The Incidence and Levels of Microbial Pathogens in the Catering Environment

(Work Package 2, DL 5)

Dr. Bláithín Maunsell (EU-RAIN Administrator), Teagasc – The National Food Centre, Ashtown, Dublin 15, Ireland.
# Catering Food Safety – A Responsibility Ignored?

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Introduction

It is estimated that 10 to 30% of the population of industrially developed countries suffer food poisoning each year, which represents an unacceptable social cost in terms of human suffering and economic cost (health care and lost working days). People become ill as a result of eating food contaminated with disease causing microorganisms, poisonous chemicals or small physical objects. From farm to fork, cooking is the most effective intervention to ensure the elimination of harmful microorganisms from food. However, this intervention is only effective when performed correctly and accompanied by food safety practices and good hygiene of personnel and premises. Furthermore, not all food is subjected to a cooking step prior to consumption.

It is widely recognised that an ever-increasing incidence of food poisoning cases and outbreaks are linked to catering establishments. Numerous factors (e.g., more people working outside the home; greater standard of living; increased international travel; and more people interested in gastronomy) have led to more people eating outside the home. Furthermore, customers have come to expect greater varieties of foods (leading to increased food transport world wide) and different catering services (function catering, take-away, home delivery, etc.). New technologies have also become a feature of the food industry (e.g., sous-vide cooking, cook-chill, GM foods).

A three-day international EU-RAIN conference held in Budapest, Hungary last November brought scientists, chefs, consumer representatives and food safety bodies from Ireland, UK, Austria, the Netherlands, Norway, Portugal, Spain, Belgium, Germany, Poland, Estonia, Latvia, the Czech Republic, Romania, Finland, Sweden, Greece, Hungary, Italy and the USA together to discuss the issue of catering food safety. The conference, entitled Catering Food Safety – A Responsibility Ignored?, was organised by Teagasc – The National Food Centre (IRL) in collaboration with The National Association for Consumer Protection in Hungary – OFE (HU).
Catering Food Safety – Pathogenic Microorganisms

Following an opening address by Dr. Mariá Szabó, National Institute for Food Hygiene and Nutrition (HU), there were a series of presentations on major food borne pathogens including *Salmonella, Campylobacter, Listeria, Escherichia coli* O157:H7, *Yersinia enterocolitica* and *Staphylococcus aureus*. Food borne microbial pathogens are a major source of food poisoning in humans. While most cases result in self limiting gastroenteritis (nausea, vomiting, diarrhoea, abdominal discomfort), some people can suffer serious illness. Frequently, microbial pathogens present the greatest risk to the young, the elderly, immunocompromised people and pregnant women. Some pathogens are ubiquitous in the environment. Others are zoonotic i.e., transmitted from animals to humans. In some cases, the animals may be healthy carriers, showing no apparent signs of infections. However, contamination of raw meat can occur during slaughter. Subsequent cross-contamination of other foodstuffs may occur in the kitchen environment. Furthermore, humans may also carry dangerous bacteria such as *Staphylococcus aureus* and may contaminate food during handling and preparation.

Prof. John Sofos, Colorado State University (USA), gave a presentation on *Listeria monocytogenes*. While infection of normally healthy adults results in flu-like symptoms, infection of certain at-risk groups (e.g., pregnant women) can have very serious consequences such as septicemia, meningitis, spontaneous abortions and stillbirths. Raw milk and products made from raw milk (e.g., soft cheese and ice cream), coleslaw, ready-to-eat (RTE) meat products and RTE poultry products have all been implicated in listeriosis, resulting in recalls of millions of kg of potentially contaminated food. This ubiquitous organism is often an environmental contaminant and is particularly resistant to environmental stresses. It is found in soil, vegetation, animals, humans, water, sewage, etc. It can survive many food preservation methods. Recent food research has focused on the control of listeriosis in RTE foods, including the use of anti-microbial solutions.

