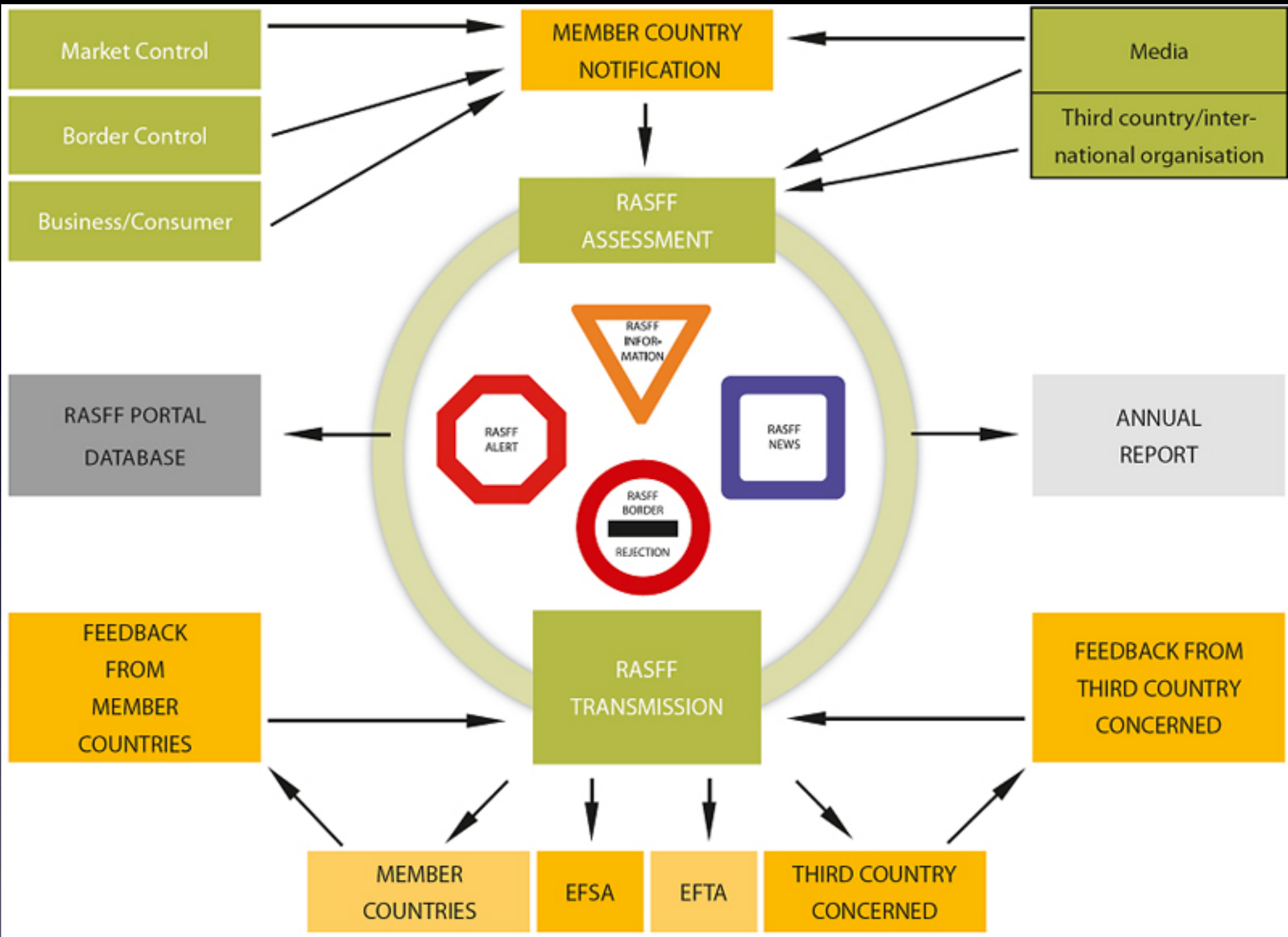
Ecologia microbica di *E. coli*, *Listeria monocytogenes* e *Campylobacter* spp.

Beniamino Cenci Goga

Un problema di sicurezza alimentare: misure di controllo e prevenzione delle infezioni da *L. monocytogenes*, *E. coli* e *Campylobacter* spp.


Market Control
Border Control
Business/Consumer
MEMBER COUNTRY NOTIFICATION
Media
Third country/inter-national organisation
RASFF ASSESSMENT
RASFF INFOR-MATION
RASFF ALERT
RASFF NEWS
RASFF BORDER REJECTION
RASFF PORTAL DATABASE
ANNUAL REPORT
FEEDBACK FROM MEMBER COUNTRIES
RASFF TRANSMISSION
FEEDBACK FROM THIRD COUNTRY CONCERNED
MEMBER COUNTRIES
EFSA
EFTA
THIRD COUNTRY CONCERNED

- **Sistema di allerta rapido**

Per diffondere in maniera rapida ed efficace le informazioni relative ai pericoli riscontrati su un determinato alimento e/o mangime, la Commissione europea ha messo in piedi a uso degli Stati membri un sistema informatizzato: **RASSF** (**Rapid Alert System for Food and Feed**) che consente loro di comunicare praticamente in tempo reale informazioni riguardanti le non conformità rilevate su un determinato prodotto. Alla rete informatizzata del sistema di allerta comunitario prendono parte, oltre agli Stati membri dell'Unione, anche la stessa Commissione europea e l'EFSA (autorità per la sicurezza alimentare). Tale sistema è stato istituito con la Direttiva 92/59/CEE, relativa alla sicurezza generale dei prodotti, e trova fondamento nel regolamento (CE) 178/2002, che stabilisce i principi e i requisiti generali della legislazione alimentare, istituisce l'autorità europea per la sicurezza alimentare (EFSA) e fissa le procedure nel campo della sicurezza alimentare.

Affinché la comunicazione delle allerte sia completa e tempestiva, la Commissione europea e gli Stati membri hanno messo in piedi specifiche procedure operative a riguardo.

Le notifiche possono essere classificate nelle seguenti tipologie:

- **notifica di allarme**: devono essere comunicate entro le 48 ore e trasmesse a tutti i membri della rete nelle successive 24 ore. Riguardano una notifica di un rischio grave che richiede o potrebbe richiedere un intervento immediato;

- **notifica di informazione**: deve essere comunicata senza indebiti ritardi e riguarda una notifica di un rischio in un altro Stato membro, ma che non richiede un intervento rapido;

- **notifica di respingimento** alla frontiera: deve essere comunicata senza ritardi ingiustificati e riguarda uno notifica di respingimento di una partita di prodotto non conforme a un controllo in entrata nel territorio di un altro Stato.

- RITIRO E RICHIAMO

Ai sensi del regolamento (CE) 178/2002, un alimento non conforme agli standard igienico-sanitari previsti dal pacchetto igiene può essere ritirato o richiamato a seconda dei casi. Ad esempio, un operatore del settore alimentare che cede un suo alimento ad altre imprese di trasformazione od operatori intermedi, ma del quale non ha più la certezza, o comunque ha motivo di sospettare, che non sia idoneo al consumo, deve avviare immediatamente le procedure di ritiro e informarne le autorità competenti. Tale evenienza non si ripercuote quasi mai sul consumatore in quanto il prodotto viene ritirato nelle fasi precedenti. Se lo stesso prodotto è invece già arrivato al consumatore, si procede al richiamo. Nel caso in cui il pericolo sia grave (ad esempio tossina botulinica in un alimento) e il rischio elevato e immediato (ad esempio alimento destinato al consumo diretto arrecante un grave danno per la salute del consumatore), viene disposto il sequestro immediato della merce tramite l'intervento delle autorità competenti del caso e la procedura di emergenza può prevedere il coinvolgimento dei mass media per raggiungere più rapidamente la popolazione e avvisarla del rischio cui può andare incontro consumando quel determinato alimento. In tali casi viene fatto il nome della marca e del numero di lotto del prodotto oggetto di pericolo affinché i consumatori possano meglio identificarlo. Sono inoltre fornite indicazioni sulle modalità di riconsegna dello stesso all'ASL territorialmente competente.

• RASFF

The EU has one of the highest food safety standards in the world – largely thanks to the solid set of EU legislation in place, which ensures that food is safe for consumers. A key tool to ensure the cross-border follow of information to swiftly react when risks to public health are detected in the food chain is **RASFF – the Rapid Alert System for Food and Feed**.

Created in 1979, RASFF enables information to be shared efficiently between its members (EU-28 national food safety authorities, Commission, EFSA, ESA, Norway, Liechtenstein, Iceland and Switzerland) and provides a round-the-clock service to ensure that urgent notifications are sent, received and responded to collectively and efficiently. Thanks to RASFF, many food safety risks had been averted before they could have been harmful to European consumers.

Vital information exchanged through RASFF can lead to products being recalled from the market. A robust system, which has matured over the years, RASFF continues to show its value to ensure food safety in the EU and beyond.

The RASFF portal features an interactive searchable online RASFF database. It gives public access to summary information about the most recently transmitted RASFF notifications as well as search for information on any notification issued in the past.

Europe is more than ever reliant on RASFF to ensure that our food meets some of the highest food safety standards in the world. To mark the 35th anniversary of RASFF, Commissioner for Health, Tonio Borg delivered a press statement on 13 June 2014 to explain the importance of its role in ensuring that food safety risk in Europe are averted or mitigated. Besides its main role of ensuring food safety, the 2013 RASFF annual report shows that it is a crucial tool to trace back and withdraw products where fraud was detected

Scope of the RASFF

The purpose of the RASFF is to provide the control authorities with an effective tool for exchange of information on measures taken to ensure food safety.

When a RASFF member has any information about a serious health risk deriving from food or feed, it must immediately notify the European Commission using RASFF. In particular, Member States have to notify the Commission if they take such measures as withdrawing or recalling food or feed products from the market in order to protect consumers' health and if rapid action is required. They also have to notify if they agreed with the responsible operator that a food or feed should not be placed on the market if the measure is taken on account of a serious risk. The same applies when the product in question is placed on the market under conditions. The Commission immediately transmits the notification to all members of the network.

Member States also have to notify all rejections of food or feed at a border post of the European Union on account of a health risk. The Commission needs to notify all border posts and the country of origin immediately of a border rejection.

In 2006, with the entry into force of the "Feed Hygiene" Regulation (EC) N° 183/2005, animal health and environmental risks were added to the scope in relation to feed. This means that from then on also notifications about pet food were made, which was previously excluded from the scope.

What is the responsibility of the European Commission in the RASFF?

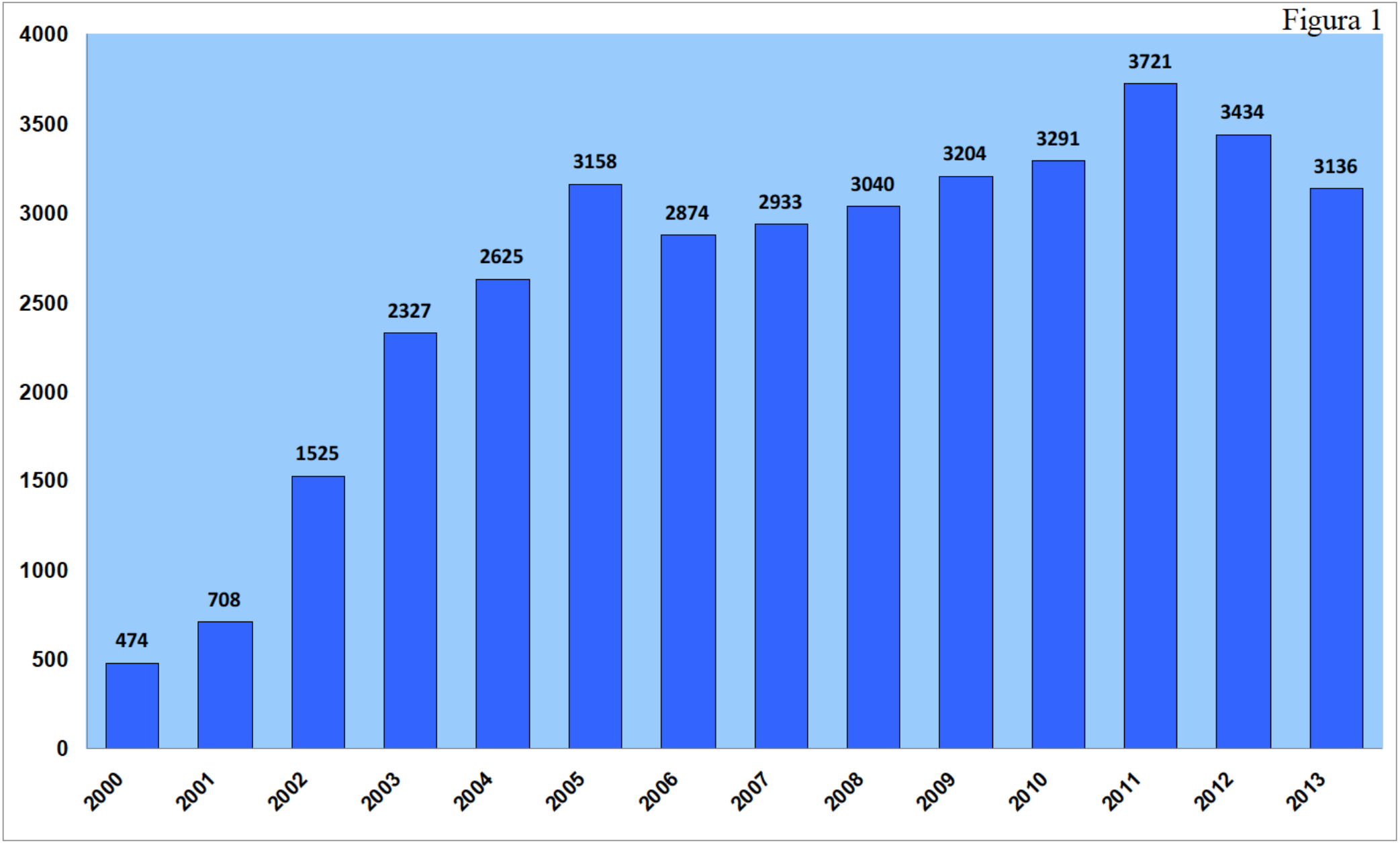
The Commission, responsible for managing the system, is providing knowledge and a technological platform to facilitate transmission and handling of the **RASFF notifications**. It receives all notifications from members of the network and performs the following checks on them, prior to making them available to all members of the network:

- a completeness check
- legislative requirements
- verification if the subject of the notification falls within the **scope of the RASFF**
- translation into English of the information on the notification form
- classification of the notification
- members of the network flagged for action
- recurrences of similar problems relating to the same professional operator and/or hazard/country of origin.

The Commission must inform a non-member of RASFF (third countries) if a product subject to a notification has been exported to that country or when a product originating from that country has been the subject of a notification. In this way, the country can take corrective measures where needed and appropriate.

Il Ministero, con propria Circolare prot. 606/20.1/3/1110 del 15 maggio 2003, ha fornito indicazioni ai propri uffici periferici (UVAC, PIF, USMA) e alle Regioni e Province Autonome, in ordine alle competenze e alle modalità operative in caso di riscontro di "frode tossica o di prodotti nocivi o pericolosi per la salute pubblica" e ha invitato le Regioni e Province Autonome a predisporre un proprio sistema di allerta, per assicurare il flusso delle comunicazioni tra centro e periferia, nonché per fornire gli opportuni indirizzi alle Aziende Sanitarie Locali. L'Ufficio VIII della Direzione Generale della Sicurezza degli alimenti e della nutrizione del Ministero del Lavoro, Salute e Politiche sociali è il punto di contatto italiano per il sistema di allerta comunitario.

Figura 1


4000
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474
708
1525
2327
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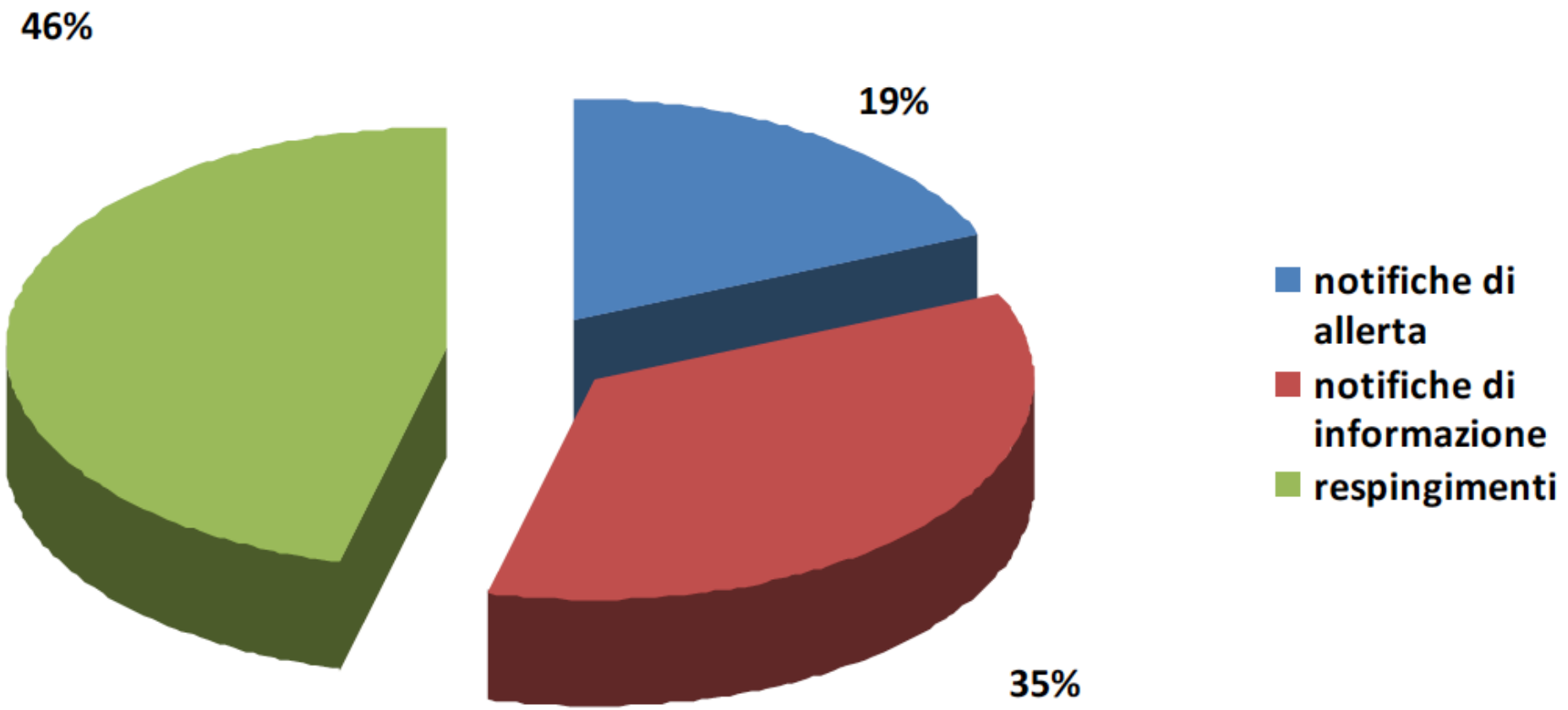
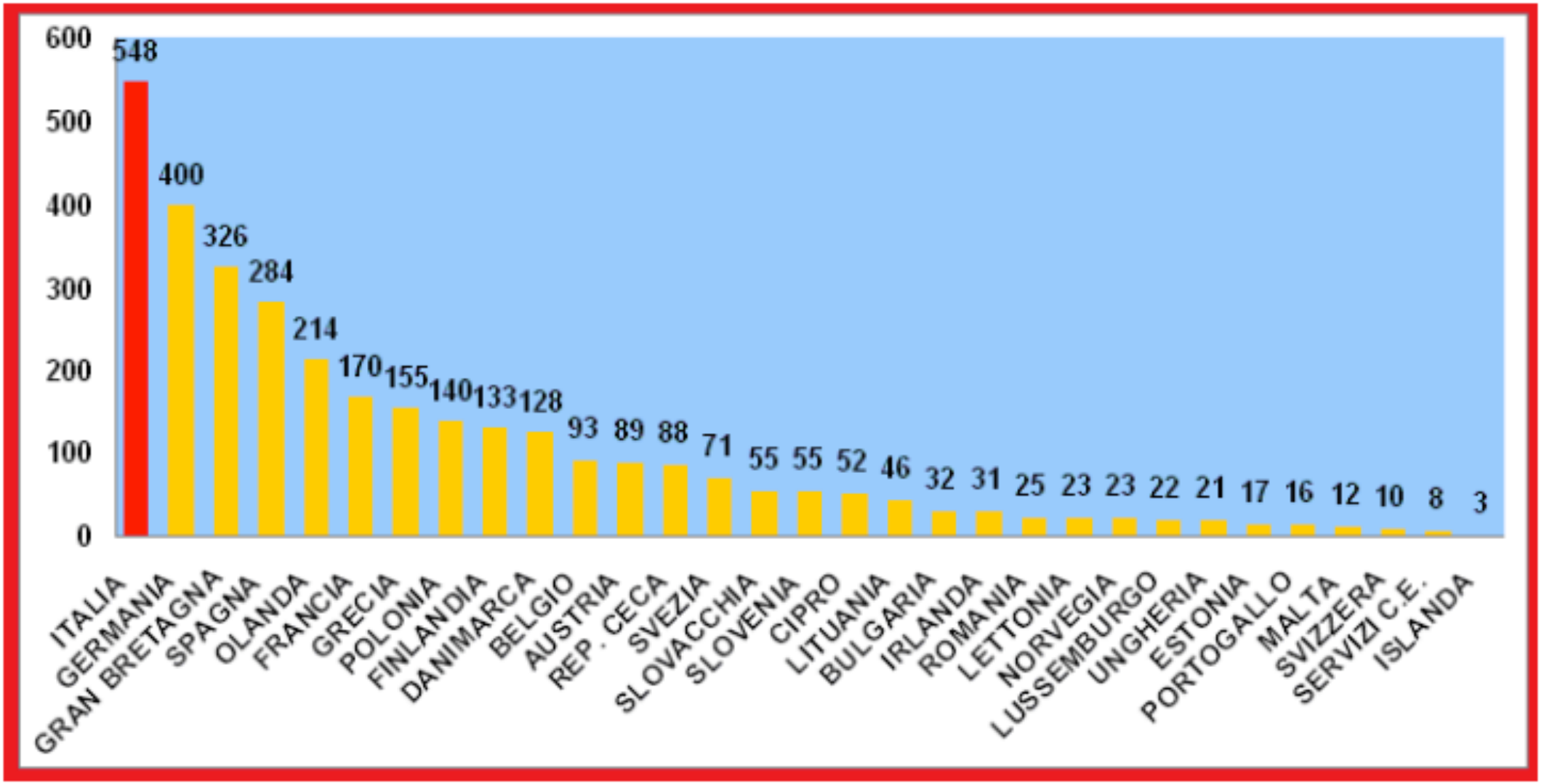
2012
2013

