RUTGERS

School of Environmental and Biological Sciences

Food Microbiology Risk Reduction Program for Rutgers Dining Halls

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Why does this program exist?

- In the 1960's a large food poisoning outbreak struck Rutgers University
- Dr. Myron Solberg (1931-2001) was asked to establish a food safety program to prevent this from occurring again
- The current program has been under the Dr. Schaffner's direct supervision since 2000.

Rutgers Checking Its Food After 230 Students Fall Ill

Special to The New York Times

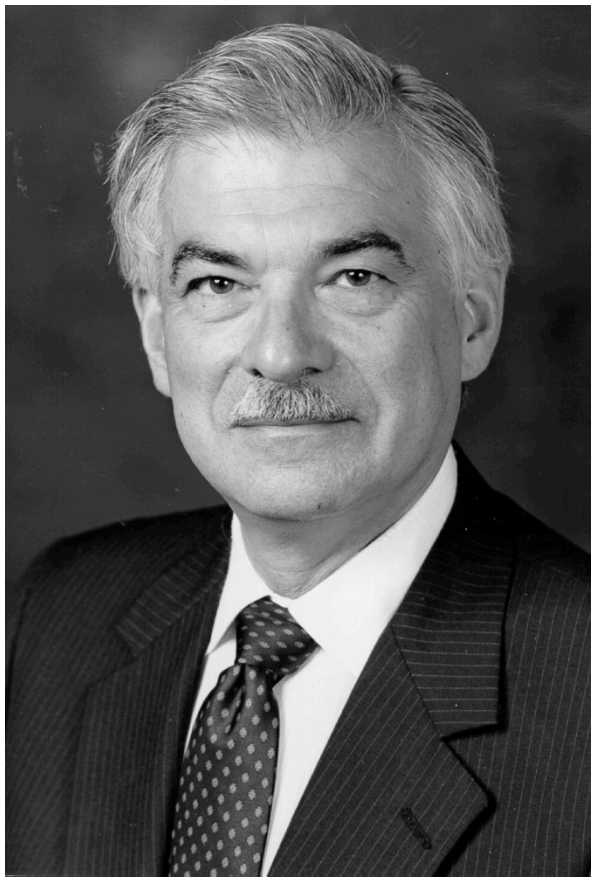
NEW BRUNSWICK, N. J., Nov. 13—State and local health officials are testing food supplies at Rutgers University dining halls in an effort to determine why 230 students became ill last night and today.

The students, 200 from the man's colleges and 30 from Douglass College, the women's division, were treated for gastroenteritis, according to a Rutgers spokesman.

Most of those who became ill had eaten dinner last night at one of the dining halls, the spokesman said.

Most of the stricken students were treated and sent back to their rooms. About 30 remain in the infirmary. All dining halls remained open, but all food supplies were being checked.

The New York Times
Published: November 14, 1964



Project structure

- Project director, 2-3 graduate students, 6-12 undergraduate students and summer interns
- Continual reevaluation of the program
  - Are we focusing on the right risks?
  - Are we meeting the needs of our client?
  - Are we up-do-date with current thinking in food safety?

Weekly activities

- Unannounced visits to two dining halls and two smaller facilities each week during the school year (half time in the summer)
  - Sanitation audits
  - Hot and cold temperature audits
  - Food microbiology testing
- Reports sent to managers and University sanitarian
- Weekly troubleshooting, yearly trend analysis, special projects as needed

Sanitation audits

- Project microbiologist (i.e. graduate student) does audit
- If problem is observed, corrective action is logged on the spot
- Manager signs report on site
- Copies of the report are provide to the project director and University sanitarian
- The health department inspects once a year, but we inspect once a month