Dr. Geraldine Duffy, Teagasc – The National Food Centre (IRL), gave an overview of verocytotoxigenic *Escherichia coli*. While *E. coli* is a normal inhabitant of the intestinal tract of warm-blooded animals, some strains are pathogenic. Infection with
the so-called verocytotoxin producing *Escherichia coli* (VTEC) e.g., *E. coli* O157:H7 can cause haemolytic uraemic syndrome (HUS) leading to kidney failure, ulcerative colitis and even death. The young and elderly are particularly at risk. Outbreaks associated with catering have involved hundreds of people. Animals may harbour this deadly strain in their intestinal tract, leading to a risk of contamination of meat during slaughter and subsequent processing. While *E. coli* O157:H7 has been primarily associated with meat consumption, other routes of infection include consumption of vegetables, fermented meats and unpasteurised dairy products. Water and person–to–person transmission have also been reported.

Prof. Truls Nesbakken, Norwegian Meat Research Centre (NO), explained how *Yersinia enterocolitica* is particularly associated with raw and undercooked pork. Health pigs can carry *Y. enterocolitica* in the oral cavity (especially on the tongue and in the tonsils), in the intestinal tract and in the faeces. This can result in contamination of meat during slaughter and processing, and subsequent cross–contamination of other foods. A characteristic feature of *Y. enterocolitica* is its ability to survive and grow, albeit at a reduced rate, at refrigeration temperatures. Yersiniosis results in gastroenteritis symptoms with vomiting and/or diarrhoea.

Dr. Antonia Ricci, National Reference Laboratory for *Salmonella*, Istituto Zooprofilattico Sperimentale delle Venezie (IT), presented on *Salmonella*, a major cause of gastroenteritis world wide. Many animals and birds are healthy carriers of *Salmonella* in their intestinal tract and faeces. Poultry products (meat, eggs) are often implicated in *Salmonella* outbreaks. *Salmonella Enteritidis* and *Salmonella Typhimurium* are important food poisoning strains. Control of *Salmonella* at the farm level focuses on providing uncontaminated feed and water, monitoring and separation of infected and non-infected flocks. The emergence of antibiotic resistant strains is also a major concern.

Ms. Jean Kennedy, Teagasc – The National Food Centre (IRL), reported on *Staphylococcus aureus*. Approximately 45% of the general public are asymptomatic carriers of *S. aureus* on their skin and/or nasal cavity. *S. aureus* can cause a wide variety of illnesses – e.g. skin infections, endocarditis, pneumonia, meningitis, toxic
shock syndrome and food poisoning. Staphylococcal gastroenteritis is caused by enterotoxins produced by the bacterium.

Prof. Marja-Liisa Hänninen, University of Helsinki (FIN), reported on *Campylobacter jejuni*, which is now recognised as the major cause of gastroenteritis in the developed world. However, most cases are sporadic (i.e. isolated cases) rather than large outbreaks. Numerous animal species are asymptomatic carriers of *C. jejuni*, resulting in wide scale environmental contamination with viable cells. Factors implicated in *Campylobacter* infection (campylobacteriosis) include eating or handling undercooked poultry, drinking unpasteurised milk, drinking water from shallow wells, contact with infected pets and travelling abroad. In contrast to other bacteria such as *Listeria*, *C. jejuni* is very sensitive to environmental stresses such as high oxygen, UV light, dryness and low pH. It is destroyed by proper heating (cooking) and pasteurisation. However, it survives well at refrigeration temperatures. Some cells may even survive freezing.

PCR-based molecular techniques for *Campylobacter* identification were presented by Ms. Ágnes Belák and Dr. Réka Kiss, Budapest University of Economic Sciences and Public Administration (HU) (poster presentation).

Dr. Mariá Szabó, National Institute for Food Hygiene and Nutrition (HU), presented food borne disease statistics, highlighting an ever-increasing incidence of food poisoning cases and outbreaks linked to catering establishments. Because of large scale catering, mistakes have the potential to lead to the infection of hundreds or even thousands of people. A case study of a Hungarian school lunch associated *Salmonella* Enteritidis outbreak in which more than 5000 school children became seriously ill, resulting in more than 800 hospitalisations, was presented.
Microbial Studies in the Catering Environment

A number of researchers presented the findings of microbiological studies in the catering environment and highlighted that improvements are required in this sector.

