

Thermometer Use: Making Progress Against HP 2020 Behavior Goals

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TOGETHER: A FOOD SAFE AMERICA

Objectives

- Review current knowledge and use of thermometers
- Understand the barriers to thermometer use
- Identify motivators to change behavior
- Review approaches that may increase thermometer use

Current Thermometer Use

Few use a thermometer to check doneness of meat, poultry or seafood

- Self reported use of thermometers increased from 33% in 1998 to 53% in 2010
- Burger Preparation Observational study (n=200)
 - 4% used thermometer to check when burgers were done
 - Only 13% knew recommended temp for burgers
- FDA topline survey (n=4,539) - 70% said they would never use a thermometer when cooking burgers
- Phang and Bruhn, 2010, Lando and Verill, 2006; Lando and Chen, 2012

Current Thermometer Use Observational Study

Chicken Preparation (n=120)

- 48% owned a cooking thermometer
 - 53% said they knew the recommended temperature for cooked chicken
 - Only 29% responded with 165 F or higher
 - 5% voluntarily used a thermometer to record chicken temperature
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- Bruhn, 2014,

Thermometer Use: Chill

FDA 2010 Topline Survey (n=4568)

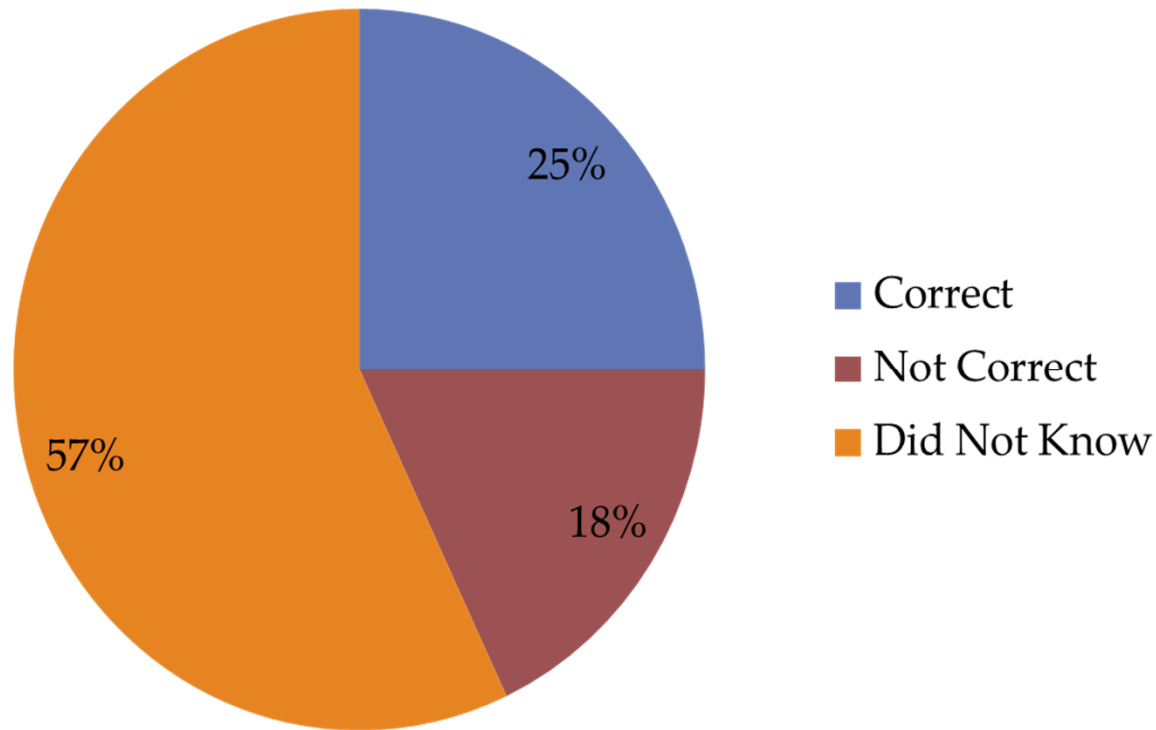
- **42% Have a thermometer build into refrig**
- **21% Put a thermometer in their refrig**
- **Of those who said knew refrig temp (n=1444)**
 - **14% reported 0-30F**
 - **24% reported 32-35 F**
 - **50% reported 36-41**
 - **8% 42-50**
 - **4% 51 or higher**



