



CLEAN

The BAC Fighter

CLEAN SUMMIT 2019 Part I

Part I: Handwashing and Kitchen Towels

Part II: Cleaning vs. Sanitizing; Surface Cleaning

Welcome to the BAC Fighter Clean Summit!



Part I: Handwashing and Kitchen Towels

Part II: Cleaning vs. Sanitizing; Surface Cleaning
(hold the date – June 12)

Welcome!

The Partnership for Food Safety Education develops and promotes effective education programs to reduce foodborne illness risk for consumers.

We are a non-profit organization that relies on grants and contributions.

www.fightbac.org



Speakers



Dr. David Berendes

Epidemiologist, Global WASH Team
Division of Foodborne, Waterborne, and Environmental Diseases
Centers for Disease Control and Prevention



Dr. Akrum Tamimi

Professor of Practice
Department of Biosystems Engineering
The University of Arizona



HOST

Shelley Feist

Executive Director
Partnership for Food Safety Education



To ask a question, please use the question box on the right of the screen.



After the webinar, you will receive a brief survey. Please fill it out.

Help us improve!

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One hour CEU available from ANFP, CDR & NEHA

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- Follow-up email
- Download at fightbac.org under “Events” tab and “Webinar Recordings”

What We Will Cover Today

- Fundamentals of cross-contamination
- Handwashing
- Kitchen towels



Poll Question

In your line of work, how often do you address questions from consumers about cleaning practices and/or hand washing?

1. All of the time!
2. Every so often
3. I never get asked about cleaning and handwashing.

Cross-Contamination: Definitions

USDA Definitions

➤ **DIRECT Cross-Contamination**

Contact between raw food and ready-to-eat food during transport, storage or preparation

➤ **INDIRECT Cross-Contamination**

Spread of bacteria from raw food to RTE food via food handlers, equipment or surfaces

Cross-Contamination in the Home

Just a few of many opportunities in the home kitchen:

- Wiping counter with a towel, then using it to dry hands
- Not washing hands after using the bathroom, handling food, handling pets, changing diapers, etc.
- Storing food improperly: (eg: raw above ready-to-eat in the refrigerator)
- Rinsing raw poultry under running water in the sink

So many more – submit your cross-contamination “incident” idea to CHAT

Commonly Contaminated ITEMS and DEVICES in the home kitchen

- Spice canisters / salt and pepper
- Food processors and blenders
- Dish towels and sponges
- Cooking utensils
- Can opener
- Countertops
- Refrigerator door handles

Research for More Information

- Recent Observational Research – USDA on cross contamination of surfaces and of kitchen items
<https://www.fsis.usda.gov/wps/wcm/connect/cb222383-1e02-471a-8657-c205eda92acf/Observational-Study.pdf?MOD=AJPERES>
- Research – FDA cell phones/ devices
<https://www.fda.gov/Food/FoodScienceResearch/ucm275988.htm>
- Shopping bags
Contamination of reusable plastic bags for food transportation – Barbosa et al 2019



Handwashing in Community Settings

David M. Berendes, PhD, MSPH
Epidemiologist, Global WASH Team
Waterborne Disease Prevention Branch
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Handwashing
is the single most important way to prevent
transmission of infectious diseases.

Why is handwashing important?



Handwashing helps prevent illness and spread of germs

- Germs get on hands from contaminated objects
- Handwashing helps prevent diarrhea and respiratory infections



Handwashing helps battle rise in antibiotic resistance

- Preventing sickness reduces the amount of antibiotics people use
- Handwashing can prevent
 - 30% of diarrhea-related sicknesses
 - 20% of respiratory infections
- Antibiotics often are prescribed unnecessarily





Steps of proper handwashing

1. Turn on water and wet hands
2. Lather soap on palms, backs of hands, around and under fingernails, and between fingers.
3. Rub vigorously for 20 seconds.
4. Rinse hands.
5. Dry hands with paper towel or air dry them.

Key times to wash hands

- To protect yourself

- ✓ When visibly soiled
- ✓ After assisting another with toileting
- ✓ After touching animals
- ✓ Before preparing own food or eating
- ✓ After handling raw meats
- ✓ Before touching own mouth, eyes, or nose
- ✓ After outdoor activities like yardwork or playing sports

- To protect others

- ✓ After toileting
- ✓ Before cooking for or feeding another
- ✓ After coughing or sneezing



What can people do if soap and water are not available?

- If soap and clean, running water are not available, you can use hand sanitizer that contains at least 60% alcohol
- Alcohol-based sanitizers can quickly reduce the number of germs on hands, but they...
 - Do not eliminate all types of germs (such as Cryptosporidium, norovirus, Clostridium difficile)
 - Might not remove harmful chemicals
- Do not use hand sanitizer if your hands are visibly dirty or greasy



How should you use hand sanitizers?

- Apply about a quarter size of hand sanitizer to the palm of one hand
 - ✓ Enough to wet all surfaces of both hands (palms, fingers, back of hands)
 - ✓ Read the produce label to learn the manufacturer's recommended amount
- Rub hands together to wet all surfaces of hands and fingers
- Rub until your hands feel dry (~20 seconds)



Which soap to use?

- FDA rule on effectiveness of antibacterial hand soaps and hand sanitizers removes certain additives (e.g. triclosan) from production
- “Plain” soap is just as good as any other soap
- Hand sanitizer: at least 60% alcohol content

FDA NEWS RELEASE

FDA issues final rule on safety and effectiveness of antibacterial soaps

Rule removes triclosan and triclocarban from over-the-counter antibacterial hand and body washes

For Immediate Release:

September 02, 2016

FDA NEWS RELEASE

FDA issues final rule on safety and effectiveness of consumer hand sanitizers

Action completes a series of actions on the FDA's review of OTC antiseptic active ingredients

For Immediate Release: April 11, 2019

[Español \(/news-events/press-announcements/la-fda-emite-una-norma-final-sobre-la-seguridad-y-la-eficacia-de-los-desinfectantes-de-manos-para\)](#)

The U.S. Food and Drug Administration today issued a final rule (<https://www.federalregister.gov/documents/2019/04/12/2019-06791/safety-and-effectiveness-of-consumer-antiseptic-rubs-topical-antimicrobial-drug-products-for>) designed to help ensure that hand sanitizers available over-the-counter (OTC) are safe and effective for those who rely on them. The rule establishes that certain active ingredients are not allowed to be used in OTC hand sanitizers, formally known as topical consumer antiseptic rub products, which are intended for use without water, that are marketed under the FDA's OTC Drug Review. The final rule also seeks to ensure that the agency's safety and effectiveness evaluations and determinations for consumer antiseptic rub active ingredients are consistent, up-to-date and appropriately reflect current scientific knowledge and increasing use patterns.