Ms. Aisling Meally, Teagasc – The National Food Centre (IRL), reported on a microbial survey of 200 Irish restaurants in which *E. coli, Salmonella, Campylobacter, L. monocytogenes, Y. enterocolitica* and *S. aureus* were isolated from cutting-boards (3%, 9%, 1%, 2% 1%, 23%, respectively), knives (1%, 3%, 0%, 1%, 0%, 13%, respectively), worktops (2%, 2%, 0%, 0 %, 0%, 25%, respectively), dishcloths (8%, 9%, 2%, 2%, 1%, 28%, respectively) and fridges (4%, 6%, 1%, 3%, 1%, 24%, respectively). Total viable counts ranged from $10^5$ cfu/cm$^2$ (on worktops) to $3.2 \times 10^6$ cfu/ml (in dishcloths). Total coliform counts ranged from $1.6 \times 10^2$ cfu/cm$^2$ (in fridges) to $2 \times 10^4$ cfu/ml (in dishcloths). 50 restaurants were also audited and statistical analysis revealed a significant relationship between poor audit scores and high microbial counts.

Prof. Chris Griffith, University of Wales Institute, Cardiff (UK), reported on a study in which 96%, 97% and 87% of tap handles, fridge handles and chopping boards, respectively, were rated as being microbiologically unclean. Visual inspection was not always an accurate means of assessing microbial load.

Dr. Eirini Tsigarida, Hellenic Food Authority (GR), reported on a study of over 600 ready-to-eat food samples collected from Greek retail establishments, i.e., restaurants, delicatessens and bakers. Samples were tested for *E. coli, S. aureus, Salmonella* spp. and *L. monocytogenes*. Unacceptable levels ($>10^2$ cfu/g) of *E. coli* and *S. aureus* were found in 14.4 % and 0.5% of samples, respectively. While *Salmonella* spp. were not detected in any samples, 0.7% of samples were positive for *L. monocytogenes*. Furthermore, posters presented by Dr. Carlos Sebastia, and Prof. Maria Iranzo, University of Valencia (E), reported on the detection of *Listeria* and other (potential) pathogens from food in Spanish restaurants.

Dr. Rijkelt Beumer, Wageningen University (NL), described the strategies used by pathogens to enhance their survival on food contact surfaces and sponges. These
include biofilm formation, initiation of stress responses and changes in cell morphology. Surface properties (material, roughness, presence of cracks and crevices, charge, hydrophobicity), food debris properties (composition, pH, \( A_w \), etc.) and the bacteria present (genus, species and their numbers) can all influence bacterial survival on a particular surface. Studies undertaken by Dr. Beumer and colleagues revealed that pathogens such as \( S. \) aureus and Salmonella Enteritidis could be recovered from stainless steel surfaces for at least 4 days when the contamination level were high (10\(^5\) cfu/cm\(^2\) - \( S. \) aureus and \( S. \) Enteritidis) or moderate (10\(^3\) cfu/cm\(^2\) - \( S. \) aureus). The need for greater attention to disinfection was emphasised.

**Factors Contributing to Food Poisoning**

Factors contributing to food poisoning were identified as follows:

- Contaminated raw materials
- Inadequate handling leading to cross-contamination
- Temperature abuse: Inadequate cooking, thawing, re-heating, hot-holding, cooling
- Poor personal hygiene
- Infected food handler
- Poor hygiene of premises and utensils
- Multipurpose dishcloths / sponges
- Food prepared too long in advance
- Food prepared in quantities which are too large
- Storage at ambient temperatures
- Delayed serving

Numerous speakers emphasised the need for caterers to purchase raw materials from reputable sources and to check all deliveries. Dr. Peter Paulsen, University of Veterinary Medicine, Vienna (A), pointed out that particular care must be taken with free living game meat. While strict meat inspection procedures are enforced for large ungulate (hoofed) game in Austria, it is, however, possible for hunters to supply small game (hares, pheasants, etc.) directly to catering establishments without prior meat inspection.
Prof. Chris Griffith, University of Wales Institute, Cardiff (UK), identified cross-contamination due to food handlers’ behaviour as a major but underestimated risk factor in the catering environment. He described one study in which 100% of caterers’ poultry was adequately cooked. However, 6% of these cooked chickens, 8% other foods and up to 12% of surfaces were found to be *Camplyobacter* positive due to cross-contamination from the raw poultry.