Figura 3


46%
19%
35%
notifiche di allerta
notifiche di informazione
respingimenti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284
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32
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23
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12
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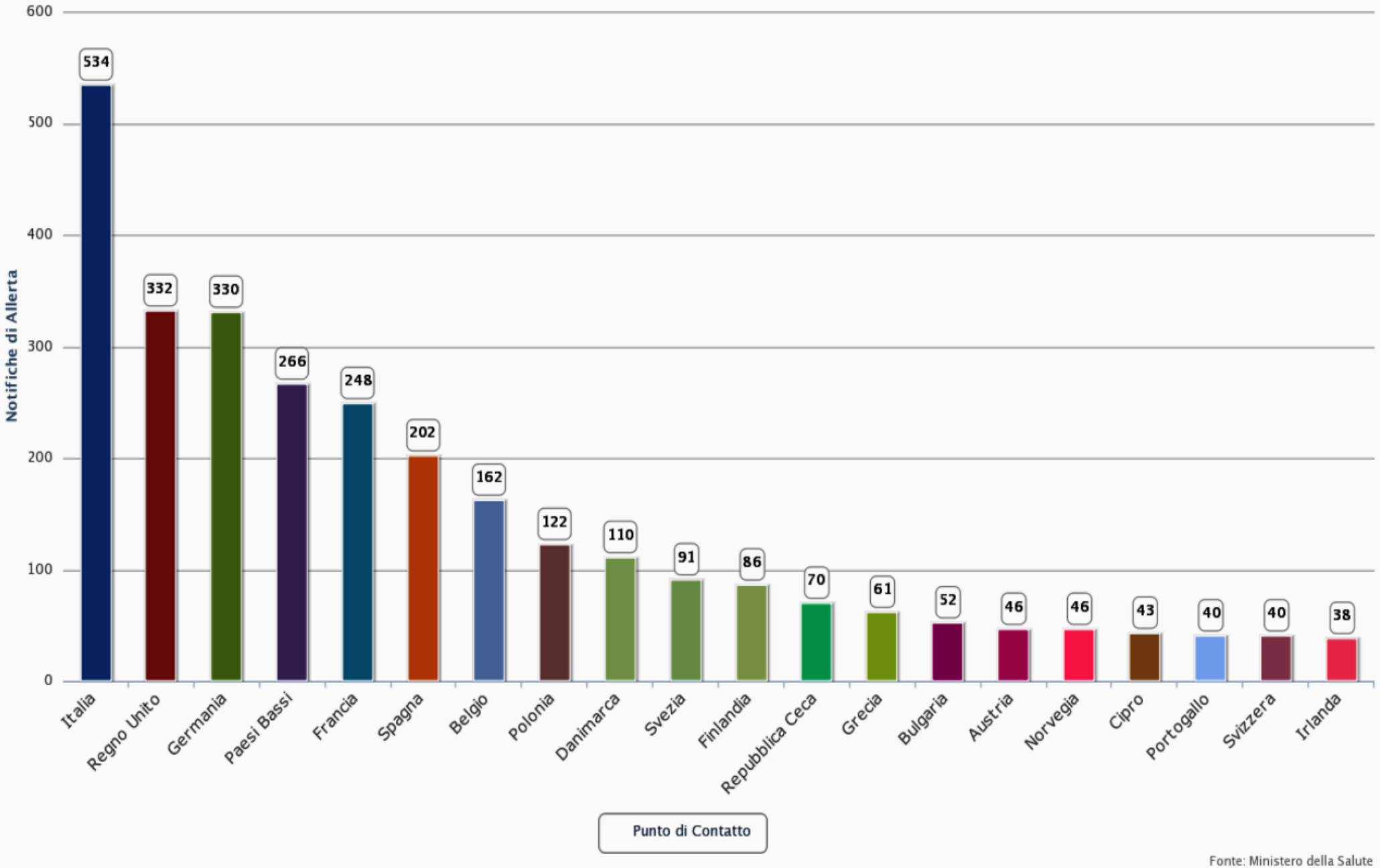
3
ITALIA
GERMANIA
GRAN BRETAGNA
SPAGNA
OLANDA
FRANCIA
GRECIA
POLONIA
FINLANDIA
DANIMARCA
BELGIO
AUSTRIA
REP. CECA
SVEZIA
SLOVACCHIA
SLOVENIA
CIPRO
LITUANIA
BULGARIA
IRLANDA
ROMANIA
LETTONIA
NORVEGIA
LUSSEMBURGO
UNGHERIA
ESTONIA
PORTOGALLO
MALTA
SVIZZERA
SERVIZI C.E.
ISLANDA

Figura 5

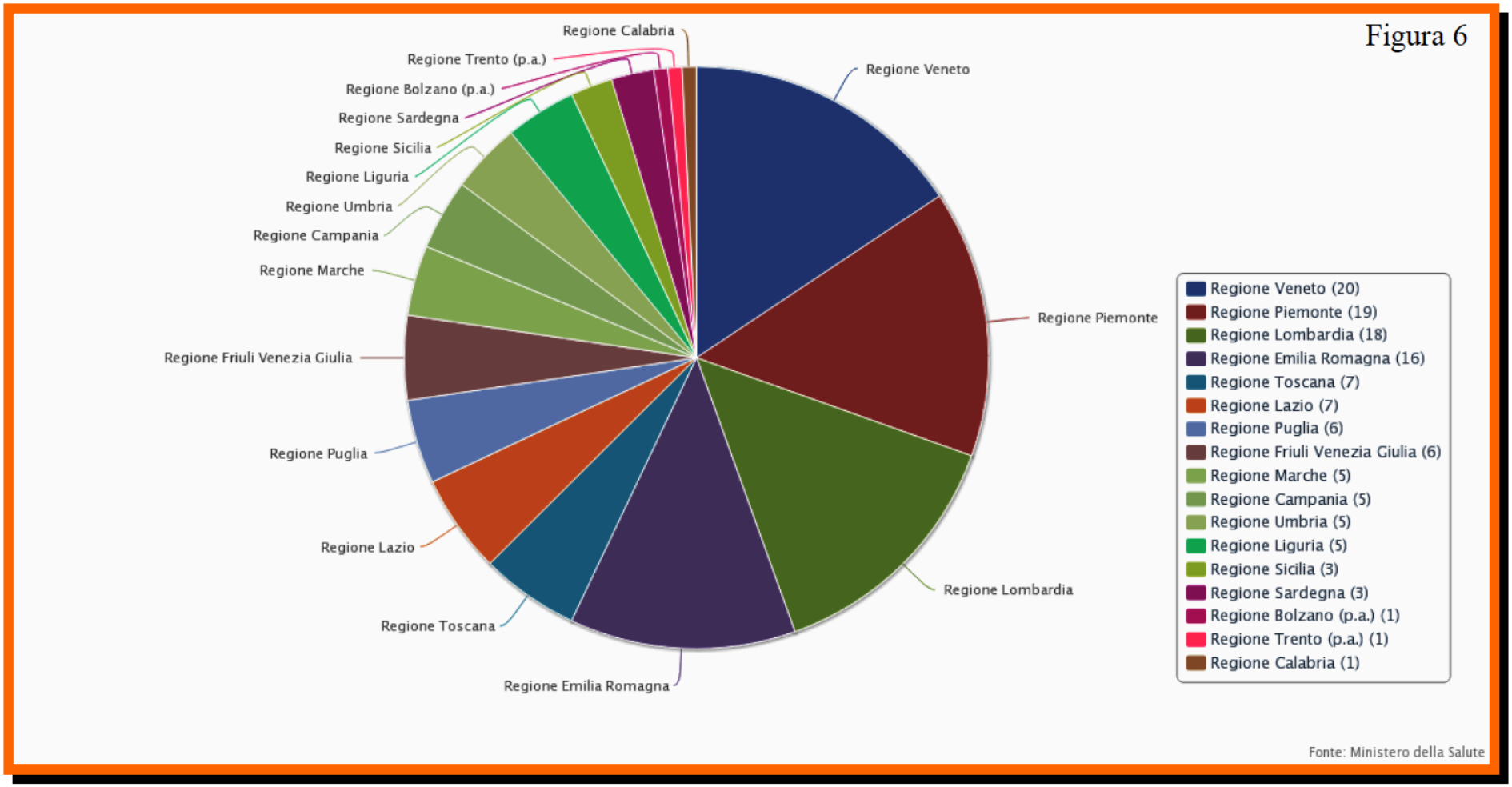

[2013] Report su Punto di Contatto -> Categorie di Prodotto
Notifiche di Allerta
600
500
400
300
200
100
0
534
332
330
266
248
202
162
122
110
91
86
70
61
52
46
46
43
40
40
38
Italia
Regno Unito
Germania
Paesi Bassi
Francia
Spagna
Belgio
Polonia
Danimarca
Svezia
Finlandia
Repubblica Ceca
Grecia
Bulgaria
Austria
Norvegia
Cipro
Portogallo
Svizzera
Irlanda
Punto di Contatto
Fonte: Ministero della Salute

3. Numero delle notifiche effettuate dall'Italia

Nell'attività di controllo svolta in ambito nazionale, sono pervenute 145 segnalazioni da parte degli Assessorati alla Sanità, ASL e Comando Carabinieri per la tutela della Salute.
Lo scorso anno erano state 169. Gli Uffici periferici del Ministero della Salute (USMAF, UVAC e PIF) hanno, invece, notificato 387 irregolarità (348 nel 2012). Le restanti allerta sono state attivate attraverso segnalazioni pervenuti dall'Autorità Giudiziaria e dal Ministero delle Politiche Agricole e Forestali.

Non sono pervenute notifiche da alcune regioni: Abruzzo, Basilicata, Molise e Valle D'Aosta (Figura 6).

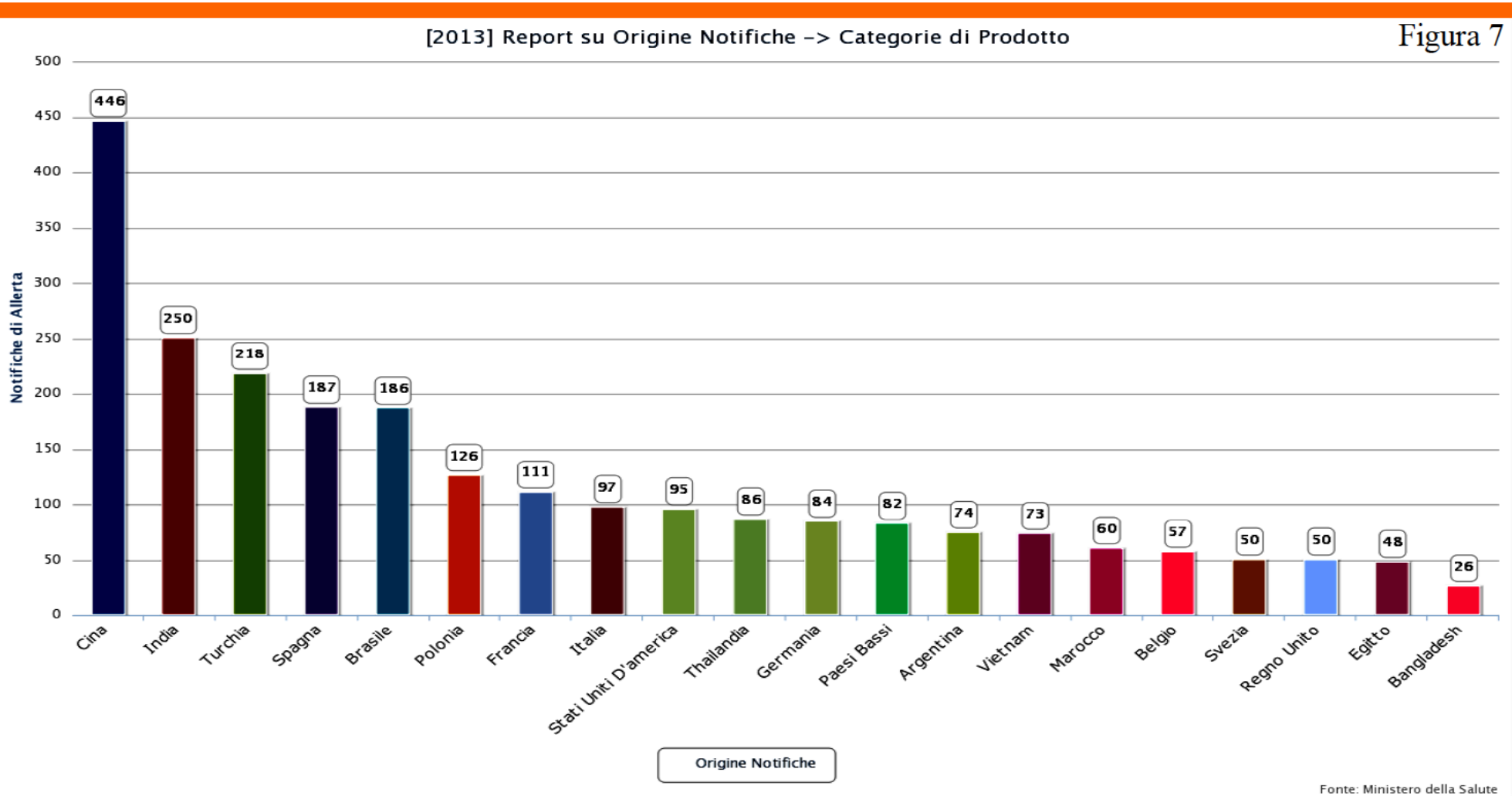
Figura 6



4. Numero di notifiche di allerta riguardanti l'origine dei prodotti

Per quanto riguarda l'origine, i prodotti nazionali risultati irregolari sono stati 97 (106 nel 2012). Pertanto, l'Italia risulta il quarto Paese Comunitario per numero di notifiche ricevute, dopo la Spagna, la Polonia e la Francia. Considerando, invece, anche i Paesi Terzi, l'Italia risulta ottava. Lo Stato che ha ricevuto il maggior numero di notifiche per prodotti non regolari è la Cina (446), seguita dall'India e dalla Turchia, rispettivamente con 250 e 218 segnalazioni (Figura 7).

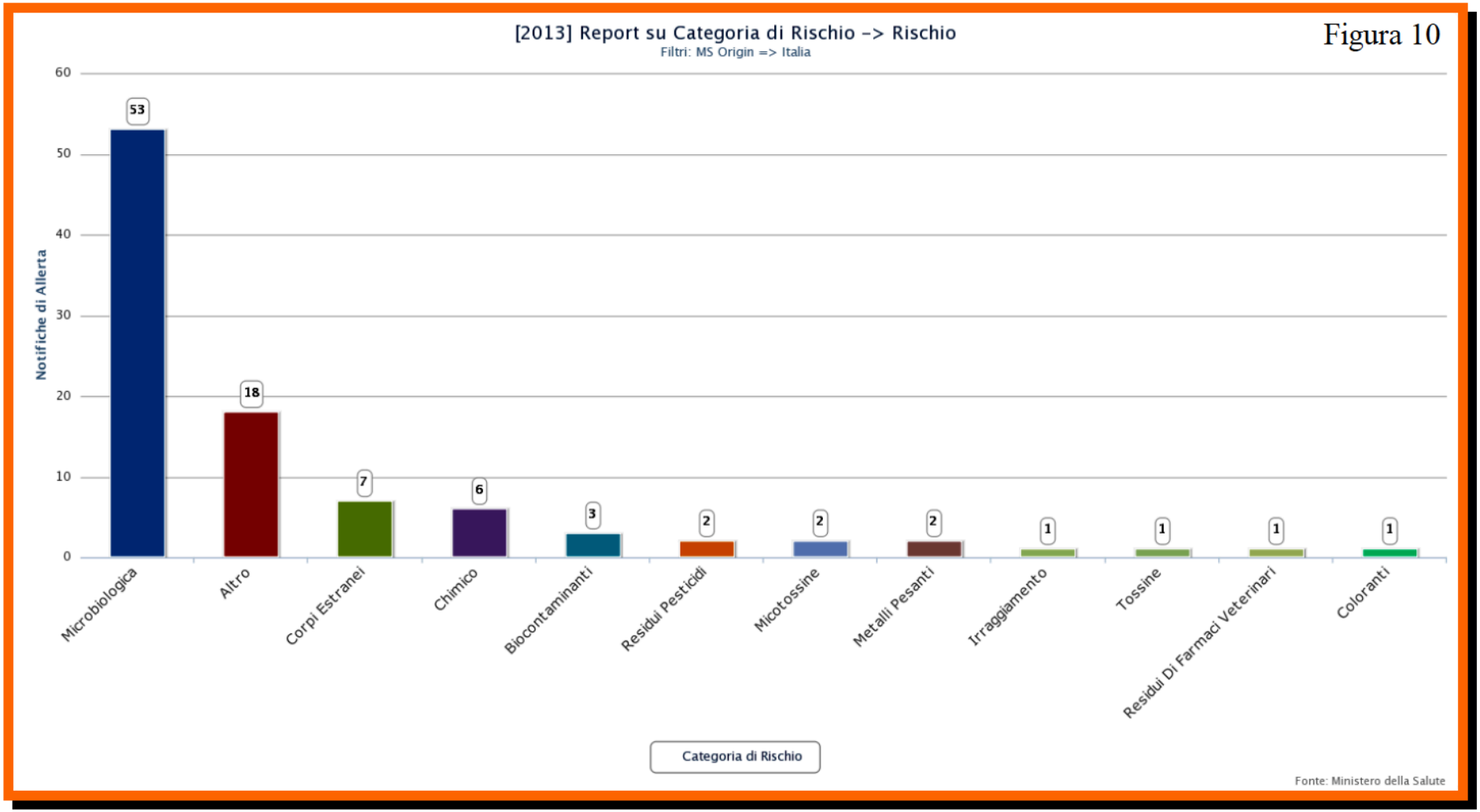
Figura 7



Anche la tipologia del rischio è risultata essere abbastanza eterogenea (Figura 10), con le maggiori irregolarità dovute a contaminazioni microbiologiche, tra le quali si segnalano le 20 notifiche per presenza di Salmonella, Listeria (11 notifiche), E. Coli (11 segnalazioni) seguite dalla presenza del Virus dell'epatite A in mix di frutti di bosco (8) preparati con materie prime extra-nazionali.

Inoltre, sono state riscontrate irregolarità per presenza di DNA equino in prodotti alimentari (8), seguiti da biocontaminanti, micotossine e metalli pesanti. Tra le altre irregolarità si segnalano la presenza di allergeni non dichiarati in etichetta (4) e il riscontro di corpi estranei (7).

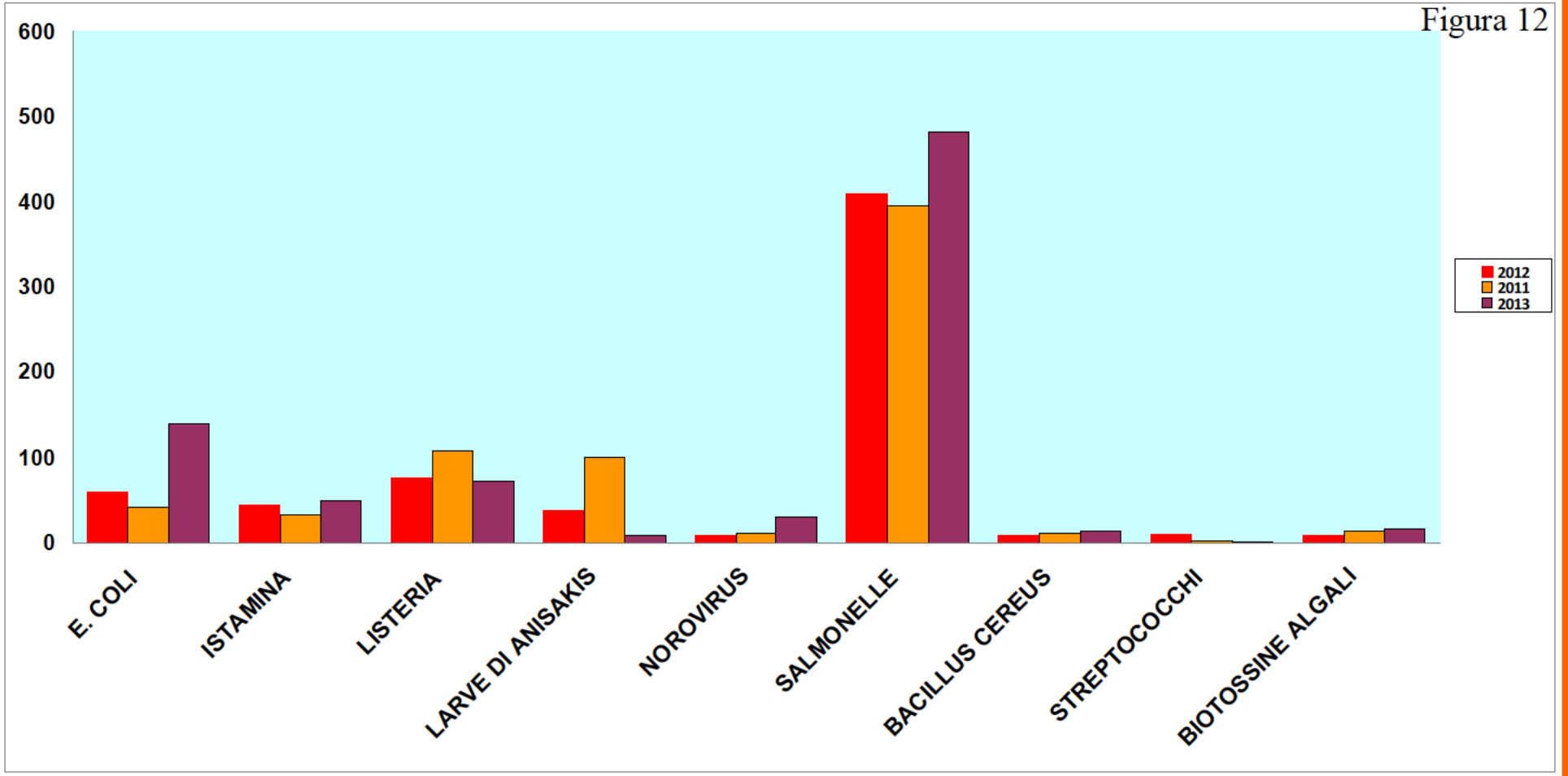
Figura 10



7. I principali rischi notificati attraverso il RASFF

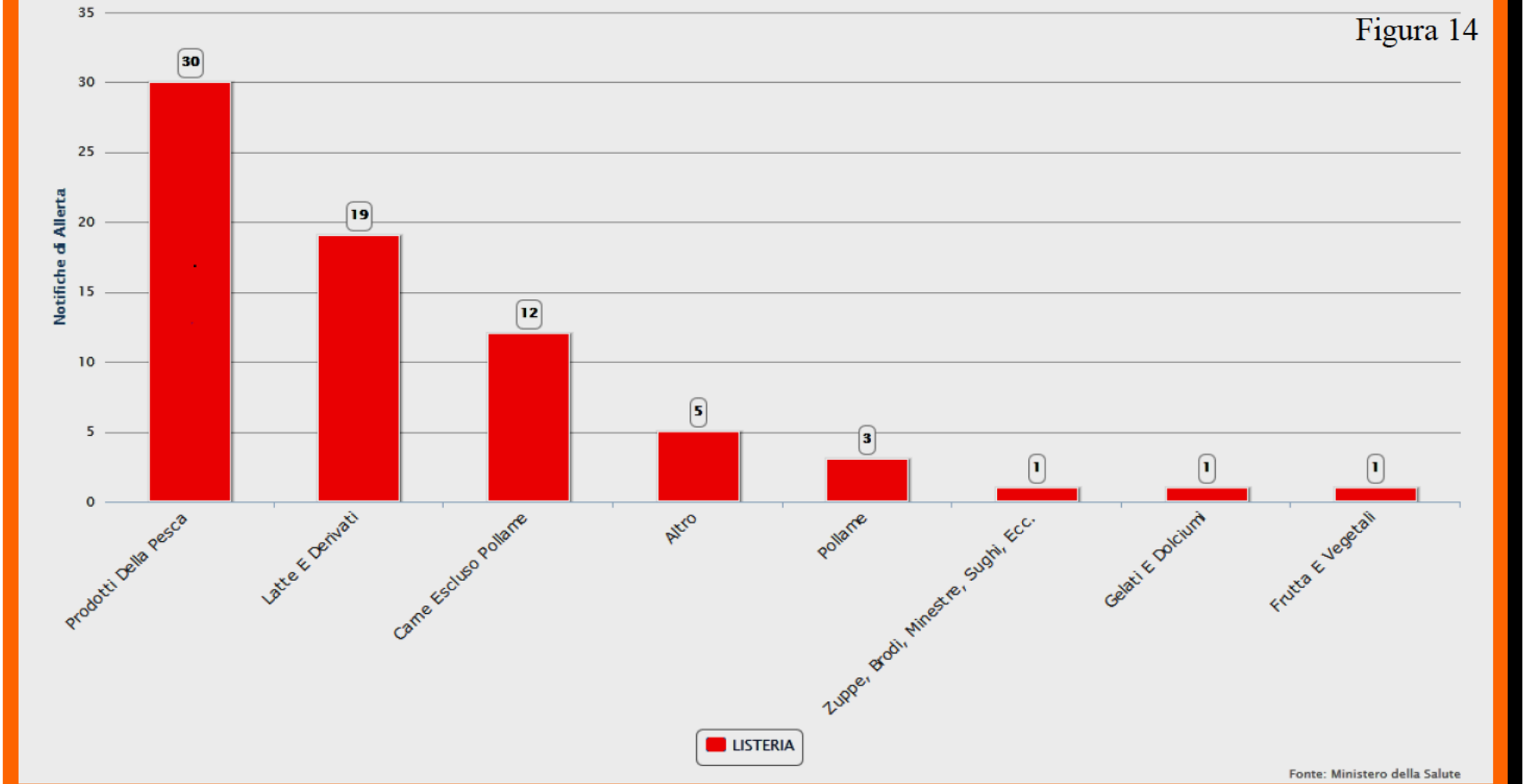
Tra i contaminanti microbiologici, un elevato numero di notifiche riguardano ancora il riscontro della Salmonella (482 notifiche contro le 409, 396 e le 338 segnalazioni dei tre anni precedenti). In alcuni casi la salmonella è stata riscontrata insieme ad altri patogeni (Figura 12).