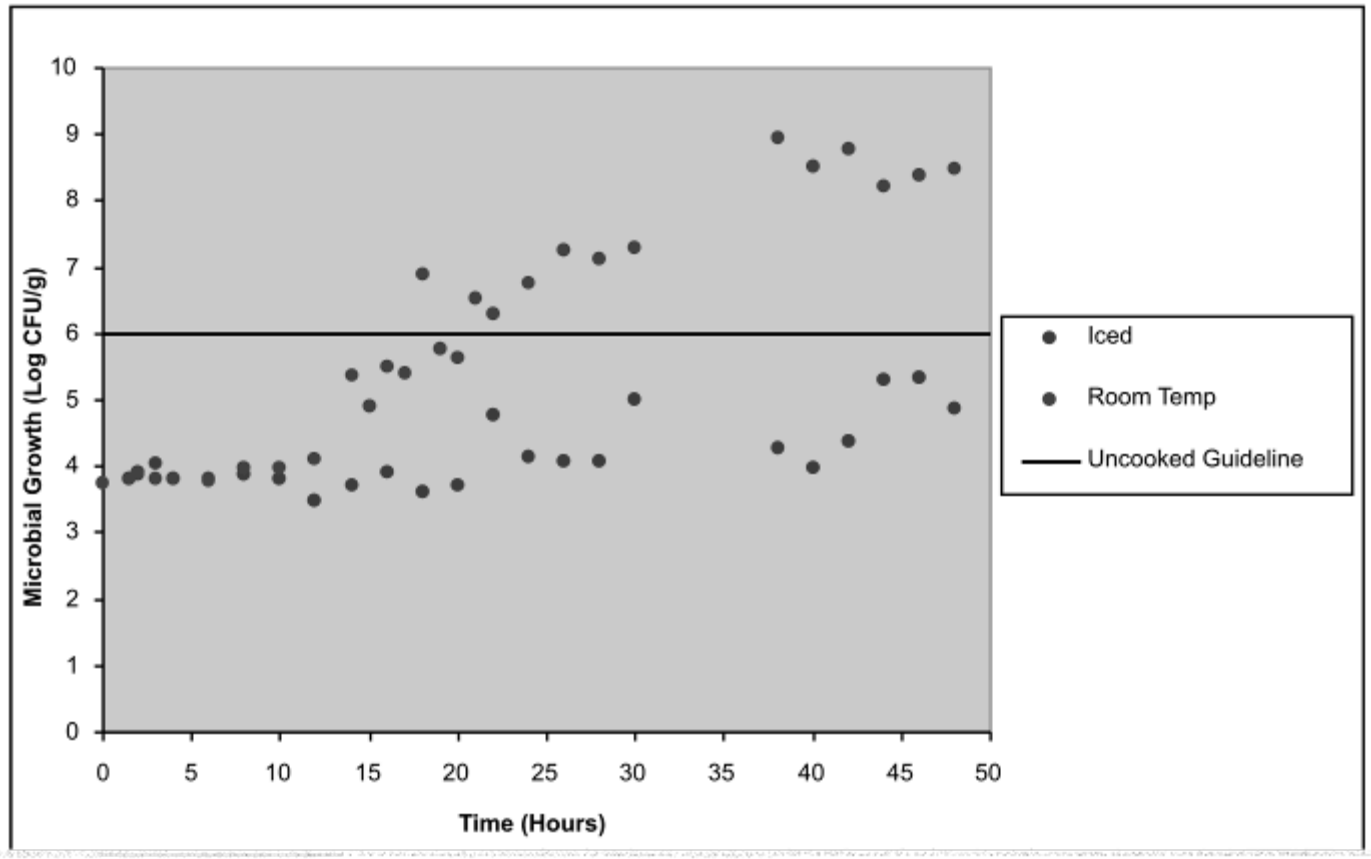
Temperature measurements

- Temperatures of foods are checked in
  - Refrigerators
  - Hot hold boxes
  - Cold lines
  - Hot lines
- Identify and correct systematic problems
  - Equipment malfunction
  - Personnel training
  - Sample “out of temperature” foods for microbes

Food testing

- Eight foods per week (four in summer)
  - Indicators
    - Total aerobic plate count, coliforms, fecal coliforms, Generic *Escherichia coli*
  - Various pathogens
    - *Staphylococcus aureus*, *Clostridium perfringens*, *Salmonella*, *Listeria*, *Bacillus cereus,* Pathogenic *E. coli*