A number of speakers singled out multipurpose dishcloths / sponges as a source of dangerous bacteria. However, a proposal by that dishcloths should be banned outright and replaced with a disposable equivalent was deemed unfeasible by industry representatives. They suggested that dishcloths should always be used with a dedicated bucket of sanitizer.

A number of posters highlighted temperature abuse as a particular cause for concern. Dr. Gary Henehan, Dublin Institute of Technology (IRL), presented a comparison of displayed temperatures in chill cabinets and the actual food temperatures in sandwich and salad bars, revealing consistently higher food temperatures. In some cases, food temperatures were above the recommended temperature of 5°C. Dr. Nissreen Abu-Ghannam, Dublin Institute of Technology (IRL), reported similar temperature abuse in a study of hotels, restaurants, bakeries and supermarkets. Regarding cooking temperatures, posters presented by Mr. Gheorghe Mencinicopschi and Ms. Alexandra Iorga, Institute of Food Research (RO), emphasised the importance of correct thermal processing for food safety and quality.

A poster presented by Ms. Pirkko Tuominen, National Veterinary and Food Research Institute (FIN), outlined a risk evaluation undertaken in over 200 Finnish catering establishments using a hygiene risk assessment model. Interestingly, the greatest risks were associated with fast food outlets (i.e., kebab, hamburger and pizzeria-like catering establishments), followed by traditional restaurants. The catering facilities in retirement homes and hospitals rated best.

The particular food safety challenges presented by party or function catering received attention from Dr. Denise Worsfold, University of Wales Institute, Cardiff (UK), and
Mr. A.W. Barendsz, TNO Nutrition (NL). Improper facilities including cooling and hot holding facilities were identified as major problems for caterers in this sector. Mr. Barendsz also highlighted how food safety and food quality management systems are intrinsically linked.

Food Safety Knowledge Surveys in the Catering Environment
A number of researchers presented the results of food safety knowledge surveys undertaken in the catering environment. There was general consensus that there is room for improvement.

Ms. Aisling Meally, Teagasc – The National Food Centre (IRL), reported on a survey of 200 chefs. While 97% knew the correct refrigeration temperature, only 42% checked every delivery. Furthermore, 22.5% reported using incorrect procedures when defrosting meat. While 95% of chefs had heard of the major food poisoning pathogens, only 45% were aware of the associated foods.

A survey of food handlers’ perceptions of important food safety actions, presented by Prof. Chris Griffith, University of Wales Institute, Cardiff (UK), revealed that keeping raw and cooked food separate and reporting illness were only considered to be important actions by 25% and 12% of respondents, respectively. Furthermore, 63% admitted to sometimes not carrying out known food safety behaviours.

Catering Food Safety Systems
The microbiological hazards associated with food handling, preparation and storage in the catering environment need to be controlled. The following of established, written food safety procedures, accompanied with appropriate documentation is recognised as the key to ensuring that safe actions are consistently applied. Food safety systems involving HACCP (Hazard Analysis Critical Control Point) and HACCP prerequisite programmes are generally regarded as the most effective means of food safety risk management.
Briefly, HACCP is divided into 7 different principles: (1) Hazard Analysis; (2) Determination of the critical control points (CCP); (3) Establishment of critical limits for control of hazard at the CCP; (4) Establishment of monitoring procedures to ensure critical limits are not breached; (5) Establishment of corrective actions to be taken if deviation from the critical limits occurs; (6) Establishment of verification procedures to determine if HACCP plan is functioning properly; and (7) Establishment of record keeping and documentation procedures.

Furthermore, the importance of Good Hygiene Practice (GHP) and Good Manufacturing Practice (GMP) cannot be overlooked. These are prerequisite programmes, which must be in place prior to the development of HACCP.