Figura 12



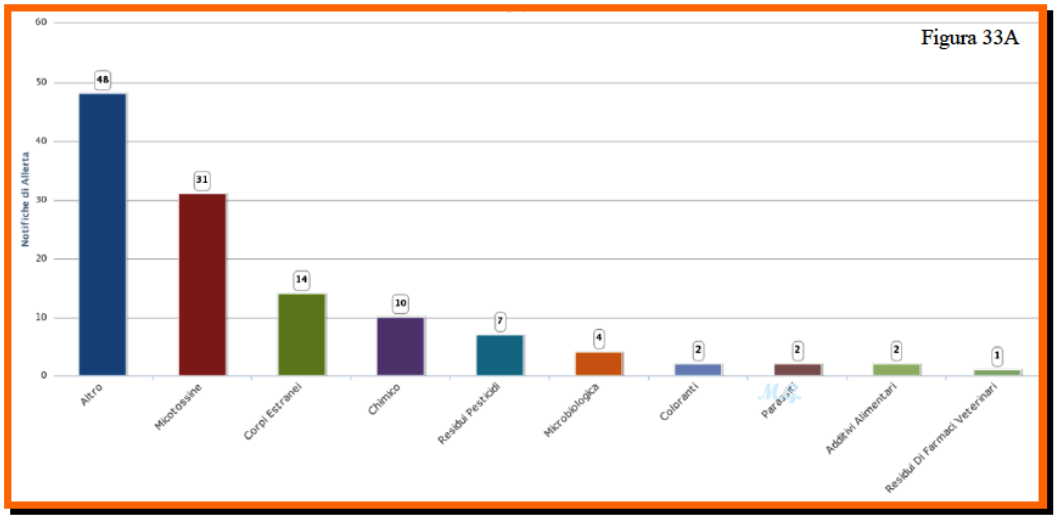
La Listeria è stata principalmente segnalata in salmone affumicato, ma le notifiche pervenute riguardano anche i prodotti a base di latte, la carne escluso pollame ed i piatti pronti ricadenti sotto la voce altro nella figura 14.

Figura 14



Cereali e derivati

Sono state trasmesse 121 notifiche riguardanti questa classe di alimenti, rispetto alle 149 del 2012. Si segnala, in particolare, la presenza di 25 notifiche per riscontro di OGM non autorizzati, soprattutto in riso e altri prodotti a base di riso, dalla Cina (21). Tutte le segnalazioni sono riassunte in Figura 33 A.



RASSF?

	Classification	Date of case	Last change	Reference	Country	Subject
1.	alert	14/09/2011	04/11/2011	2011.1257	IT	Escherichia coli (O103; O104; O157; stx1 positiv; stx2 positive; eae positive) in frozen wildboar meat from Poland, via the Netherlands
2.	alert	01/07/2011	05/08/2011	2011.0873	GR	Escherichia coli O157 (presence /25g) in frozen spicy minced beef - mini kebabs from Germany
3.	alert	01/07/2011	05/08/2011	2011.0870	GR	Escherichia coli O157 (presence /25g) in frozen minced beef from Germany
4.	alert	27/06/2011	02/08/2011	2011.0844	AT	verotoxin producing Escherichia coli (EHEC nonO157 STEC) in sausage from Hungary
5.	alert	30/06/2011	27/07/2011	2011.0865	BE	verotoxin producing Escherichia coli (E. Coli O157:H7 eae+, stx1+ /25g) in bovine meat from Belgium, with raw material from France
6.	information for attention	08/06/2011	20/07/2011	2011.0755	BE	Escherichia coli O103 and Escherichia coli O157 in beef carcass from Belgium
7.	alert	29/06/2011	04/07/2011	2011.0861	BE	food poisoning suspected to be caused by Escherichia coli O157:H7 in spicy minced meat from Belgium
8.	alert	27/04/2011	16/06/2011	2011.0547	FR	Escherichia coli O157:H7 (present /25g) in frozen minced beef steaks from Germany
9.	alert	24/02/2011	12/04/2011	2011.0251	NO	Escherichia coli O157 in frozen hamburgers from Denmark, via Sweden

Listeria outbreak continues, four more Colorado cases ID'd

By The Denver Post

POSTED: 09/07/2011 11:05:36 AM MDT
UPDATED: 09/07/2011 02:15:15 PM MDT

A new case of listeria was reported today in addition to the three cases over the holiday weekend, bringing the total to 13 since Aug. 1.

Cases have been reported in Adams, Arapahoe Boulder, Denver, Douglas, El Paso, Jefferson, Larimer and Weld counties.

Two people died from listeria in August and the 11 others were hospitalized. In an earlier outbreak, in June, two people diagnosed with the infection died.

The cause of the most recent outbreak is still under investigation and there is no clear link between the cases, said Mark Salley, spokesman for the Colorado Department of Public Health and Safety.

Colorado averages about 10 cases of listeria per year.

LE FIL INFO 19 sep 2011 - 17h08 La mairie de Saint-Gervais abandonne un projet faute de financement bancaire

INFO ALPES - INTOXICATION

Publié le 23/07/2011 | 19:26

St-Jeoire-en-Faucigny (74) : L'épidémie de gastro

Par AFP

Gastro collective dans un centre de vacances.

Une toxi-infection alimentaire collective de type "gastro-entérite" a touché 52 enfants et deux encadrants d'un centre de vacances en Haute-Savoie accueillant au total 125 personnes, ont indiqué jeudi 21 juillet la préfecture et la Direction départementale de la cohésion sociale.

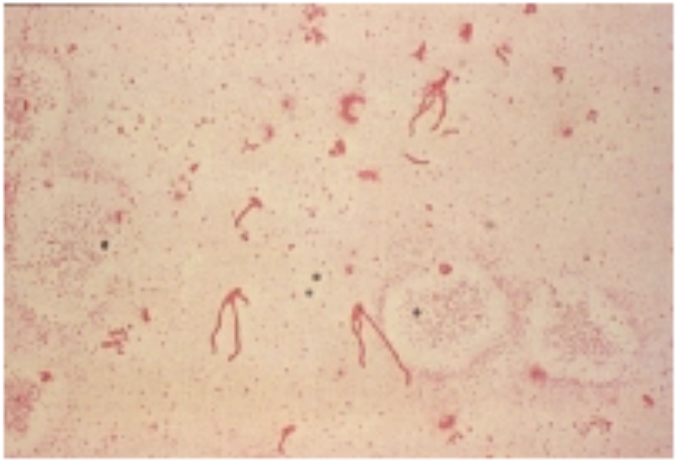
"Onze enfants ont été hospitalisés, mais leur état n'inspire pas d'inquiétude", a souligné la préfecture dans un communiqué, précisant que les principaux symptômes étaient des signes digestifs : douleurs abdominales, vomissements, nausées et diarrhées.

Les cas sont survenus "en deux vagues" dans ce centre situé à St-Jeoire-en-Faucigny, avec 39 cas survenus entre samedi et lundi, et 15 nouveaux cas depuis mercredi.

New cases in yersiniosis outbreak

08/04/2011 16:14:00

Since February, the Reference Laboratory at the Norwegian Institute of Public Health has identified identical strains of Yersinia enterocolitica O:9 in twenty patients living in Norway.



Interviews with the patients with yersiniosis led to suspicion of a particular pre-packaged lettuce mix that was withdrawn from the market.

Further investigation led to suspicion of several pre-packaged lettuce mixes purchased in grocery stores. Preliminary investigations conducted at the Norwegian Veterinary Institute strengthened this suspicion. The manufacturer has therefore withdrawn a further nine lettuce mixes from the market. The Norwegian Food Safety Authority recommends that consumers should not eat these lettuce mixes. The Norwegian Institute of Public Health is continuing the investigation in co-operation with the Food Safety Authority and Veterinary Institute.

Investigation Update: Multistate Outbreak of Human *Salmonella* I 4,[5],12:i:- Infections Linked to Alfalfa Sprouts

- Case Count Map
- Epi Curve

January 6, 2011

On this Page

Today's Highlights

- From November 1, 2010, through January 4, 2011, 112 individuals infected with the outbreak strain of *Salmonella* serotype I 4,[5],12:i:-, whose illnesses began since November 1, have been reported from 18 states and the District of Columbia. Results of the investigation indicate a link to eating Tiny Greens Alfalfa Sprouts at Jimmy John's restaurant outlets.

E. coli, Germania – Estate 2011

Shiga toxin-producing E. coli (STEC): Update on outbreak in the EU (27 July 2011, 11:00)

27 Jul 2011

In the EU/EEA, only two non-HUS STEC cases were reported to have fallen ill within the last 10 days (17 July – 26 July), all in Germany. These are two probable cases, not yet confirmed with STEC O104. The last known date of illness onset in a patient with confirmed STEC O104 was 7 July 2011 (see text below). The last reported date of illness onset among all (probable and confirmed) cases was 17 July 2011.

As of today, the cumulative number of confirmed STEC cases in the EU/EEA is 941. This includes 264 HUS STEC cases and 677 non-HUS STEC cases. Additionally, there are 518 probable HUS STEC and 2 451 probable non-HUS STEC cases, with no confirmation of STEC O104 at present time. In total, in the EU, 46 persons have died of confirmed or probable STEC infection. Of these, 29 were HUS STEC cases and 17 were non-HUS STEC cases. The table below shows the distribution of cumulative probable and confirmed STEC cases per country.

The Robert Koch Institute declared on 26 July the outbreak in Germany as officially over (see link below), as the last date of onset for a case with an epidemiological link, was 4 July, three weeks ago. Since the last update on 26 July, Germany has reported nine non-HUS STEC cases and one HUS STEC case. Cases reported with onset after 4 July are considered by Germany as having no epidemiological link with the initial outbreak or for which no laboratory confirmation is available. Other Member States have not reported any new cases since the last update.

Xinhua News Agency | *October 31, 2014 11:51pm*

French labs confirm source of listeria outbreak in Macedonia

bacteremia • Bacteria • brain abscess • Immune system

SKOPJE, Oct. 31 (Xinhua) -- Two prominent French reference laboratories confirmed the source of listeria outbreak here was the smoked pork product "Extra Mein" made by a Kumanovo-based company, Macedonian health minister said on Friday.

The test results from Paris-based Louis Pasteur Institute and Anses confirmed the primary findings of the source explored by Macedonian institutions. And the results will be submitted to Macedonian Public Prosecutor's Office where the case has already been filed.

By Fedor Zarkhin | fzarkhin@oregonian.com
Email the author | Follow on Twitter
on October 31, 2014 at 5:11 PM, updated November 01, 2014 at 12:36 PM

Print

Three cases of E. coli infection since September have prompted the **Clackamas County Health Department** to begin testing all children and staff at a West Linn Montessori program for the potentially deadly bacteria.

In a Thursday letter to parents with children at **Heart Centered Montessori**, 2152 S.W. Ek Rd., the department said it continues to investigate the source of the infections. Meanwhile, health officials recommended students and employees be tested for E. coli and to avoid returning to school, swimming and participating in group activities until test results are back.

WEST LINN E. COLI CASES

West Linn Montessori school will stay closed for E. coli investigation

3 confirmed E. coli cases prompt testing at West Linn Montessori program

The Montessori school serves children up to age 6 and was established in 2007, according to its website.

At least two of the three infections are of the most virulent type of E. coli, O157.H7, the letter to families said. A 4-year old girl in Lincoln County **died of the same bacterial strain** in September.

Clackamas County officials declined to provide further details about who was infected or their medical status.

Officials at the school could not be reached.

Rete idrica, California - 2008

The Mercury News
MercuryNews.com

10 California water systems ordered to monitor for E. coli

Associated Press

Article Launched: 11/06/2008 12:03:21 PM PST

The U.S. Environmental Protection Agency says 10 public drinking water systems in California are facing possible fines for failing to monitor for E. coli bacteria in their source water.

EPA officials said Thursday they are ordering the agencies to start monitoring for the pathogen, whose presence in water is a strong indicator of sewage or animal waste contamination.

The 10 agencies supply drinking water to small communities in Alpine, Fresno, Glenn, Humboldt and Trinity counties.

They are required to conduct pathogen monitoring plans under the federal Safe Drinking Water Act.

The EPA says the 10 water systems face fines up to $32,500 per day for each violation.

Mare sporco, i liquami a mare. Allarme in Penisola sorrentina

I liquami degli scarichi fognari direttamente a mare e grazie a lavori finanziati per la portualità turistica. Le acque del comune di **Sant'Agnello** - Penisola sorrentina - in **località Cassano**, di fronte alla spiaggia di Caterina, oltre ad avere un colore decisamente"*poco chiaro*" sono anche maleodoranti. I tubi degli scarichi abusivi sono ben in mostra e testimoniano quanto accade. **La denuncia** arriva dai cittadini e dal **Wwf Penisola sorrentina** che già nel 2005 aveva inoltrato un ultimo corposo dossier alla Procura della Repubblica.

Mare, Italia - 2011

Stop ai liquami in mare: Hera ripara la condotta

Si concludono i lavori di riparazione della condotta fognaria che si è guastata nella zona nord di Rimini nei giorni scorsi, provocando uno sversamento di liquami nell'Adriatico

Pubblicato in Primo Piano

Condividi altri | Consiglia

Dovrebbero terminare nella giornata di giovedì, i **lavori di riparazione della condotta fognaria** principale, situata in corrispondenza del sottopasso ferroviario del cimitero di Rimini.

Il guasto, avvenuto intorno alle 7.30 del primo maggio, ha comportato l'apertura degli **sfiori di emergenza** delle fognature nella zona nord (nei pressi delle Celle) con il conseguente **sversamento di liquami di fogna in mare** e una cartolina maleodorante per i turisti che hanno scelto la Riviera per il weekend festivo. La causa dell'apertura di un'importante fessura che ha interessato la condotta per un tratto di circa 9 metri, è probabilmente **da imputare all'usura** provocata dalle acque reflue oltre al fatto che ha davvero troppi anni alle spalle, dato che la **sua realizzazione risale al 1980**.

LINK CORRELATI

- Stabilimenti balneari
- Notizie dalla località

DISASTRO AMBIENTALE

La Bp corre ai ripari

Avrebbe finanziato con

Mare, Italia - 2011

PUBBLICATO DA il Centro

Vasto, liquami in mare per le fogne insufficienti

Un sistema fognario obsoleto e sottodimensionato che non ha retto alla cementificazione selvaggia. Così i liquami finiscono in mare in piena spiaggia, in un periodo in cui la città è affollata di turisti. Sulla graticola è finito l'assessore comunale all'ambiente, Anna Suriani (Sel). Il Pdl ne ha chiesto le dimissioni, ma la delegata all'ambiente le ha rispedite al mittente. Ecco il mare martedì mattina nella zona centrale di Vasto. (*foto Stefano Moretti*) L'articolo

Mare, Italia - 2011

Bambini, da ungulati selvatici, Denver, Colorado

Fresh Plaza

New E. coli Outbreak in Denver Colorado

Eight Denver children between four and 12 years of age have all tested positive for the same Escherichia coli O157:H7 bacteria. Officials are still unclear as to the connection and source of the outbreak. The children live or have visited the Evergreen area of Denver, but they do not attend the same school. Two children remain hospitalized.

State and County health officials are investigating deer or elk droppings, along with other behaviors in the area where the children might have all come in contact. The first case was reported in July and the last case was reported late last month on October 22, health officials said.

E. coli are a group of bacteria found in animal intestines and feces. While some E. coli strains are necessary for digestion; some are harmful, deadly, and toxin-producing and part of a group of E. coli called Verocytotoxigenic E. coli, or VTECs, also known as Shiga-producing E. coli. Of particular concern is the virulent, sometimes deadly E. coli O157:H7 strain that is part of this group and that is generally found to be the culprit in E. coli-related food-borne illness outbreak. Strain O157:H7 has been confirmed to be to blame in this outbreak in Colorado and is also to blame for a variety of other outbreaks occurring in North America.

E. coli may cause fatal blood poisoning, cystitis, deadly septicemia, and death. In the US, E. coli is the leading cause of food-borne illness, sickening about 73,000 and killing 61; last year, over 22 million pounds of beef and vegetables were recalled due to E. coli outbreaks.

A diarrheal illness caused by several types of bacteria, E. coli is spread most easily when people eat or drink food or water contaminated with human or animal feces or from infected symptomatic individuals. Initial symptoms include sudden onset of watery, often bloody, diarrhea; abdominal cramping; and, occasionally, vomiting. One-third of infected people develop fevers.

More and more, E. coli is turning up in produce and water and seems to be sweeping North America in recent months with outbreaks popping up in a variety of states in the U.S. as well as in Canada. E. coli taints meat through improper butchering and processing practices and, once released in the body, produces a type of toxin that has been associated with kidney damage in young children, and can also lead to kidney failure and death. Infections generally last between five and 10 days and are usually not treated with antibiotics because antibiotics can increase the risk of more severe symptoms, such as hemolytic uremic syndrome (HUS), which can result in acute kidney failure. Experts suggest hand washing, especially after using the bathroom and those people suffering from nausea, vomiting, diarrhea, or any other stomach ailment should drink plenty of water or other liquids with electrolytes and should not prepare food for others.

There is growing concern in the scientific community—not just because of the seeming prevalence of all manner of foodborne illnesses—but because instances of drug resistant E. coli are being reported world-wide and are similar in path to a mutated staph called MRSA, Methicillin-resistant Staphylococcus aureus that, when not treated early, is resistant to all but the one antibiotic of last resort.

Source: newsinferno.com

Publication date: 11/4/2008

Vaccino, Canada

PRESS RELEASE

World's First Cattle Vaccine to Reduce E. coli O157 Threat Receives Full Licensing Approval in Canada

Last update: 9:15 a.m. EDT Oct. 27, 2008

BELLEVILLE, ON, Oct 27, 2008 /PRNewswire-FirstCall via COMTEX/ --
Econiche(TM) now available to reduce risk of food and water contamination

Bioniche Life Sciences Inc. (CA:BNC: news, chart, profile) , a research-based, technology-driven Canadian biopharmaceutical company, today announced that Econiche(TM), the world's first vaccine designed to reduce the shedding by cattle of Escherichia coli (E. coli) O157:H7, has received full licensing approval from the Canadian Food Inspection Agency (CFIA). Econiche is now available for unrestricted use by Canadian cattle producers and their veterinarians.

Bambini, focolaio in ospedale, Londra, ottobre 2008

Mail Online

Two babies die in E.coli outbreak at special care unit

By Jenny Hope and Emily Andrews
Last updated at 11:21 PM on 24th October 2008

Two babies have died after an outbreak of E.coli at a hospital.

A further nine infants have contracted the bug and two of them are being treated for life-threatening infections.

E.coli was found at the neonatal intensive care unit at Luton and Dunstable Hospital at the end of last month.

Tragic: Two babies died and a further two are critically ill following an outbreak of E.coli at Luton and Dunstable Hospital

Insalata 4° gamma

ProMED: *E. coli*

01 Nov 2014 E. coli EHEC - USA (29): (OR) O157, preschool
01 Nov 2014 E. coli EHEC - Canada (06): (ON) O157, unpasteurized cider, alert, recall
30 Oct 2014 E. coli EHEC - UK (14): (England) O117:H7, MSM
15 Oct 2014 E. coli EHEC - USA (28): (OR) susp. caprine source
05 Oct 2014 E. coli EHEC - Canada (05): (AB) O157, chicken sausage products, recall
05 Oct 2014 E. coli EHEC - UK (13): (England) unpasteurized milk, alert, recall
30 Sep 2014 E. coli EHEC - USA (27): (KY) HUS cluster, unpasteurized milk
24 Sep 2014 E. coli EHEC - USA (26): (OR)
16 Sep 2014 E. coli EHEC - USA (25): (WA,KY) RFI
14 Sep 2014 E. coli EHEC - USA (24): (OR)
13 Sep 2014 E. coli EHEC - USA (23): (KY) HUS cluster
11 Sep 2014 E. coli EHEC - USA (22): (OR, WA) fatal
09 Sep 2014 E. coli EHEC - Canada (04): (AB) O157, pork products, recall
01 Sep 2014 E. coli EHEC - USA (21): (MN) restaurant, O111, cabbage

ProMED: *Listeria monocytogenes*

01 Nov 2014 Listeriosis - Macedonia (02): (UM) fatal, pork meat product, update

28 Sep 2014 Listeriosis - Denmark (04): (SD) fatal, nosocomial, asparagus soup

10 Sep 2014 Listeriosis - Denmark (03): (Copenhagen) fatal, deli meat susp, more cases

20 Aug 2014 Listeriosis - Denmark (02): (KO) fatal, deli meat susp. more cases

13 Aug 2014 Listeriosis - Denmark: (Copenhagen) fatal, deli meat susp, recall, Norway Alert

08 Aug 2014 Listeriosis - Macedonia: (UM) fatal, pork meat product alert, recall

10 Apr 2014 Listeriosis - USA (02): 2013, fatal, cheese

28 Feb 2014 Listeriosis - Sweden (02): background

27 Feb 2014 Listeriosis - Sweden: deli meat susp.

22 Feb 2014 Listeriosis - USA: (CA, MD) fatal, Hispanic-style soft cheese, recall

ProMED: *Campylobacter* spp.