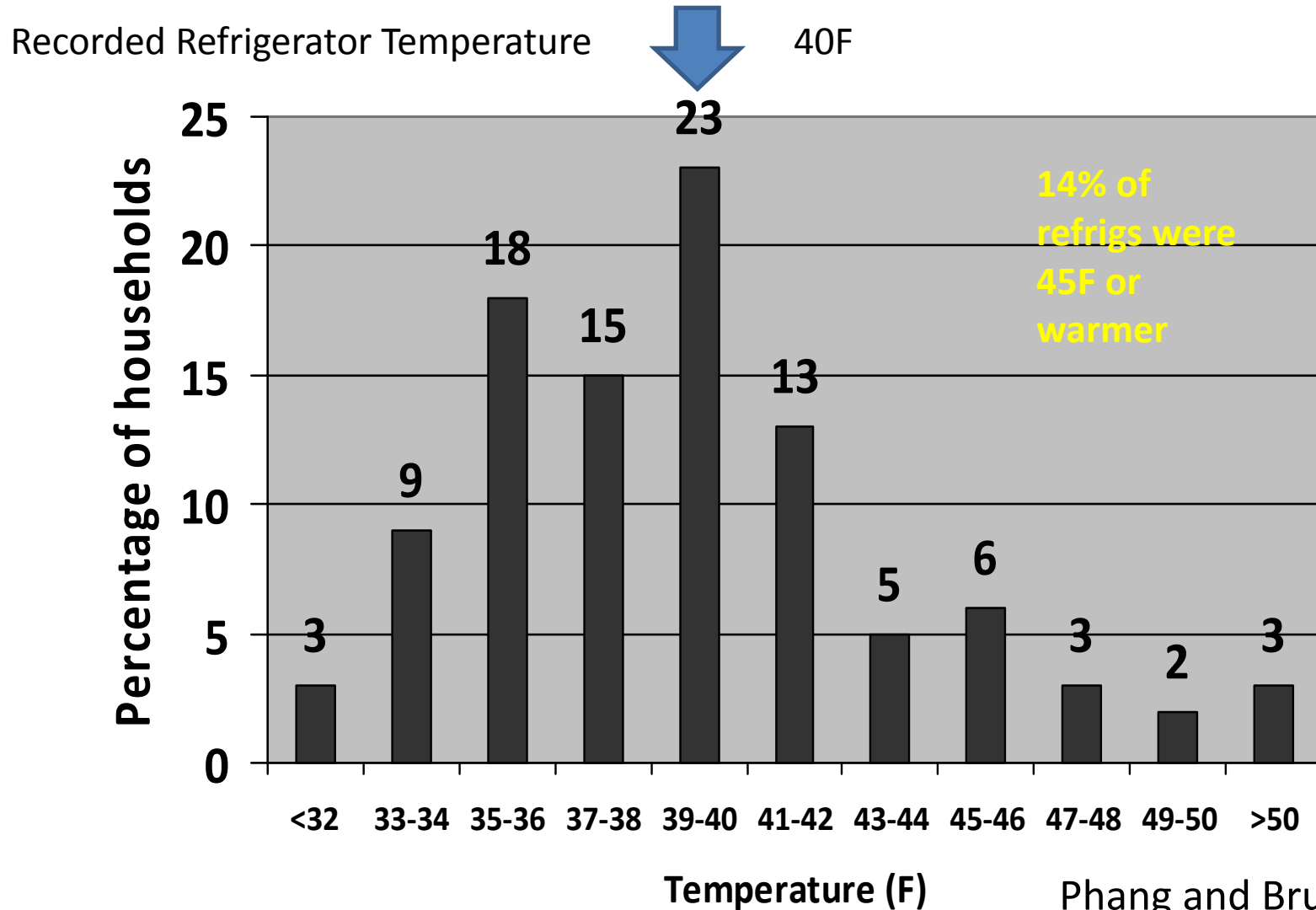
<http://www.fda.gov/Food/ScienceResearch/ResearchAreas/ConsumerResearch/ucm259074.htm>