In line with expectations, Prof. Hortensia Rico, University of Valencia (E), reported improved microbiological quality in Spanish restaurants following HACCP implementation. Prior to implementation of HACCP, \textit{E. coli} and coagulase-positive staphylococci were detected in some food samples. HACCP implementation resulted in a lower incidence of these isolates and reduced aerobic plate counts.

Dr. Bizhan Pouromailian, McDonald’s Europe (D), presented the harmonised approach to food safety successfully employed by the 30,000 McDonald’s restaurants worldwide. The McDonald’s food safety system involves a HACCP plan, coupled with uniform restaurant layout, the same equipment, the same operational procedures, the same product and the same staff training programmes. The HACCP system in McDonald’s has been audited and validated externally to be in accordance with Codex Alimentarius HACCP Guidelines.

Prof. Danuta Kolozyn–Krajewska, Warsaw Agricultural University (PL), reported on the successful implication of HACCP in a large, modern, Polish airline catering kitchen which employs 750 people. The size of the catering operation has aided HACCP implementation: for example, specific production phases (hot food, cold food, etc.) are physically separated from each other. Furthermore, the company has its own microbiological laboratory for testing of products and raw materials. Staff training is seen as essential for successful HACCP implementation. The majority of
employees have catering qualifications and prior experience in the catering sector. There is also emphasis on continuous training leading to further qualifications.

**Catering Food Safety Law**

Dr. Lisa O’Connor, Food Safety Authority of Ireland (IRL), gave an overview of catering and European food safety law. At present, food safety in the catering sector is covered primarily by Council Directive 93/43/EEC on hygiene of foodstuffs and by Council Directive 89/397/EEC on the official control of foodstuffs. 93/43/EEC requires that food business operators shall handle food in a hygienic way and under hygienic conditions and that they shall:

“... identify any step in their activities which is critical to ensuring food safety and ensure that adequate safety procedures are identified, implemented, maintained and reviewed on the basis of the following principles, used to develop the system of HACCP (Hazard analysis and critical control points)....”

The HACCP principles in 93/43/EEC have proved challenging to both caterers and regulators, with the European Commission Food and Veterinary Office reporting low enforcement and implementation. However, the EU remains committed to HACCP. Future hygiene regulations, as outlined in the General Food Law Regulation (178/2002), are certain to contain all 7 principles of HACCP.

In each EU member state, the competent authority is responsible for checking compliance with European and national food safety laws. Compliance with European food safety laws is one of the tasks faced by countries set to join the EU in 2004. Dr. Pál Mattyasovszky, Hungarian Food Safety Office (HU), gave an overview of the establishment of the Hungarian Food Safety Office (HFSO) and its scope of duties. The HFSO will be responsible for decision preparation, consultation, recommendation, and information provision in relation to food and feed safety issues. Furthermore, it will liaise with the central agencies of the European Union and the food safety agencies of the EU member states.
Catering Food Safety: The Regulators’ Perspective
Regulators, Ms. Mary Falvey, Environmental Health Officers’ Association (IRL), and Mr. Andrew Jamieson, Royal Environmental Health Institute of Scotland (UK), reported a lack of compliance with hygiene regulations in some catering establishments.
A poster presentation by Ms. Aija Melngaile, Food and Veterinary Office (LV), highlighted similar problems in Latvian catering establishments. Regulators identified lack of in-house HACCP skills, lack of HACCP prerequisites, time constraints and lack of commitment by management as barriers to HACCP compliance. Furthermore, problems faced by regulators were identified as insufficient resources, incomplete legislation and the need to develop a standardised approach to compliance assessment.

Catering Food Safety: The Industry Perspective
Catering industry representatives including Mr. Jamie Conlon, European Catering Association, reported on catering food safety from the industry’s perspective. It was acknowledged that implementation of food safety systems such as HACCP can have cost benefits for caterers in terms of protection of goodwill, risk reduction and increased traceability. However, disadvantages of current HACCP systems were identified as the prohibitive costs involved, the over-emphasis on record keeping, inconsistent inspection procedures, the lack of accreditation/licensing and the lack of an appeals process.

