A *Listeria monocytogenes, Salmonella* és *E. coli* érintett leggyakrabban a mikrobiális okokból történő élelmiszer visszahívásban. A hús, tejtermék, kevert és/vagy feldolgozott élelmiszer az, amit leggyakrabban *Listeria monocytogenes* fertőződés miatt kell visszahívni.

Növekedett a Salmonella miatt bekövetkező visszahívások szám 2019-ben is a *Salmonella Enteritidis* okozta többszöri riasztás eredményeként. A *Listeria* okozta visszahívások száma a tíz év alatt 74-ről 66-ra csökkent.

Számos olyan élelmiszerfajta van, amelyet a Salmonella törzsek okozta szennyezés miatt hívnak vissza. A leggyakoribb ilyen élelmiszer a tojás és a gyümölcs, a zöldség és a fűszernövények. A visszahívott gyümölcsök, zöldségek és fűszerek közé tartozik főként a saláta, csíranövények, a kantalup dinnye, a friss petrezselyem és szárított fűszernövények.

A tejtermékeket más kategóriáknál gyakrabban hívják vissza a feldolgozás higiéniájával kapcsolatos és az E. coli vizsgálatával mért aggályok miatt. Az E. coli miatt visszahívtak még friss csíranövényeket, salátákat és kevert és/vagy feldolgozott élelmiszereket.

Az elmúlt évtizedben be nem jelentett tej volt a leggyakoribb allergén eredetű anyag, amit visszahívtak, az esetek 30 százalékát ez tette ki. A többszörös allergének a második leggyakoribb típus, 18 százalékért felelősek. Tizennégy százalékban földimogyoró volt a be nem jelentett allergén.

A leggyakoribb be nem jelentett allergén miatt visszahívott élelmiszerfajta a kevert és/vagy feldolgozott élelmiszer, ami az ilyen visszahívások 30 százalékát is eléri. Ide tartoznak a rágcsálnivaló termékek, pudingporok és fagyasztott ételek. A cukrásztermékek tizennégy százalékkal a második helyen végeztek és a kenyérféleségeket és péksütemények a harmadikon, 12 százalékos aránnyal.

2010 és 2019 között 101 visszahívás történt idegen anyag miatt. A leggyakoribb idegen anyag amit az élelmiszerekben találtak, a fém, műanyag és üveg volt, fa vagy gumi csupán néhány esetben fordult elő.

A biológiai mérgek (biotoxinok) miatt visszahívások gyakorisága az elmúlt 10 év során évi egy és 15 között mozgott. Az összes visszahívás ebben az időben 41 lett. Az osztrigában és kagylókban található paralízist okozó kagylóméreg adta az összes visszahívott élelmiszer 63 százalékát. A következő a természetes állapotban is előforduló cianid féleség, a cián-hidrogénsav a tapióka csipszekben és sárgabarack magokban, amiért 17 százalékot kell visszahívni. A hisztamin, aflatoxin, és ciguatera szintén megjelent ebben a kategóriában.

A vegyi és egyéb szennyező anyagok miatti visszahívások száma 2010 január és 2019 december között 20 volt. A tisztító és fertőtlenítőszerek valamint egyéb szennyező anyagok a visszahívások 35 százalékát, illetve 30 százalékát tették ki, míg 15 százalékért a nehézfémek voltak felelősek.

A kutatók új ismereteket tártak fel a Bacillus cereus-szal kapcsolatban

Egy ausztrál egyetem kutatói egy másik toxint is azonosítottak, amit a Bacillus cereus termel. Az Ausztrál Nemzeti Egyetem (ANU) kimutatták, hogyan mérgezi meg a toxin a sejteket még akkor is, ha a szervezet másokat már legyőzött.

A toxint NHE (nem-hemolitikus hatású enterotoxin) névvel illetik, és mindenféle sejtet képes megtámadni a szervezetben azzal, hogy megkötődik a sejt membránján majd kilyukasztja azt, állítja a Nature Communications című lapban megjelent tanulmány.

Si Ming Man professzor és kollégái a *Bacillus cereus*t tanulmányozták, amely a hányást, hasmenést előidéző és a baktériumok szaporodását elősegítő mérget termeli.

„Most egy másik toxint is felfedeztünk, ami éppoly nagy mértékben képes rombolni a sejteket. Vagy másképpen mondva – miután elég lassan ismerjük csak ki a baktériumok trükkjeit – a megfertőzésünkhöz használt eszköz készlet egy másik szerszámát. Vagyis ez azt jelenti, ha az egyik eszközt elvész vagy az immunrendszer semlegesíti, a baktériumok még mindig rendelkeznek egy tartalékkal, amely segít nekik abban, hogy fertőzzenek és betegségek okozzanak" - mondta.

Éves szinten úgy becsülik, hogy Ausztráliában mintegy 4,0 millió élelmiszer fertőzés fordul elő, ebből 31 920 eset kerül kórházba és 86-an halnak meg, miközben egymillióan igényelnek orvosi ellátást.