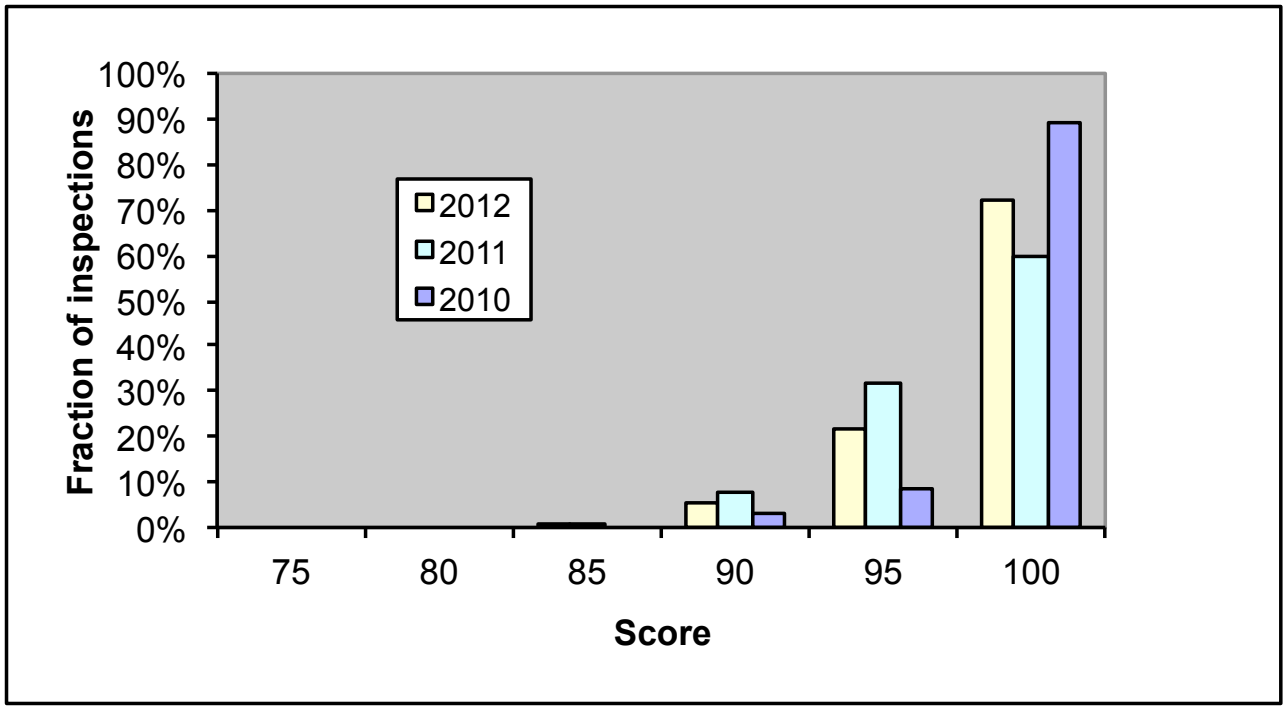
Special projects – waffle batter



Top 10 problems

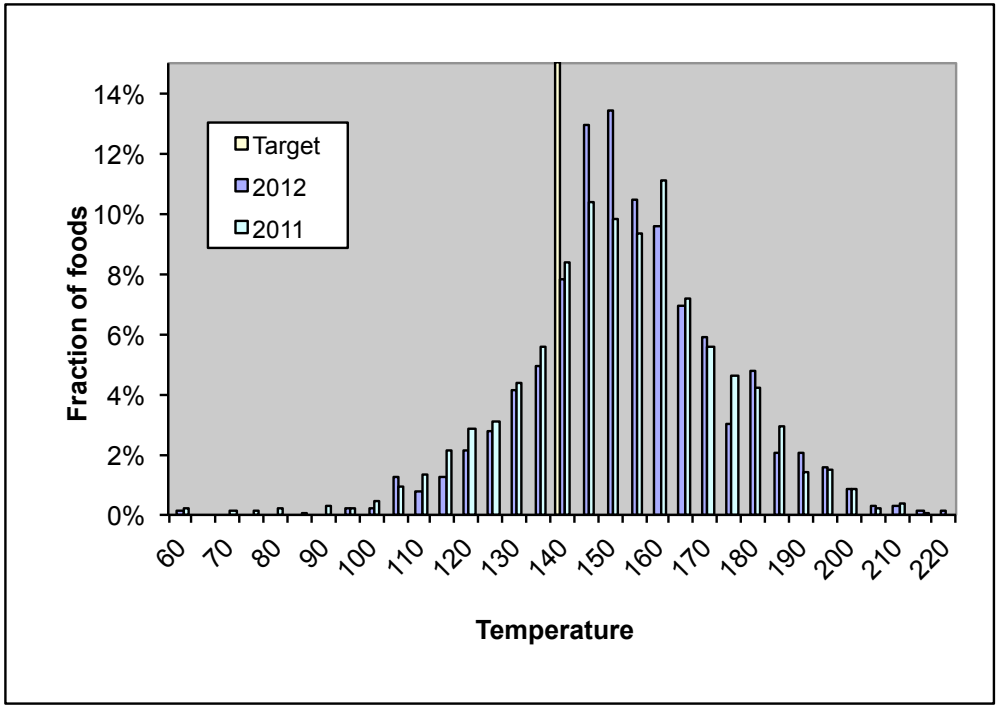
Question	2012	2011	+/-
Are foods stored in the refrigerator covered?	79	78	
Are pans deep enough to reach close to bottom of cooling unit?	86	85	
Are employees refraining from eating, drinking, and smoking?	87	87	
Are employees wearing hairnets, hats or other hair restraints?	87	88	
Are all non-food contact surfaces clean	88	88	
Are cutting boards stored properly (not flush)?	89	88	
Are all bags in the storage room sealed?	89	88	
Are gloves being worn as appropriate?	89	89	
Is all food stored off of the floor?	89	88	
Are sinks equipped with paper towels and soap?	90	89	

