



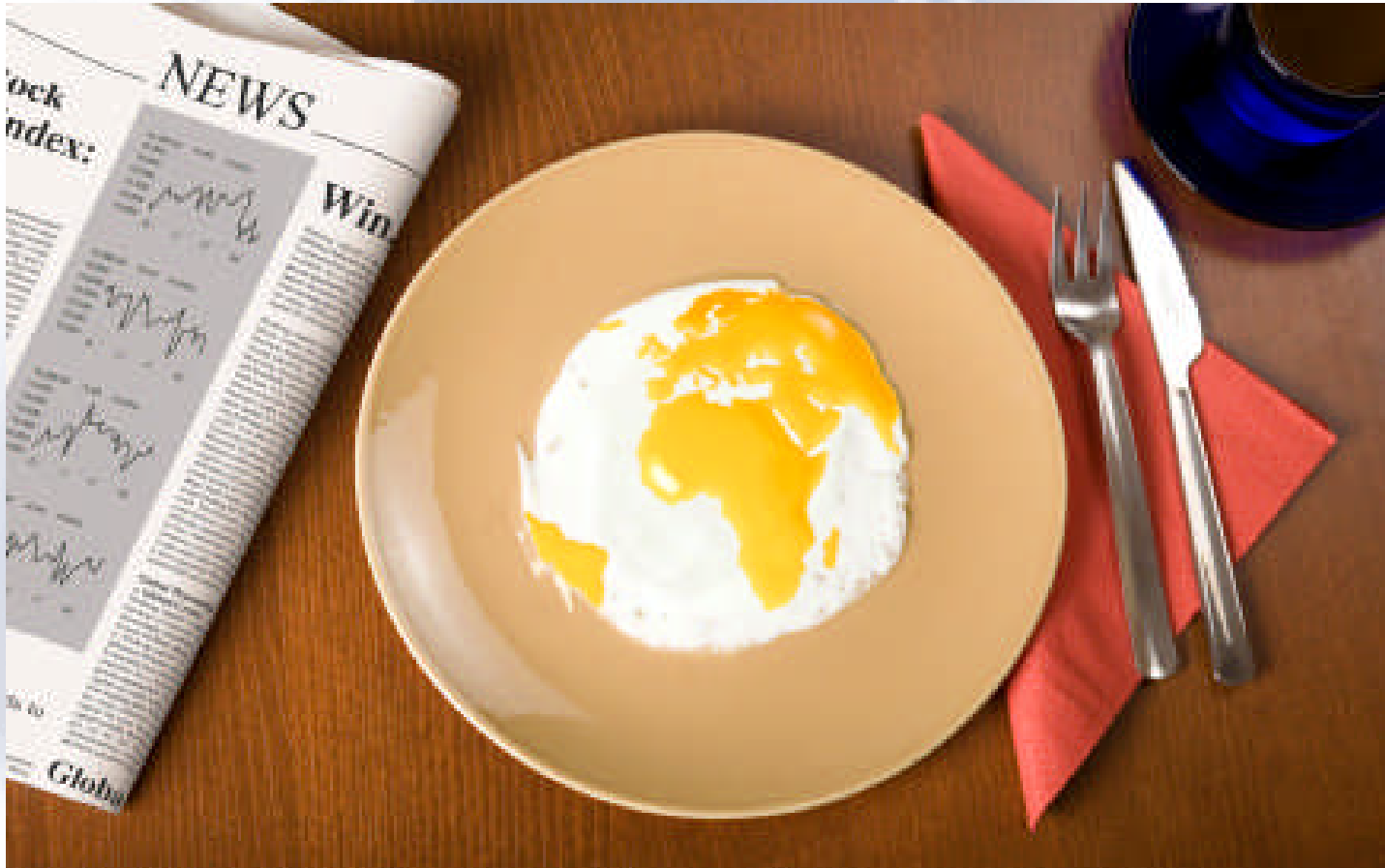
# **The changing face of foodborne outbreaks and how they are managed**