EFSA News

Antimicrobial resistance in the EU: infections with foodborne bacteria becoming harder to treat

***Salmonella* and *Campylobacter* are becoming increasingly resistant to ciprofloxacin, one of the antibiotics of choice for treating infections caused by these bacteria. The conclusion is part of the latest report on antimicrobial resistance in *zoonoses* released today by the European Centre for Disease Prevention and Control (ECDC) and the European Food Safety Authority (EFSA), which also presents some positive trends in the animal sector.**

The latest data from humans, animals and food show that a large proportion of *Salmonella* bacteria are multidrug-resistant (resistant to three or more antimicrobials). In humans, resistance to ciprofloxacin is common, particularly in certain types of *Salmonella,* and resistance to high concentrations of ciprofloxacin increased overall from 1.7% (2016) to 4.6% (2018). For *Campylobacter,* 16 out of 19 countries report very high or extremely high percentages of ciprofloxacin resistance.

High proportions of resistance to ciprofloxacin are also reported in *Salmonella* and *E. coli* bacteria from poultry. Ciprofloxacin is a fluoroquinolone, a class of antimicrobials categorised as critically important for use in humans. If fluoroquinolones lose their effectiveness, the impact on human health could be significant. However, combined resistance – simultaneous resistance to two critically important antimicrobials – to fluoroquinolones and third generation cephalosporines in *Salmonella* and to fluoroquinolones and macrolides in *Campylobacter* remains low.

For 2018, the report lists sporadic cases of human *Salmonella* infection with resistance to carbapenems, a last-line antimicrobial.

Mike Catchpole, ECDC's chief scientist, said: "Finding carbapenem resistance in foodborne bacteria in the EU is a concern. The most effective way to prevent the spread of carbapenem-resistant strains is to continue screening and respond promptly to positive detections. ECDC is working with EU Member States and with EFSA in a One Health approach to enhance the early detection and monitoring, in an effort to fight the persisting threat of antimicrobial-resistant zoonotic infections."

The report also includes key outcome indicators that help EU Member States assess their progress in reducing the use of antimicrobials and combatting antimicrobial resistance.

In food-producing animals, the summary indicator of susceptibility to all antimicrobials has increased in *E. coli* in just under 25% of Member States (6 countries) over the period 2014-2018. This is a positive development as it means that in these countries, in case of need, treatments with antimicrobials would have a higher chance to be successful. Decreasing trends in the occurrence of extended-spectrum β-lactamase (ESBL) or AmpC-producing *E. coli* have been observed in about 40% Member States (11) during 2015-2018. This is also important because ESBL-AmpC producing *E. coli* are responsible for serious infections in humans.

Regarding last-line antimicrobials, resistance to colistin was not common in *Salmonella* and *E. coli*, and carbapenemase-producing *E. coli* were not detected in broilers, turkeys and broiler meat.

In humans, the decline in resistance to ampicillin and to tetracyclines in *Salmonella Typhimurium* in many countries is another encouraging trend observed in 2013-2018.

Food Safety News

Experts say coronavirus likely not spread by foodborne routes

Public health officials and academics agree that the coronavirus poses little danger from a foodborne illness perspective, right now, but some are maintaining a slight level of vagueness about the situation.

"While it is theoretically possible the virus could be transmitted via food, based on everything we know, the risk of foodborne transmission is dramatically smaller — perhaps by millions of times — than the risk by airborne droplets," Donald W. Schaffner, extension specialist in food science and Distinguished Professor at Rutgers University, told **Food Safety News**.

Schaffner has done extensive research in quantitative microbial risk assessment, predictive food microbiology, handwashing and cross-contamination. He frequently works with Ben Chapman, professor and food safety specialist with the Department of Agricultural and Human Sciences at North Carolina State University.

Chapman agrees that the risk of foodborne transmission of the coronavirus — now sometimes being called SARS-CoV-2 — is low. It hasn't been documented at all yet. But there are cross-contamination concerns.

"Since coronavirus is a respiratory virus we believe that it is contracted only by inhalation or similar mechanism (such as) sticking your finger in your nose, when your finger has a virus on it. If it was in food it would be destroyed by proper cooking," Chapman told **Food Safety News**.

The U.S. Centers for Disease Control and Prevention reports the virus is generally spread person-to-person through respiratory droplets from sneezing, coughing and talking.

"Currently there is no evidence to support transmission of SARS-CoV-2 associated with food," according to the CDC. "It may be possible that a person can get SARS-CoV-2 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the main way the virus spreads."

There is a chance of cross contamination from hard surfaces such as door handles, cooking utensils, countertops and other items, but that danger is low, according to the CDC.

". . . because of poor survivability of these coronaviruses on surfaces, there is likely very low risk of

spread from food products or packaging that are shipped over a period of days or weeks at ambient, refrigerated, or frozen temperatures," the CDC reports.

International health officials, who have declared the coronavirus outbreak a global threat, also say the chance of foodborne transmission is of small concern.