Thermometer Use: Chill Observational Study

- Few knew the recommended temperature for their refrigerator



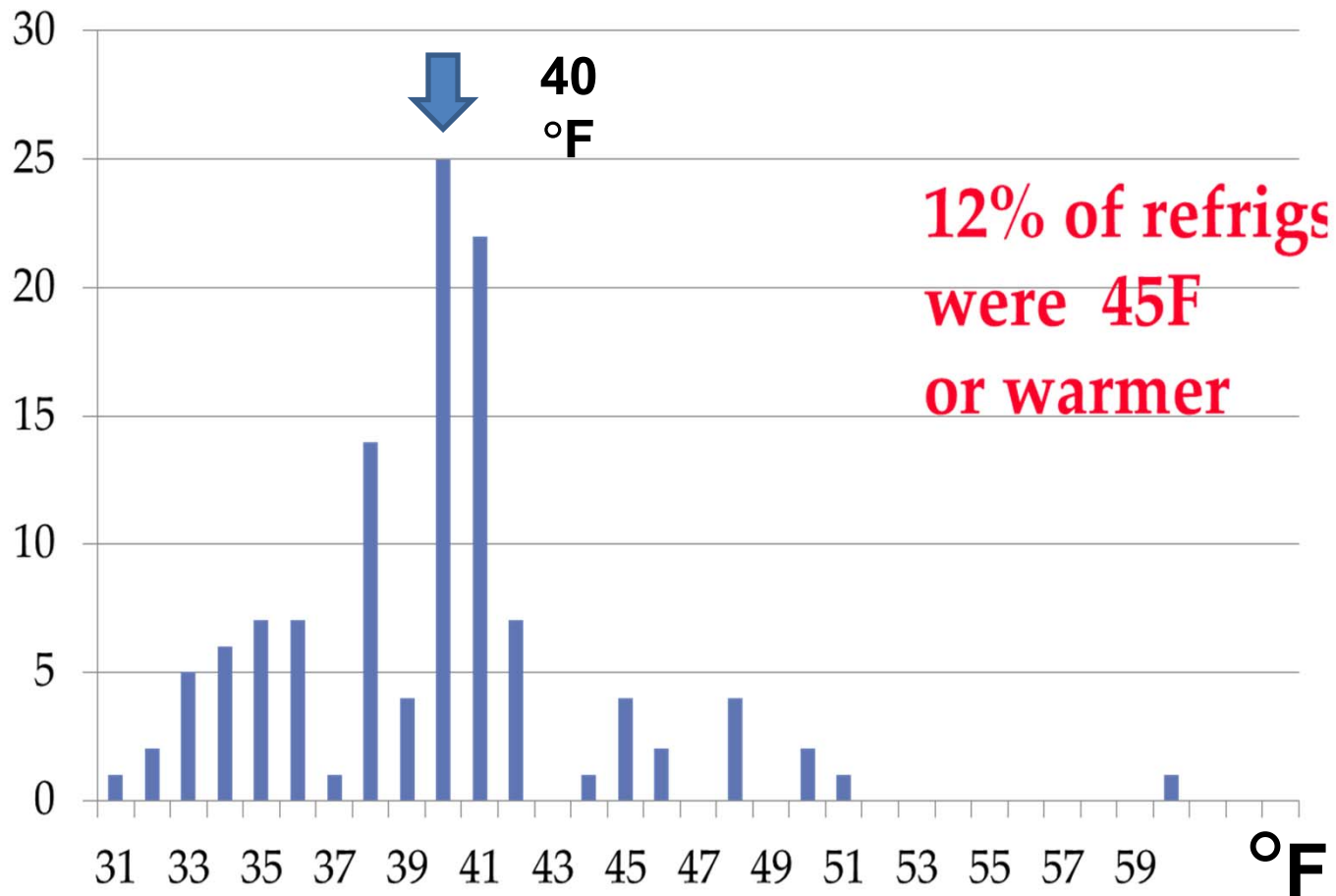
Thermometer Use: Chill Burger Prep. Observational Study