Professor Patrick Wall  
School of Public Health  
University College Dublin

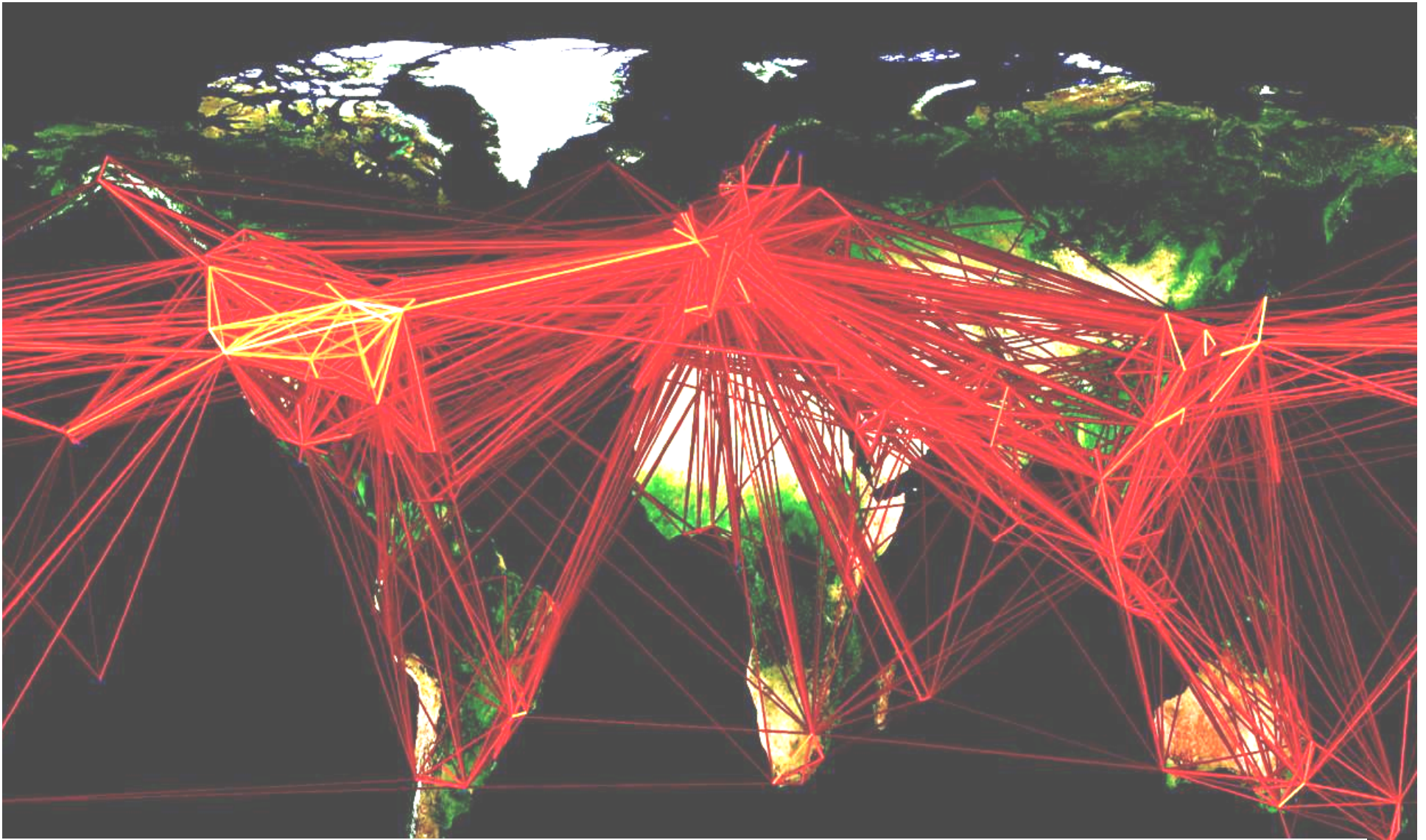


- 
- 1. Global nature of food chain**
  - 2. Surveillance**
  - 3. Forensic Microbiology**
  - 4. New Bugs/New Attributes/New Vehicles**
  - 5. Role of the media- Positive & Negative**
  - 6. Regulatory Oversight**
  - 7. Company Responses**
  - 8. Criminal activity**
  - 9. Clusters of Adverse events associated with Chemicals??**

# Global Food Supply



# Global Problems



*There is no where in the world from which we are remote  
and no one from whom we are disconnected*



Identified cases

**Media identifying outbreaks  
and implicated food vehicles  
before regulators and companies!**



Outbreak

Surveillance

Passive, Active, Sentinel



# Forensic Microbiology

**Farmers/  
Millers**

**Processors**

**Retail/Catering  
outlet**

**Patient**

**Food**





# Pulse net

- **Identification and delineation of outbreaks**
- **Widely disseminated apparent sporadic cases— now outbreak related**
- **Created need for standardised food history questionnaires**
- **Need for International Collaboration- forensic microbiologists and epidemiologists**