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What is the science behind CDC's handwashing recommendations?

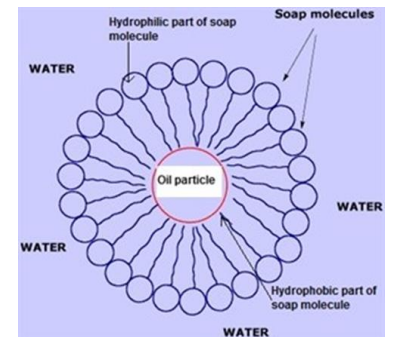
Hand hygiene: Cleaning hands versus killing microbes

- **Soap**

- ✓ Primary action is cleaning—removing contaminants from hands
- ✓ Soap molecules not generally designed for killing microbes
 - Antibacterial additives not significantly more effective for reducing number of germs on hands

- **Hand sanitizers**

- ✓ Designed to kill germs (damaging them), but not true “cleaning”
- ✓ Sanitizers with alcohol content 60-95% are best



Why is hand sanitizer not recommended in certain situations?

- If hands are visibly dirty (soil on them), active ingredients (ethanol or isopropanol) cannot get to the germs to kill them
- Certain protozoa, non-enveloped viruses, and other organisms that tend to cause gastrointestinal illness (diarrhea and vomiting) are resistant to alcohol-based inactivation mechanisms
- Given alcohol is designed to kill certain microbes, we do not know how it interacts with chemicals or grease, so we do not recommend its use in these cases.

The evidence behind CDC's handwashing steps

- Is washing with soap for 20 seconds important?
 - ✓ Evidence suggests that washing hands for 15-30 sec removes more germs than shorter times, but only a few studies have been done
- Is it ok to turn off the tap or touch door handle with bare hands?
 - ✓ Little data available to suggest that use of towels to turn off tap is protective of health
 - ✓ Many bathrooms not equipped with towel dispensers
 - ✓ Due to these factors, CDC's handwashing steps do not address whether it is ok to touch water taps after handwashing

Evidence of disease prevention through handwashing

- Handwashing can prevent
 - ✓ 30% of diarrhea-related sicknesses in children
 - ✓ 21% of respiratory sicknesses
- Improved hand hygiene education can reduce
 - ✓ School absences by as much as 70%



Health impacts of handwashing education

- Scheduled handwashing with soap among middle school students
 - ✓ Absence incidence decreased 25%
 - ✓ Absences due to diarrhea decreased 57%
 - ✓ No difference in URI-related absence rates
- “Operation Stop Cough”
 - ✓ 45% reduction in acute respiratory illnesses among military recruits
- Hand sanitizer use among elementary school students
 - ✓ Diarrhea-related, and respiratory-related absences decreased ~20 – 70%

**What resources do CDC and partners
have to promote hand hygiene in
community settings?**

CDC website: [cdc.gov/handwashing](https://www.cdc.gov/handwashing)

- Guidance
 - ✓ When and how to wash your hands
 - ✓ Use of hand sanitizer
- Providing the science
 - ✓ Handwashing effectiveness for protecting health
 - ✓ How to wash hands
 - ✓ When & how to use sanitizer
 - ✓ Scientific literature on hand hygiene
- Training & education resources (presentations, lessons & activities)
- Health promotion materials
- Links to partners promoting handwashing



Thank you!



For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov



The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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Bacterial Occurrence on Bathroom and Kitchen Towels

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Objectives

- Determine the bacterial load found on household towels used in bathrooms and kitchens for 6 major cities in North America

Methods & Materials

- Six major cities in North America representing different weather conditions (Temp & Rh)
 - Chicago, IL
 - Tucson, AZ
 - New Orleans, LA
 - New York, NY
 - Orlando, FL
 - Toronto, ON – Canada
- Questionnaire
 - Household demographics
 - Presence of pets
 - Presence of children in the household
 - Number of adult males and females in the household
 - Age of towel in months
 - Frequency of washing of towel in days per month
 - Towel frequency of use
 - Last time the towel was washed in days

