

# Food Safety

Document developed by Mapleton Teaching Kitchen 2011



TIPS & RESOURCES FOR COMMUNITY FOOD MENTORS



## **FOOD SAFETY & FOOD POISONING**

Canada's food supply is among the safest in the world, but sometimes the food we eat can make us sick because it may not have been prepared or stored or cooked properly and dangerous bacteria have been allowed to grow & multiply.

### **WHAT IS FOOD POISONING?**

Food poisoning or "food borne illnesses" are caused by eating a food that is contaminated with "pathogenic" (disease causing) microorganisms (bacteria, viruses, mould or parasites) or from some type of chemical.

Mild cases of food poisoning are common, but serious cases can be life threatening, especially in children and seniors. Symptoms can occur hours or even days after eating contaminated food. You may have experienced mild symptoms yourself like nausea, an upset stomach, diarrhea, fever or headache but assumed it was just a stomach flu or a bug.

According to Health Canada 11-13 million Canadians suffer from food borne illness each year, while only 1 in 10 cases are reported.



### **THE GOOD, THE BAD & THE UGLY:**

**GOOD:** Some microorganisms can be beneficial: yeasts in breads, wine, beer, active cultures in yogurt...

**BAD:** Some can cause food spoilage but not make us sick: like mould on hard cheese, a one inch area can be cut off and the cheese is often still safe

**UGLY:** Some bacteria can be pathogenic, and make us sick by invading the body and growing in the intestines or producing a poison in the food itself

- Pathogenic bacteria are the most common source of food poisoning
- Microorganisms are so tiny, several million fit on the head of a pin
- They "hitch a ride" on everything: dust, clothes, shoes, hands, face....
- Harmful bacteria can be transferred from food to people, people to food or from one food to another.
- Bacteria can grow very quickly at room temperature and are often invisible, odourless and tasteless.
- One bacterium can multiply into over 250 in 2 hours and over 8 million in 24 hours. The more harmful the bacteria, the more likely you will get food poisoning.

## **F.A.T.T.O.M - Bacteria's Key to Life & Growth**

Microorganisms need certain conditions to live & thrive:

- F: Food (they thrive on high protein foods like meats, dairy & eggs)
- A: Acidity: loves mid range Ph levels. Foods that have very high or low Ph levels have a slower bacteria growth rate.
- T: Temperature: DANGER ZONE for growth (between 4°C & 60°C)
- T: Time: In the right conditions bacteria double every 10-20 minutes.
- O: Oxygen: (air) vacuum sealing & gas flushing prevent growth (CO<sub>2</sub> & N)
- M: Moisture: foods like fish, meat, dairy, cooked grains, rice & vegetables.

- All foods have the potential to cause illness as microorganisms can live on all kinds of surfaces.
- Two thirds of households put themselves at risk for food borne illnesses.
- 85% of food poisoning can be prevented with proper food handling

### **HOW TO PLAY IT SAFE**

We can all help to prevent food poisoning by remembering food safety tips while shopping for food and when storing and preparing food at home.

There are 4 simple steps we can take at home to “fight bacteria”

1. CLEAN
2. SEPARATE
3. CHILL
4. COOK

## Disease Causing Microorganisms: The Nasty Details:

BACTERIA are the most common source of food poisoning. Bacteria can spoil food, make it slimy, soft & smelly. These spoilage organisms can cause odours & off taste, making people unlikely to eat them. But other disease causing bacteria can be odourless & tasteless. It's best to remember the expression "WHEN IN DOUBT, THROW IT OUT"



### Salmonella & Campylobacter:

- Multiply in food & cause illness after ingesting it.
- Usually found in wild or domestic animals, including raw poultry products, raw milk (unpasteurized) & eggs.
- Symptoms include headache, abdominal pain, diarrhea, nausea & sometimes vomiting, followed by fever

### E-coli 0157:H7:

- Multiply in food & cause illness after ingesting it.
- Usually associated with raw beef, especially ground beef, produce & unpasteurized dairy milk.
- Symptoms include severe stomach cramps, bloody diarrhea & vomiting.

### Listeria:

- Can multiply in food & cause illness after ingesting it
- Usually found in contaminated food products like dairy products (soft cheeses), vegetables, fish & meat products like hot dogs.
- Symptoms include fever, muscle aches, nausea & vomiting. This is especially a concern for pregnant women as it can cause miscarriage, stillbirths or fatality in newborns if a woman becomes infected while she is pregnant.

### Clostridium botulinum

- Bacteria produce toxins, & cause illness after ingesting it
- Associated with improperly home canned or preserved foods especially those low in acid like asparagus, green beans & corn.
- Symptoms include fatigue, weakness, blurred vision, dryness in the mouth. Vomiting & diarrhea may also occur.
- In rare cases symptoms may progress to respiratory failure, paralysis & possibly death.
- Children less than 12 months should not be given honey as it may contain clostridium botulinum spores



PARASITES: need a living host (i.e. an animal) for nourishment. Parasites may develop & lie in the tissues of food animals & if the animal is not properly slaughtered, the parasite can be passed to the people who eat it.

