

Foodborne Illness a Dynamic, Everywhere Possible Emergency Field Today

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Abstract

Foodborne illness afflicts people throughout the world. The CDC defines a foodborne disease outbreak as the occurrence of two or more similar illnesses resulting from ingestion of a common food. Each year, in USA, one in 10 people experiences a foodborne illness, 128,000 are hospitalized, 3,000 die, and 33 million healthy life-years are lost. While few patients with foodborne illness present with life-threatening symptoms, there are a number of foodborne infectious diseases and toxins that the emergency physician or other health care provider must consider in the evaluation of these patients. Given the frequency of international travel, as well as the risk associated with recurrent outbreaks of foodborne illness from commercial food sources, it is important to recognize various syndromes of foodborne illness, including those, which may require specific evaluation and management strategies. Foodborne illness poses a significant public health threat to the United States. The disease is defined as any ailment associated with the ingestion of contaminated food and is most often associated with gastrointestinal symptoms, including diarrhea, nausea, and/or vomiting. Individuals who are aged less than 5 years or more than 60 years or who are immunocompromised are at greatest risk for acquiring a foodborne illness. The most common cause of gastroenteritis is Salmonella infection. Annually, nontyphoidal Salmonella causes 1.2 million cases of foodborne illness and 450 deaths. Most Salmonella outbreaks were attributed to seeded vegetables (6.9%), pork (4%), or vegetable row crops (1.7%). Adults older than 65 years, people with weakened immune systems, and non-breastfed infants are more likely to have severe infections. Approximately 8% of patients with nontyphoidal salmonellosis will develop bacteremia and require treatment with antibiotics, including ceftriaxone or azithromycin in children and a fluoroquinolone (commonly levofloxacin) or azithromycin in adults. The summer months (peaking in July or August) had the highest percentage of cases. The use of certain medications to reduce stomach acidity can increase the risk of Salmonella infection. The food safety systems in some countries afford better consumer protection than others. This situation, combined with differing climates and ecologies, results in the association of different types of foodborne illness with different regions of the world. In a global economy, both people and food travel the world. Clinicians need to consider foreign travel as well as the consumption of food from other parts of the world when determining the cause of foodborne disease. The key to reducing the incidence of foodborne illness is prevention. Proper food storage, refrigeration, handling, and cooking are vital. Patients should be educated to avoid high-risk items such as unpasteurized milk and milk products, as well as raw or undercooked items like oysters, meat, poultry, and eggs. The consumption of more meals in the home may also decrease the risk of foodborne illness.

General Observations

CDC defines a foodborne disease outbreak as the occurrence of two or more similar illnesses resulting from ingestion of a common food. The disease is defined as any ailment associated with the ingestion of contaminated food and is most often associated with gastrointestinal symptoms, including diarrhea, nausea, and/or vomiting. Given the frequency of international travel, as well as the risk associated with recurrent outbreaks of foodborne illness from commercial food sources, it is important to recognize various syndromes of foodborne illness, including those, which may require specific evaluation and management strategies. The food safety systems in some countries afford better consumer protection than others. This situation, combined with differing climates and ecologies, results in the association of different types of foodborne illness with different regions of the world. In a global economy,

both people and food travel the world and can offer a foodborn morbidity everywhere. Each year, in USA, many persons get a foodborne illness, 128,000 are hospitalized, and 33 million healthy life-years are lost (DALYs). Foodborne illness poses a significant public health threat to the United States. It was estimate in CDC studies that 1 in 6 Americans get sick from contaminated foods or beverages each year, and 3,000 die. Foodborne diseases impede socioeconomic development by straining health care systems, and harming national economies, tourism and trade. Food is a global affair with a food chain that wraps around the planet. A simple meal can easily contain ingredients from multiple continents and its safety depends on international collaboration. Urbanization and changes in consumer habits, including travel, have increased the number of people buying and eating food prepared in public places. Get sick, as a result of consuming contaminated foods or beverages.