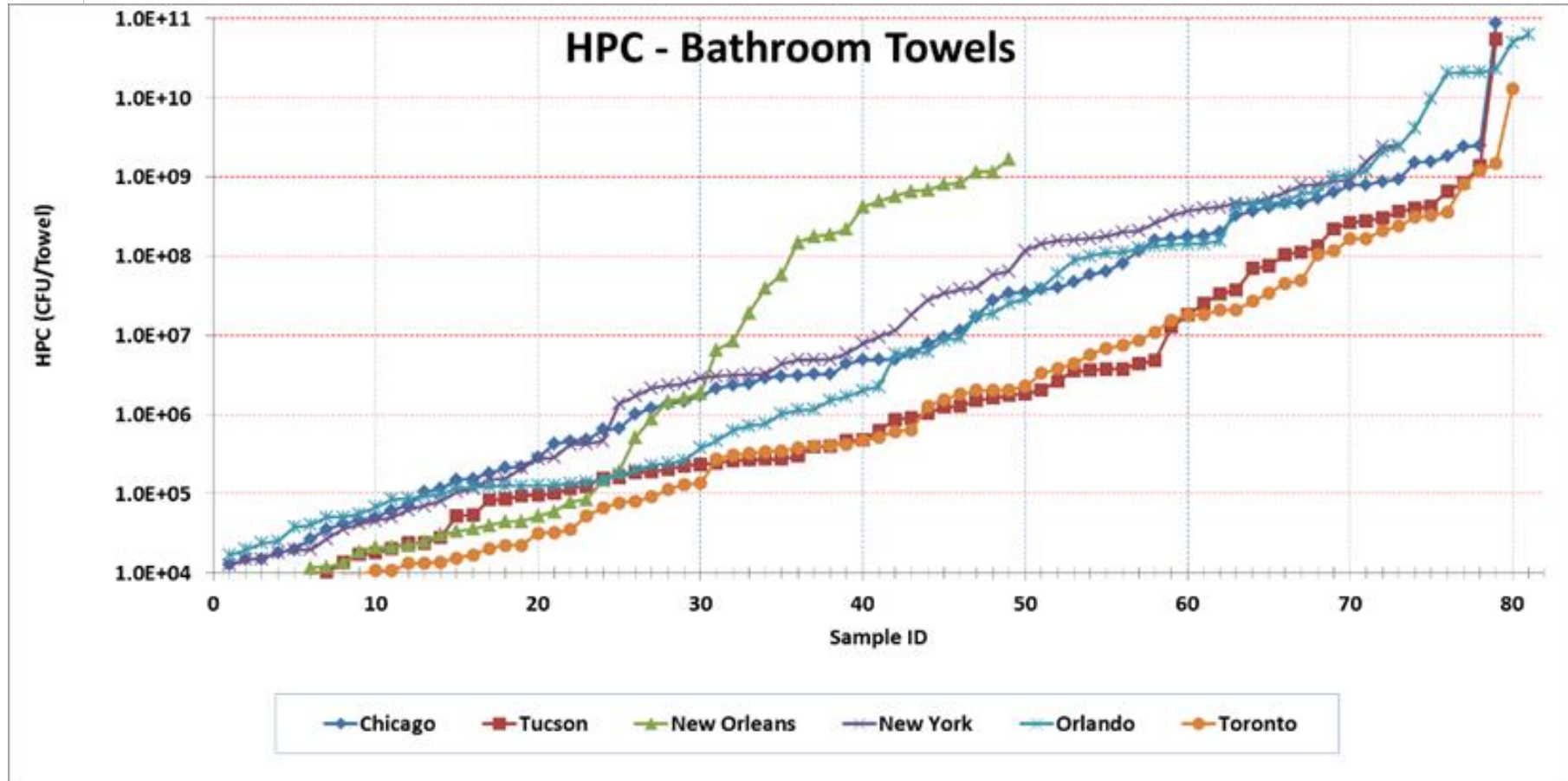
Methods & Materials

- Each bathroom and kitchen towel was...
 - Submerged in peptone broth to extract the bacteria
 - Placed in a stomacher bag with either 500 ml of peptone broth
 - The peptone broth was extracted and assayed
 - Newly purchased towels were soaked and tested as controls
- Each towel was tested for...
 - Total bacteria
 - Coliforms
 - *Escherichia coli* (*E. coli*)
 - MRSA