19 Sep 2012 Antibiotic resistance, Campylobacter: swine, environ. persistence

15 Jul 2011 Guillain-Barre syndrome - Mexico (SO) USA (AZ) (02): campylobacter

22 Nov 2002 Campylobacter, chickens - UK: free-range rearing

19 Jan 2000 Campylobacter food poisoning - New Zealand (02)

18 Jan 2000 Campylobacter food poisoning - New Zealand

24 May 1999 Campylobacter, resistance increasing - USA

26 Feb 1999 Campylobacter jejuni sequenced - UK

17 Mar 1998 Campylobacter, poultry contamination - UK

28 Feb 1998 Campylobacter & foodborne gastroenteritis - USA

29 Aug 1997 Campylobacter, imported - Canada, UK

03 Aug 1997 Campylobacter - Australia (North Queensland)

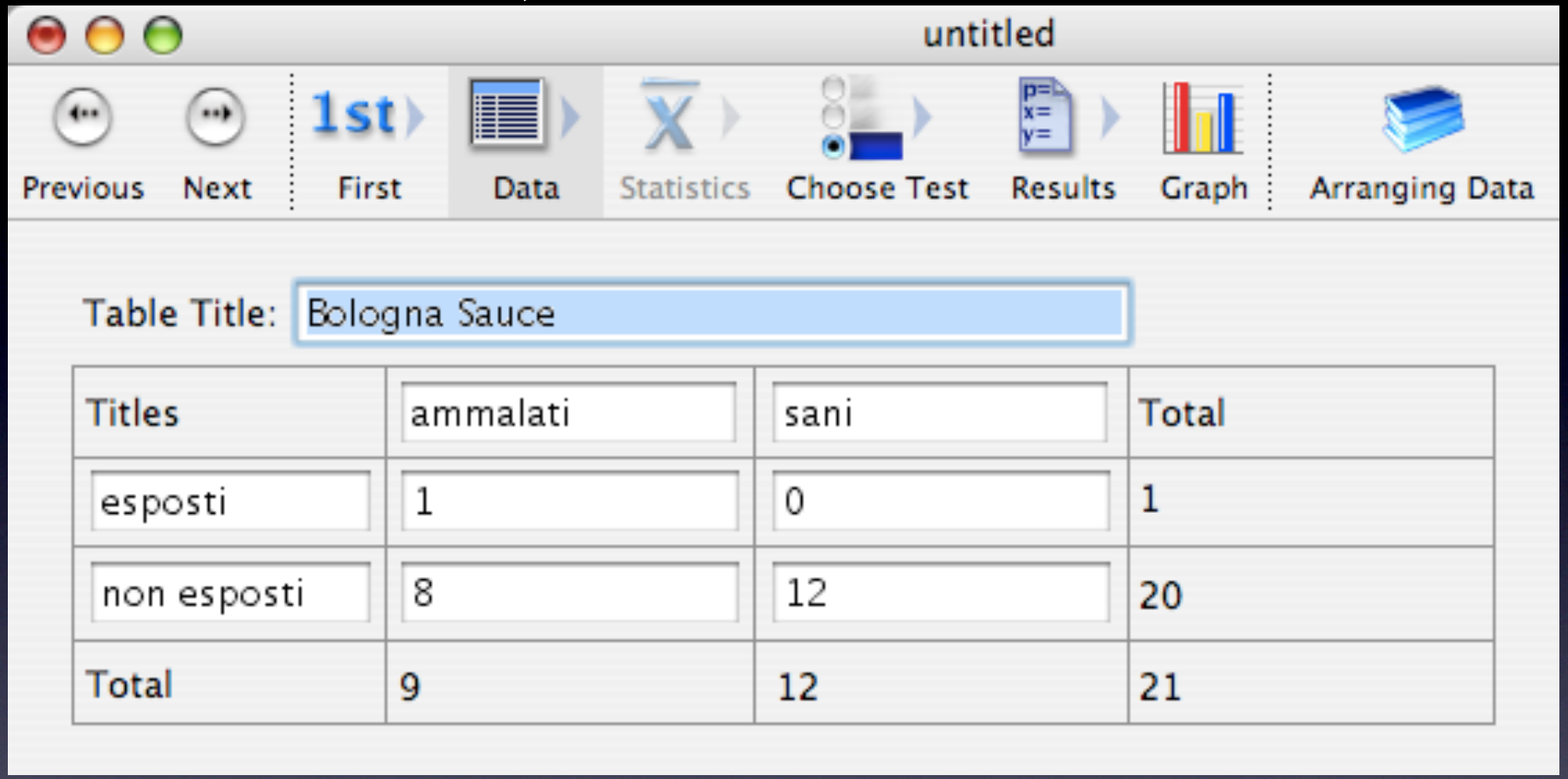
06 Feb 1996 PROMED-AHEAD: Campylobacter, monkeys (5)

05 Feb 1996 PROMED-AHEAD: Campylobacter, monkeys (4)

05 Feb 1996 PROMED-AHEAD: Campylobacter, monkeys (3)

03 Feb 1996 PROMED-AHEAD: Campylobacter, monkeys (2)

E. coli, Germania – Estate 2011



Esempio di calcolo di rischio relativo

- Tra i parametri di frequenza delle malattie la misura appropriata in caso di malattie alimentari è il **rischio relativo**. Il rischio relativo (RR) esprime il rischio nel gruppo dei soggetti esposti in rapporto al rischio nei soggetti non esposti.

- **Il tasso di attacco** è, invece, un caso particolare di incidenza. Si calcola come D/(D+N), dove D è il numero di casi nel lasso di tempo considerato e N i soggetti a rischio.

	Ammalati	Sani	Totale
Esposti	a	b	(a+b)
Non esposti	c	d	(c+d)
Totale	(a+c)	(b+d)	t

rischio relativo:

tasso di attacco tra le persone che hanno consumato l'alimento

---

tasso di attacco tra le persone a che NON hanno consumato l'alimento

n. di persone **ammalate** che **hanno mangiato** l'alimento/n. **totale** di persone che **hanno mangiato** l'alimento

---

n. di persone **ammalate** che **non hanno mangiato** l'alimento/n. **totale** di persone che **non ha mangiato** l'alimento

ossia: a/(a+b) / c/(c+d)

	Ammalati	Sani	Totale
Esposti	a	b	(a+b)
Non esposti	c	d	(c+d)
Totale	(a+c)	(b+d)	t

Un RR **di 1,0** significa che il rischio è **simile** nel gruppo degli esposti e dei non esposti e non è associato alla malattia.

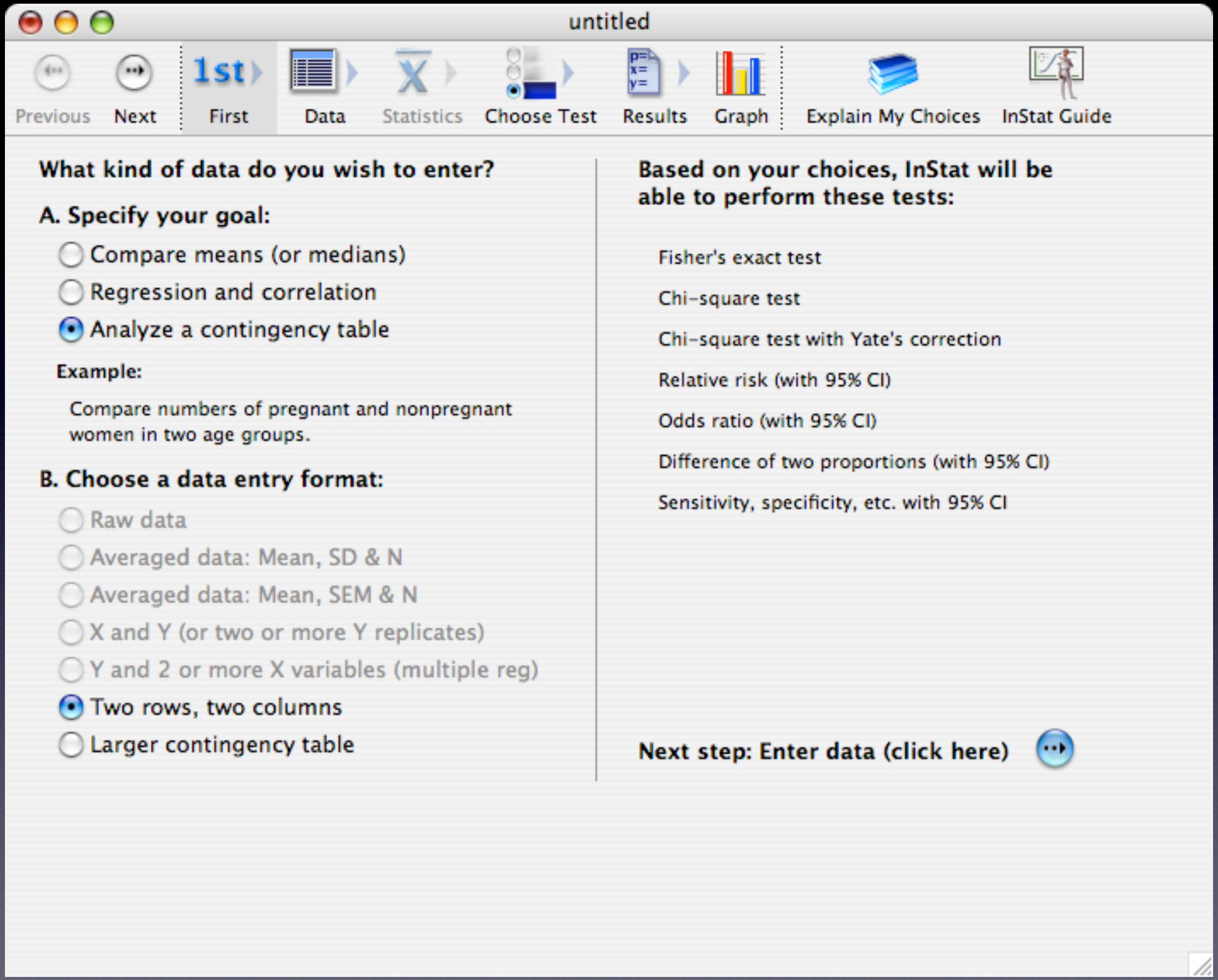
Un RR **maggiore di 1,0** significa che il rischio è **maggiore** nel gruppo esposto e che l'esposizione può esere un fattore di rischio per la malattia.

Un RR **minore di 1,0** significa che il rischio è **inferiore** nel gruppo esposto e che l'esposizione potrebbe essere un fattore di protezione.

- Il calcolo del chi-square (*X* quadrato) o del Fisher exact test serve invece a determinare la probabilità che il RR osservato potrebbe essersi verificato casualmente, nel caso la malattia non fosse collegata all'esposizione. Questa probabilità è il valore *p* (p-value). Un *p-value* molto piccolo significa che sarebbe estremamente improbabile una simile osservazione in assenza di reale collegamento tra esposizione e malattia. Se il *p-value* è minore di alcuni valori soglia predeterminati (di solito 0,05 ovvero una probabilità di 5 su 100) l'associazione tra esposizione e malattia si dice "statisticamente significativa".

Per il calcolo del c quadrato far riferimento alla formula generale:

$X^2 = \sum (\text{frequenze osservate} - \text{frequenze attese})^2/\text{frequenza attesa} = \sum (O-E)^2/E$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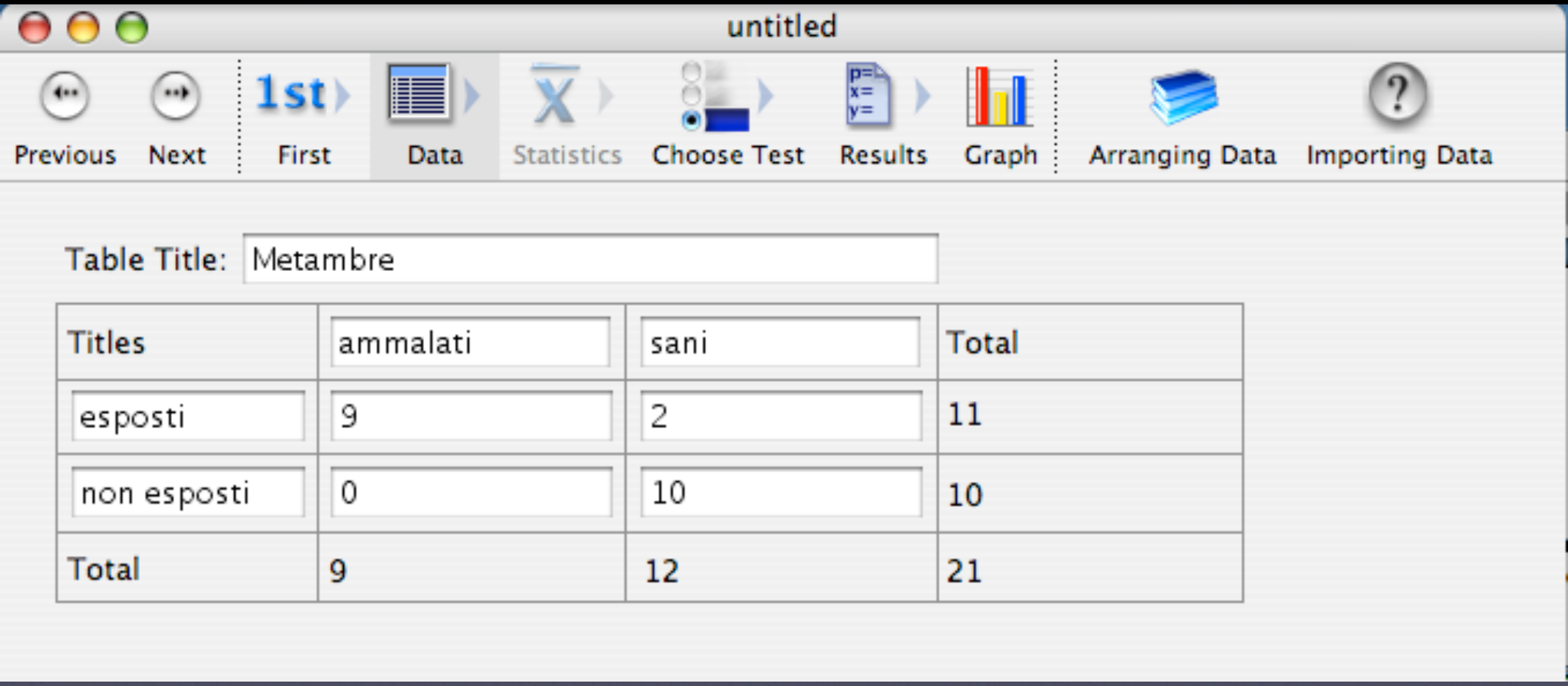
Data
Statistics
Choose Test
Results
Graph
Explain My Choices
InStat Guide
What kind of data do you wish to enter?
A. Specify your goal:
Compare means (or medians)
Regression and correlation
Analyze a contingency table
Example:
Compare numbers of pregnant and nonpregnant women in two age groups.
B. Choose a data entry format:
Raw data
Averaged data: Mean, SD & N
Averaged data: Mean, SEM & N
X and Y (or two or more Y replicates)
Y and 2 or more X variables (multiple reg)
Two rows, two columns
Larger contingency table
Based on your choices, InStat will be able to perform these tests:
Fisher's exact test
Chi-square test
Chi-square test with Yate's correction
Relative risk (with 95% CI)
Odds ratio (with 95% CI)
Difference of two proportions (with 95% CI)
Sensitivity, specificity, etc. with 95% CI
Next step: Enter data (click here)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11
non esposti
0
10
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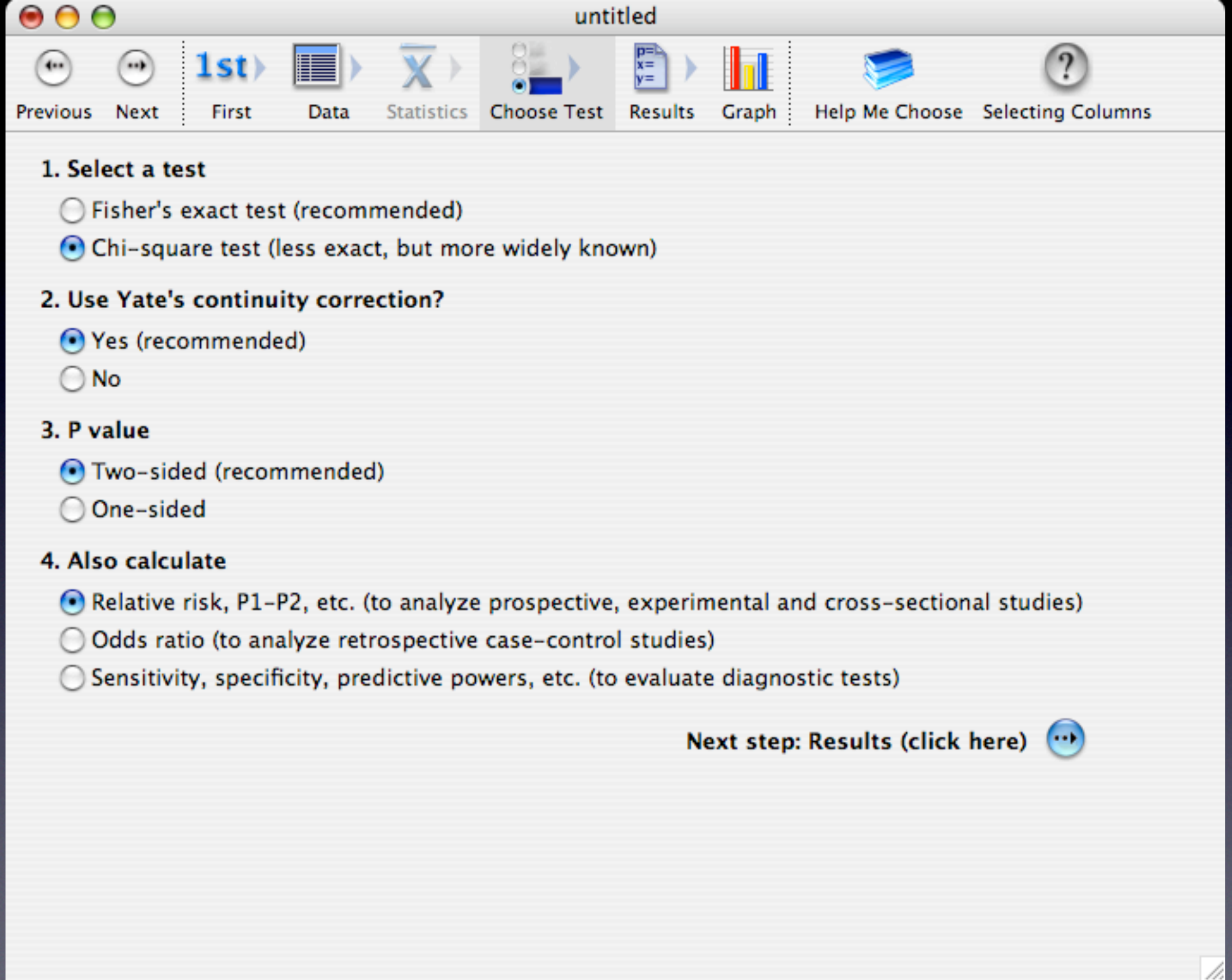
Total
9
12
21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Statistics
Choose Test
Results
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Help Me Choose
Selecting Columns
1. Select a test
Fisher's exact test (recommended)
Chi-square test (less exact, but more widely known)
2. Use Yate's continuity correction?
Yes (recommended)
No
3. P value
Two-sided (recommended)
One-sided
4. Also calculate
Relative risk, P1-P2, etc. (to analyze prospective, experimental and cross-sectional studies)
Odds ratio (to analyze retrospective case-control studies)
Sensitivity, specificity, predictive powers, etc. (to evaluate diagnostic tests)
Next step: Results (click here)

Bologna Sauce

Chi-square Test

The two-sided P value is 0.8824, considered not significant.
The row/column association is not statistically significant.

Note: With such small values, the chi-square P value
is not accurate. Use Fisher's exact test instead.

Calculation details:
Chi-square statistic (with Yates correction) = 0.02187
Degrees of freedom = 1

Relative Risk
Relative risk = 2.500
95% Confidence Interval: 1.461 to 4.277
(using the approximation of Katz.)

Difference between the two proportions
Top row (esposti):
Fraction in the left column: 1.000
Bottom row (non esposti):
Fraction in the left column: 0.4000
95% Confidence Interval of that fraction: 0.1911 to 0.6393
Difference:
Difference between the fractions: 0.6000

The standard error and the confidence interval of the difference between
proportions can only be calculated when each cell is greater than five.

Data analyzed

	ammalati	sani	Total
esposti	1 (5%)	0 (0%)	1 (5%)
non esposti	8 (38%)	12 (57%)	20 (95%)
Total	9 (43%)	12 (57%)	21 (100%)

* * *

Metambre

Chi-square Test

The two-sided P value is 0.0008, considered extremely significant.
The row/column association is statistically significant.

Note: With such small values, the chi-square P value
is not accurate. Use Fisher's exact test instead.

Calculation details:
Chi-square statistic (with Yates correction) = 11.172
Degrees of freedom = 1

Relative Risk
Relative risk = Infinity
95% Confidence Interval: -Infinity to Infinity
(using the approximation of Katz.)

Difference between the two proportions
Top row (esposti):
Fraction in the left column: 0.8182
Bottom row (non esposti):
Fraction in the left column: 0.000
Difference:
Difference between the fractions: 0.8182

The standard error and the confidence interval of the difference between
proportions can only be calculated when each cell is greater than five.

Data analyzed

	ammalati	sani	Total
esposti	9 (43%)	2 (10%)	11 (52%)
non esposti	0 (0%)	10 (48%)	10 (48%)
Total	9 (43%)	12 (57%)	21 (100%)

* * *

Ecologia microbica

:

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E. coli

Listeria monocytogenes

Campylobacter spp.

