



Closing the Gap⁸

Food Code part 2

September, 1998

This is the second of two parts on the FDA model food code and related issues. Last month we explored some of the circumstances that have given rise to concern about the integrity of the nation's food supply. We discussed that the improper cooling of foods was the leading reason for food borne illness outbreak, and the importance of proper and frequent hand wash and good personal hygiene. This month we will review some of the specific requirements of the 1997 FDA model food code and associated risks.

The 1997 model FDA food code was developed to better protect public safety in the face of increased risk of foodborne illness. Some bacteria have developed resistance to the various "barriers" established to prevent pathogenic growth. Some of these include cooking (time/temp), pH modification, reduced water activity, etc. Furthermore, our eating habits have changed and the average length of time from cooking to consumption has grown. The 1997 model food code represents a paradigm shift for regulators and for Permit Holders. The phrase *paradigm shift* may be overused and tired, but its meaning is dead on as it relates to the new State food codes. Minnesota recently passed a new food code as did the State of Texas and many others. All States have been busy reviewing the FDA model food code as they go about shoring up their respective statutory requirements. There are some fundamentals that are critical in understanding the issues.

1. The food code is a performance code designed to protect public health.
2. ANSI NSF Std 7 is not a code, it is a method of test for refrigeration manufacturers.
3. HACCP is a guideline
4. Personal hygiene (hand wash) is critical to food safety.
5. Regulators now present themselves as educators and trainers.
6. Permit holders (through their delegates) are legally responsible for consumer safety.
7. Don't confuse enforcement with accountability before the courts of law or public opinion.
8. Good operators and Permit Holders have the right to expect regulators will be firm in holding other Permit Holders accountable for meeting all of the provisions of the code.

Standards, codes and ordinances

We mentioned that the FDA food code is a model code developed for states to use as a guideline. An ordinance is a local law passed by a city or other legislative entity. The State department of health has a delegation agreement with local health inspectors for plan review and inspection. Inspectors from your municipal health department enforce State law and local ordinances. Standards, as is the case with NSF (National Sanitation Foundation) are nothing more than methods of test used to test manufacturers products for safety. NSF submitted their standards to ANSI (American National Standards Institute) for certification, and now a number of laboratories are certified to test manufacturers equipment to ANSI-NSF safety test standards. ANSI-NSF Std 7 is the standard that applies to refrigeration equipment prep and holding equipment, including reach-in's, walk-ins, open buffet tables and prep tables. Inspectors will require that refrigeration equipment be listed to the NSF std 7 in order to pass plan review. In fact, *think of the NSF std 7 listing as a pass to plan review*



Closing the Gap⁸

for refrigerated equipment. But acceptance of a products listing on the plans submitted for review does not guarantee that potentially hazardous foods (PHF) within the unit will be at required temperatures. When an inspector finds that the prescriptive performance criteria of 3-501 are not met, the piece of equipment is not condemned, but rather the Permit Holder is issued a citation. Depending upon the cited hazard, the regulatory authorities available remedies range from “*I’ll be back*” (in ten days), to seizure, license suspension and worse.

Food Code criteria

The food code relates requirements for maintaining temperatures of potentially hazardous foods to time. Though there are other variables such as pH (safer<4.6), water activity (safer<.85) and % salt (safer>10%) that affect the hazard potential, the time/temperature relationship defines the primary, frontline defense from food borne pathogens. Below is an abbreviated recap of the specific times and temps listed in the model FDA food code. Note that requirements in your area may vary. Please refer to your State’s food code and any municipal ordinances.

3-501.16 Potentially Hazardous Food

(A) Cooked POTENTIALLY HAZARDOUS FOOD shall be cooled:

- (1) **Within 2 hours**, from 60 C (140⁰F) to 21 C (70⁰F); and
- (2) **Within 4 hours**, from 21 C (70 F) to 5 C (41 F) or less, or to 7 C (45⁰F) as specified under ¶ 3-501.16(C).

(B) POTENTIALLY HAZARDOUS FOOD shall be cooled

within 4 hours to 5 C (41⁰F) or less, or to 7 C (45⁰F) as specified under ¶ 3-501.16(C) if prepared from ingredients at ambient temperature, such as reconstituted FOODS and canned tuna.

(C) Except as specified in ¶ (D) of this section, a POTENTIALLY

HAZARDOUS FOOD received in compliance with LAWS allowing a temperature above 5 C (41⁰F) during shipment from the supplier as specified in ¶ 3-202.11(B), shall be cooled within 4 hours to 5 C (41⁰F) or less, or 7 C (45⁰F) or less.

Standard storage refrigeration such as reach-ins and walk-ins are not designed for the rapid pull down of temperatures prescribed by this section of code. Rather, they are designed to maintain food temperatures. Blast chillers and tumble chillers are two pieces of equipment specifically design to remove large amounts of heat energy from food items quickly with minimal damage to the foods integrity, flavor and nutrient yield. Blast chillers use air as the heat transfer medium where tumble chillers use a re-circulating ice water bath to quickly pull heat from food items packaged in hermetically sealed laminated casings. Blast chillers will become very common items in US foodservice operations over the next couple of years due to this code section. Permit holders may buy their first blast chiller because of their need to quickly drop food temps, but once they work with them a bit, they will find that they improve food flavor and quality in unexpected ways.