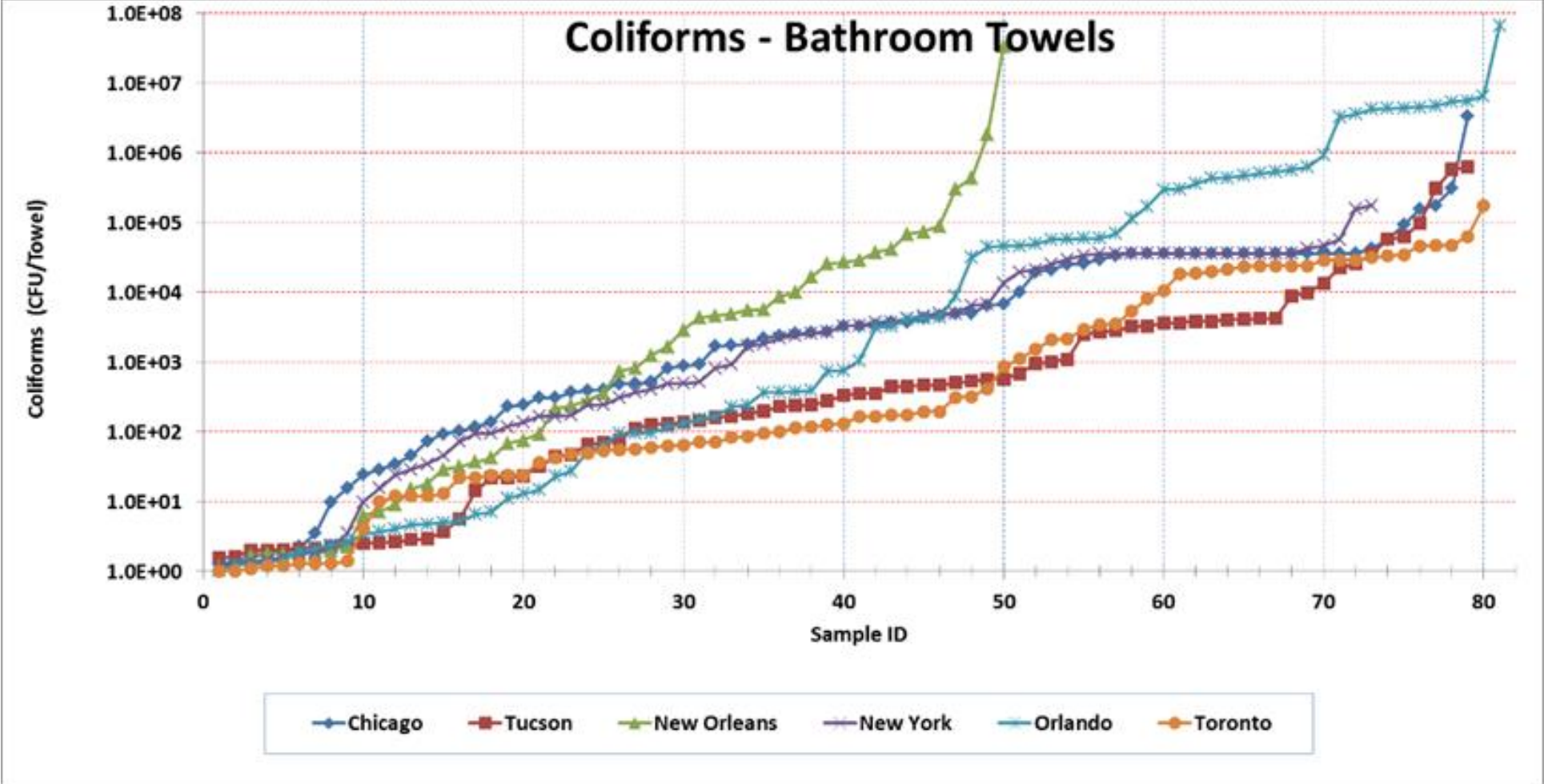


Results for Bathroom Towels

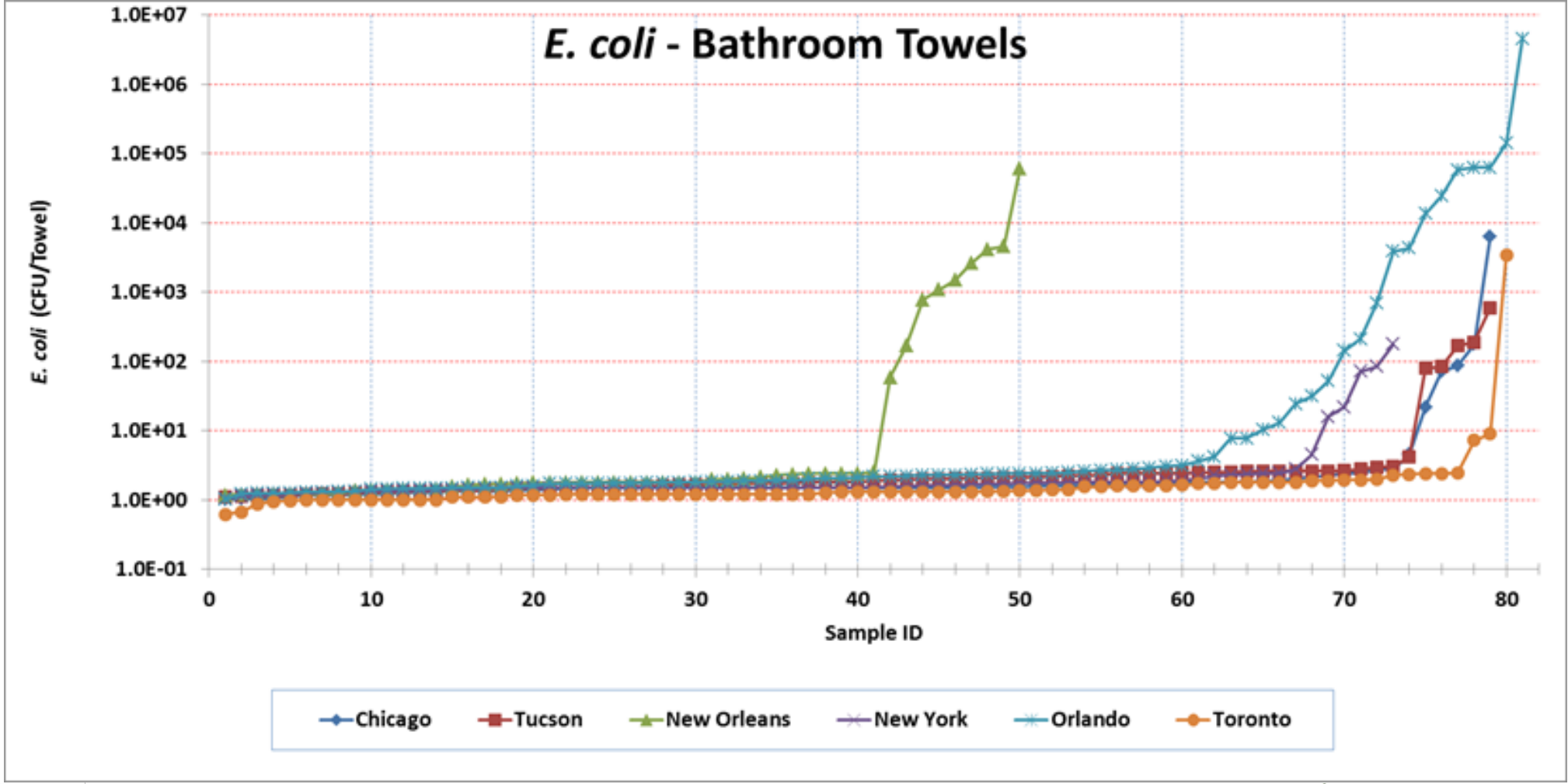
Concentration of HPC on Bathroom Towels (CFU = Colony Forming Unit)



Concentration of Coliforms on Bathroom Towels



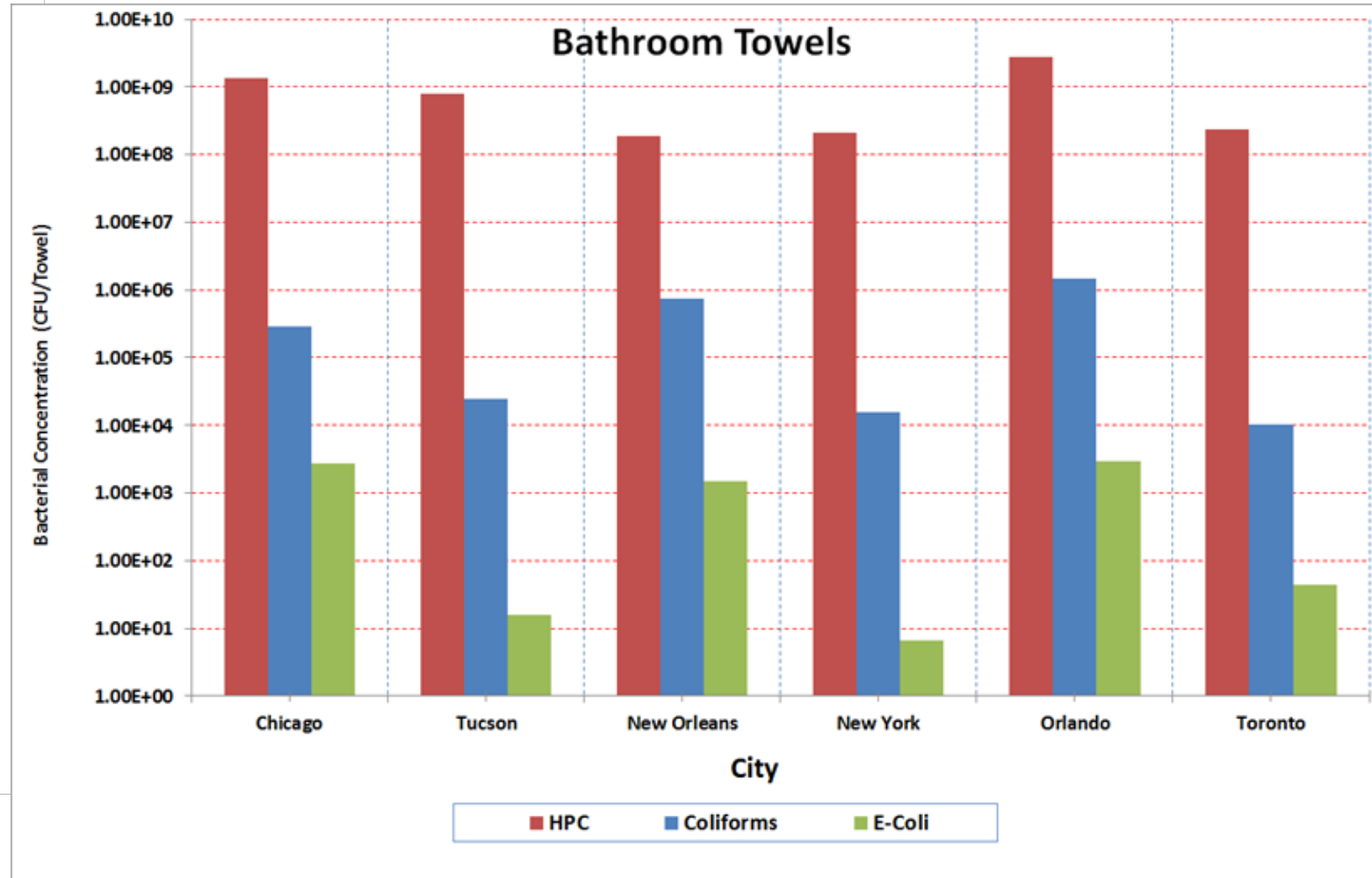
Concentration of *E. coli* on Bathroom Towels