Ecologia microbica

:

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E. coli

Listeria monocytogenes

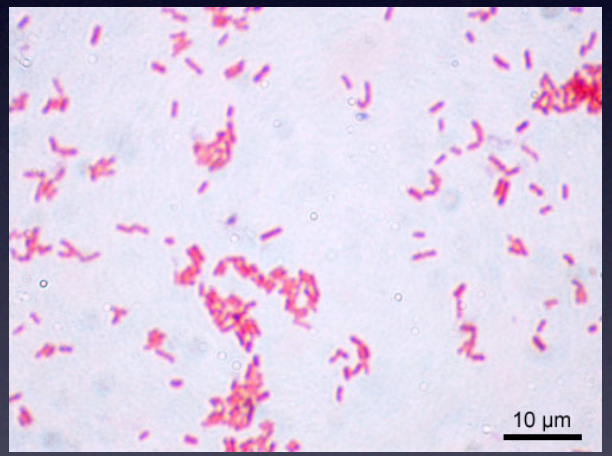
Campylobacter spp.

- Introduzione
- Carta di identità di *E. coli*
- Serbatoi

- 1885 Theodor Escherich
- microbiologo e poi pediatra
- il germe più studiato e più conosciuto

Carta d'identità

- Gram negativo, piccolo (0,4 x 2 µm), mobile, metabolismo fermentativo e ossidativo, ossidasi negativo, catalasi positivo, gas e acido dal glucosio. Mesofili, alcuni enterotossici anche psicrotrofi. D_{60}=0,1 min



- Classe: gamma proteobacteria
- Ordine: Enterobacteriales
- Famiglia: Enterobacteriaceae
- Genere: Escherichia
- Specie: *Escherichia coli*
- Schema di classificazione K:kapsel, O:ohne hauch, H:hauch

Regolamento CE 2073 e modifiche (al 7 marzo 2014 reg. 217 e norma ISO 16649

- Isolamento e identificazione facili, a basso costo e a alla portata di molti laboratori, però ci siamo complicati la vita.

Reg. 2073: Criteri di sicurezza alimentare per E. coli

- Molluschi bivalvi, echinodermi, tunicati, gasteropodi (ISO 16649:3 MPN); *E. coli* come indicatore di contaminazione fecale
  - n=1 c=0 m: 230/100g carne e l.i.

Reg. 2073: Criteri di igiene di processo per E. coli

- Carne macinata e carni separate meccanicamente; *E. coli* (ISO 16649:1-2 conteggio) come indicatore di contaminazione fecale
- n=5 c=2 m:50 UFC/g M:500UFC/g

Reg. 2073: Criteri di igiene di processo per E. coli

- Preparati a base di carne; *E. coli* (ISO 16649:1-2 conteggio) come indicatore di livello di igiene
- n=5 c=2 m:500 UFC/g M:5000 UFC/g

Reg. 2073: Criteri di igiene di processo per E. coli

- Formaggi a base di latte sottoposto a trattamento termico; *E. coli* (ISO 16649:1-2 conteggio) come indicatore di livello di igiene
- n= 5 c=2 m:100 UFC/g M:1000 UFC/g

Reg. 2073: Criteri di igiene di processo per E. coli

- Prodotti sgusciati di crostacei e molluschi cotti; *E. coli* (ISO 16649:3 MPN)
- n= 5 c=2 m:1/g M:10/g

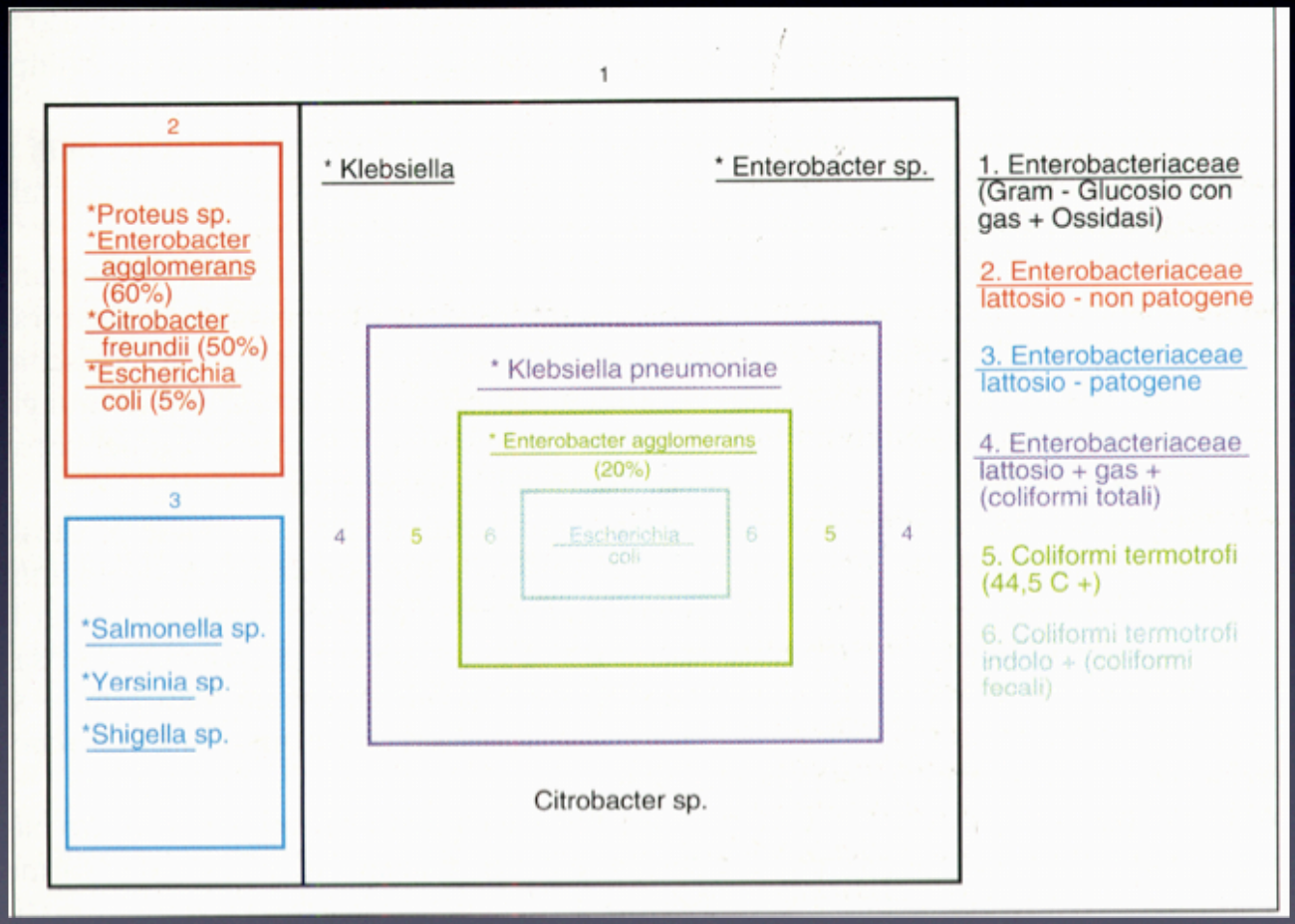
Reg. 2073: Criteri di igiene di processo per E. coli

- Frutta e ortaggi pretagliati (pronti al consumo), succhi di frutta e di ortaggi non pastorizzati (pronti al consumo); *E. coli* (ISO 16649:1-2 conteggio)
- n= 5 c=2 m:100 UFC/g M:1000 UFC/g

Perché ci siamo complicati la vita?

- metodo classico vs. ISO 16649:2001

Perché ci siamo complicati la vita?



Perché ci siamo complicati la vita?

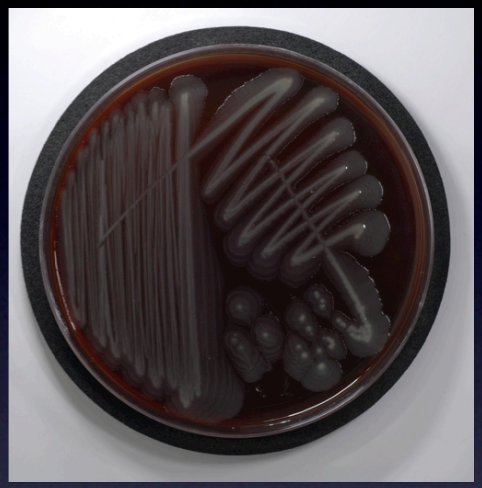
- Sviluppa su terreni comuni, colonie lisce, convesse, umide, facilmente emulsionabili

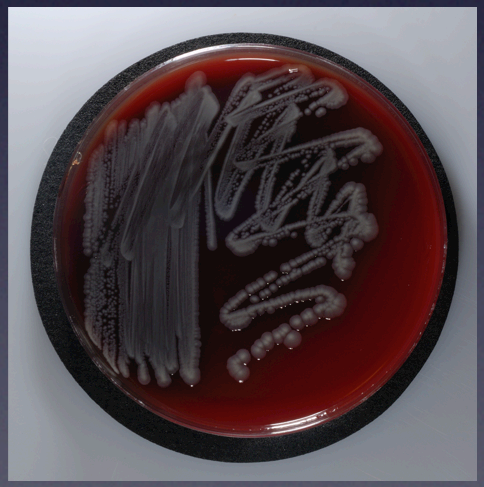
Perché ci siamo complicati la vita?

- Terreno VRBL (rosso neutro, cristalvioletto, lattosio)

Perché ci siamo complicati la vita?

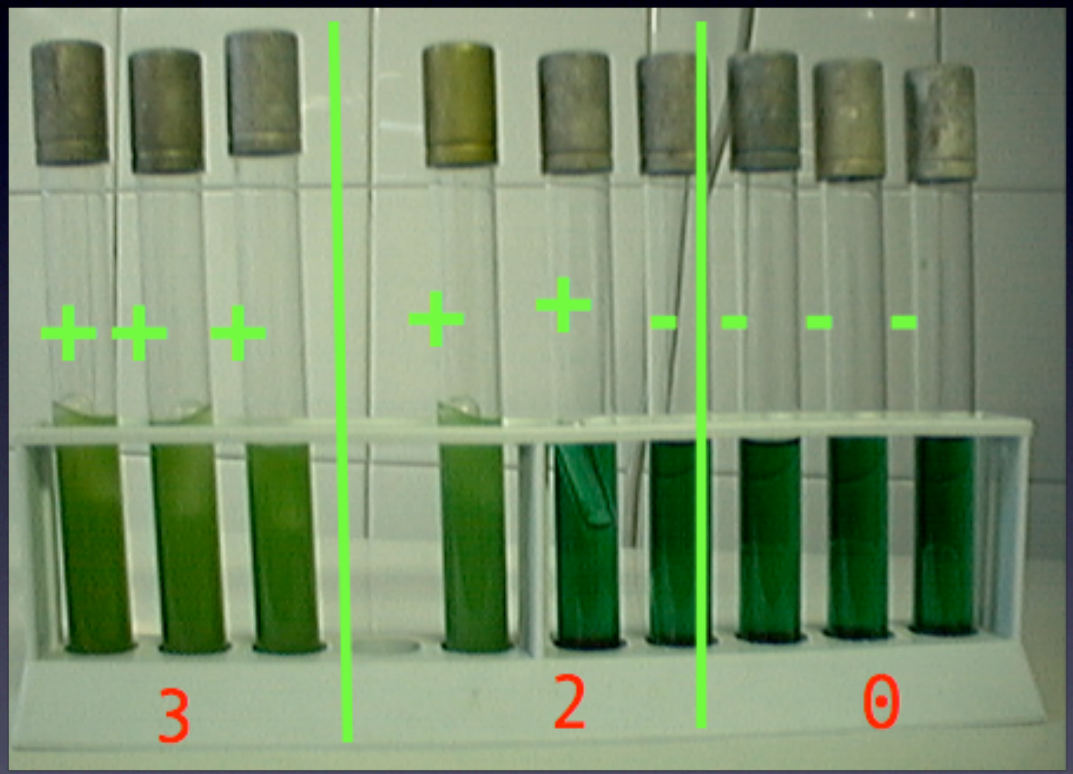
- Agar
  Sangue





Perché ci siamo complicati la vita?

- Brilliant green broth

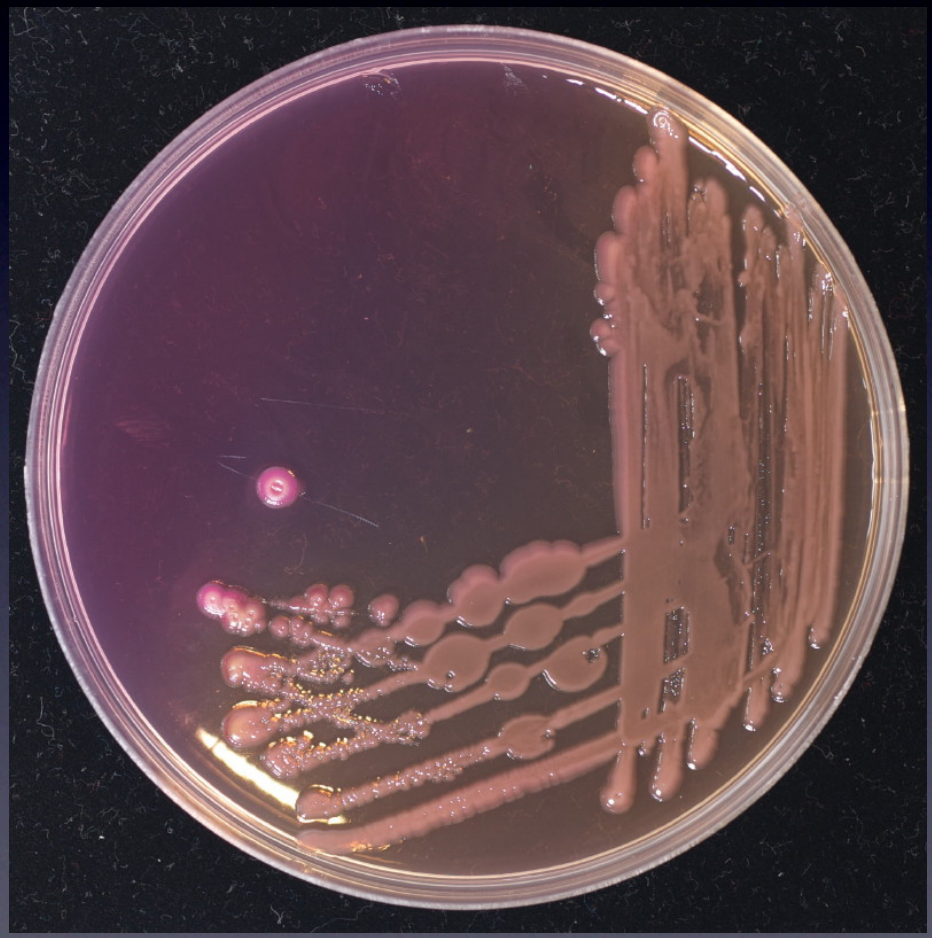


Perché ci siamo complicati la vita?

- Indolo e gas 44°C

Perché ci siamo complicati la vita?

- McConkey sorbitolo



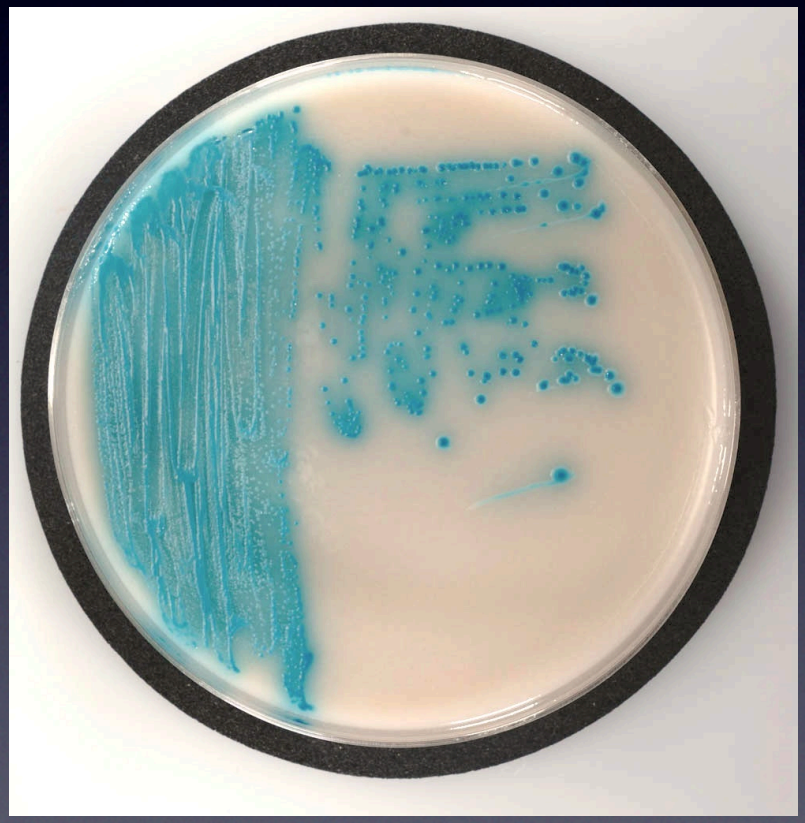
Perché ci siamo complicati la vita?

- Brilliance *E. coli* chromogenic agar (non si perde O157:H7)

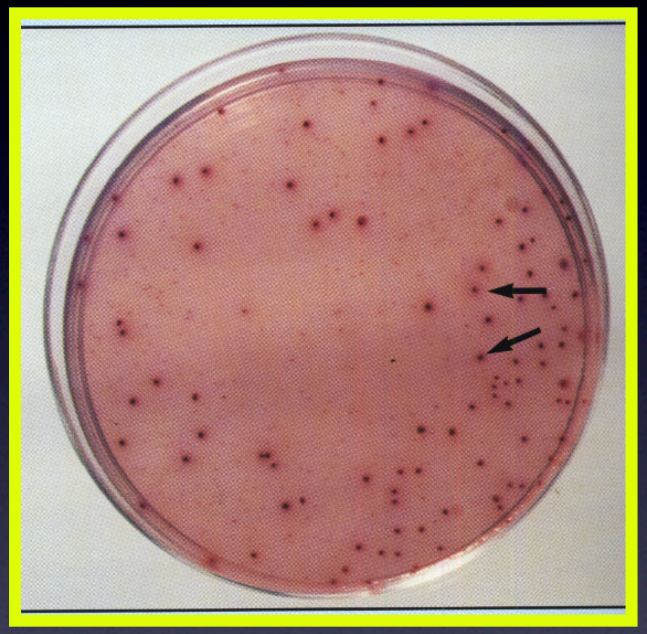
glucuronidasi e galattosidasi

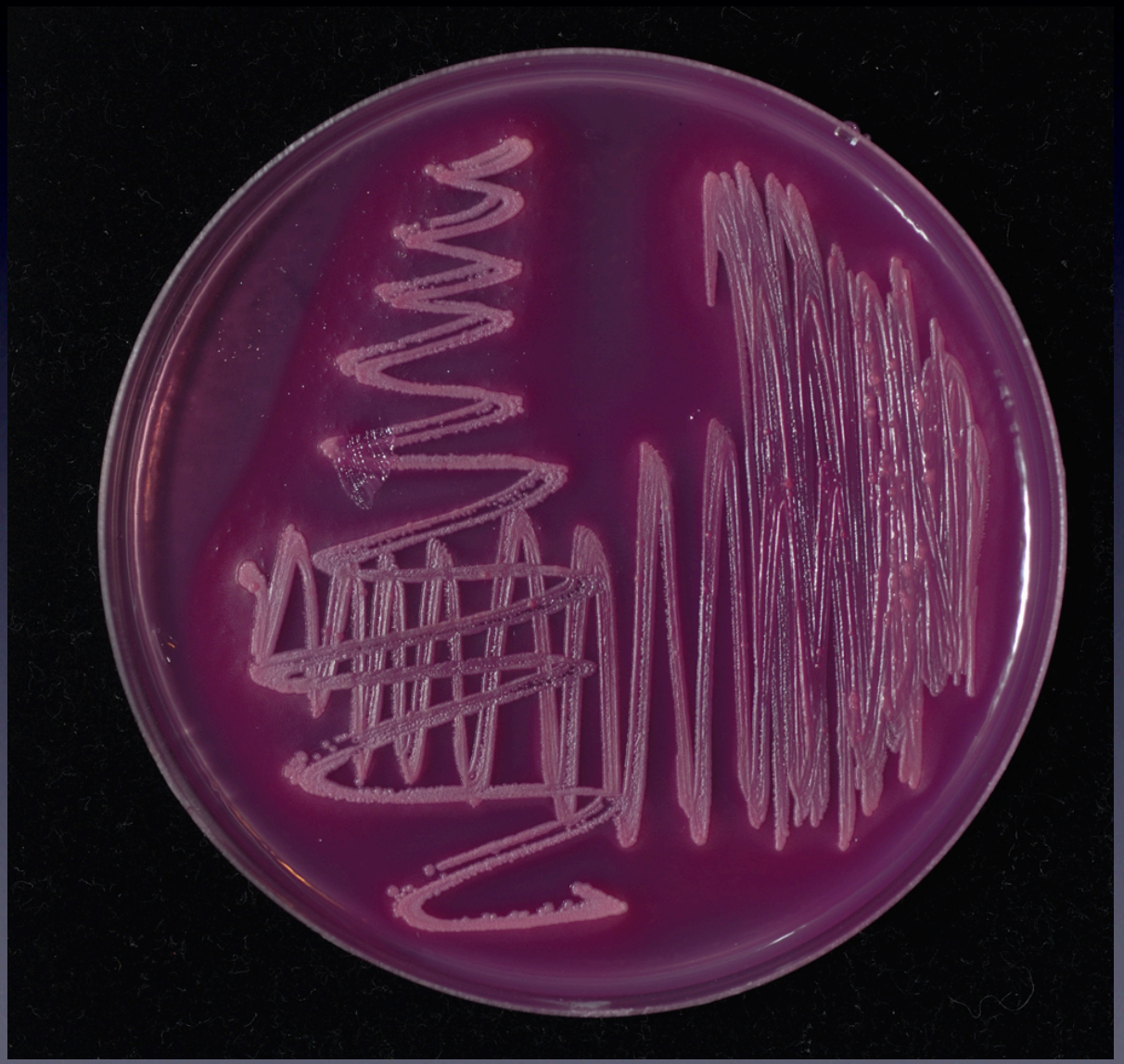
Perché ci siamo complicati la vita?