Every country around the world, from small to big, from rich to poor, has suffered from foodborne illnesses, which became a possible medical emergency today. The condition for disease has often been underestimated due to underreporting and difficulty to establish causal relationships between food contamination and resulting illness or death opportunities in worldwide population. However, there are no precise and consistent global estimates. Foodborne illnesses are usually infectious and can be caused by bacteria, viruses, parasites or even chemical substances entering the body through contaminated food or water.

Statistic DATA

Almost 1 in 10 people in the world, fall ill after eating contaminated food and 420 000 die every year. Infants, young children, pregnant women, the elderly and those with an underlying illness are particularly vulnerable. Children under 5 years of age carry 40% of the foodborne disease burden, with 125 000 deaths every year. Foodborne diseases are a growing public health problem worldwide. On every year in the United States, 17% of Americans get sick, as a result of consuming contaminated foods or beverages in their land or in their travels or vacation times. Its Diarrhoeal disease aspect is the most common illnesses form in the world, resulting from the consumption of contaminated food, causing 550 million people to fall ill and 230 000 deaths every year.

Global Interpretations

Salmonellosis and Campylobacteriosis are the most commonly reported foodborne diseases in Europe. They are spread across the whole European Region and transmitted from animals almost. Annually, nontyphoidal Salmonella causes 1.2 million cases of foodborne illness and 450 deaths. Most Salmonella outbreaks were attributed to seeded vegetables (6.9%), pork (4%), or vegetable row crops (1.7%). Food can become contaminated at any point of production and distribution, and the primary responsibility lies with food producers. WHO aims to facilitate global prevention, detection and response to public health threats associated with unsafe food? Correct handwashing during any food preparation, can safe population from the disease. More WHO works closely with FAO, the World Organization for Animal Health (OIE) and other international organizations to ensure food safety along the entire food chain from production to consumption? WHO/Europe gives priority to building national capacity to manage food safety challenges. Activities address subregional areas, such as eastern and south-eastern Europe and central Asia, as well as individual countries.

Attention!

When a food borne disease outbreak is detected, public health and regulatory officials work quickly to collect as much information as possible, for to find out what is causing it, so they can take action to prevent more people from getting sick. A contamination can happen anywhere along the chain of food production, processing, transportation, handling, and preparation (Fig 1). An outbreak is over when the number of new illnesses drops back to what investigators normally expect.

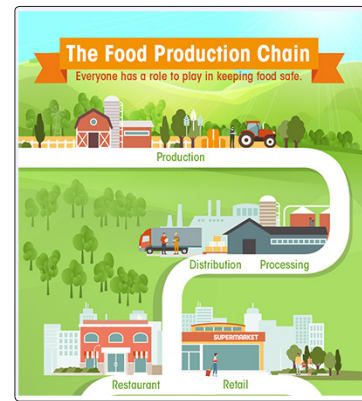


Figure 1: Importance of the clean chain of food production

The CDC and WHO transmitted data, help public health practitioners to better understand the: germs, foods, settings, and contributing factors, involved in these outbreaks. b. They also can help identify emerging food borne disease threats and even can present what can be used to shape and assess outbreak prevention measures. Good collaboration between governments, producers and consumers helps ensure food safety. Then it is clear for each of us, Foodborne illness is a common, costly and almost preventable public health problematic.

Anyone in This World, Can Get Sick from Eating Contaminated Food

Food-borne illness has a large economic impact across the nation, representing millions of dollars in lost income, lost revenue and healthcare-associated costs. That for, WHO publishes annual summaries of domestic food borne disease outbreaks, based on reports provided by state, local, and territorial health departments. These summaries help public health practitioners had better understand the: germs, foods, settings, and contributing factors, involved in these outbreaks. They also can help identify emerging food borne disease threats and even can present what can be used to shape and assess outbreak prevention measures. The food we eat and the beverages we drink can become contaminated by bacteria, viruses, parasites, toxins that can cause food-borne diseases with unknown clinical evolution. A case definition includes criteria for: person, place, time, and clinical features, which mean a good and correct investigation for each foodborn outbreak. As it is represented in Fig 2.