Statistics of Bacterial Concentrations on Bathroom Towels (CFU/Towel)

City	HPC			Coliforms			<i>E. coli</i>		
	Average	St. Dev	N	Average	St. Dev	N	Average	St. Dev	N
Chicago	1.34E+09	9.85E+09	79	2.88E+05	2.04E+06	80	2.75E+03	2.38E+04	80
Tucson	7.76E+08	6.24E+09	79	2.42E+04	1.01E+05	79	1.60E+01	7.32E+01	79
New Orleans	1.87E+08	3.75E+08	50	7.33E+05	4.76E+06	50	1.51E+03	8.56E+03	50
New York	2.11E+08	4.72E+08	73	1.59E+04	3.01E+04	73	6.63E+00	2.40E+01	73
Orlando	2.77E+09	9.85E+09	81	1.47E+06	7.48E+06	81	2.93E+03	5.03E+05	81
Toronto	2.36E+08	1.47E+09	80	1.01E+04	2.35E+04	80	4.46E+01	3.85E+02	80

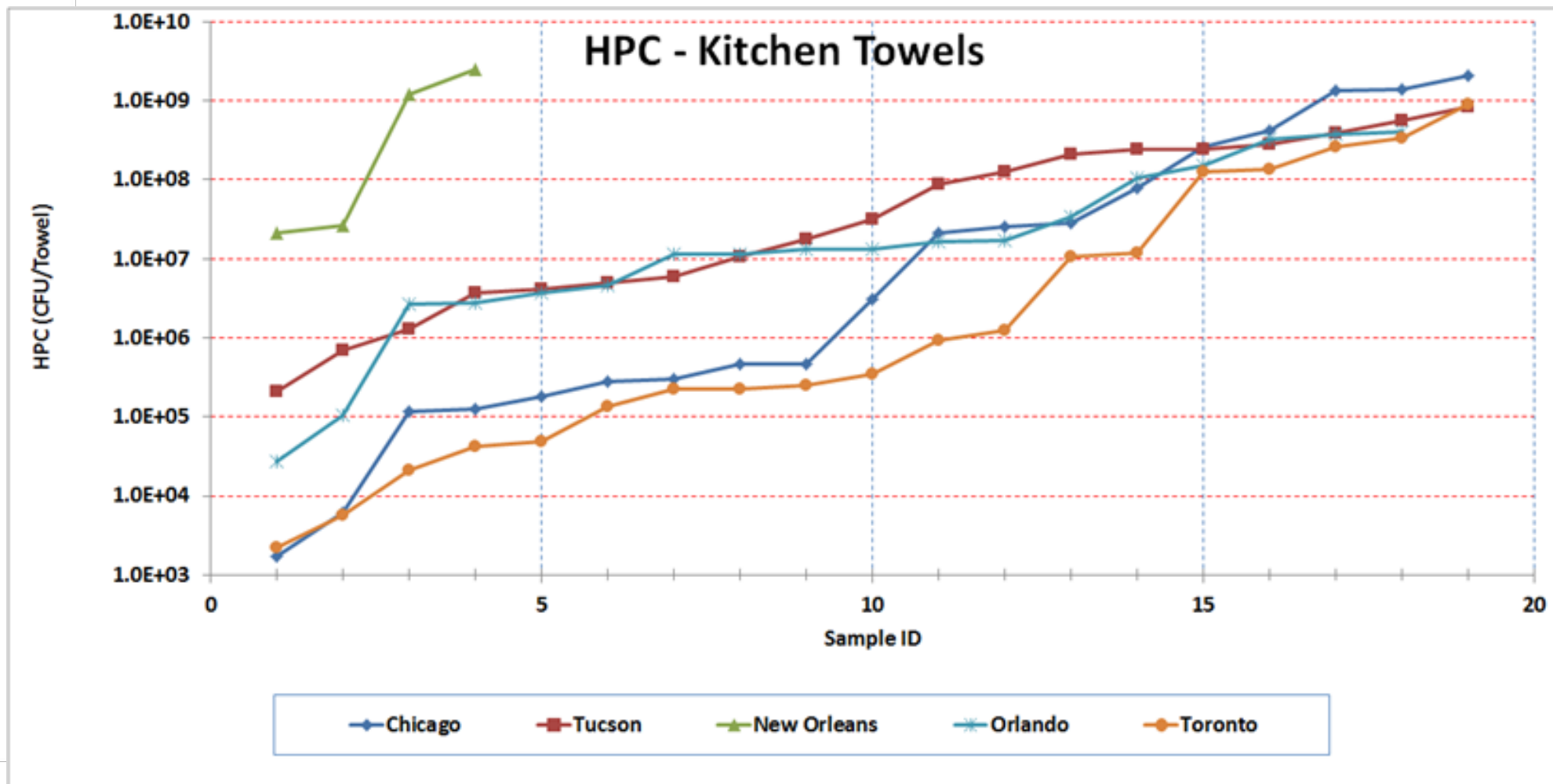
Averages of Bacterial Concentrations on Bathroom Towels (CFU/Towel)