### Cyclospora:

- A microscopic parasite found in the small intestine of humans when infected.
- Transmitted through food or water contaminated with infected feces
- Symptoms include diarrhea, loss of appetite, weight loss, nausea, gas, stomach cramps & vomiting

### Toxoplasma:

- Microscopic parasite that may infect a wide variety of birds & mammals, including humans
- Improper handling of meat & eating undercooked meat can cause infection.
- Symptoms include slight fever & enlarged lymph nodes. This is especially a concern for pregnant women as they may pass symptoms to the foetus.

VIRUSES: are the smallest forms of microorganisms. They only grow & reproduce inside living cells. They are usually transmitted through poor personal hygiene, inadequate cooking, inadequate sewage disposal or infected workers touching food. Hepatitis A is a virus that causes liver damage. Examples of viruses are Norovirus, Rotovirus, SARS and Influenza.

MOULDS: cause food spoilage & if we eat foods that have been spoiled we can get sick. Moulds develop from spores, which are frequently found in food. These spores develop silk-like threads that you can see or in the food. Sometimes they develop fuzz over the surface of the food.

Some moulds produce mycotoxins (poisons) that are very harmful. Even if you remove the mould they remain in food.

Liquid & semi solid foods (jam, maple syrup) should be thrown out if mould is found. Harder, dryer food like hard cheeses can still be used, provided the mould is cut about one inch around the affected areas.

Moulds usually grow on moist foods at temperatures above freezing.

\*Taken from Ontario Public Health Association / Nutrition Resource Centre's Food Safety, CFA Presentation Kit (2008)



## **KEEPING FOOD SAFE**

### **FOUR STEPS TO FIGHT BACTERIA**

You can't see, taste or smell them, they're sneaky little critters, and they can spread throughout the kitchen and get onto cutting boards, utensils, countertops & food. Anything that touches food, including your hands could be a source of bacteria. Follow these FOUR steps for food safety at home:

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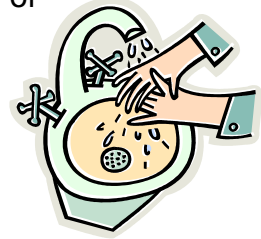
# 1. CLEAN

**WASH YOUR HANDS** for 15-20 seconds, including your wrists, thumbs, nails.

**BEFORE:** Handling or preparing any food  
Feeding an infant or child.

**AFTER:** Handling or touching any raw meat, poultry, seafood or eggs

Touching garbage or garbage containers  
Using the washroom or smoking  
Any contact with cleaning compounds  
Touching pets or handling money  
Changing diapers or handling dirty laundry  
Coughing into your hands or blowing your nose



- ▶ **WASH FRUITS & VEGETABLES** before you eat or prepare them in a recipe, even the ones you peel.
- ▶ **USE PAPER TOWEL** to wipe kitchen counters etc...then throw it out.
- ▶ **CHANGE YOUR DISHCLOTH** everyday, **AVOID USING SPONGES**
- ▶ **SANITIZE** your cutting boards & knives by adding 50 ml bleach to a sink full of hot water. Soak at least one minute, do not rinse then air dry.
- ▶ **SANITIZE** your counter tops, taps and cooking surfaces with a solution of 1 tsp (5ml) bleach and 3 cups (750ml) water in a labelled spray bottle. Let stand briefly then rinse with clean water and air or wipe dry.



# 2. SEPARATE

Bacteria & germs can travel easily from one food to another and cause “**CROSS CONTAMINATION**” To stop the spread remember to...

▶ Keep meats & poultry separate from other items in your grocery cart, wrap them in a produce bag to prevent juices leaking.

▶ Place **RAW MEATS/POULTRY** on a tray or in a container & put it on the bottom shelf of the fridge to prevent juices from dripping through the shelves and contaminating other foods.

▶ Use **SEPARATE CUTTING BOARDS**; one for fresh meats, fish etc.. and the other for fruits or veggies. Plastic cutting boards can also be sanitized in the dishwasher.



► **NEVER** put cooked food back on the same plate or cutting board that you used for the raw meat. Do not reuse marinades, always discard after use.

### **3. CHILL**

Bacteria grow the fastest when they are in the **DANGER ZONE**, the unsafe temperatures between 4°C - 60°C. (40°F - 140°F). By keeping foods **COLD** - below 4°C you will **STOP BACTERIA FROM GROWING & SPREADING**. By keeping food **HOT**- above 60°C you **KILL ANY BACTERIA** that may be in the food.

#### **TO KEEP YOUR FOOD SAFE, REMEMBER TO:**

Make sure you wrap and put any **leftovers** from meals in the fridge or freezer within two hours of cooking, rice should be stored within 30 min.

**DIVIDE & CONQUER:** If you have lots of leftovers, divide them into small containers so they cool off faster.

**THE THAW LAW:** Never thaw frozen food on the counter or at room temperature.

- You can defrost food in the fridge (4-5 hrs/pd)
- Under cold running water or in a cold water bath (small portions)
- In the microwave, but only if you are going to cook it right away.