3-401.12 Microwave Cooking.*

Raw animal FOODS cooked in a microwave oven shall be:

- (A) Rotated or stirred throughout or midway during cooking to compensate for uneven distribution of heat;
- (B) Covered to retain surface moisture;
- (C) Heated to a temperature of at least 74C (165⁰F) in all parts of the food; and



Closing the Gap⁸

(D) Allowed to stand covered for 2 minutes after cooking to obtain temperature equilibrium.

Bottom line here is that ALL of the food product needs to reach 165⁰F for at least 15 seconds. This time/temp requirement is common for all left over reheating. Similarly, if a PHF that is being held hot falls below the 140⁰F hot-holding temp requirement, it needs to be re-heated to 165⁰F for 15secs, or discarded. Another interesting change in this code is using time as a control. A good example would be school food service where all meals are served within a very sort period of time. Since there is so little time between cooking and consumption, the permit holder may not need mechanically cooled or heated cafeteria counters.

HACCP

Among the other important things contained in the model food code is HACCP. Hazards Analysis Critical Control Points is a guideline for a documented discipline that was first developed by Minneapolis based Pillsbury Company. There are seven principals to HACCP and they are:

1. Hazard Analysis (review menu and food components/assess risk)
2. Identify Critical Control Points (CCP's)
3. Establish Max. Critical Limits for prevention (MCL's)
4. Establish procedures to monitor CCP's
5. Establish corrective action for exceeding MCL's
6. Establish effective HACCP documentation system
7. Establish procedures to verify HACCP effectiveness

Not all Permit Holders have to file a HACCP plan for their facilities, though all are expected to be knowledgeable of the principals. The food code does specify when a HACCP plan needs to be filed with the regulatory authority having jurisdiction.

A HACCP plan is required:

1. with any type of vacuum packaging
2. with cured and smoked foods (where smoke is used as preservative)
3. with any variance
4. when molluscan shell fish (bi-valves) are displayed and served.
5. anytime consumable products (beverages) are brewed on premise
6. for all food manufacturers and USDA inspected facilities.

Regulators as educators

One of the biggest concept changes with the new codes is the concept that the Permit Holder accepts responsibility for self inspection. The idea is that the regulatory authority would avail themselves to educate, guide, quiz and encourage the permit holder in their efforts to develop and maintain safe food handling policies, procedures and systems. Flagrant and dangerous violations are met with strong enforcement and now that the attorneys have comprehensive and effective code language, it is expected that litigation settlements will lead the charge to safer food operations. Permit Holders need to understand that when they sign the foodservice operators permit, they agree to meet all of its performance related conditions. Inspection records and citations are public records. When the environmental health inspector stops in for inspection they will be asking the food handlers open



Closing the Gap⁸

ended questions. They will also question the *person in charge* to be sure that he/she is familiar with the hazards that exist in their menu and its constituent ingredients.

Tools

New requirements create market opportunities for manufacturers. Blast chillers are an example of a product made market viable by code requirements. Market leaders like Servolift/Irinox, Elliott Williams and Randell manufacturing offer a wide range of models. Capacities go from four pan reach-in units to roll-in's and conversion kits to put a blast chiller in the forward section of an existing walk-in cooler. Other technology based products can provide permit holders with just the right amount of added convenience to increase the likelihood of employee diligence. Hanna Instruments has a handheld thermistor/logger with an integral plain paper printer that is accurate to 1⁰F and can be easily calibrated. The food handler can make the rounds measuring PHF temps, pan after pan in a prearranged sequence, printing values as each pans temp is taken. The printed record can be stapled to the written chefs log and/or data values can be downloaded to a PC. Sapac offers the Temprecord temperature datalogger for measurement, logging and alarming threshold temperatures. Sensors are embedded in a card about the size of luggage tag and can be programmed by putting the card into a card reader and programming logging time intervals, temperature boundaries, and up to 15 different user field. Each logger has a 4-5 year battery life and is reusable. The scientific loggers record over 32000 sample temps per issuance, and the loggers can be reused and reprogrammed over and over again. Many inspectors and QA people will use these devices to log temperatures of suspect equipment. Sensaphone 2000 is a system made available by Phonetic's inc that allows multiple remote sensing, alarming and logging capabilities. Temperature and water sensors can be put into refrigeration equipment to continuously monitor, log and alarm. If temp boundaries (maximum critical limits) are exceeded, the unit will page, email, fax and/or call any of many different user defined calling trees while it annunciates locally and maintains a permanent record. Prices for these new solid state electronics based systems are remarkably cheap and loaded with features. PureTrac from PureChoice may be the most amazing of the new breed of connected smart sensor array systems. The system enables operators to continuously monitor indoor air quality by measuring temperature, humidity, CO, CO₂ VOC's per m³ and any of a number of other constituent contaminants. All of these products are reviewed at <http://www.jdpinc.com>.

In summary,

regulators and lawyers have a new set of tools to encourage and enforce food safety. But all of these changes are worthless unless the Permit Holder takes public safety to heart and looks beyond the cost and effort associated with running a safe program. The carrot is the margin you can hope to make producing and selling food perceived by your customers as safe. The stick is the consequence of getting caught with unsafe practices, or worse, injuring others. Food safety starts with the owner, manager and person in charge by the example they set and the attitudes they exude. The least expensive food safety program is the example set by superiors. Given training and a good example along with adequate facilities, good equipment and the right tools every operator can fulfill their legal and moral obligation food safety.

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Closing the Gap⁸