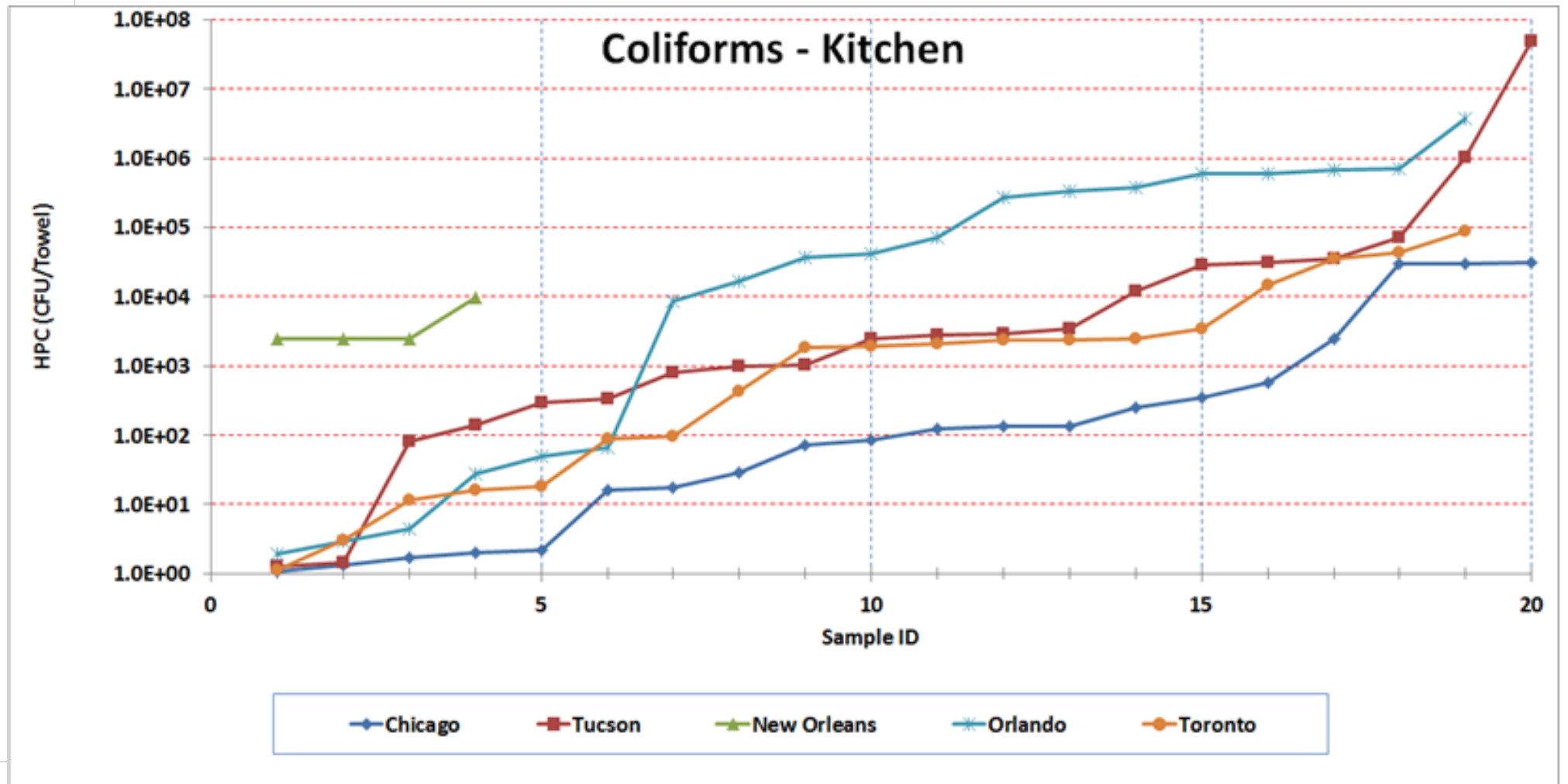


Results for Kitchen Towels

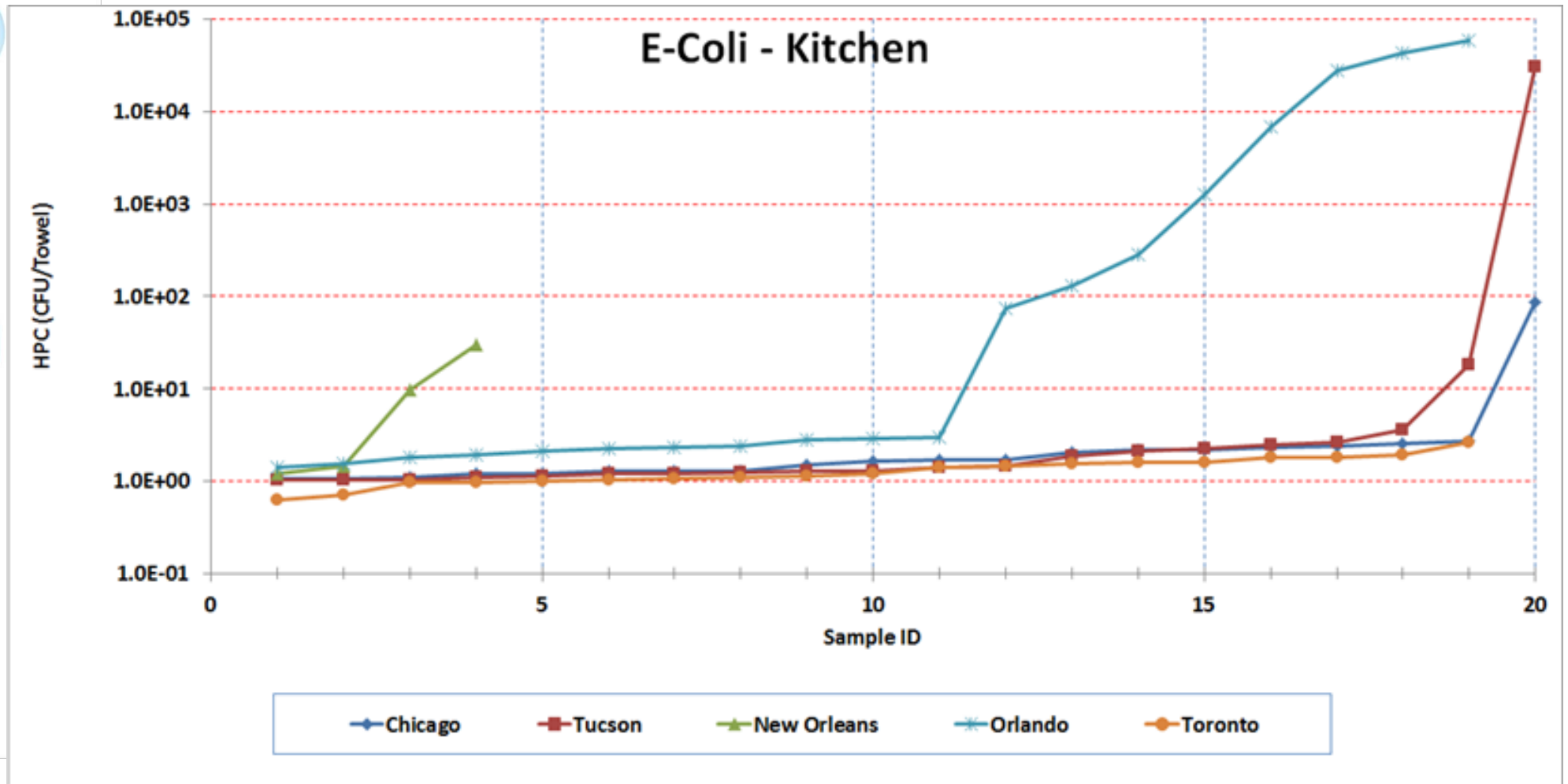
Concentration of HPC on Kitchen Towels



Concentration of Coliforms on Kitchen Towels



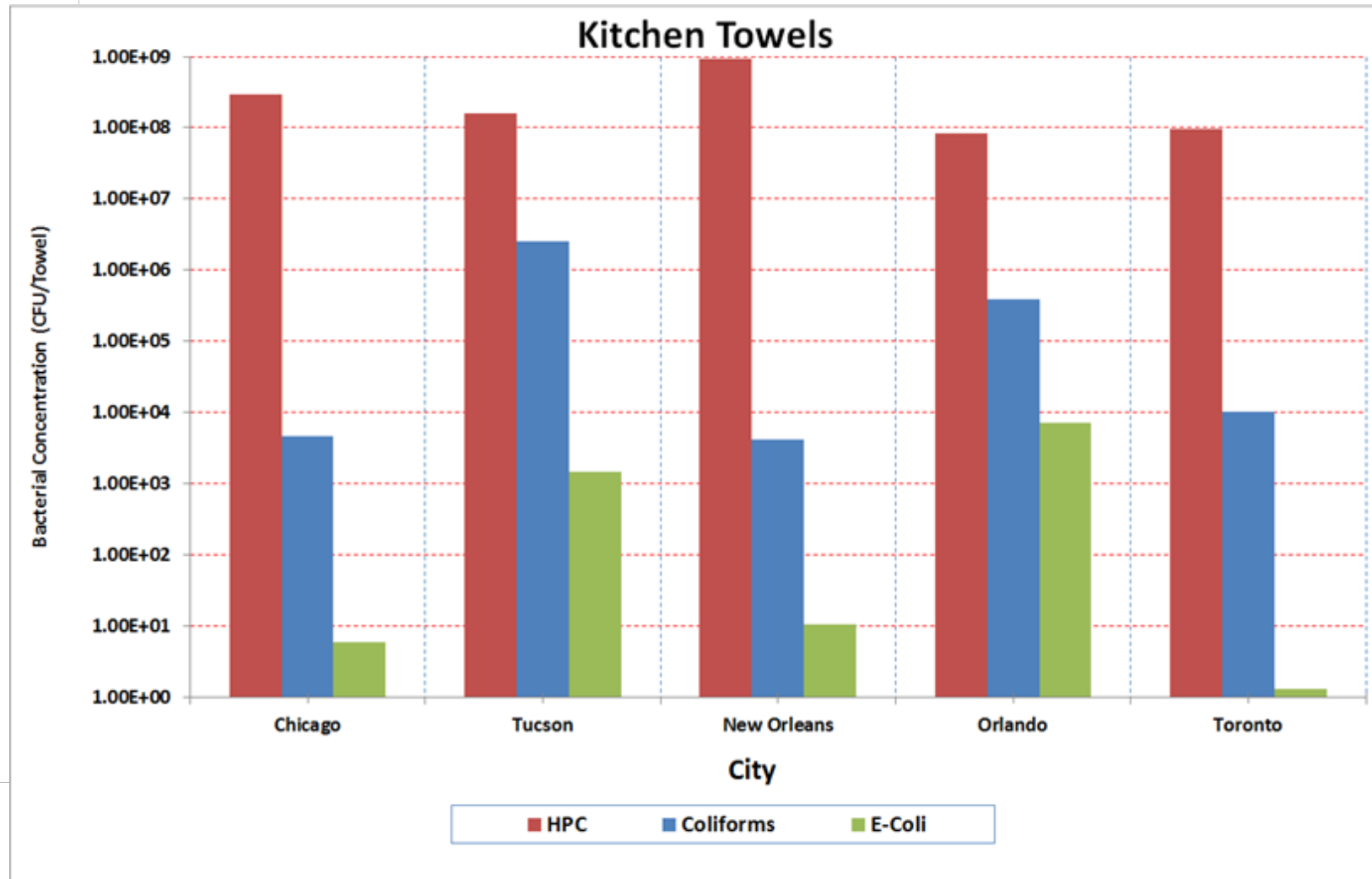
Concentration of *E. coli* on Kitchen Towels



Statistics of Bacterial Concentrations on Kitchen Towels (CFU/Towel)

City	HPC			Coliforms			E-Coli		
	Average	St. Dev	N	Average	St. Dev	N	Average	St. Dev	N
Chicago	2.98E+08	6.12E+08	19	4.76E+03	1.10E+04	20	6.00E+00	1.92E+01	20
Tucson	1.62E+08	2.31E+08	19	2.55E+06	1.11E+07	20	1.51E+03	6.73E+03	20
New Orleans	9.42E+08	1.19E+09	4	4.22E+03	3.59E+03	4	1.05E+01	1.33E+01	4
Orlando	8.30E+07	1.38E+08	18	3.97E+05	8.64E+05	19	7.24E+03	1.68E+04	19
Toronto	9.49E+07	2.22E+08	19	1.04E+04	2.24E+04	19	1.34E+00	4.80E-01	19

Averages of Bacterial Concentrations on Kitchen Towels (CFU/Towel)





Conclusions for Kitchen Towels

Is there a Significant Difference in Bacterial Concentrations in Kitchen Towels Between Cities?