Phang and Bruhn, 2011

Thermometer Use: Chill Chicken Prep. Observational Study

Actual Refrigerator Temperature



Barriers to Thermometer Use: Chill

Unaware that they are not following recommendations

- Few have thermometers in refrig
- Believe the factory or service person's setting is OK
- Saving electricity, especially in the summer

Barriers to Thermometer Use: Cook

Do not associate foodborne illness with home food preparation

- 95% Heard of people becoming ill from eating chicken
- 94% Heard of Salmonella
- 48% Believe their family has experienced foodborne illness

People believed the source* of their family's illness was:

86% Restaurant

14% Friend's home

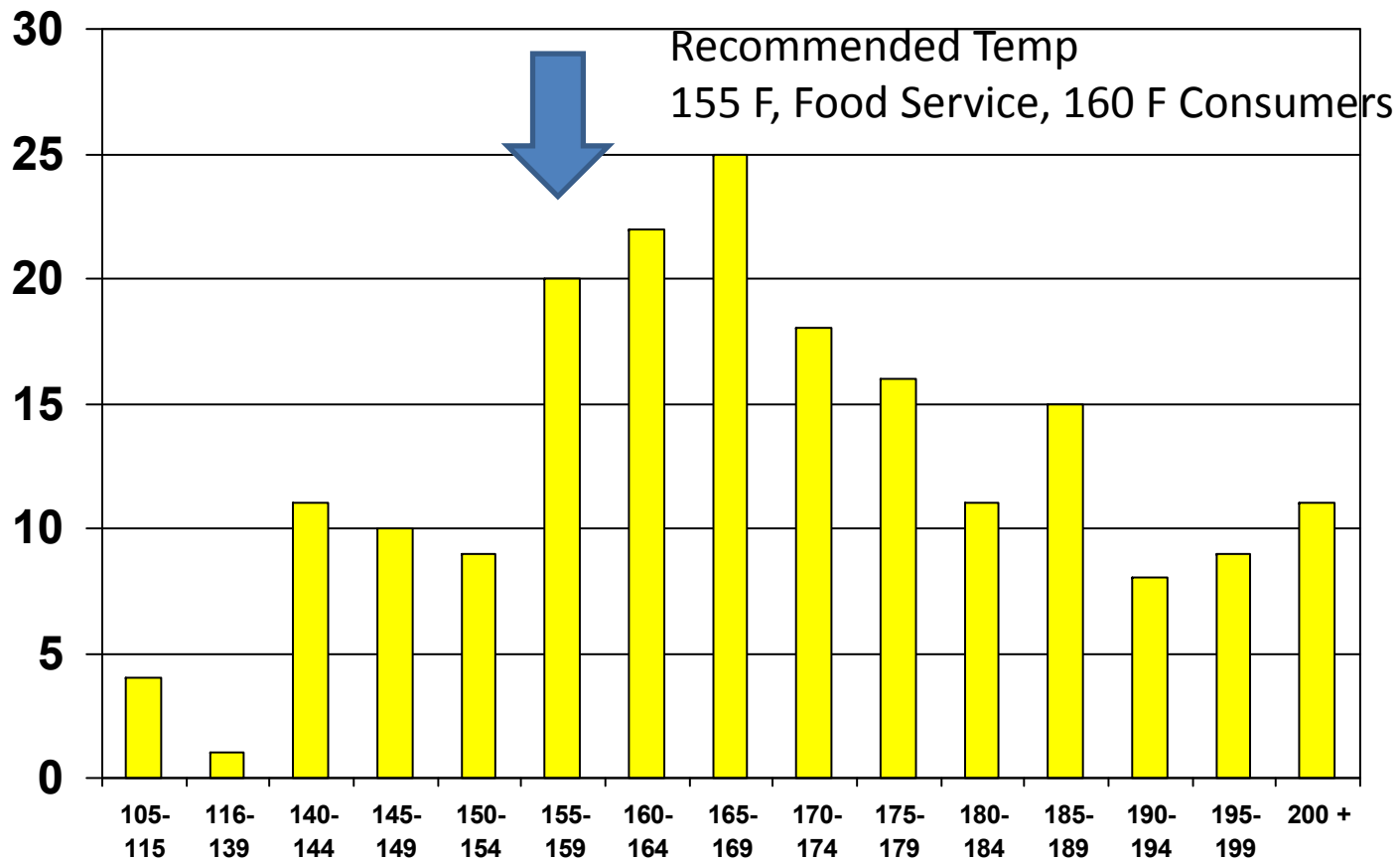
9% Home

9% Picnic

* Multiple responses permitted

Observational Study: Burgers

Burger temperature ° F when consumers stopped cooking



Phang and Bruhn, 2011

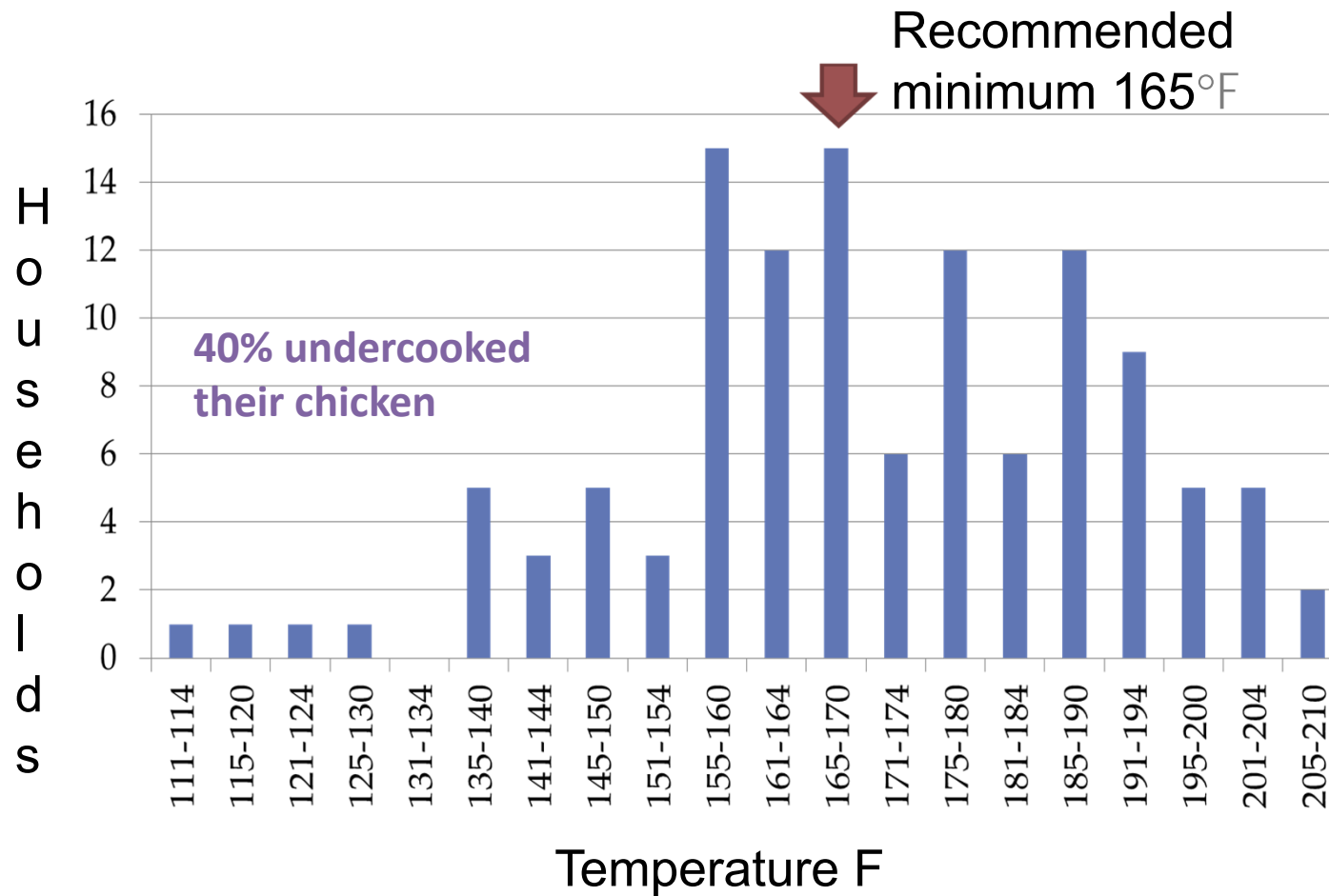
Barriers to Thermometer Use: Cook

- Prefer their meat less thoroughly cooked
 - 23% preferred pink interiors
 - 2% preferred rare burgers
- Don't ignore the value of advanced technologies
 - 24% said they would use a thermometer in the future
 - 49% would buy irradiated burgers
 - 48% would buy irradiated chicken

Phang, Bruhn, 2011, Bruhn, 2014



Observational Study: Chicken



Observational Study: Chicken

Undercooking occurred regardless of cooking method

| | Average degrees below 165 | N |
|-----------------------------------|---------------------------|-------|
| • Grilling/BBQ – 52% undercooked | 18 | 17/33 |
| • Fry/Stir fry – 41% undercooked | 14 | 19/46 |
| • Oven Baking – 27% undercooked | 7 | 9/33 |
| • Simmer in Pot – 28% undercooked | 24 | 2/7 |

Barriers to Thermometer Use: Cook

- Using a thermometer is not necessary
 - Experienced, have been cooking for years
 - Can tell when it is done- use visual indicators like color, firmness, clear juices, shrinkage
- Perception is perpetuated by Restaurants
 - “How do you want your burger?”

Barriers to Thermometer Use: Cook

Perception that thermometers are not necessary is perpetuated by celebrity chefs

- Review of 60 shows featuring 4 celebrity chefs
- Survey findings regarding Chef's burger preparation:
- 89% would like to know how the chef knew the meat was done
- 63% said they would consider using a thermometer if the chef used one
- 52% thought a thermometer was not necessary if the chef didn't use one