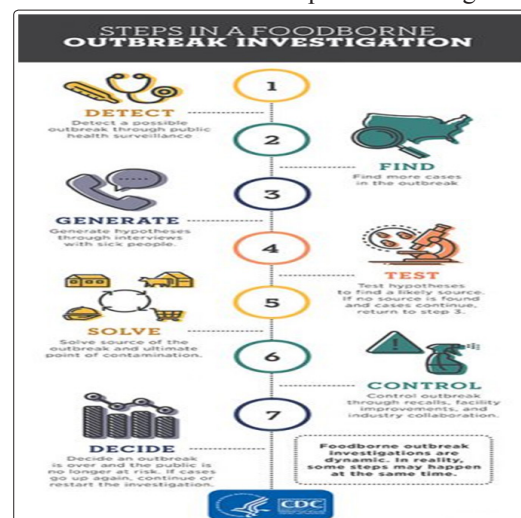


Figure 2: Investigation in a foodborn outbreake

Etiological estimations

Typically, food-borne disease only lasts a few days, but it depends almost of the Microbiological etiological origin of the infection. -The top five germs that cause illnesses from food eaten, in the United States are: Norovirus, Salmonella, Clostridium perfringens, Campylobacter, Staphylococcus aureus . In Europe, the majority of reported foodborne illness outbreaks start at home with bacteria, such as Campylobacter and Salmonella. At present in Romania, there are, foodborn infections almost with Salmonella spp., Campylobacter spp, Staphylococcus spp.

Many pathogens harmful to humans exist naturally in much of the food we eat, such as meat and poultry. Usually, these pathogens are destroyed when the food is cooked. However, if the food is eaten undercooked or raw, or the food is handled improperly during preparation or storage, the risk for transmitting pathogens to humans increases.

Our Study Design

According to all this knowledge during 2015-2018, it was done a descriptive epidemiological study, for the Food born diseases appeared in Transylvania –Romania – fig 3 (see map), region with 12 sub regions in. Statistical data consider Morbidity at 2% in 100. Ooo population. It was realized so a complex epidemiological and clinical study, with many interpretations and conclusions, of each relevant presented and appeared case.



Figure 3: Foodborn infections in Transylvania, Ro

We got data for 145 foodborn diseases, appeared in several situations and it was found out: pertinent data; case interpretations; -conclusions and prevention methods, for the illnesses from the Transylvania sub regions eared in the biggest city theritories and all cases are represented in Fig 4.

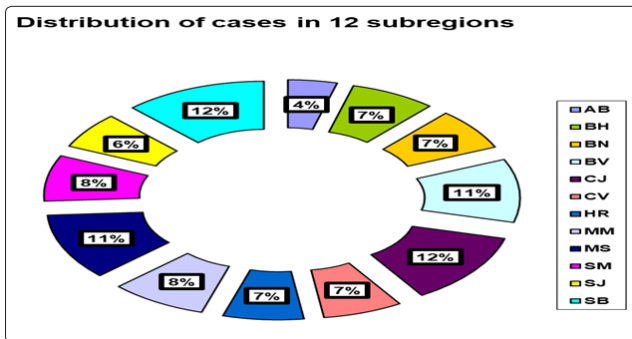


Figure 4: Cases of Foodborn Infection in Transylvania – Ro

The Food - born illnesses were reported to the Public Health Institution, on each moment they appeared, by the Sanitary Districtual Polices, which are all under the direction of the Romanian

Health Ministry. Most frequent, Foodborn infections appeared, in the summer months, from May to September. Almost of them were in July, but it must be mentioned out , that We have had on in each month some few cases during each 3 years of time- see Fig 5.