# 2008:- S Agona 161 cases





# Listeria monocytogenes

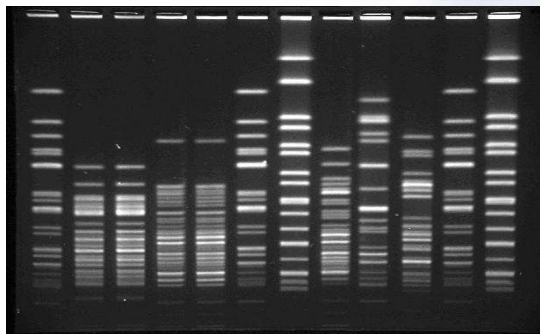
**Incubation Period 3->70 days**

➤ Large outbreaks being identified

-2011 US cantaloupe outbreak 147 cases - 33 deaths - 28 States

-2008 Canada cooked meats 57 cases- 22 deaths

**Attribution?**



# **New bugs- New Attributes**

- **Emerging pathogens- 2008 Arcobacter butzleri**
- **Virulence features – 2011 E coli O104:H4 - 3950 sick - 53 died**
- **Persistence features- 2008 S agona - 161 cases**
- **New food vehicles—“tuna scrape” to cookie dough**

# **Chasing after outbreaks not Food borne disease??**



**Disease Detectives**

# Media



# Brands Take Years To Build...

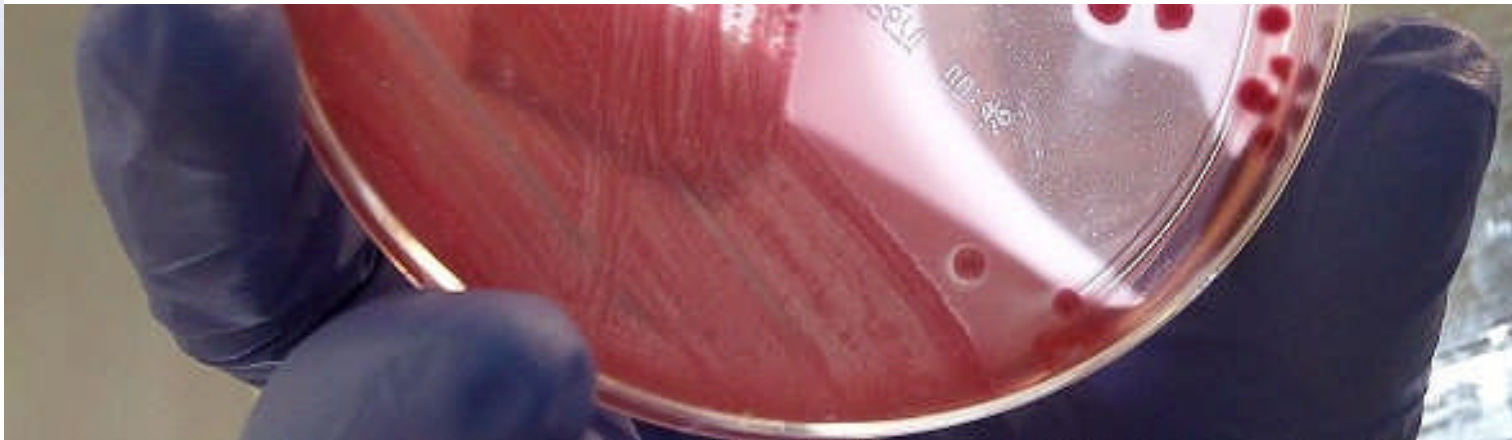




**Conventional microbiology:- too slow**



**Whole Genome Sequencing**  
**Animals, Food and Humans**



**Real time PCR V Culture independent diagnostics**

# Media

➤ **Case Finding**



➤ **Confounding Epidemiological investigations**

➤ **Risk Communication-**

WWW



# **Outcome of Outbreak Investigation?**

- **Contaminated food vehicle identified**
  - **Food Business Implicated**
  - **Food Business Closed**
  - **Product Recalled**
  - **Good Result**
- 

# Regulatory Oversight

~~“If you purchase food or~~

**Risk Categorisation**

**Prioritise Actions**

**& Resources**

~~food is safe?”~~

**Regulations without effective  
enforcement and compliance**

**X**

# Policing the global supply chain?

- **Regulatory inspections and audits?**
- **Third party audits?**





# Science based -Quality Control

## “visual inspection”??



**Repeat USA Peanut  
associated outbreaks  
Lessons not learnt!**



# All Preventable Faults

1. Contaminated raw ingredients

2. Inadequate storage

3. Insufficient

4. Contamination from raw products to cooked products

5. Inadequate hygiene facilities for staff

6. Poorly supervised or trained staff

FSAI outbreaks database

# **Company Response- Board Room**





July 2006



**Evening Standard**

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# CADBURY BARS POISON SCARE

**Salmonella fear:  
million snacks  
taken off shelves**

JONATHAN PRYNN  
Consumer Affairs Editor

**A MILLION** Cadbury's chocolate bars were taken off the shelves today after the firm warned they may be infected with salmonella.

