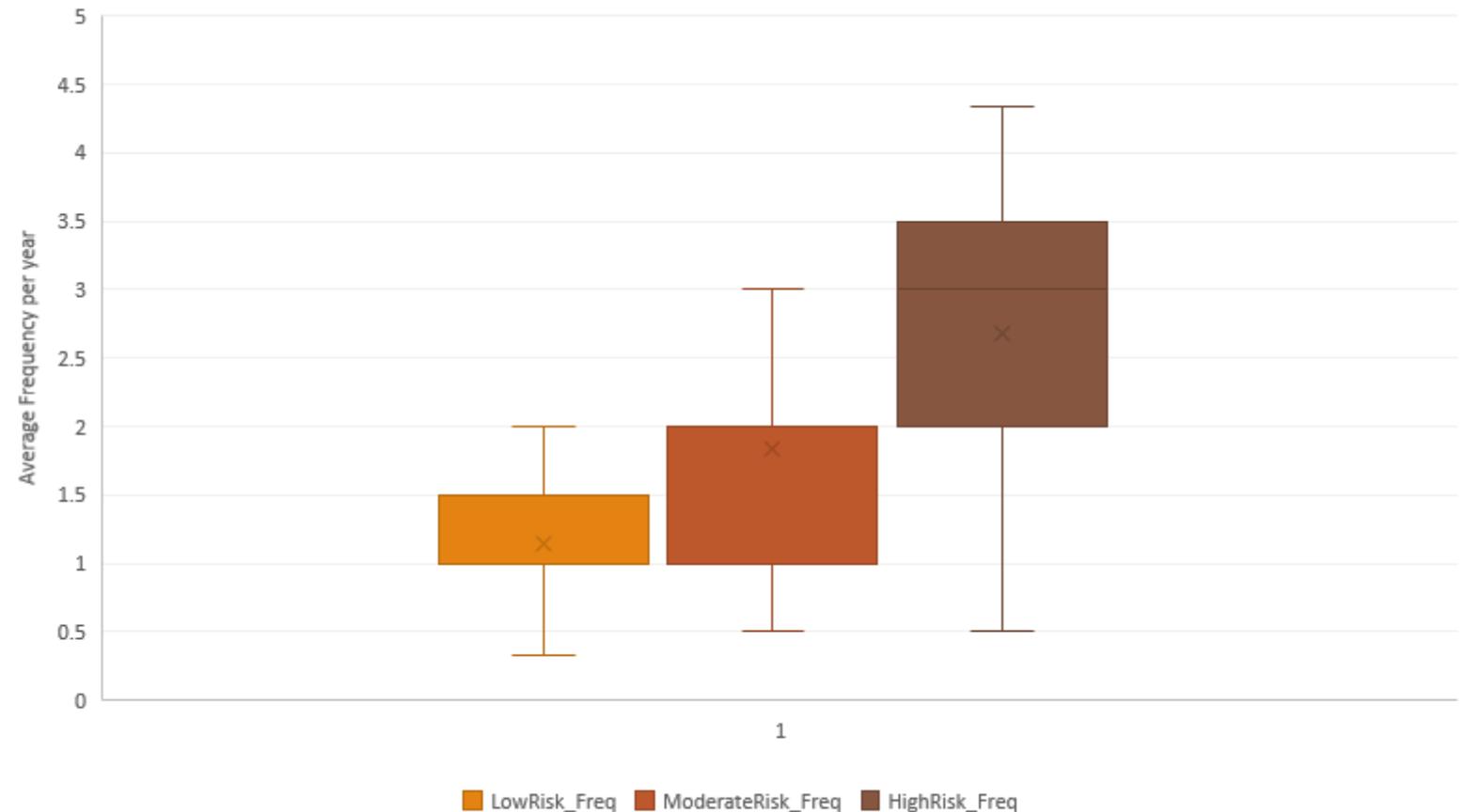
Calculating how many FTEs a health department *"currently"* has

- *Note: This process uses the current standard 8 model developed by the FDA with the sections devoted to the **inspection to FTE ratio removed***

- **The model now only needs to:**

  1. calculate the annual productive hours of one FTE
  2. calculate the total food inspection hours the health department is currently conducts
  3. divide the total food inspection hours by the annual productive hours of one FTE to calculate how many overall FTEs the health department has

Total food inspection hours / one FTE's annual productive hours = Total FTEs

Calculating Current FTEs

FTE DATA CALCULATION

Calculate productive hours per year for an employee doing 100% food inspections

Information For One Employee	Hours/Year	Hours/Day	Total Hours
Annual FTE Hours Per Year: Industry Standard			2080
Local Holiday Hours Per Year	80		80
Local Vacation Leave Hours Per Year	104		104
Local Sick Leave Hours Per Year	78		78
Local Family-Personal Leave Hours Per Year	0		0
Productivity Factoring Per Year			
Travel Time For Inspection		1.5	1477
Administrative Work (in-office work)	192		1285
Training Time	20		1265
Others	0		1265
Personal Development Time Per Year			
Continuing Education Hours	12		1253
Others	0		1253
Productive Annual FTE Hours Per Year (FTE Conversion Factor)			**1253**