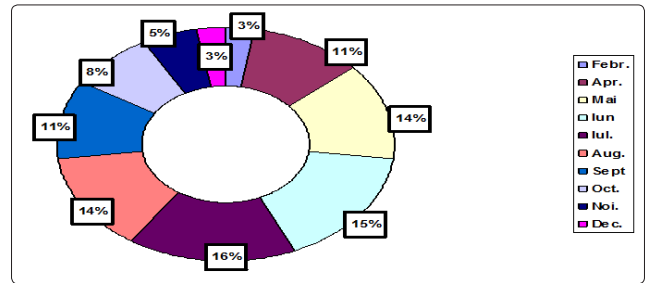


Figure 5: Seasonality of Foodborne

I want to show out even some particularities of these infections: A. The food-born outbreaks occurred in Urban and in Rural places, but most of them appeared in Rural places, where hygiene was not very well or right correct respected- see Fig 6.

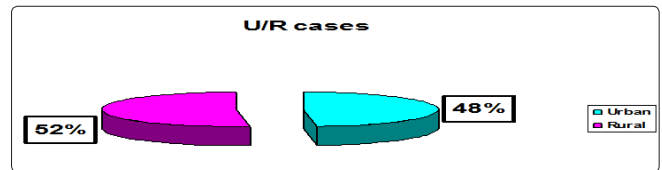


Figure 6: U/R case presence

B. Also, it appeared in family, or in collectivity (as restaurants), etc. Most of them were the outbreaks from some family parties - in 57% (wedding, birthdays, other events)- Fig 6, where some sanitary orders for preparing several own food products, were not well used and respected. It was detected often less hand washing for eaten products, or even inadequate washing for some salads or other fresh prepared things for meals in the menu, like ice cream or cakes.

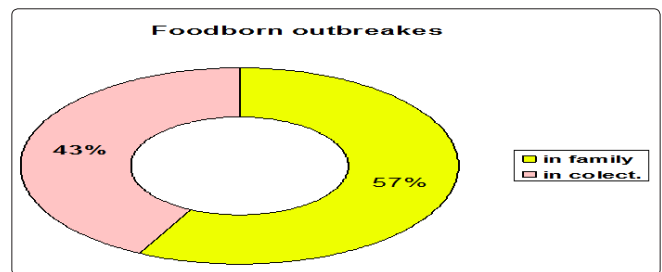


Figure 6: data for foodborn outbreake

C. Gender has almost nothing to do with food-born diseases, because it can in general happen either at men or female- see Fig 7. More male 68% have had the disease as female 32%. Male are often more, as participants to events, as females are.

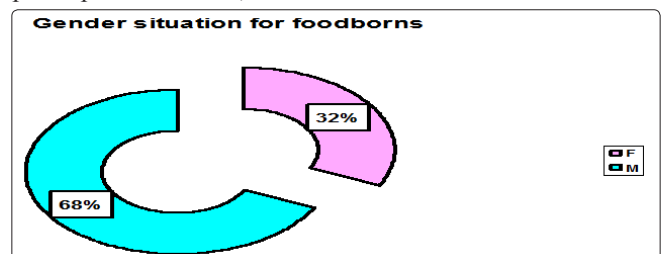


Figure 7: Most male as female got the disease

D. Most such disease appeared in our region, in adults in 56%, (11% even with several chronic illnesses), followed by elderly people in 24% and children in lower percents 20% - see fig 8. In our region, old people and children came less often to parties. Our reality is, that not many children or elderly people, can participate at festive occasions, in restaurants, as even at family events. Anyhow very true is that little children, can never come to any event.

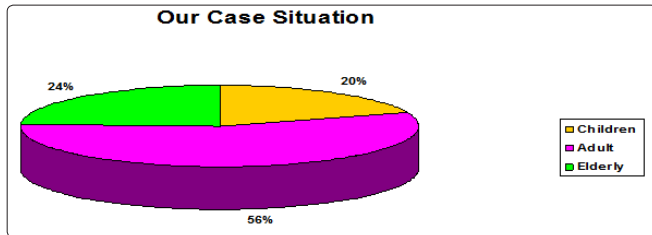


Figure 8: Population distribution of the foodborns

E. The common symptoms of food borne as usual diseases were: nausea, vomiting, stomach cramps, diarrhea and sometimes fever. However, symptoms may differ among the different types of food borne illness, from simple one to severe case forms, which need even a hospitalization regime sometimes

F. Our cases – meant as medical forms – see Fig 9 were simple one 70%; middle one 22%; hospitalised one 5% to severe one, who arrived in totality to 8 % and needed almost several days of hospitalization. No death case was reported in our study.