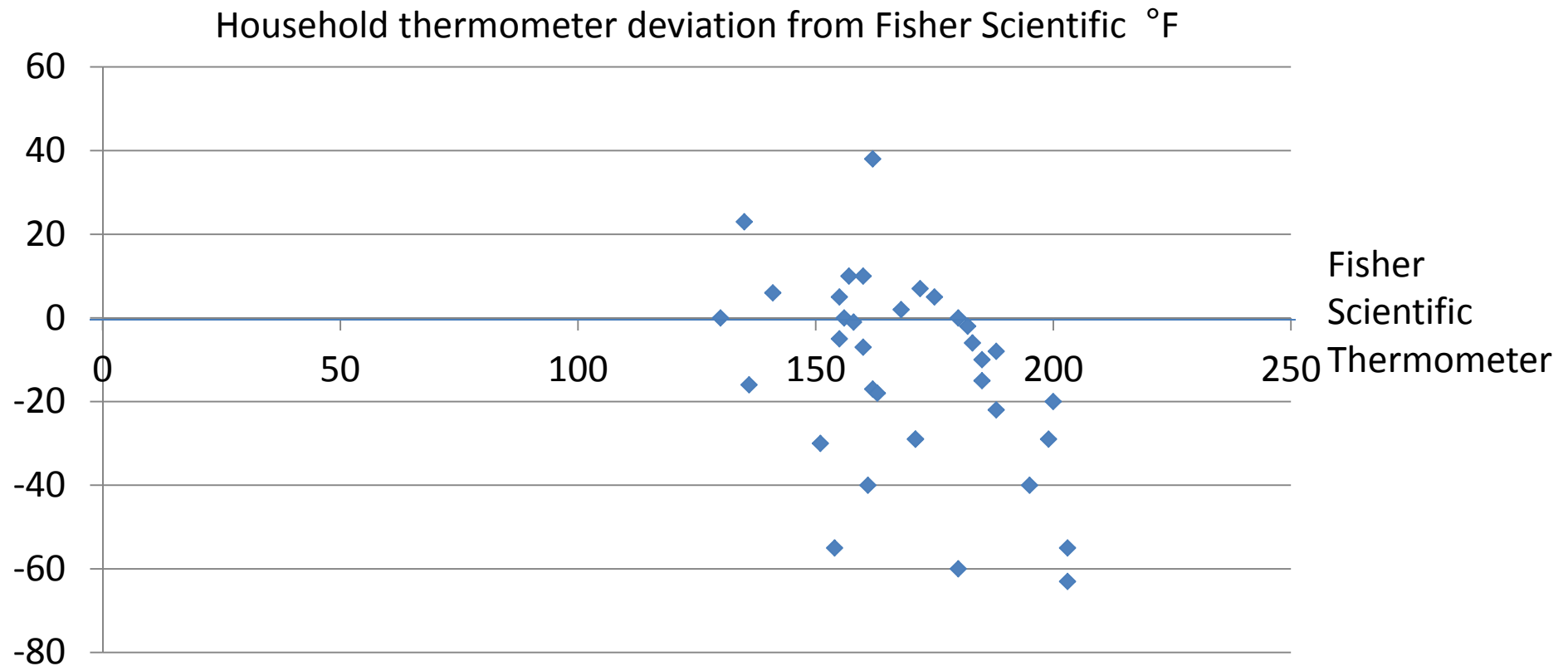
Barriers to Thermometer Use: Cook

- Perception that thermometers are not necessary is perpetuated by recipes
 - “simmer gently until chicken is cooked through, 20–25 minutes” Bon Appetit
 - “Add chicken; saute until cooked through, 10 to 12 minutes, turning once.” Martha Stewart
 - “cook chicken in hot oil over medium-high heat for 12 to 14 minutes or until tender and no longer pink, turning once.” Better Homes and Gardens

Barriers to Thermometer Use: Cook

- Perception that thermometers are not necessary is driven by social pressure
- Using a thermometer implies inexperience
 - “My husband knows when the meat is done. He can just tell.”
 - “Using a thermometer is cheesy”
 - “Who hasn’t cooked burgers before?”

Other Issues: Home Thermometers Are Not Always Accurate



Recommendations

- **Equate thermometer use with cooking expertise**
 - The most experience cooks use a thermometer
 - “How hot is it? The best cooks know because they use a thermometer.”

Recommendations

- Equate thermometer use with cooking expertise
- Influence the media role models
 - Contact the Food Network and various celebrity chefs
 - Point out that their behavior influences the public
 - Partner with industry to exert economic pressure

Recommendations

- Equate thermometer use with cooking expertise
- Influence the media role models
- **Continue to stress that appearance is not a reliable indication of doneness**
 - Expand message to include chicken as well as burgers
 - Work with National Restaurant Assoc. to extend message to independent and chain restaurants

Recommendations