Bacterial	Answer to the question	<i>p</i> -value
HPC	Yes	0.00886
Coliforms	Yes	0.00569
<i>E. coli</i>	Yes	0.00028

Is there a significant difference between Bacterial Concentrations in Bathroom Towels and Kitchen Towels?

Bacterial	Answer to the question	<i>p</i> -value
HPC	Yes	0.0067
Coliforms	No	0.4694
<i>E. coli</i>	No	0.1730

Is there a significant difference between Bacterial Concentrations in Kitchen Towels in the Presence of Pets?

Bacterial	Answer to the question	<i>p</i> -value
HPC	No	0.855
Coliforms	No	0.292
<i>E. coli</i>	No	0.080

Is there a significant difference between Bacterial Concentrations in Kitchen Towels When there are Children in the House?

Bacterial	Answer to the question	<i>p</i> -value
HPC	No	0.908
Coliforms	No	0.867
<i>E. coli</i>	No	0.682

Is there a significant difference between Bacterial Concentrations based on Age of Kitchen Towels?

Bacterial	Answer to the question	<i>p</i> -value
HPC	No	0.447
Coliforms	No	0.482
<i>E. coli</i>	No	0.425

Is there a significant difference between Bacterial Concentrations in Kitchen Towels based on Frequency of Washing?

Bacterial	Answer to the question	<i>p</i> -value
HPC	No	0.676
Coliforms	No	0.352
<i>E. coli</i>	Yes	0.014

Is there a significant difference between Bacterial Concentrations in Kitchen Towels based on Frequency of Use?

Bacterial	Answer to the question	<i>p</i> -value
HPC	Yes	0.019
Coliforms	No	0.983
<i>E. coli</i>	No	0.794

Is there a significant difference between Bacterial Concentrations in Kitchen Towels based on Last time Washed in Days?

Bacterial	Answer to the question	<i>p</i> -value
HPC	No	0.2259
Coliforms	No	0.5149
<i>E. coli</i>	No	0.3695



Conclusions for Bathroom Towels

Is there a Significant Difference in Bacterial Concentrations in Bathroom Towels Between Cities?

Bacterial	Answer to the question	<i>p</i> -value
HPC	No	0.101
Coliforms	No	0.080
<i>E. coli</i>	No	1.000

Is there a significant difference between Bacterial Concentrations in Bathroom Towels in the Presence of Pets?

Bacterial	Answer to the question	<i>p</i> -value
HPC	No	0.777
Coliforms	No	0.904
<i>E. coli</i>	No	0.177

Is there a significant difference between Bacterial Concentrations in Bathroom Towels When there are Children in the Household?

Bacterial	Answer to the question	<i>p</i> -value
HPC	No	0.360
Coliforms	No	0.211
<i>E. coli</i>	Yes	0.025

Is there a significant difference between Bacterial Concentrations based on Age of Bathroom Towels?

Bacterial	Answer to the question	<i>p</i> -value
HPC	No	0.921
Coliforms	No	0.857
<i>E. coli</i>	No	0.231

Is there a significant difference between Bacterial Concentrations in Bathroom Towels based on Frequency of Washing?

Bacterial	Answer to the question	<i>p</i> -value
HPC	Yes	0.019
Coliforms	No	0.194
<i>E. coli</i>	Yes	0.005

Is there a significant difference between Bacterial Concentrations in Bathroom Towels based on Frequency of Use?

Bacterial	Answer to the question	<i>p</i> -value
HPC	Yes	0.014
Coliforms	No	0.086
<i>E. coli</i>	Yes	0.025

Is there a significant difference between Bacterial Concentrations in Bathroom Towels based on Last Washed in Days?

Bacterial	Answer to the question	<i>p</i> -value
HPC	No	0.430
Coliforms	No	0.863
<i>E. coli</i>	No	0.120

Is there a significant difference between Bacterial Concentrations in Bathroom Towels if Washed Only One Day Ago?

Bacterial	Answer to the question	<i>p</i> -value
HPC	Yes	0.022
Coliforms	No	0.293
<i>E. coli</i>	No	0.076

Is there a significant difference between Bacterial Concentrations in Bathroom Towels used by Male vs. Female?

Bacterial	Answer to the question	<i>p</i> -value
HPC	No	0.464
Coliforms	No	0.354
<i>E. coli</i>	No	0.369

Questions?



HOLD THE DATE!

- **World Food Safety Day on June 7**

- ✓ BAC Fighter Twitter Party
- ✓ Website, resources and more
- ✓ Watch your email for details!

**WORLD FOOD
SAFETY DAY**

- **Clean Summit Part 2 on June 12**

- ✓ Surface Cleaning & Sanitizing
- ✓ Registration now open!
- ✓ <http://www.fightbac.org/events>

Continuing Education Units

****FINAL REMINDER****

Get your CEU certificate – 3 ways

1. Download certificate from sidebar now
2. Follow-up email
3. Download at fightbac.org under “Events” tab and “Webinar Recordings”

Survey

A **survey** will pop up immediately following this webinar.



Please respond to it.

Help us serve you better!

Thank you!

Check out these resources on handwashing!

- Glenda Hyde, Oregon State University – Can a classroom of 28 students get their hands washed in less than 5 minutes? With the High-Speed Hand Washing lesson, they can!
<https://cfsec2019.fightbac.org/presentations/>
- Clean Factsheet – download now on the sidebar!
<http://www.fightbac.org/food-safety-basics/the-core-four-practices/>
- Keep Babies & Toddlers Safe (graphics, flyer & PowerPoint)
<http://www.fightbac.org/kids/>



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Association of Food and Drug Officials
Beef Checkoff
Hormel
International Association for Food Protection

NSF International
McDonald's Corp.
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United Fresh Produce Association

Federal Government Liaisons

Centers for Disease Control and Prevention
U.S. Food & Drug Administration, CFSAN
U.S. Department of Agriculture, FSIS FSES
U.S. Department of Agriculture, NIFA

Thank you!



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