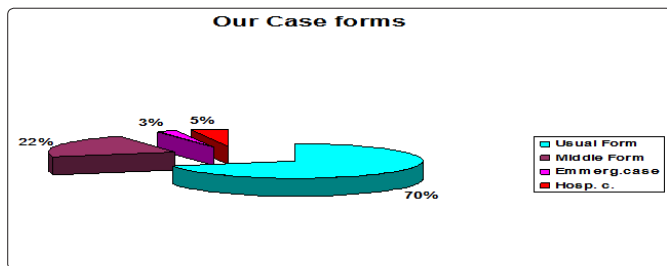


Figure 9: Medical foodborn cases

G. In our region, the Food-born cases have had the etiology of the diseases by: -Salmonella spp. in 67%, mostly Salmonella enteritidis in 29 %; In 14% there were determined by Staphylococcus aureus and in 19% such medical forms, we could not put in evidence any microbiological determinant- see Fig 10.

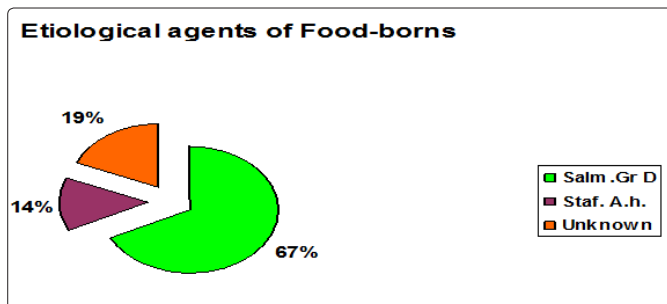


Figure 10: Etiological aspects of Foodborn in Transylvania

H. In our Food-born cases, most contaminated food products were Eggs in 38%; Milk products in 30%; Meat products in 22%. In rest, few cases appeared because of some other food products, as Cakes in 5 %, Salads in 4 % and Ice cream in 1%. See Fig 11.

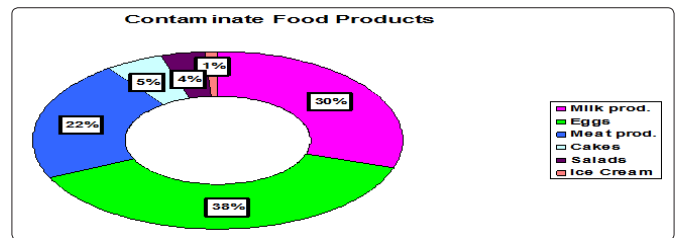


Figure 11: The most contaminated food products for our Foodborn infections

Avoid foodborne illnesses by

- Knowing which foods are most likely to be affected.
- Knowing where the most risk lies.
- Learning safe food-handling techniques.

Foodborne Illnesses Are Linked To Certain Foods More Than Others

On the CDC's most likely list: Chicken, beef, pork, turkey; Vegetables and fruits; Raw milk, cheese, other dairy products; Raw eggs; Seafood and raw shellfish; Sprouts; Raw flour. According to the CDC, foodborne illness outbreaks are more likely to begin at restaurants than at home. Kitchen habits count a lot. Refrigerate food that is perishable within 2 hours, the CDC says, or 1 hour if the outside temperature is 90F degrees or more. Wash Your Hands is one of the most important personal hygiene habits to prevent foodborne illness: before handling food; after touching raw meat; after going to the bathroom or changing a diaper; handling garbage; after sneezing, coughing, or blowing your nose. Anytime you think your hands may be contaminated, wash them well and correct [1-4].