Actual working days	Actual working weeks
227.25	45.45

FOOD SAFETY INSPECTION HOURS PER YEAR

Position Category	Food Safety Inspection Hours	Number of Employees	Total Hours
Food/NNA	1239	31	38397
Food/Pools	831	2	1663
Supervisors	42	3	126
Total Food Safety Inspection Hours			**40186**
Total Local FTE			**32.1**

Calculating how many FTEs a health department "should" have

- *Note: this model would be incorporated into the current Standard 8 model*

- **The steps of the new model are below:**

    1. A health department will input the number of establishments they have into each of the 3 risk categories of the model equation

    2. The model will automatically calculate how many inspections should be conducted for each risk category using the inspection frequency values from the survey

    3. The model will then automatically calculate how many total hours are required to complete these inspections using the inspection time values from the survey

    4. The model will lastly divide these total inspection hours by the annual productive hours of one FTE (this value is calculated already in the previous standard 8 model) to calculate how many overall FTE's the health department should have.

Calculating Required FTE

STANDARD 8's REQUIRED FTE FOR YOUR JURISDICTION

	Low Risk Establishment	Frequency of Low Risk Est Inspections Per Year	Moderate Risk Establishment	Frequency of Moderate Risk Est Inspections Per Year	High Risk Establishment	Frequency of High Risk Est Inspections Per Year	Total
Routine and Permitting	2090	1.00	6374	2.00	104	3.00	15150
Follow Up Inspections/Reinspections (15%)	448		2732		67		3246
Foodborne Illness Complaints (1%)	30		182		4		216
Other (14%)	418		2549.6		62.4		3030
Total Number of Inspections							**21643**
Median Hours Spent Per Inspection	0.75		1.25		2.00		
Total Inspection Time	2239		22764		891		25895
Total Required FTE							**20.6**
Standard 8 Criteria							**Standard met**

Sources:
• **Frequency of inspections - 2017 HCPH Survey 1 (100 responses)**
• **Median Hours Spent Per Inspection -2017 HCPH Survey 1 (100 responses)**
• **Follow Up Inspections % - 2017 HCPH Survey 2 (60 responses)**
• **Foodborne Illness Complaints % - 2017 HCPH Survey 2 (60 responses)**
• **Other % - HCPH Current Value**

Meet or not meet Standard 8

- After the entire standard 8 model is completed it will automatically calculate if a health department meets or does not meet the standard

Jurisdiction X *"should"* have 5 FTE

Jurisdiction X *"currently"* has 4 FTE

= should have > currently have ❌

Jurisdiction Y *"should"* have 20 FTE

Jurisdiction Y *"currently"* has 23 FTE

= should have < currently have 🙂

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If you want to change the ratio

Creation of old inspection ratio

- FDA assumed a full time inspector could dedicate 1200 hours to inspections

- FDA assumed each inspection would take 4 hours

- Calculation: 1200 inspection hours/4 hours per insp. = 300 inspections

- Decided to make a range of 280-320 inspections

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Digging deeper on 1200 inspection hours

- *2018 VNRFRPS Work Group document* states:
  - "assume that the average FTE equals 1200 productive hours"
  - "a reasonable range of 1120 to 1280" productive hours per FTE

- FDA's *Manufactured Food Regulatory Program Standards,* *expires 09/2019*
  - "FTE has 1200 hours available for conducting inspections"

- Using our non-productivity model 1200 is reasonable

Updating inspection ratio range

- Used 100 complete responses from our survey

- Calculated median and average inspection time by risk category

New Range

- Step 1 Keep FDA's format of 1200/4 = 300 -> 280-320

- Step 2 Insert our median/average inspection times in place of 4 hours

Using Median
- Upper End of Range = 1200/45 minutes = 1600 inspections
- Lower End of Range = 1200/120 minutes = 600 inspections

Using Average
- Upper End of Range = 1200/50 minutes = 1428 inspections
- Lower End of Range = 1200/125 minutes = 574 inspections

New Range Cont.

USING MEDIAN

1200 hrs/45 minutes= 1600 Inspections

1200 hrs/75 minutes= 960 Inspections

1200 hrs/120 minutes= 600 Inspections

USING AVERAGE

1200 hrs/50 minutes= 1428 Inspections

1200 hrs/85 minutes= 851 Inspections

1200 hrs/125 minutes= 574 Inspections

Testing the range: 600 - 1600

Jurisdiction X:

- conducts 800 inspections a year

- has 1.25 employees that do 100% food inspections = 1.25 FTE

- inspection to FTE Ratio = 640

Jurisdiction Y:

- conducts 800 inspections a year

- has 3 employees that do 100% food inspections = 3 FTE

- inspection to FTE Ratio = 267

Testing range cont.

Jurisdiction Z
- conducts 17,000 inspections a year
- has 40 employees that do 100% food inspections = 40 FTE
- inspection to FTE Ratio = 425

Jurisdiction H
- conducts 17,000 inspections a year
- has 23 employees that do 100% food inspections = 23 FTE
- inspection to FTE Ratio = 739