- Equate thermometer use with cooking expertise
- Influence the media role models
- Continue to stress that appearance is not reliable
- **Print recipes with end point temperature**
 - Food companies, cookbook authors, commodity groups, newspapers, all can do this!
 - When you see a recipe that doesn't include end point temperature, contact the source and ask for it.

Recommendations

- Equate thermometer use with cooking expertise
- Influence the media role models
- Continue to stress that appearance is not reliable
- Print recipes with end point temperatures
- **Stress that meat/chicken is not dry when cooked to recommended temperature**
 - Focus on quality
 - Use humor in advertisements
 - Chicken and burgers are juicy and flavorful when not over cooked.

Recommendations

- Equate thermometer use with cooking expertise
- Influence the media role models
- Continue to stress that appearance is not reliable
- Print recipes with temperatures
- Stress that meat/chicken is not dry when cooked to recommended temperature
- **Include fun thermometer experiences into educational material**
 - Take the temperature of your refriger
 - Take the temperature of the cooked dishes/ leftovers

Recommendations

- Equate thermometer use with cooking expertise
- Influence the media role models
- Continue to stress that appearance is not reliable
- Print recipes with temperatures
- Stress that meat/chicken is not dry when cooked to recommended temperature
- Include fun thermometer experiences into educational material
- **Other ideas from the audience?**

Thank You

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