Mesures to prevent Foodborn outbreaks:

I. Hygiene

Always wash your hands thoroughly with warm soapy water before handling food and repeat often during food preparation. Cover any cuts with waterproof bandages and do not prepare food for others if you are sick or have a skin infection. Wash fresh vegetables and fruit well with clean water before use to remove potential contaminants from the surface. Keep raw and cooked foods separate to avoid harmful microbes from raw foods spreading to ready-to-eat foods. Use different utensils/chopping boards for raw and cooked foods to prevent cross-contamination. It may help to dedicate different coloured chopping boards to fruit/vegetables, fish/seafood, meat/poultry or raw/cooked foods. Prepare and chop food on a clean surface and clean all utensils and surfaces thoroughly after use with hot water and detergent, or in the dishwasher. Never wash raw chicken as the splashing water can spread bacteria around the kitchen. Wash dishcloths, tea towels, hand towels and aprons frequently at high temperatures.

II. Safeguarding foodborn infections

There are 7 Ways to Prevent Foodborne Illnesses: Check for cleanliness; Keep certain foods separated; Inspect cans and jars; Inspect frozen food packaging; Select frozen foods and perishables last; Choose fresh eggs carefully; Be mindful of time and temperature. Be Food Safe means preventing foodborne illness through four easy steps: Clean, Separate, Cook and Chill. Because bacteria are everywhere, cleanliness is a major factor in preventing foodborne illness. By keeping everything clean that comes in contact with food, consumers can be assured they are helping to do their part to

III. Food safety recommendations

There are some simple food safety steps – see Fig. 12, as: clean, separate, cook, and chill to lower your chance of food poisoning and to protect yourself and your loved ones means: Wash your hands and surfaces often. -Do not cross-contaminate. The only way to tell if food is safely cooked is to use a food thermometer. Bacteria can multiply rapidly if left at room temperature or in the “Danger Zone”, between 40°F and 140°F. Never leave perishable food out for more than 2 hours (or 1 hour if it is hotter than 90° F outside). Refrigerate promptly.



Figure 12: Some Food safety recommendations

Monitoring Foodborn infections

CDC uses several surveillance systems to track and monitor reports of foodborne .Most often, information in these systems come from state and local health agencies. Although some of these systems have been used extensively for decades, new surveillance methods have improved the quality, quantity, and timeliness of their data. Food Net conducts surveillance in ten sites for infections of nine bacterial and parasitic pathogens transmitted commonly through food. It provides a foundation for food safety policy and prevention efforts in the United States in the following ways:

- Estimating the number of foodborne illnesses
- Monitoring changes in how often they occur over time
- Attributing illnesses to specific foods and settings
- Surveillance Reports: FoodNet Annual Reports
- Studies and Surveys: FoodNet Studies and Surveys
- Online Data Tool: Use FoodNet Fast to search information on cases of illness reported to FoodNet since 1996.

Foodborne Disease Outbreak Surveillance System (FDOSS) collects data on foodborne disease outbreaks, defined as the occurrence of two or more cases of a similar illness resulting from consuming a common food. FDOSS provides insights into the germs and foods that cause illness and the settings where contaminated foods are prepared.

More it exist even: FDOSS, which is connected to the National Outbreak Reporting System (NORS). Use NORS Dashboard to search for information on foodborne disease outbreaks reported to CDC.

Conclusions

- From eating contaminated food, anyone can get food-born infection, which as case definition, includes specific criteria for person, place, time, and clinical aspects.
- Every country around the world, get medical social and

economical sufferings from foodborne illnesses, which became a possible active today medical emergency everywhere.

- The population must be educated for good Hygiene uses, to avoid the illnesses.
- For protecting people from the disease, there is needed to survive correct each chain of food production: processing, transportation, handling, and all correct food preparation steps.
- To prevent a Food-born infection, there is necessary to wash regular hands and surfaces, as more often possible.
- A useful prevent and control activity in Food born disease, is to put together: epidemiologists, environmental health specialists, laboratory specialists, clinicians, as all other specialists with possible enteric disease outbreak connections and therapy responsibilities.

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