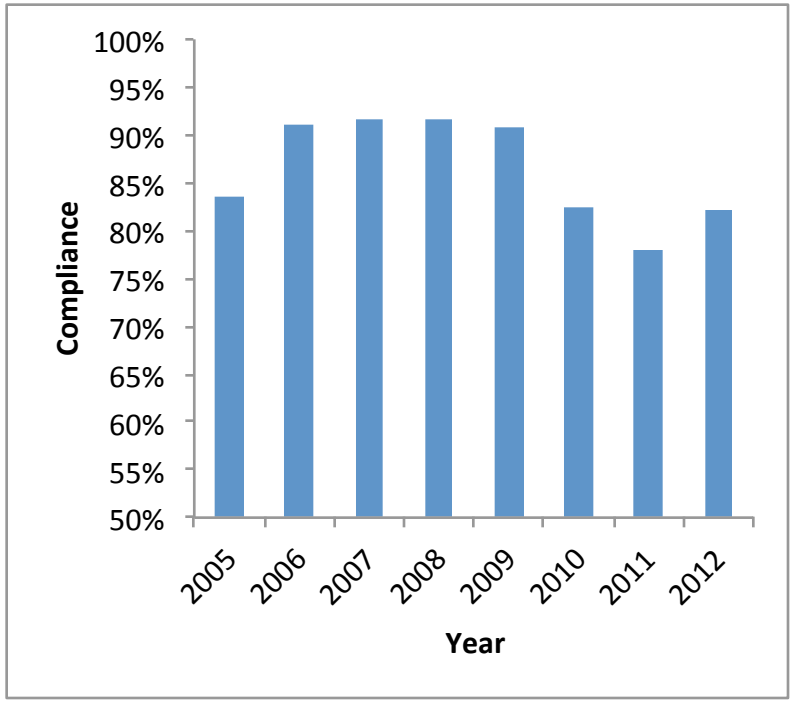
Sanitation audit scores



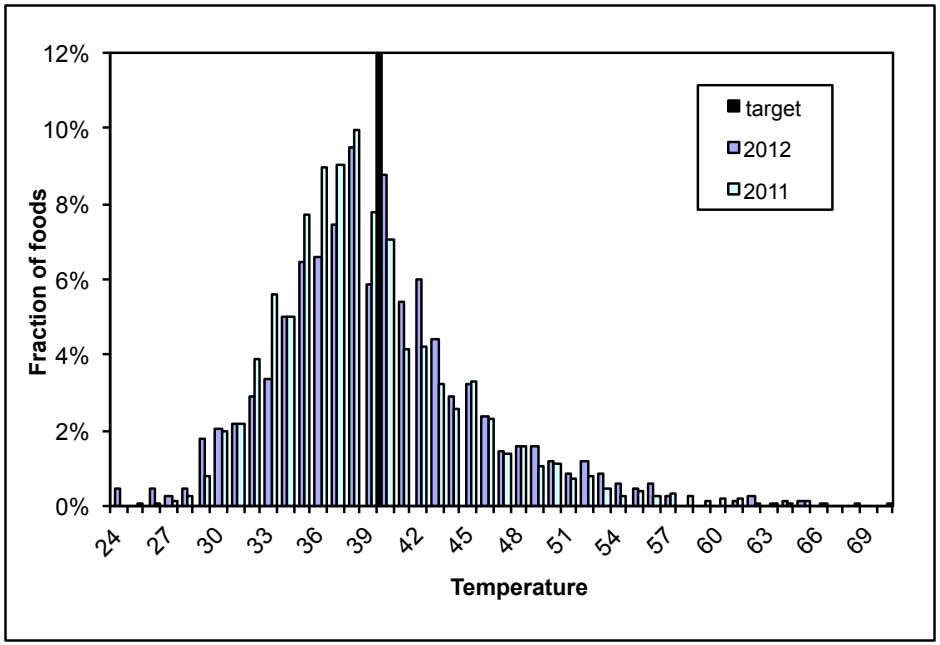
2007 92.7
2008 93.8
2009 94.0
2010 97.9
2011 95.3
2012 96.6