The application of HACCP in food manufacturing / processing is very different from HACCP application in catering. It was felt that the range of activities within the catering sector (i.e., the multiplicity of products made and the more labour intensive procedures used) require a more flexible approach to HACCP. The size of a catering business also impacts significantly on HACCP implementation, with smaller businesses finding it particularly difficult to justify the labour and monetary costs.

Chef, Mr. John Coughlan, Masterchefs (IRL), also pointed out that there is no regulation of consultants who advise on food safety systems. This can result in the implementation of inadequate systems despite the restaurateur’s effort and investment.
Need for Simplified Food Safety Systems

There was general consensus that current food safety procedures are too complicated and unsuitable for smaller establishments. Thus, there is a need for effective but user-friendly HACCP based systems. Recommendations from Mary Falvey, Environmental Health Officers’ Association (IRL), included greater emphasis on HACCP prerequisites, the fostering of a hazard alertness culture among staff, the inclusion of only true CCP in HACCP plans, the integration of HACCP into working procedures, and insisting that caterers take responsibility for their own HACCP plan, even if they employ consultants in the development of that plan.

Mr. Stephen Airey, Food Standards Agency (UK), presented a simplified HACCP based system specifically designed for small food businesses. The majority of food businesses in the UK are very small catering businesses, employing less than 10 people. HACCP implementation in this group is a difficult task for a number of reasons including differences in the types of catering businesses, the number of businesses, business turnover, staff turnover and lack of knowledge. While the so-called “Safer Food, Better Business” system is based on HACCP and HACCP prerequisites, it avoids the use of technical terms such as hazard analysis. This system involves control of the so-called 4 C’s - Cooking, Cleaning, Chilling and Cross-contamination. Businesses are provided with an information pack outlining why they need to produce safe food and how to do this and safe methods are developed in line with a business’s menus. A special diary is used to record that a business followed its safe methods and any corrective actions undertaken. This system is currently being tested with 500 small businesses.

Dr. Declan J. Bolton, Teagasc - The National Food Centre (IRL), presented a science based catering food safety system comprised of 1) a HACCP prerequisite programme and 2) a HACCP programme. The HACCP programme including chilling, freezing, thawing, cooking and hot holding as potential CCPs. The scientific basis for critical limits and corrective measures were outlined in everyday language. Other aspects of the food safety system (premise hygiene, procedures to prevent cross-contamination, personnel hygiene and delivery inspections) are included as part of HACCP prerequisite programme.
Catering Food Safety: The Consumers’ Perspective

Ms. Bette Kettlitz, BEUC - The European Consumers’ Organisation (B), Ms. Pia Valota, AEC - Association of European Consumers (I), and Mr. István Garai, National Association for Consumer Protection -OFE (HU) provided an insight into catering food safety from the consumers’ perspective. Recent food scares have increased consumer awareness and concern about food. Furthermore, consumers’ trust in the public authorities responsible for food safety regulation and control has declined. Recommendations from consumer groups included the application of harmonised food safety regulations across the entire food chain; harmonised approaches to surveillance and monitoring; improved enforcement; improved food safety training and greater transparency.

Ms. Kettlitz pointed out that consumers do not distinguish between food quality and food safety issues. In addition to food safety/hygiene, they are concerned about issues such as the presence of additives, allergens, GMO ingredients, acrylamide levels, nutritional quality, portion sizes and labelling. More and more consumers want to eat outside the home. A negative experience in a catering establishment will result in the majority of consumers no longer using that establishment. Therefore, it is vital that caterers listen to the views of consumers.

Mr. István Garai and Ms. Pia Valota highlighted the key role consumer NGOs play in providing consumers with information, education and advice (through public forums, TV, newspapers, radio, the internet, etc.), and in representing and protecting consumer interests.