Seven products, including parts of the Dairy Milk range, have been withdrawn from sale.

The affected products are the 250g Dairy Milk Turkish, Dairy Milk Caramel and Dairy Milk Mini bars, the Dairy Milk Eight Chunk, the 1kg Dairy Milk bar, the 85g Dairy Milk Buttons Easter Egg, and the 10p Redd Foote bar.

The company said it had agreed to recall the products, which are among its most popular, after consulting the Food Standards Agency.

A spokesman for the confectionery giant said: "This being done purely as a precautionary measure, as one of these products may contain minute traces of salmonella."

To our knowledge nobody has been unwell eating any of these products. Cadbury is taking steps to ensure these particular products are no longer available for sale.

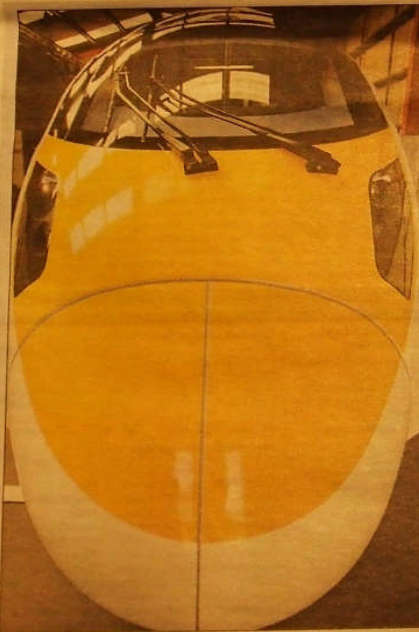
Contamination was detected at Cadbury's Marlow plant, near Leominster in Herefordshire, which produces 100,000 tonnes of chocolate every year.

"It was caused by a leaking pipe," the spokesman said. "It has now been fixed."

The firm, which has been manufacturing chocolate for more than 100 years, expects to have its stocks back on the market in the near future.

Anyone who has uneaten bars should contact Cadbury on 0800 818 181 to arrange a refund.

Salmonella can be found in poultry, eggs and unpasteurised milk as well as in meat and untreated water. It can also be carried by pets.



**Unveiled:** this is the new Javelin train. It will travel from King's Cross to Ashford in just 36 minutes when it arrives in three years



## On its way, the 140mph bullet train

LONDON'S new 140mph bullet trains are unveiled today.

The sleek Japanese-built models each cost £60million and will run between Ashford and King's Cross in 36 minutes, slashing 40 minutes off the current journey time.

A fleet of 28 six-carriage Javelins will come into operation in three years. They each have 354 seats but no first-class accommodation and no tables. As well as carrying

DICK MURRAY  
Transport Editor

Kent commuters, the Javelins will ferry thousands of spectators and from the 2012 Olympics.

The promise of superfast trains was seen as key to landing the London bid. But consumer groups warned the cost of tickets which could rise by as much as 70 per cent to

Continued on Pa

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# **Company Responses**

- **Biosecurity**
- **Approved suppliers**
- **Using Forensic methods**
- **Appropriate Staff Training**

# Food Safety Management System

**4.Private  
Standards**

**3 HACCP**

**2 GMP**

**1 Pre-requisite  
programmes**



# Company Responses



**Cleaning and Disinfectant Regimens  
& ZONING**

# Zoning : Compulsary Compliance





# Direction for Food Safety



Food Safety



**Knowledge**



**Competence**

# **Regulatory Response to Criminal Activity in the Food Chain?**



# Challenges

- **Public Health Resources**
- **Outbreak Control Plans**
- **Maintaining competency- local, regional, national**
- **Simulation exercises- multidisciplinary working**
- **Cross boundary collaborations and partnerships**
- **Training and networking**
- **Regulators and Industry sharing lessons**
- **Media management–no longer possible?-  
proactive in all channels!**
- **PREVENTION**