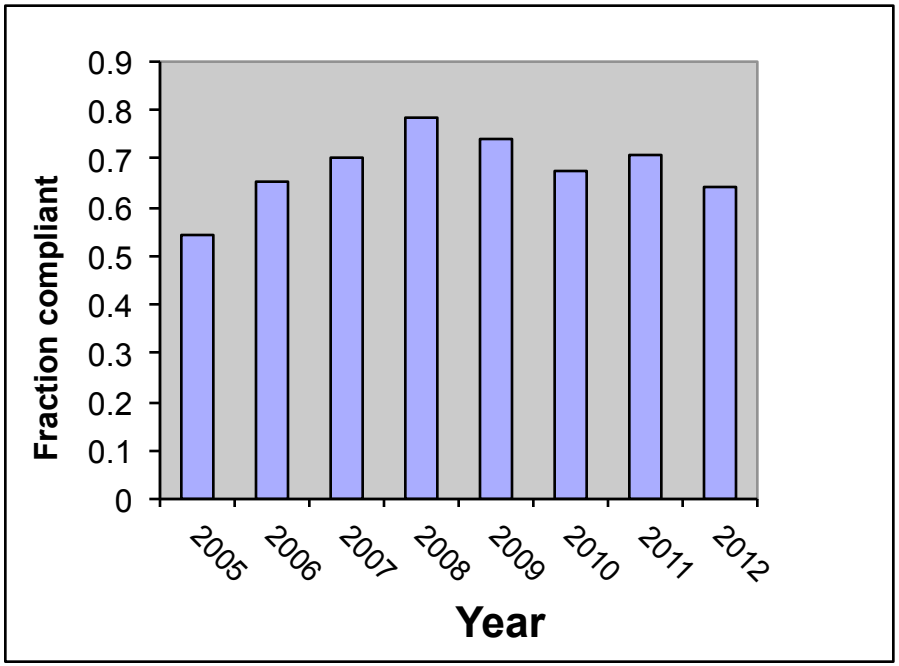
Hot holding


14%
12%
10%
8%
6%
4%
2%
0%
Fraction of foods
Target
2012
2011
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
Temperature


100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
Compliance
2005
2006
2007
2008
2009
2010
2011
2012
Year

Cold holding





High TPC

	Failed	Positive	Percent
Cucumber	3	3	100%
Fruit	2	2	100%
Shredded Mozzarella	2	2	100%
Veggie wrap/sandwich	2	2	100%
Bell Pepper	4	5	80%
Red Onion	3	4	75%
Carrots	4	6	67%
Leafy greens, any	19	30	63%
Chicken dish cold	7	14	50%
Cauliflower	2	4	50%
Turkey, cold	2	4	50%
Cabbage	1	2	50%

	Failed	Positive	Percent
Swiss Cheese	1	2	50%
Pasta Salad	3	8	38%
Sushi, any	3	8	38%
Shrimp, cold, any	2	6	33%
Garlic Bread sticks	1	4	25%
Tuna Salad Sandwich	1	4	25%
Tomatoes	2	10	20%
Chicken dish hot	2	11	18%
Broccoli	1	7	14%
Chick peas	1	1	100%
Mushrooms, sliced	1	1	100%
Ravioli	1	1	100%

Coliforms

	failed	total	percent
Fruit Cup	2	2	100%
Veggie item, cold	2	2	100%
Carrots	4	6	67%
Cucumber	2	3	67%
Vegan, cold	2	3	67%
Bell Peppers	3	5	60%
Red Onion	2	4	50%
Turkey	2	4	50%
Swiss Cheese	1	2	50%
Leafy greens	11	30	37%
Chicken, cold	5	14	36%
Chicken, hot dish	3	11	27%

	failed	total	percent
Pasta salad	2	8	25%
Sushi	2	8	25%
Garlic Bread sticks	1	4	25%
Tuna Salad Sandwich	1	4	25%
Shrimp, any cold	1	6	17%
Broccoli	1	7	14%
Tomatos, any	1	10	10%
Beef Chili, hot	1	1	100%
Honeydew, cut	1	1	100%
Mushrooms, sliced	1	1	100%
Ravioli, hot	1	1	100%
Tofu Cubes	1	1	100%

Summary

- Since the program was initiated in the 1960's, there have been no reported cases of food poisoning at any University dining facility
- The programs helps to keep food safe, while providing a unique "real-world" learning experience for Rutgers students