Introduction to Food Poisoning & Foodborne Infection

The World of Microbiology: Mastering the invisible, invincible, treatable and preventable
Food poisoning is costing £1bn a year, survey suggests true loss may be higher as 2m people suffer

Food poisoning is double the past year.

Food poisoning is costing £1bn a year, survey suggests true loss may be higher than 2m people suffer.

Mrs Beeton takes the blame for new case of salmonella.

The official experts (who are included to make the whoopla more professional) put the cause of the outbreak as either a dairy or eggs, but they are not sure because none of the eggy ingredi-
ent is still available. It must be the eggs, because the dairy was the last place the dermis of the egg was found, and it must have been contaminated with diarrhoea.

The decision was made by the public health authorities to stop the dairy, and it was all over. The public whoopled their approval, and the public health people were congratulated for their speed and efficiency.

The egg industry was not blamed, because they are still in business. It is all very well to blame the eggs, but the public health people would have to go to the farm to find out what was wrong with the eggs, and this is an invitation to bloody hell. They would have to go to the farm, and this is an invitation to bloody hell. They would have to go to the farm, and this is an invitation to bloody hell. They would have to go to the farm, and this is an invitation to bloody hell. They would have to go to the farm, and this is an invitation to bloody hell. They would have to go to the farm, and this is an invitation to bloody hell.

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Food Poisoning / Infection
What Can Cause Food Poisoning / Foodborne Infection?

- Bacteria
- Fungi
- Viruses
- Parasites
- Protozoa
- Toxins
- Toxic chemicals
The Tip of the Iceberg

- 70,000 reported cases per year
- 1 in 5 of us have food poisoning each year (9.4 million cases per year)
- Of those 1 in 6 will go to doctor

- Do not seek medical attention
- Doctor fails to notify
- Notified

Mild Infection
Why is the Incidence so High?

- Associated with the consumption of commonplace foods
  - Eggs / egg dishes
  - Poultry
  - Red meats / meat products
  - Fish
  - Salads, vegetables, fruits
  - Dairy products
  - Water
Why is the Incidence so High?

- General Factors
  - Lack of food safety knowledge
    - Storage
    - Handling
    - Cooking
  - Lack of hygienic practices
    - Hand washing
    - Cleaning & Disinfection of food contact surfaces
The Usual Suspects

Salmonella

E. coli

Campylobacter
Grime Scene Investigation
Surfers & Skaters
Two crazy chefs
How to prevent food poisoning
Preventing food poisoning
The 4 C’s

- **Chilling**: Storing food properly in the fridge
- **Cooking**: Cooking food so all bad bacteria are killed
- **Cleaning**: Making sure surfaces, cooking utensils and especially hands are clean and free from bad bacteria
- **Cross-contamination**: Preventing bad bacteria from spreading from raw to cooked foods via hands and surfaces
The 4 C’s

Chilling
Food storage
The fridge

- Some foods need to be kept chilled to keep them safe
- Take care where raw and cooked foods are stored together
Food storage
The fridge
Time for an experiment
Remember

- Keep your fridge temperature less than 8°C

- Keep raw meat covered and don’t store above cooked foods
The 4 C’s
Cooking
Bacteria don’t like it hot

70°C
How do we know when our food is properly cooked?
How do we know when our food is properly cooked?
Cooking

What happens when food is not cooked properly?
Remember

- Make sure all meat is cooked until no pink bits remain and the juices run clear.
The 4 C’s
Cleaning - Hands

- Wash your hands properly
  - Before you start cooking
  - After you have been handling raw meat
  - After using the toilet
  - Before you eat
How to wash your hands properly

1. Wet your hands
2. Soap
3. Lather and scrub - 20 sec
4. Rinse - 10 sec
5. Turn off tap
6. Dry your hands

DON'T FORGET TO WASH:
- between your fingers
- under your nails
- the tops of your hands
You have all done this experiment
What happens when we don’t wash our hands properly
What happens when we don’t wash our hands properly
Remember

- Always wash your hands properly
  - Before cooking
  - Raw food
  - Using the toilet
  - Before eating
Cleaning - surfaces

- Food preparation surfaces should be clean and disinfected before preparing food to kill any bad bugs.
- Chopping boards
- Cooking utensils
Time for another experiment
How a luminometer works

Dirty

Increase in ATP level

Increase in Light produced

Clean
Remember

- You can’t see harmful bacteria
- Keep food contact surfaces and utensils clean
The 4 C’s
Remember dirty hands and surfaces can cause cross-contamination of bad bugs from raw food to food that is ready to eat.
One final experiment
Remember the 4 C’s

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