Food Safety Training

The issue of food safety training was raised by numerous conference participants. Regulators and researchers emphasised the need for mandatory training of all catering kitchen staff. Dr. Oscar P. Snyder, Hospitality Institute of Technology and Management (USA), pointed out the benefits of on-site training in the kitchen environment. A poster presented by Dr. Snyder outlined the scientific basis of food processes, with the goal of allowing chefs to innovate and validate new processes.
from a food safety perspective. Industry representatives proposed the use of video and e-based (e.g., CD-ROM) teaching systems.

Ms. Enni Mertanen, Jyväskylä Polytechnic (FIN), presented a poster on the wrong answers frequently given by catering workers sitting the hygiene proficiency exam in Finland. Wrong answers can provide trainers and regulators with an insight into the specific areas where inappropriate food handling practices may occur. She recommended discussion of wrong answers as a means of learning better practices.

Inconsistencies in the interpretation of regulations, reported by industry representatives, also suggested weaknesses in food safety inspector training. Dr. Len Lipman, Utrecht University (NL), presented a successful hands-on approach to training students of Public Health by having the students check and implement HACCP in a catering kitchen. Students take and test samples, assess personal hygiene, separation of raw and cooked foods, etc. Audit results and comments on the HACCP plan are discussed with the kitchen quality manager.

Consumer representatives pointed out the need for training in safe food handling for everyone, from the farmer to the consumer. They singled out the inclusion of basic food safety training in the school curriculum as an effective strategy. Noteworthy, the results of a food safety survey in Irish homes, presented as a poster by Ms. Valerie Jackson, University of Ulster at Jordanstown, Northern Ireland, revealed the use incorrect and potentially hazardous practices. Ms. Jackson was awarded the student prize for this poster presentation.

A Hygiene League and a Licensing System for Restaurants
A hygiene league for restaurants was proposed at the conference. Catering industry representatives felt that customers should know how restaurants rate in inspections, thus giving establishments that operate to high food safety standards due credit and recognition for their efforts. This proposal could lead to restaurants being judged, not just on culinary prowess, but also on hygiene and food safety. The importance of a restaurant licensing system, with the power to revoke licenses where food safety
protocols are breached, was also emphasised by regulators. A public awareness campaign would be essential to inform consumers of such developments.

Catering Food Safety – The Future
Changes in socio-economic factors have resulted in more and more people eating outside the home. This trend is likely to continue in the future, with customers expecting and demanding the highest standards of food quality and safety.

Ms. Päivi Koppanen, University of Helsinki (FIN), presented the results of a study in which Finnish catering professionals were questioned on their vision of future developments in the field of the catering. The professionals envisioned future customers to be polymorphous, demanding and older than today’s customers. Customers will expect varied, high quality, healthy and safe food and will be willing to pay more. They perceived future employees to be well-educated, multi-skilled and motivated. They envisioned that new technologies, increased automation, etc. will be utilised in the catering industry.

Conclusion
In conclusion, the key recommendations for improved catering food safety made at the EU-RAIN Catering Food Safety – A Responsibility Ignored? conference were as follows:

- Simpler food safety systems - HACCP may not be suitable for small establishments
- Better training for staff
- Increased awareness of the cross-contamination risk
- Hygiene league for restaurants
- Licences for restaurants.
Conference Evaluation
Conference delegates were asked to fill out a conference evaluation questionnaire. Feedback was positive with 94% of delegates rating the overall conference assessment as either excellent (25%) or very good (69%).

EU-RAIN Website
The EU-RAIN website (www.eu-rain.com) serves as a dissemination mechanism for the EU-RAIN project. Information on the “Catering Food Safety – A Responsibility Ignored?” conference, including reports and summaries of presentations, can be accessed. Users can request a free CD of the conference presentations. Users are also encouraged to submit their views.

Next EU-RAIN conference
The next EU-RAIN conference “Farm to Fork Food Safety – A Call for Common Sense” will be host by the Agricultural University of Athens, Greece on May 12th to 14th, 2004. This conference will be a forum for farmers, meat plant managers, retailers and other interested professionals to contribute their opinions, suggestions and practical experience towards the development of food safety systems which are user-friendly, effective and within the budgetary range of producers. The conference will be widely advertised, inviting anyone with an interest the topic to attend. Information and on-line registration will also be available at www.eu-rain.com.

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