### **4. COOK**

Foods are cooked “properly” when they are heated for a **LONG ENOUGH TIME** & a **HIGH ENOUGH TEMPERATURE** to kill any harmful germs or bacteria that could make you sick.

► By using a clean “**FOOD THERMOMETER**” you can check that your food is cooked all the way through and that it has reached its “safe” temperature.



- Insert thermometer into the thickest part of the food away from bone.
  - Do not cook meat partially to finish cooking at a later time
- Soups, stews, sauces and gravies should be brought to a boil when reheating.

**Remember: WHEN IN DOUBT, THROW IT OUT!**

For more information, visit :

<http://www.canfightbac.org/default.aspx> ou <http://www.befoodsafe.ca/home.asp>.

# SAFE FOOD STORAGE

Proper food storage keeps foods tasting fresh longer. It also slows down the growth of bacteria that makes food unsafe to eat.

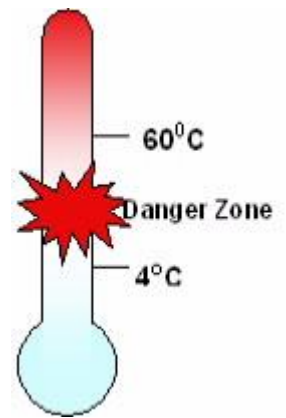
## **FOOD SAFETY STARTS AT THE GROCERY STORE:**

1. When shopping, start with **SHELF STABLE** items like canned goods first.
2. Then choose fresh fruits & vegetables
3. Refrigerated items like milk products & frozen foods should be last.

Shopping this way means cold food spends less time out of the refrigerator when travelling from the store to your home.

Foods should never be kept in the **DANGER ZONE** for more than 2 hours. (Between 4 & 60°C or 40 & 140°F)

- If you are not going straight home place foods in an iced cooler.
- Once you are home, put cold and frozen foods in the refrigerator and freezer right away.



## **FRESH FRUIT**

It is safe to store fruit at room temperature. After fruit has ripened it will begin to spoil or mould quickly.

## **FRESH VEGETABLES**

Root vegetables such as potatoes & onions should be stored in a cool dry place. Other vegetables should be refrigerated.



## **MEATS**

If not using right away, it is best to freeze meat, fish & poultry right after purchasing. If storing in the refrigerator, keep them in their original packages and place on a tray at the **BOTTOM** of the fridge to prevent juice from coming in contact with other foods. Cook and eat within **two days** of being in the refrigerator.



## **MILK PRODUCTS**

Store milk products like margarine, cheese, milk & yogurt on a shelf in



the middle of the refrigerator as this is the coldest area. \*Do not store them in the door of the refrigerator.

## **FROZEN FOODS**



Frozen foods need to be stored at temperatures below -18°C or 0°F. To defrost foods **always thaw in the refrigerator**, not on the counter. You can also defrost under cold running water or in the microwave if you are going to cook the food right away.

**TIP:** If ice crystals appear on foods in the freezer, it is either because the food was not placed in a proper storage container or the freezer was not at a consistent temperature.

## **SHELF STABLE FOODS**



Canned and packaged dry foods should be stored in a cool dry place such as a cupboard. Once opened, check the label to see if the food needs to be refrigerated.

**DO NOT** leave leftover canned foods in the can, transfer to an airtight plastic container and refrigerate.

**Never buy canned foods that are dented, leaking or bulging at the ends**

## **STORING LEFTOVERS**



Refrigerate leftovers within 2 hours of cooking after having cooled the food. Store in an airtight plastic container or in a bowl covered with plastic wrap. Divide large amounts into several small, shallow containers instead of one large one. This will help the foods cool down faster.

**Do NOT leave food at room temperature for more than 2 hours (1 hour on hot days).**

**WHEN IN DOUBT.....THROW IT OUT**



## HIGH RISK FOODS

Bacteria grow quickly in foods that are high in protein and moist. Store and handle these foods properly:

- shellfish
- high protein vegetables such as peas and beans
- cooked grains and cereals (oatmeal, rice, etc.)
- custards, puddings, whipped cream
- milk and milk products (except hard cheese)
- dressings (often opened)
- eggs and egg products (except dehydrated eggs) and egg salad
- canned food and dinner combinations (after opening)
- soft cheeses (ie. Cheddar, mozzarella and cream cheese)
- meat sandwich spreads
- processed meats (ham, bologna, wieners, etc.)
- gravies
- cooked pasta



## LOW RISK FOODS

These foods are usually safe if kept at room temperature:

### **Grain Products:**

- baked goods such as bread, crackers, cookies and cake
- dry cereals
- dry uncooked pasta

### **Milk Products:**

- powdered milk (until you add water)

### **Vegetables & Fruit:**

- raw vegetables
- raw, cooked and dry fruit

### **Meats & Alternatives:**

- nuts and peanut butter

### **Other Foods:**

- foods that are mostly sugar (jam, honey, syrup and candy)
- foods that are mostly fat (butter, margarine and cooking oil)
- pickles, relishes, mustard and ketchup
- spices
- foods in cans and flexible pouches, until opened (unless otherwise indicated on label)