- triptone bile X-glucuronide TBX (si perde O157:H7)



Enterobatteri su VRB

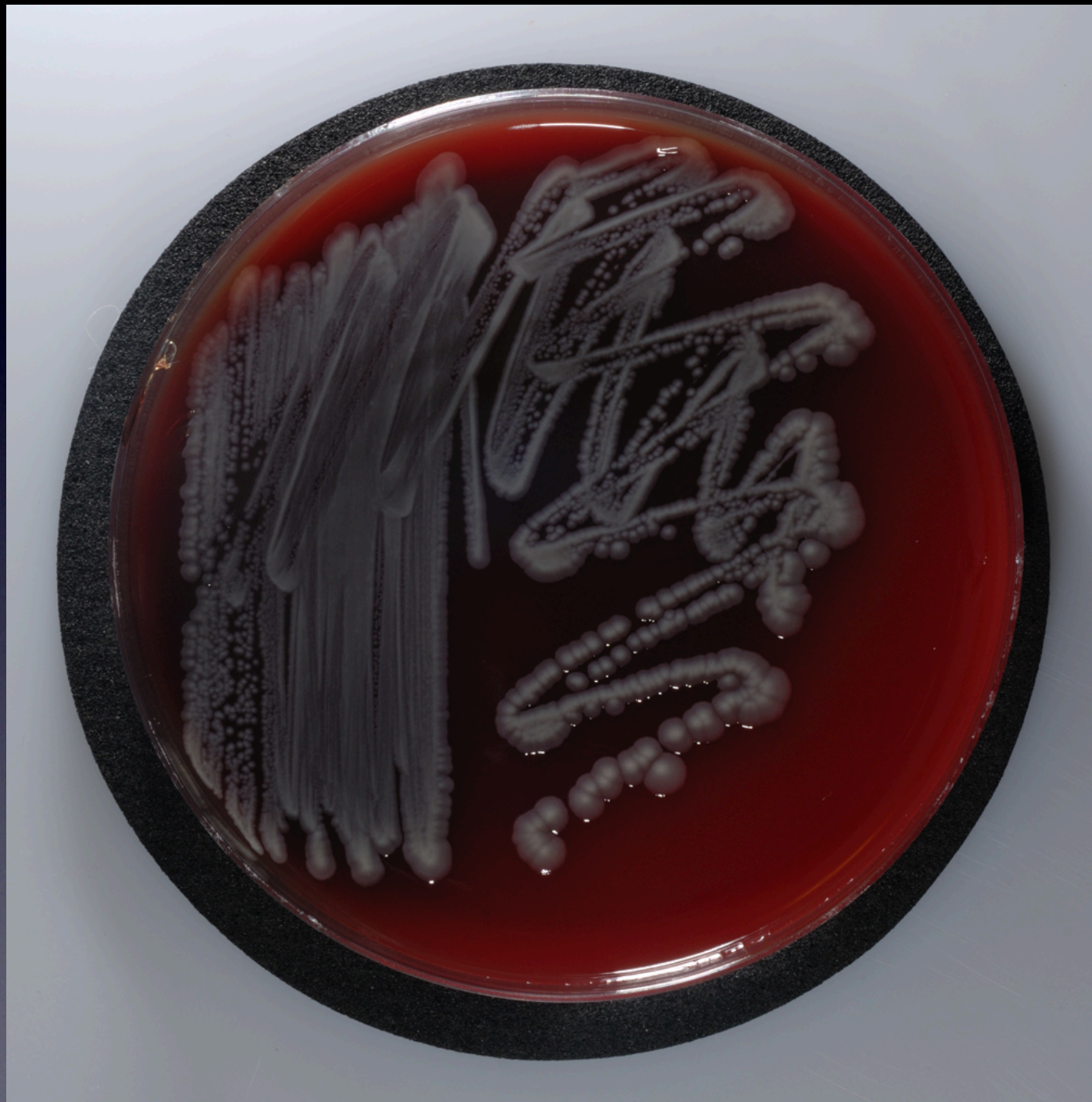




E. coli su Agar Sangue

Proteus

Enterobacter



E. coli su TBX

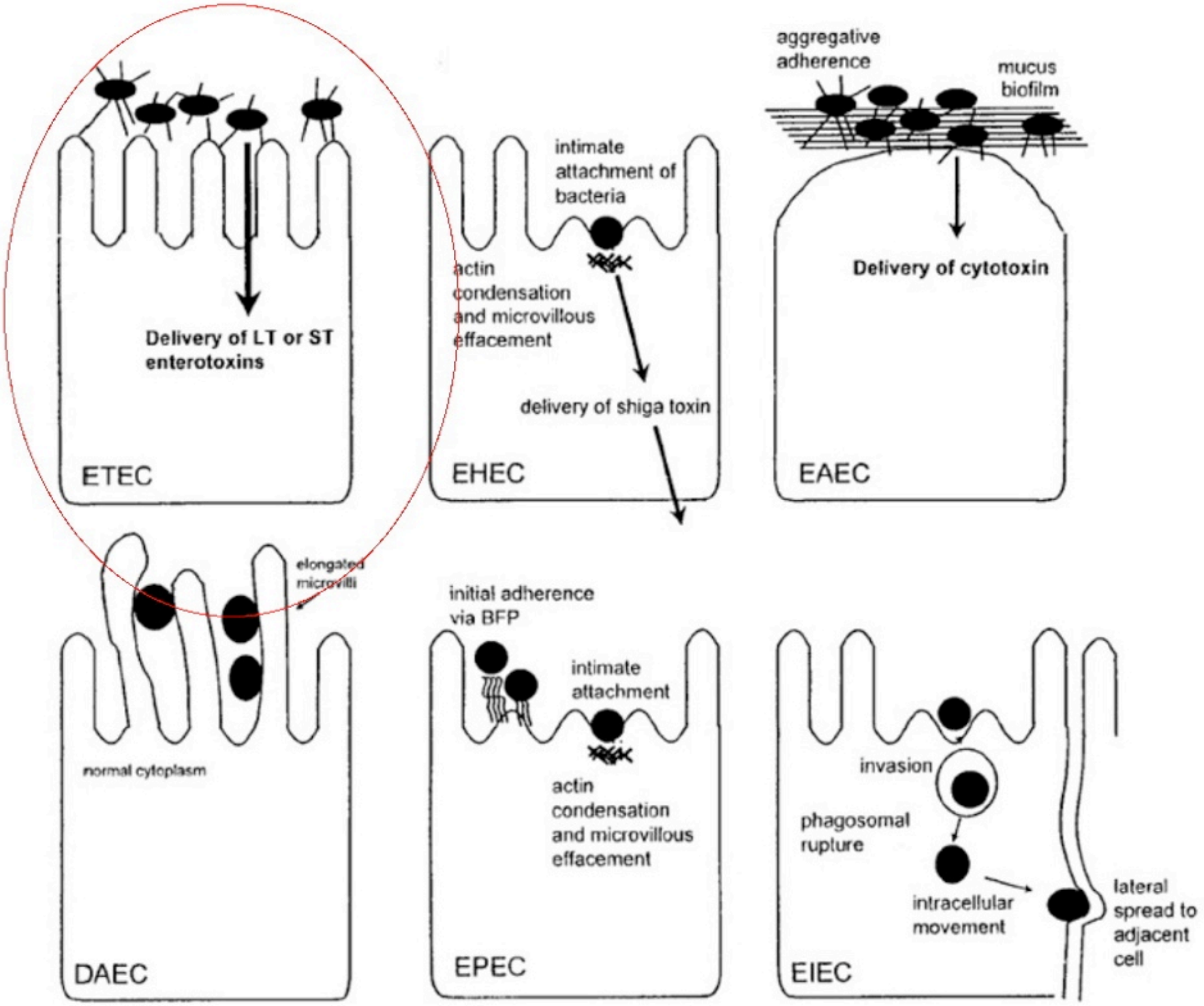
E. coli su cromogeno per Salmonella

Enterobatteri Gram

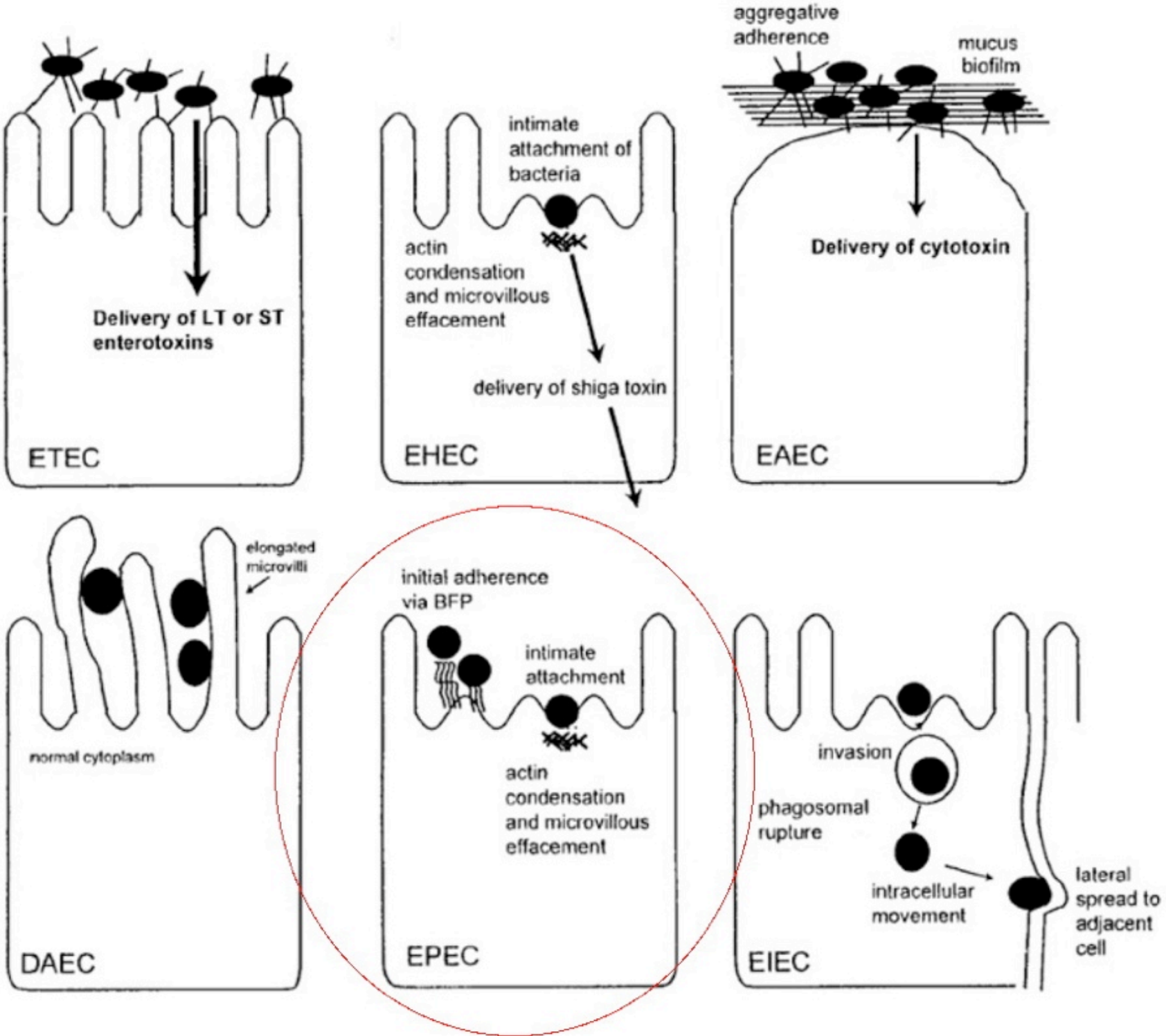
Categorie di E. coli

Categoria (patotipo)	sito d'azione	patogenesi	fattori di virulenza	Malattia
ETEC, enterotossici	Piccolo intestino	Adesione con fimbrie + enterotossine = diarrea	Tossina termostabile (STa e STb) e termolabile (LT), K88 e F18	Diarrea neonatale nei mammiferi
EPEC, enteropatogeni	Piccolo intestino	Adesione con pili + adesione-cancellazione dei villi (adesione intima) + piedistallo prodotto dall'enterocita ospite (attaching/effacing)		Diarrea in vitello, suino, coniglio cani neonati
EHEC, enteroemorragici	Grande intestino	Attaching/effacing + tossine shiga simili	STX1 e 2	Colite emorragica del vitello