The virus has similar characteristics of SARS and MERS viruses, which are not spread through food. The World Health Organization reports there is not yet any evidence to support the theory that the virus is spread through food. Some concerns about food had been voiced when initial reports of the virus started coming out of China because the first patients had visited the same food market.

Unlike some other viruses, such as norovirus and hepatitis A virus that survive in food, the coronaviruses cannot grow in food, according to international public health officials. The coronavirus needs an animal host, which includes humans, to grow.

Recommendations for the single most effective weapon against the virus are a unanimous call for increased diligence in hand washing.

"The respiratory virus risk in restaurants is really more about being in the same location as a lot of people, some of who can be depositing the virus on surfaces like tables, doors, menus and managing that with a hand washing and alcohol-based sanitizer regime is an effective step to reduce risks of both COVID-19 and influenza," said Chapman.

Microbial recalls up but overall alerts down in Australia

Undeclared allergens and microbial contamination were responsible for the majority of recalls in Australia this past year.

Undeclared allergens caused 32 of the 87 recalls in 2019 while 30 were due to microbial contamination. In 2018, 46 recalls were because of allergens and 20 due to microbial contamination out of 100.

Food Standards Australia New Zealand (FSANZ) collects data on Australian food recalls so trends can be identified as well as common problems in the industry.

Recalls are classified by FSANZ under microbial contamination, labelling, foreign matter, chemical/other contaminants, undeclared allergen, biotoxin and other.

Between January 2010 and December 2019, FSANZ coordinated 707 recalls. The average per year for the last 10 years is 71.

The type mostly associated with a recall is mixed and/or processed food but this is likely due to the range in this category, including most long-life packaged food and manufactured items with multiple ingredients. Breads and bakery products, including biscuits, cakes and pastries, is the second largest type associated with recalls.

For the last 10 years, most recalls have been due to undeclared allergens with 283 or 40 percent of all recalls during this period, and microbial contamination at 181 or 26 percent of all recalls. Recalls due to undeclared allergens continue to rise, however microbial ones are also increasing. Foreign matter recalls are decreasing.

Listeria monocytogenes, Salmonella and E. coli are most commonly associated with microbial food recalls. Meat, dairy and mixed and/or processed foods are the main items recalled due to Listeria monocytogenes contamination.

There was an increase in Salmonella related recalls in 2019 due to multiple alerts for Salmonella Enteritidis. Recalls for Listeria decreased from 74 to 66 in the 10 year period.

A range of foods are recalled due to Salmonella spp. contamination. Eggs and fruits, vegetables and herbs were the most common categories. Fruits, vegetables and herbs recalled were mainly lettuce, sprouts, rockmelon (cantaloupe), fresh parsley and dried herbs.

Dairy products are more commonly recalled due to concerns with process hygiene, indicated through E. coli testing, than other categories. Other products recalled for E. coli include fresh sprouts, salads and mixed and/or processed foods.

During the last decade, undeclared milk has been the most common allergen related recall, making up 30 percent of all such recalls. Multiple allergens is the second most common type, accounting for 18 percent. Fourteen percent contained peanut as an undeclared allergen.

The most common food type recalled due to undeclared allergens is mixed and/or processed food, accounting for 30 percent of all such recalls. This includes snack foods, custard powders and frozen meals. Confectionery was second with 14 percent and breads and bakery products third at 12 percent on the list.

Between 2010 and 2019, there were 101 recalls due to foreign matter. The most common types found were metal, plastic and glass with only a few due to wood or rubber.

Recalls due to biotoxins ranged over the past 10 years between one and 15 per year. The total number of recalls in this period was 41. Paralytic

shellfish toxin found in oysters and mussels accounted for 63 percent of foods recalled. Next is hydrocyanic acid, a naturally occurring cyanide in tapioca chips and apricot kernels, with 17 percent of recalls. Histamine, aflatoxin, and ciguatera also featured in this category.

The number of recalls due to chemical and other contaminants between January 2010 and December 2019 was 20. Other contaminants and cleaning and sanitizing agent contamination made up 35 percent and 30 percent of recalls while 15 percent were due to heavy metals.

Researchers boost Bacillus cereus knowledge

Scientists from an Australian university have discovered another toxin produced by Bacillus cereus. Researchers at the Australian National University (ANU) showed how the toxin can empoison cells, even when the body has fought off others.

The toxin, called NHE (non-hemolytic enterotoxin), attacks all types of cells in the body by anchoring itself and punching holes in the cell membrane, according to the study published in the journal Nature Communications.

Professor Si Ming Man and colleagues studied Bacillus cereus, which is responsible for producing toxins that cause diarrhea and vomiting, and for helping the bacteria to multiply.

“Now, we’ve discovered another toxin that’s equally capable of destroying cells. Or, to put it another way – we’re slowly learning the many tricks of bacteria – the toolbox they use to infect us. This means if one of the tools is lost or neutralized by the immune system, the bacteria have a back-up that still allows them to infect and cause disease,” he said.

There are an estimated 4.1 million cases of food poisoning in Australia, resulting in 31,920 hospitalizations, 86 deaths and one million visits to doctors on average every year.