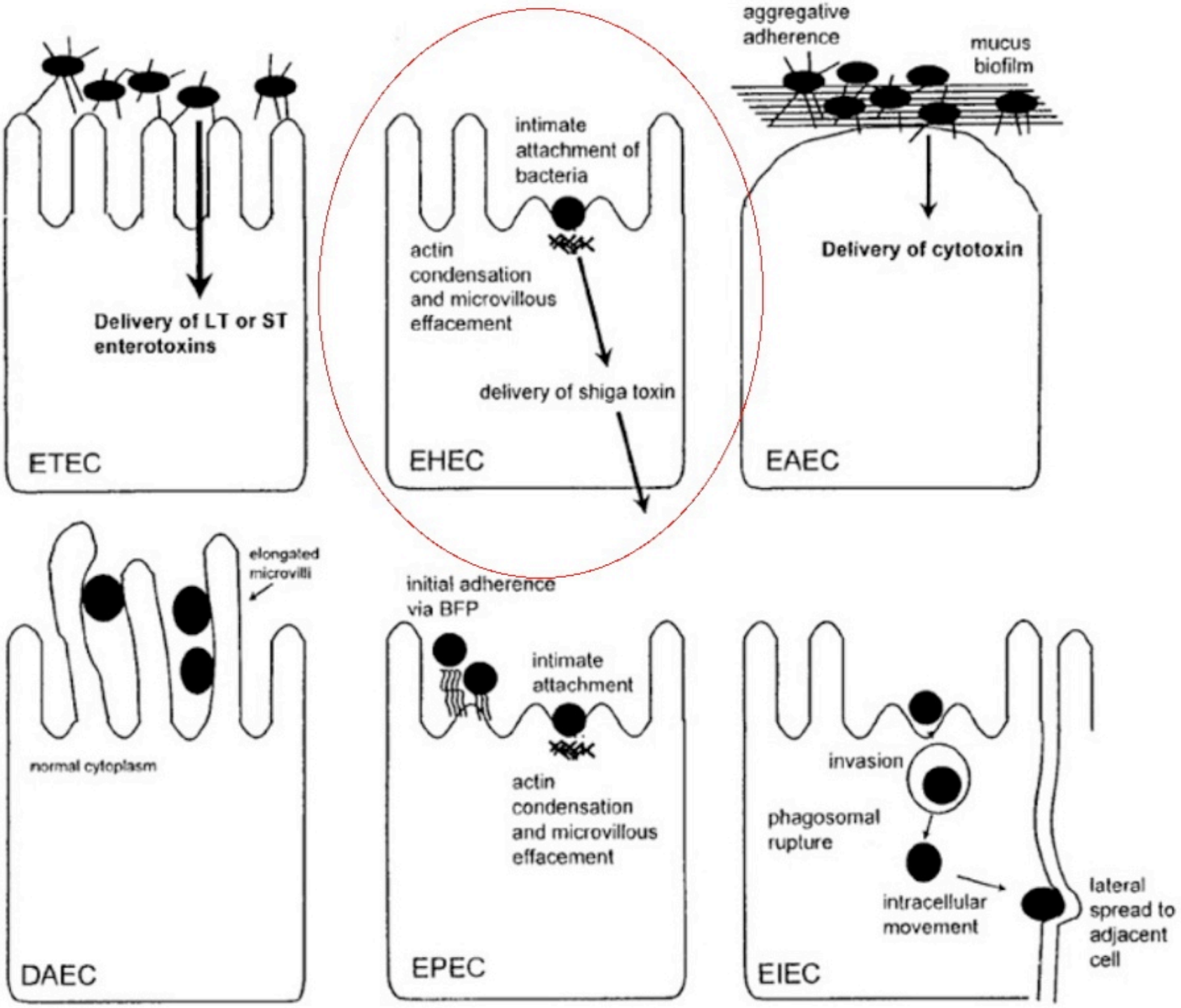
Meccanismo d'azione

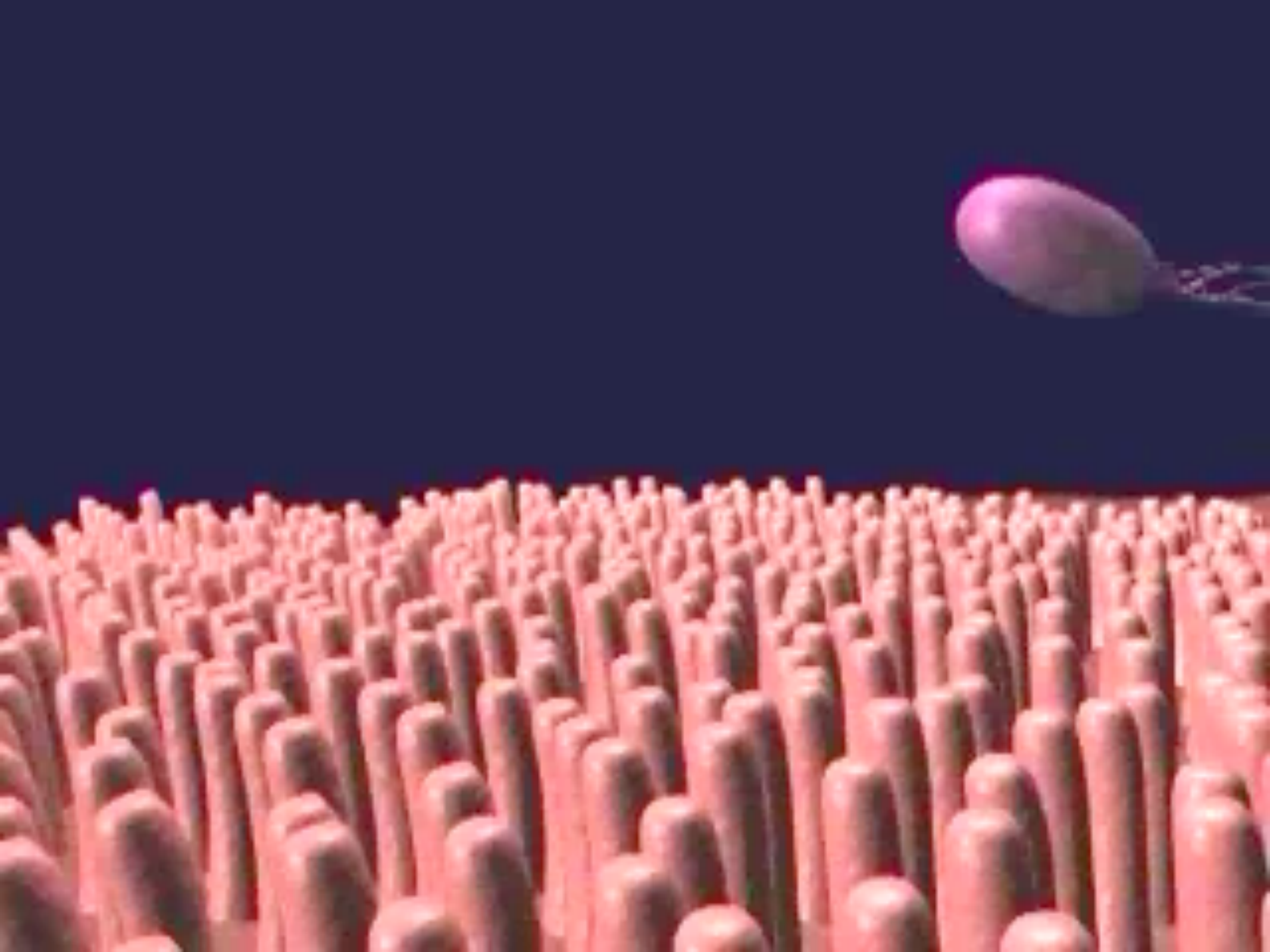


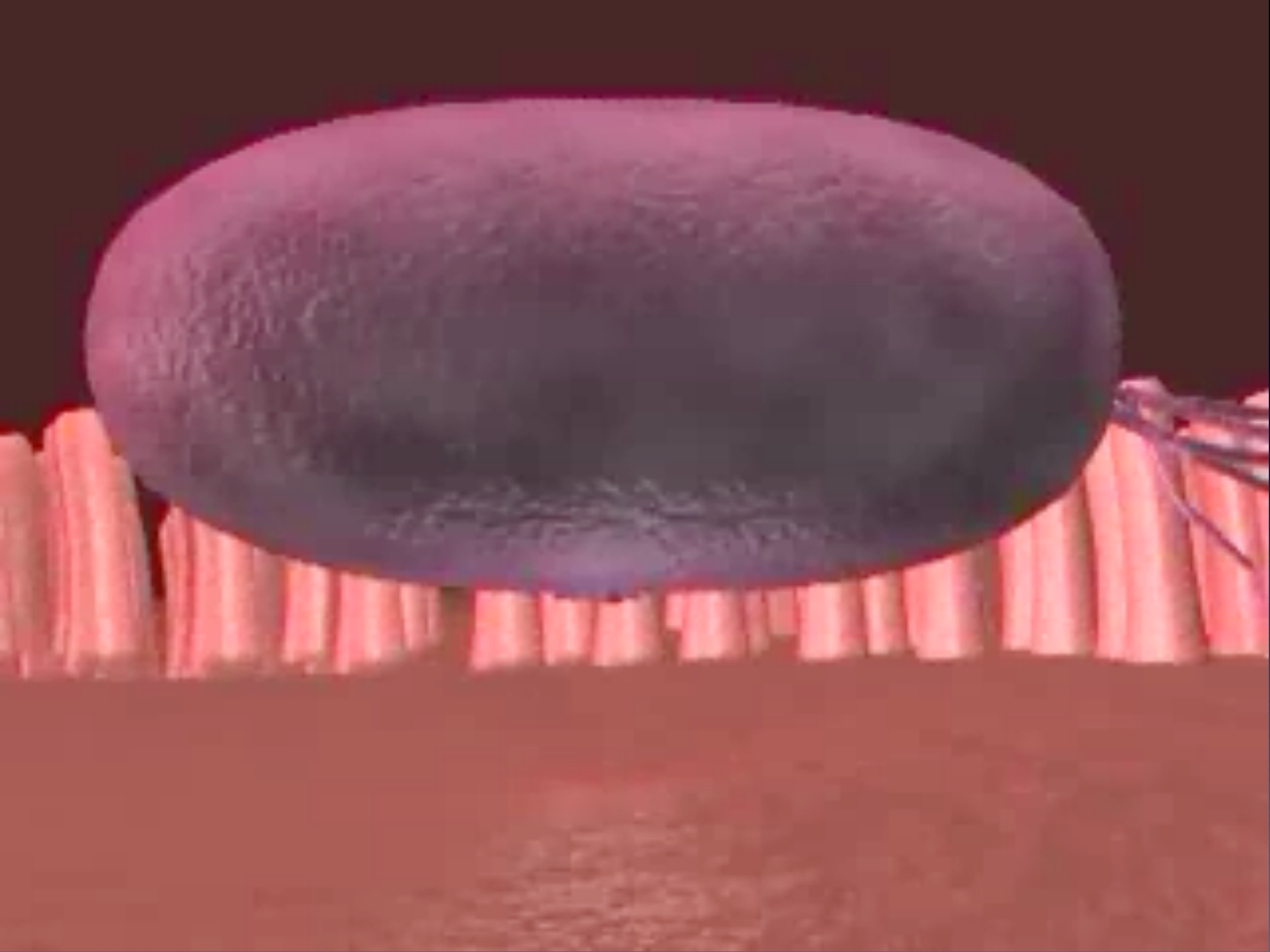
Meccanismo d'azione

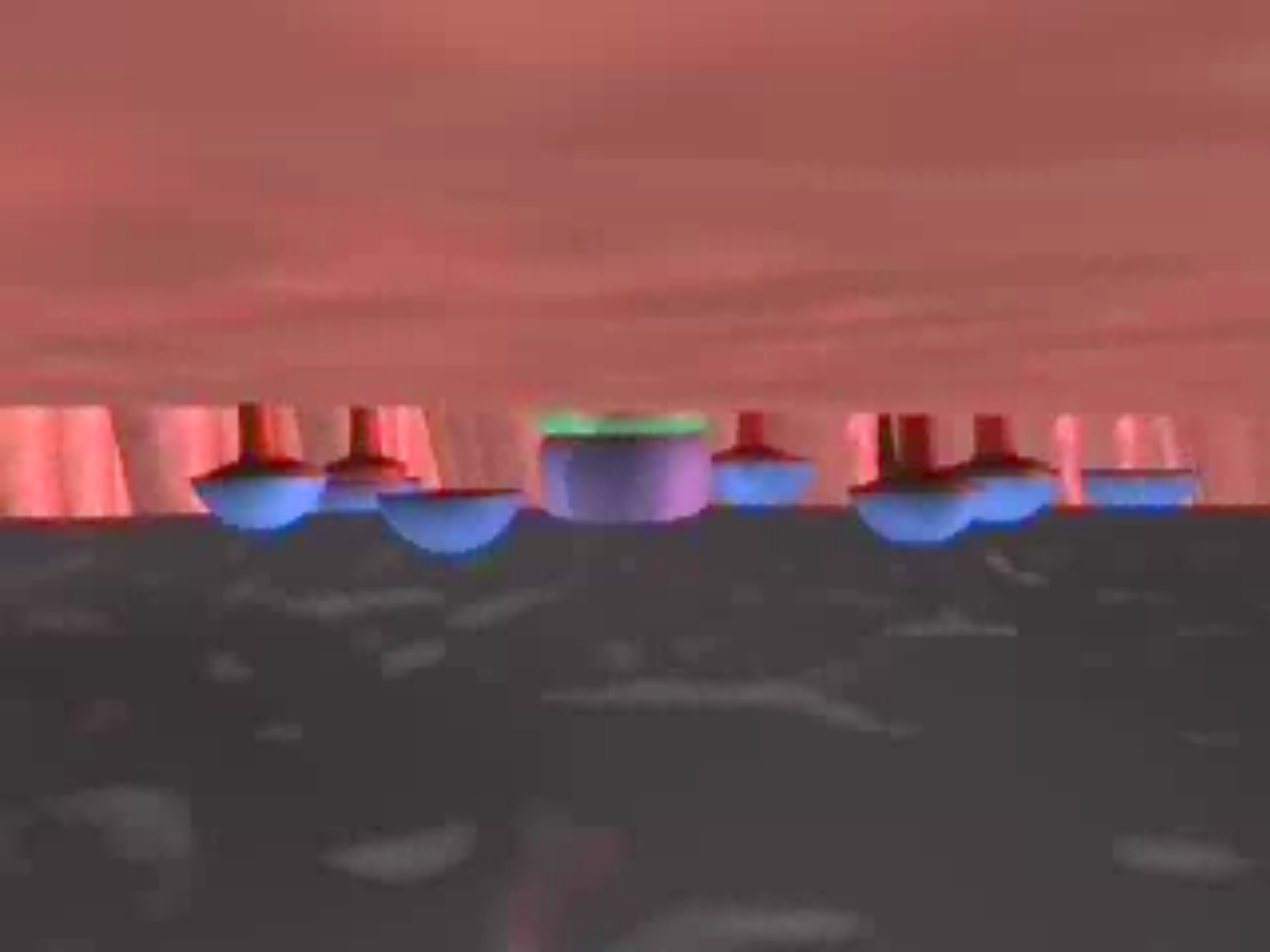


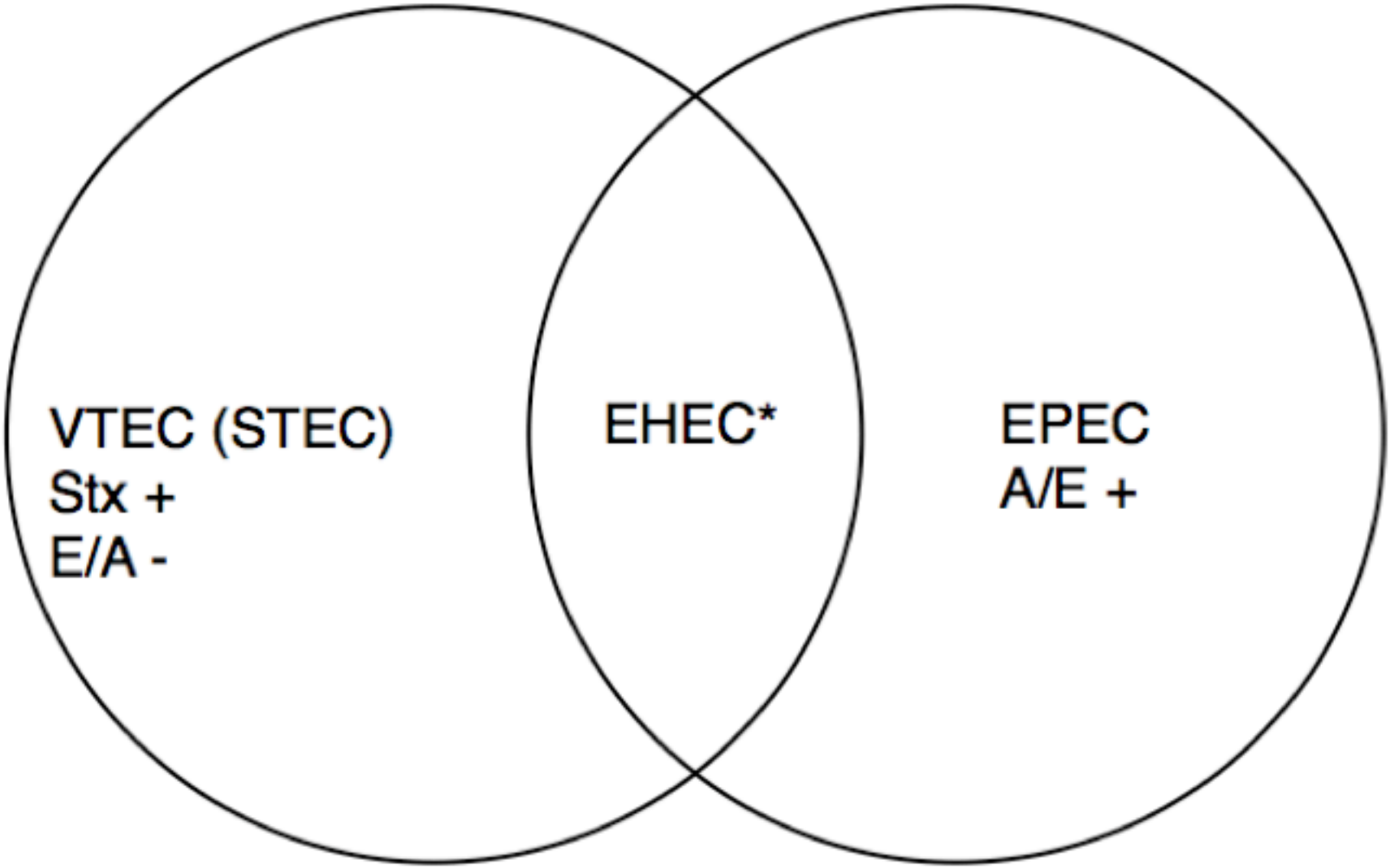
Meccanismo d'azione







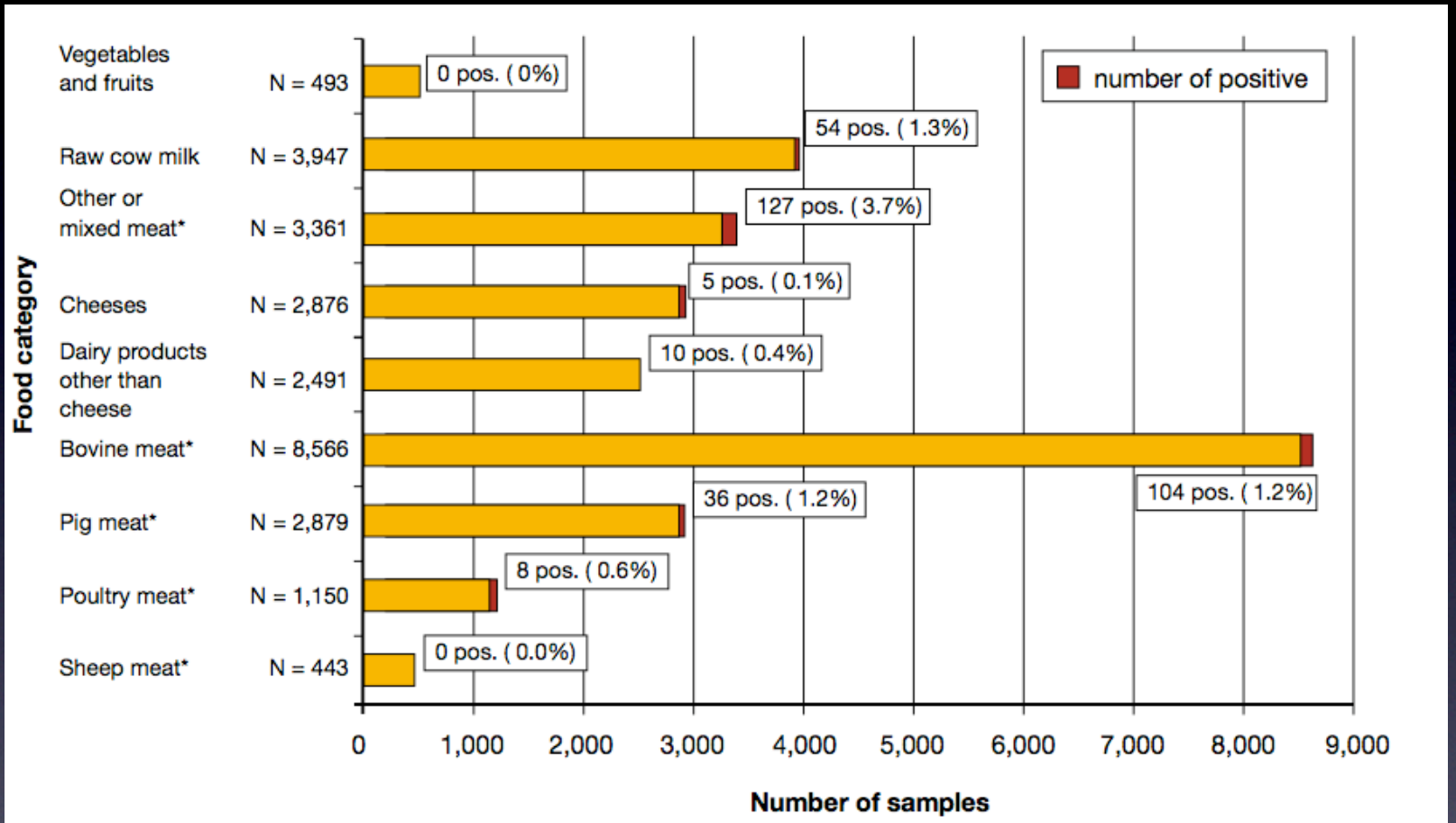




* Molti O157:H7 non sono EHEC

Category	Serogroup	Associated H antigen(s)
ETEC	O6	H16
	O8	H9
	O11	H27
	O15	H11
	O20	NM
	O25	H42, NM
	O27	H7
	O78	H11, H12
	O128	H7
	O148	H28
	O149	H10
	O159	H20
	O173	NM
EPEC	O55	H6, NM
	O86	H34, NM
	O111	H2, H12, NM
	O119	H6, NM
	O125ac	H21
	O126	H27, NM
	O127	H6, NM
	O128	H2, H12
	O142	H6
EHEC	O26	H11, H32, NM
	O55	H7
	O111ab	H8, NM
	O113	H21
	O117	H14
	O157	H7
EAEC	O3	H2
	O15	H18
	O44	H18
	O86	NM
	O77	H18
	O111	H21
	O127	H2
	O?[a]	H10
EIEC	O28ac	NM
	O29	NM
	O112ac	NM
	O124	H30, NM
	O136	NM
	O143	NM
	O144	NM
	O152	NM
	O159	H2, NM
	O164	NM
	O167	H4, H5, NM

[a] O antigen untypeable by conventional methods.



*Fresh meat, including minced meat and meat preparations. Data are only presented for sample size ≥25

Table VT3. VTEC in fresh bovine meat [1], 2005

Country	Description	N	VTEC		VTEC 0157	Add. serotype information
			Pos	% Pos	Pos	
At slaughter, cutting/processing plant						
Belgium	Carcass swabs [2]	2,554	28	1.1	28	
	Fresh [3]	307	3	1.0	2	Unspecified (1)
	Minced meat [4]	281	0	0	-	
Denmark	Carcass swabs [2]	474	16	3.4	16	
Latvia	Fresh [3]	100	0	0	-	
Slovenia	Fresh [3]	101	6	5.9	6	
Spain	Fresh [2]	76	4	5.3	1	
	Fresh [4]	84	1	1.2	1	
At retail						
Belgium	Meat preparation	116	0	0	-	
	Minced meat	171	1	0.6	1	
Czech Republic	Minced meat	39	0	0	-	
Ireland	Fresh	164	1	0.6	1	
Latvia	Fresh	146	0	0	-	
	Minced meat	95	0	0	-	
Spain	Fresh	102	3	2.9	2	Unspecified (1)
Level of sampling not specified						
Austria	Fresh/minced	28	0	0	-	
Czech Republic	Fresh	93	0	0	-	
Italy	Fresh	747	3	0.4	3	
	Minced meat	404	0	0	-	
Luxembourg	Fresh meat	91	1	1.1	1	
The Netherlands	Fresh meat	964	0	0	-	
Poland	Fresh	285	0	0	-	
	Minced meat, intended to be eaten raw	99	7	7.1	-	

1. Data are only presented for sample size ≥25.
2. In Belgium, Denmark, Latvia and Spain, samples collected at slaughter
3. In Belgium and Slovenia, samples collected at cutting plant
4. In Belgium and Spain, samples collected at processing plant

Table VT4. VTEC in raw cow milk[1], 2005

Country	Description	N	VTEC		VTEC O157	Add. serotype information
			Pos	% Pos	Pos	
Austria	Intended for direct human consumption or cheese production	26	1	3.8	-	Non typeable
Belgium	Intended for direct human consumption	175	0	0	-	
Czech Republic	Intended for direct human consumption	103	0	0	-	
Germany	Intended for direct human consumption	96	0	0	-	
	Not specified	2,681	51	1.9	-	O91,O8, O84, O88, O136 (2), unspecified (45)
Italy	Intended for direct human consumption	32	0	0	-	
	For manufacture of products made of raw or low heat-treated products	95	0	0	-	
	Not specified	115	0	0	-	
Latvia	Not specified	45	2	4.4	2	
Slovakia	Not specified	39	0	0	-	
Spain	Intended for direct human consumption	540	0	0	-	

1. Data are only presented for sample size ≥25.


LATTE
FRESCO
illy

Table VT5. VTEC findings in dairy products [1], 2005

Country	Description	Point of sampling	N	VTEC		VTEC O157	Add. serotype information
				Pos	% Pos	Pos	
Dairy products, other than cheese							
Belgium	Made from raw or low heat-treated milk	At farm	183	0	0	-	-
Czech Republic	Made from raw or low heat-treated milk	-	80	0	0	-	-
Germany	Made from raw or low heat-treated milk	-	381	1	0.3	-	O136
Greece	-	-	158	0	0	-	-
Slovakia	-	-	47	0	0	-	-
Spain	-	-	368	9	2.4	-	-
Cheeses, made from cow milk							
Belgium	Made from raw or low heat-treated milk	At farm	141	0	0	-	-
	Made from raw or low heat-treated milk	At processing	39	0	0	-	-
Germany	Made from raw or low heat-treated milk	-	43	1	2.3	-	O22
Italy	-	-	220	1	0.5	1	-
Cheeses, made from goat milk							
France	Made from raw or low heat-treated milk	At processing	871	0	0	-	-
Italy	-	-	959	0	0	-	-
Cheeses, made from mixed milk							
Italy	-	-	456	1	0.2	-	-
Slovakia	-	-	88	2	2.3	2	-
Norway	-	-	59	0	0	-	-

1. Data are only presented for sample size ≥ 25


8 GSP 635
CFPR


8 GSP 601
CFPR

Table VT6. VTEC findings in fresh meat other than bovine [1], 2005

Country	Description	Place of sampling	N	VTEC		VTEC O157	Add. serotype information
				Pos	% Pos	Pos	
Pig meat							
Czech Republic	Swab	At slaughter	66	0	0	-	
Italy	-	-	449	0	0	-	
	Meat preparation	-	97	1	1.0	1	
	Minced meat	-	383	0	0	-	
The Netherlands		-	401	1	0.2	1	
Poland	Minced meat, intended to be eaten raw	-	499	31	6.2	-	
Spain	-	At slaughter	105	1	1.0	-	
	-	At processing	118	1	0.8	1	
	-	At retail	128	0	0	-	
Poultry meat							
Italy	Broiler	-	531	0	0.0	-	
	Turkey	-	48	2	4.2	-	
Latvia	-	At slaughter	25	0	0	-	
	-	At retail	50	1	2.0	1	
Poland	Turkey	-	26	3	11.5	-	
Spain	-	At slaughter	67	2	3.0	1	Unspecified (1)
	-	At processing	95	0	0	-	
	-	At retail	97	0	0	-	
Sheep meat							
Germany	-	-	33	0	0	-	
Italy	-	-	95	0	0	-	
	-	-	39	0	0	-	
The Netherlands	-	-	129	0	0	-	
Spain	-	At slaughter	84	0	0	-	
	-	At processing	31	0	0	-	
	-	At retail	32	0	0	-	
Other meat							
Austria	Mixed meat, minced	-	159	3	1.9	0	O6:H10, O100: H-, O113:H4
Germany	Mixed "red" meat	-	535	36	6.7	0	O36, O91, O146, unspecified (27)
	Diced "red" meat	-	88	12	13.6	0	O36, unspecified (11)
	Mixed "red" meat, minced	-	577	37	6.4	0	O12, O22, O79, O91 (2), O146 (2), O166, unspecified (29)
	Meat from wild game - land mammals	-	162	24	14.8	0	O5, O15, O21(2), O27, O36, O146 (4), unspecified (14)
Ireland	Minced meat	At retail	40	0	0.0		
Luxembourg	Mixed meat, minced	-	60	2	3.3	2	
Slovenia	Mixed meat, minced	At retail	101	0	0	0	
	Fresh meat (red meat)	At retail	51	0	0	0	
Spain	Goat, fresh	At slaughter/ retail	51	0	0	-	

1. Data are only presented for sample size ≥ 25

Table VT7. VTEC findings in other foodstuffs[1], 2005

Country	Description	Place of sampling	N	VTEC		VTEC O157
				Pos	% Pos	Pos
Austria	Processed food/prepared dishes	-	71	0	0	-
Belgium	Vegetables	At processing/retail	76	0	0	-
	Fruits and vegetables, pre-cut, ready to eat	-	114	0	0	-
Greece	Potable water	-	115	0	0	-
	Raw fish	-	163	30	18.4	-
	Live bivalve molluscs	-	70	0	0	-
Latvia	Sprouted seeds	At retail	29	0	0	-
Slovakia	Other products of animal origin	-	78	0	0	-
	Fruits, pre-cut	-	67	0	0	-
	Sprouted seeds	-	45	0	0	-
Slovenia	Fruits, pre-cut	-	67	0	0	-
	Sprouted seeds	-	45	0	0	-
Spain	Vegetables	-	50	0	0	-
	Eggs	-	53	0	0	-
	Processed food/prepared dishes	-	1,333	6	0.5	-

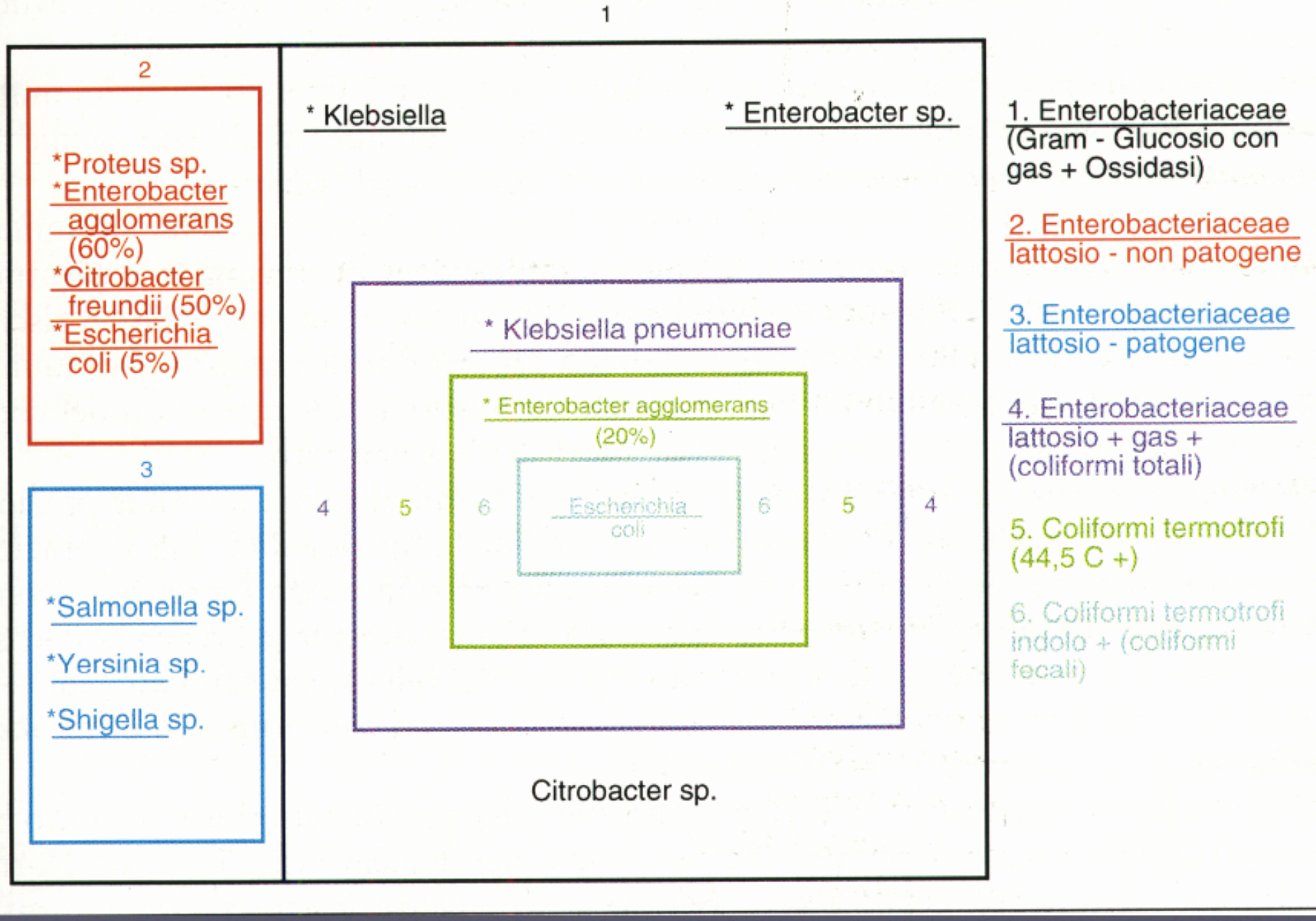
1. Data are only presented for sample size ≥25

AEM Accepts, published online ahead of print on 31 October 2008
Appl. Environ. Microbiol. doi:10.1128/AEM.01808-08

A case-control study to determine whether river water can spread tetracycline resistance to unexposed impala (*Aepyceros melampus)* in the Kruger National Park.

V Mariano[1*], CME McCrindle[1], B Cenci-Goga[2], JA Picard[3]

[1]*Department of Paraclinical Sciences,* [3]*Department of Veterinary Tropical Diseases, Faculty of Veterinary Science, University of Pretoria, Private Bag X04, Onderstepoort, 0110, South Africa,* [2] *Department of Public Health, Faculty of Veterinary Science, University of Perugia, Italy.*


1
2
*Proteus sp.
*Enterobacter agglomerans (60%)
*Citrobacter freundii (50%)
*Escherichia coli (5%)
3
*Salmonella sp.
*Yersinia sp.
*Shigella sp.
* Klebsiella
* Enterobacter sp.
* Klebsiella pneumoniae
* Enterobacter agglomerans (20%)
Escherichia coli
4
5
6
6
5
4
Citrobacter sp.
1. Enterobacteriaceae (Gram - Glucosio con gas + Ossidasi)
2. Enterobacteriaceae lattosio - non patogene
3. Enterobacteriaceae lattosio - patogene
4. Enterobacteriaceae lattosio + gas + (coliformi totali)
5. Coliformi termotrofi (44,5 C +)
6. Coliformi termotrofi indolo + (coliformi fecali)

Escherichia coli

- Bastoncellari, mobili per ciglia o immobili
- Sviluppano su terreni comuni
- Colonie lisce, convesse, umide, facilmente emulsionabili (ma anche rugose, secche e difficilmente emulsionabili). Anche mucose.

Metabolismo di *E. coli*

- Fermenta: glucosio, molti stipiti il lattosio, e altri zuccheri con produzione di piruvato → ac. lattico, acetico e formico.
- Produce indolo, beta-galattosidasi positivo, non produce H2S.
- Classificazione in base agli antigeni superficiali: O (somatico), K (capsulare(, H: flagellare)

E. coli responsabili di forme enteriche

- i) colonizzazione della mucosa
- ii) evasione dalle difese dell'ospite
- iii) moltiplicazione
- iv) danno
- Stabilita la colonizzazione, le strategie di *E. coli* diarrogeni sono diverse.

Diarrea: meccanismo di azione

- i) produzione di enterotossina (ETEC e EAEC)
- ii) invasione (EIEC)
- iii) adesione con i sistemi di comunicazione di membrana (EPEC e EHEC)
- ognuna ha almeno un fattore di virulenza su plasmide

ENTEROTOXIGENIC ETEC

- elabora almeno una di due gruppi di enterotossine: ST (heat-stable) e LT (heat-labile)

ENTEROPATHOGENIC EPEC

- in passato definiti solo sulla base del sierotipo O e H oggi sulla base del potere patogeno:
- attaching-and-effacing (adesione e cancellazione dei microvilli) (A/E) istopatologia (biopsie)
  - i) adesione
  - ii) trasmissione del segnale (il gene responsabile sta su una pathogenicity island: locus of enterocyte effacement, LEE)
  - iii) aderenza tramite intimina (codificata dal gene eae: *E. coli* attaching effacing)

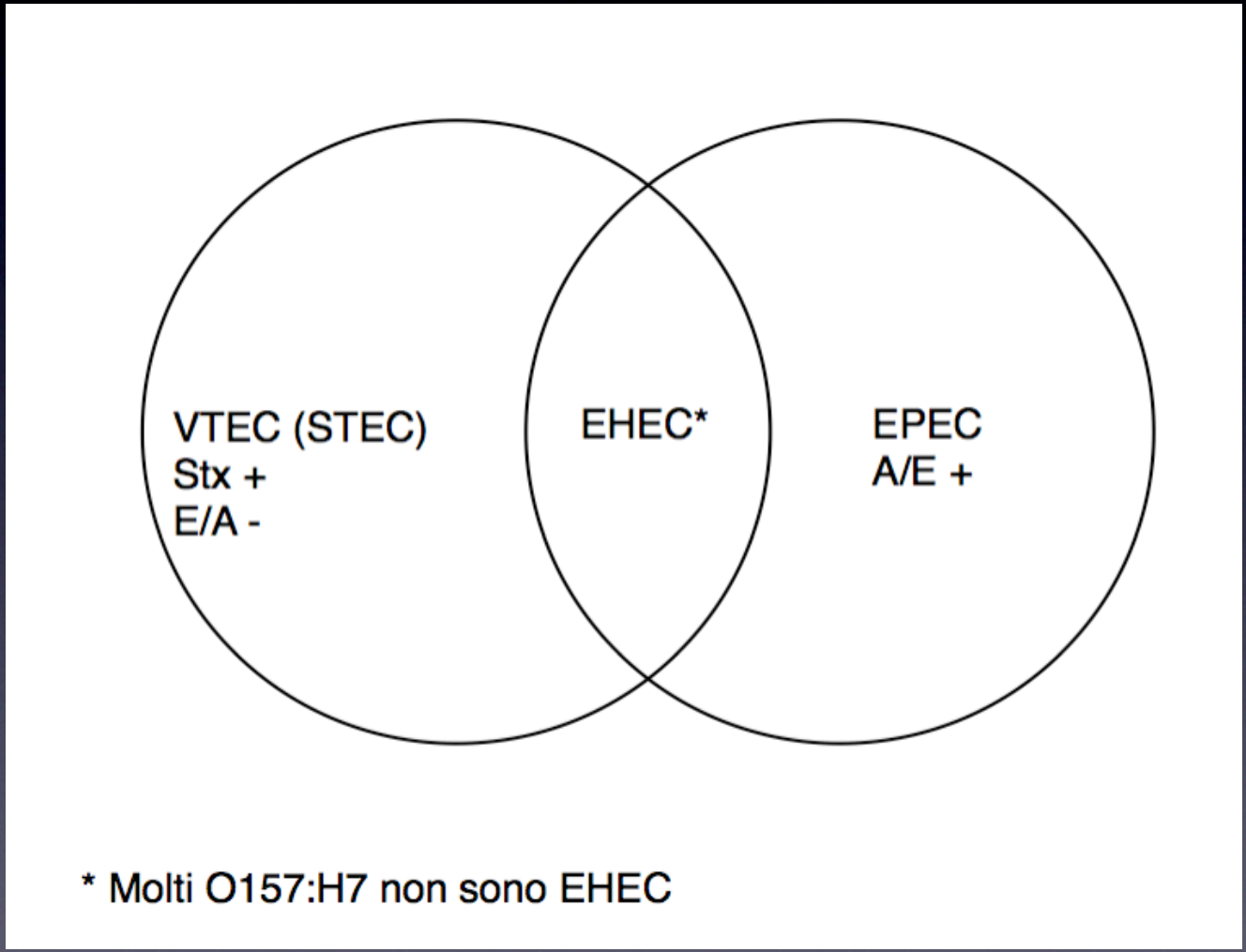
ENTEROHEMORRAGIC EHEC 1/2

- Nel 1983 focolaio di gastrenterite con crampi addominali, diarrea acquosa e poi emorragica. Fu definita colite emorragica (HC) e collegata al consumo di hamburger poco cotti. Isolato *E. coli* O157:H7. Una seconda segnalazione, sempre nel 1983) fu di HUS (hemolytic hemorragic syndrome) con insufficienza renale acuta, trombocitopenia e anemia emolitica microangiopatica) con produzione di citotossina

ENTEROHEMORRAGIC EHEC 2/2

- inizialmente effetto citopatico su cellule Vero neutralizzato dall'antisiero per la tossina 1 di Shigella dysenteriae (Stx). Molti *E. coli* isolati successivamente producevano tossine simili (Shiga-like: SLT): è la stessa tossina.
- Famiglia di STX: Stx1, Stx2c, Stx2v, Stx2vhb, Stx2e, etc... oppure VT1, VT2c, etc...
- EAST1, enteroemolisina (gene ehxA che è simile a hlyA degli stipiti uropatogeni), eae e altri per adesione, pO157 plasmide.
- Per la PCR: stx, eae, pO15

Enteropatogeni e enteroemorragici



ENTEROAGGREGATIVE EAEC

- autoagglutinazione delle cellule una sull'altra: aggregativa
- diffusa
- mentre negli enteropatogeni è localizzata

ENTEROINVASIVE EIEC

- i) penetrazione epiteliale
- lisi del vacuolo di endocitosi
- moltiplicazione intracellulare
- diffusione nel citoplasma
- passaggio a cellula adiacente

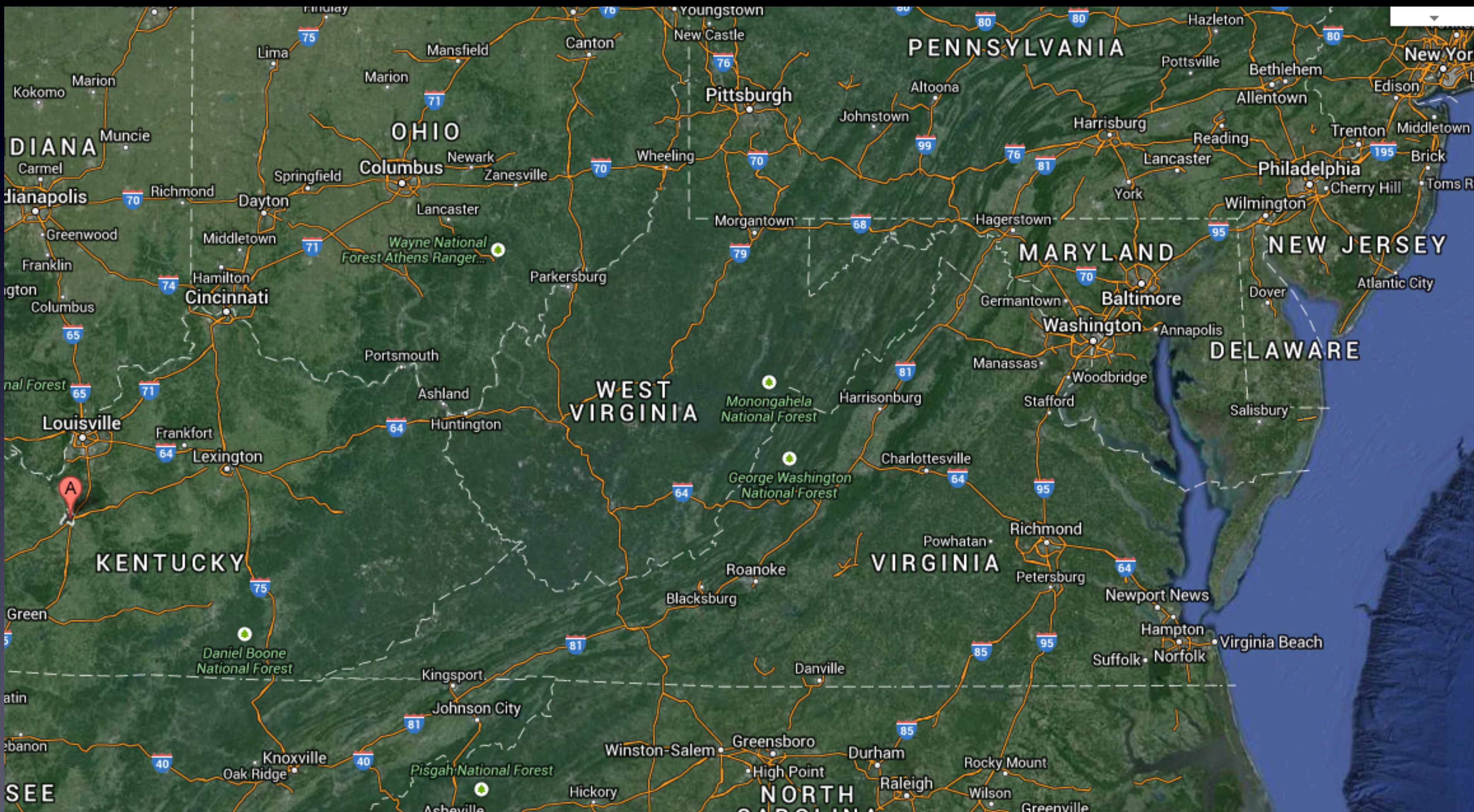
DIFFUSELY ADHERENT DAEC

- mancano le microcolonie degli EAEC

E. COLI O157 – UK - CRAB CONSUMPTION - 2011

Plymouth

- 9 casi agosto 2011
- Associazione significativa tra casi e consumo di polpa di granchio fuori casa



Youngstown
New Castle
Hazleton
PENNSYLVANIA
Lima
Mansfield
Canton
Pottsville
New York
Kokomo
Marion
Marion
Bethlehem
Pittsburgh
Altoona
Edison
Allentown
Johnstown
Muncie
OHIO
Harrisburg
Trenton
Middletown
Reading
Newark
Wheeling
Carmel
Springfield
Columbus
Brick
Lancaster
Zanesville
Philadelphia
Richmond
Dayton
York
Cherry Hill
Toms River
Lancaster
Wilmington
Greenwood
Middletown
Morgantown
Hagerstown
Wayne National Forest Athens Ranger...
NEW JERSEY
MARYLAND
Franklin
Hamilton
Parkersburg
Atlantic City
Columbus
Cincinnati
Dover
Germantown
Baltimore
Washington
Annapolis
Portsmouth
DELAWARE
Manassas
Woodbridge
WEST VIRGINIA
Ashland
Monongahela National Forest
Harrisonburg
Stafford
Louisville
Huntington
Salisbury
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Lexington
Charlottesville
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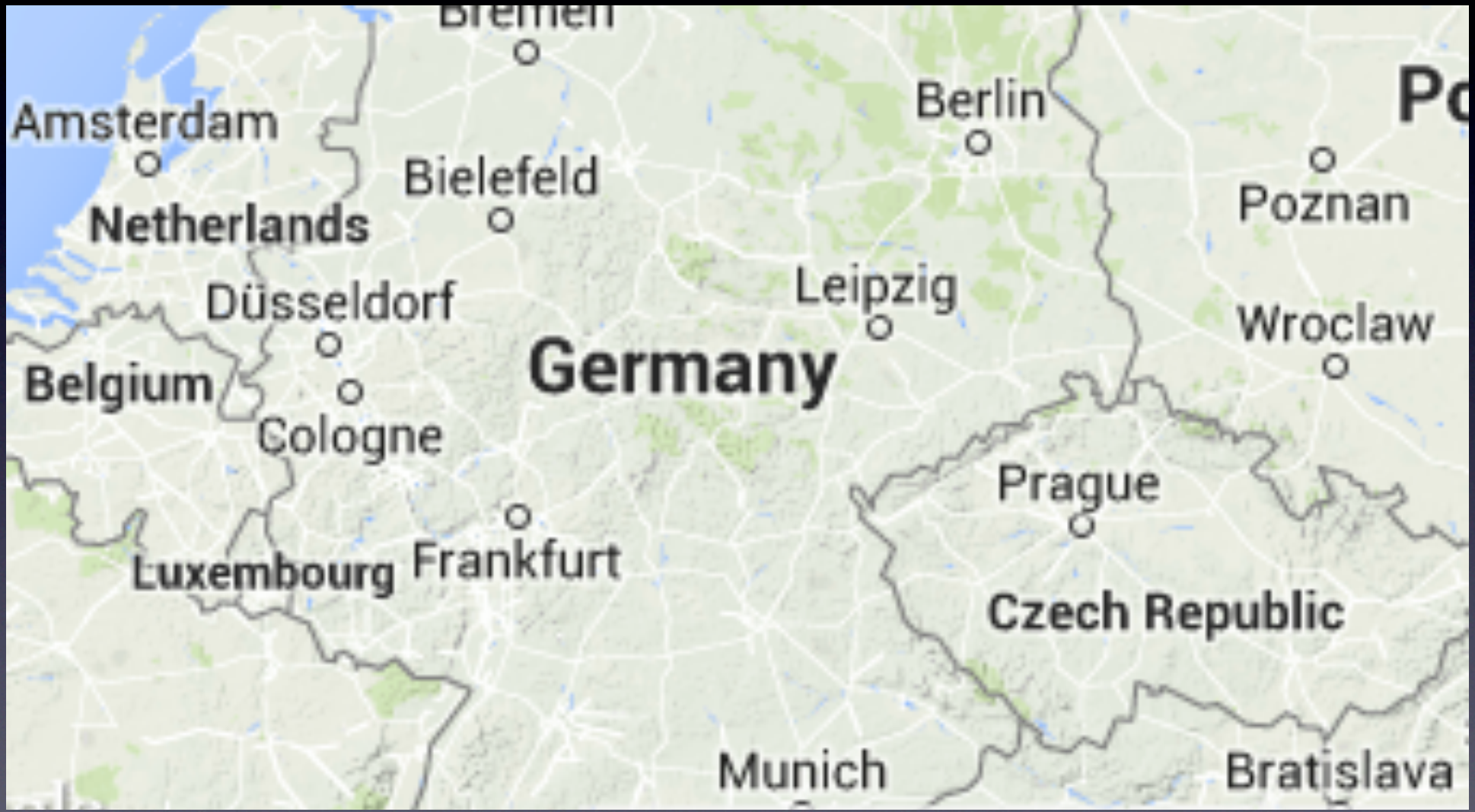
A
Richmond
Powhatan
KENTUCKY
Roanoke
VIRGINIA
Petersburg
Blacksburg
Newport News
Green
Hampton
Virginia Beach
Daniel Boone National Forest
Suffolk
Norfolk
Kingsport
Danville
Johnson City
Greensboro
Knoxville
Winston-Salem
Durham
Rocky Mount
Oak Ridge
High Point
Raleigh
Pisgah National Forest
Hickory
NORTH CAROLINA
Wilson
Asheville
Greenville

- 5 bambini e una mamma – SETTEMBRE 2014
- Associazione significativa tra casi e consumo di latte crudo in azienda
- According to the CDC, raw milk is 150 times more likely to cause foodborne illness compared to pasteurized milk, and it hospitalizes 13 times more individuals than pasteurized dairy products.
- The epidemiological link between the cases of EHEC-associated hemolytic uremic syndrome and the unpasteurized milk seems strong whether the pathogen was isolated from the milk or not. Inadequate refrigeration of the tainted vehicle of transmission may have played a role in the cases.
- Although campylobacteriosis is the most common bacterial pathogen transmitted by the "Russian roulette" use of unpasteurized milk in the USA, certainly enterohemorrhagic _E. coli_ is a player in this scenario as well.

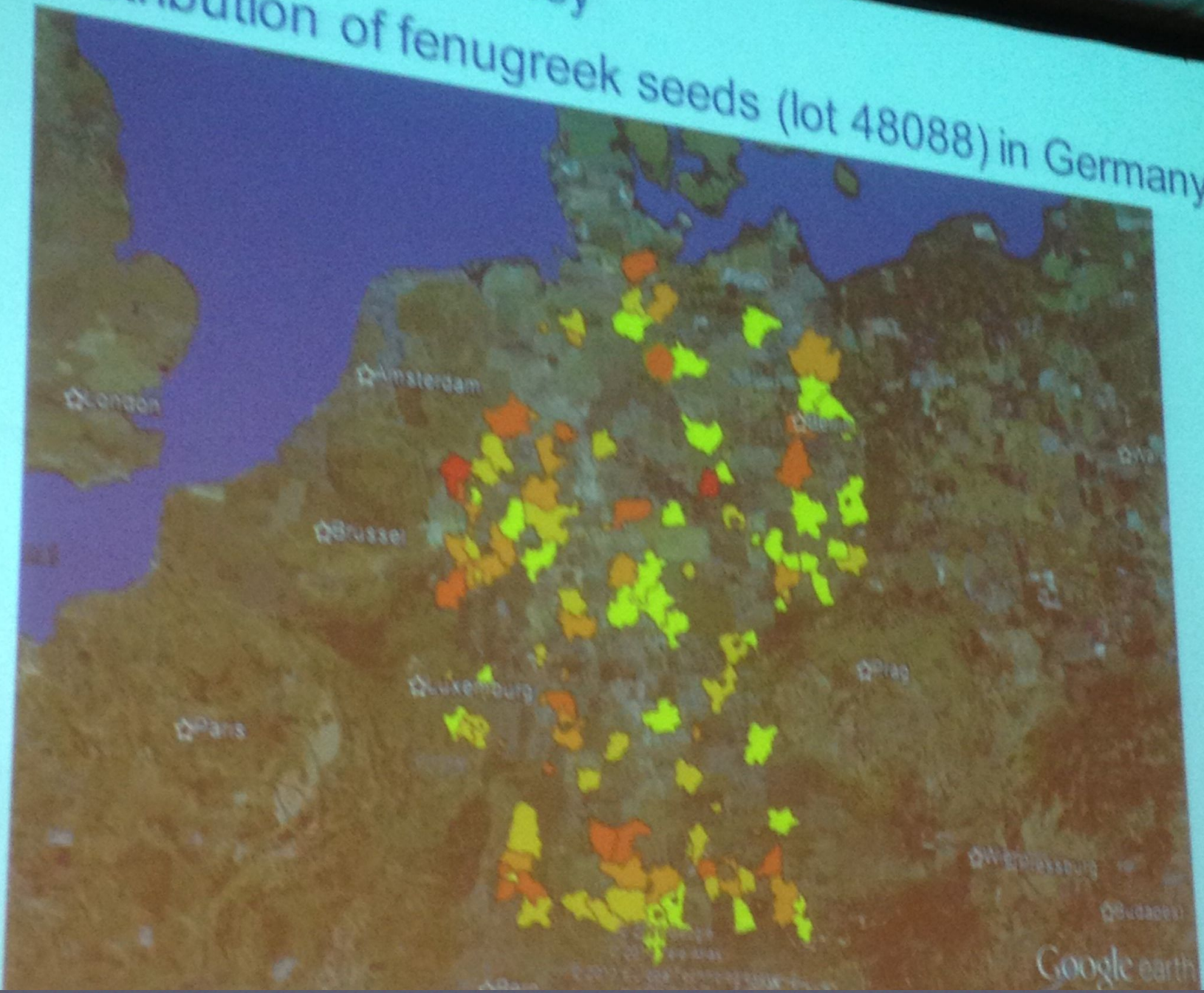
E. COLI EHEC – ITALY: (PUGLIA), O26 – AGOSTO 2013

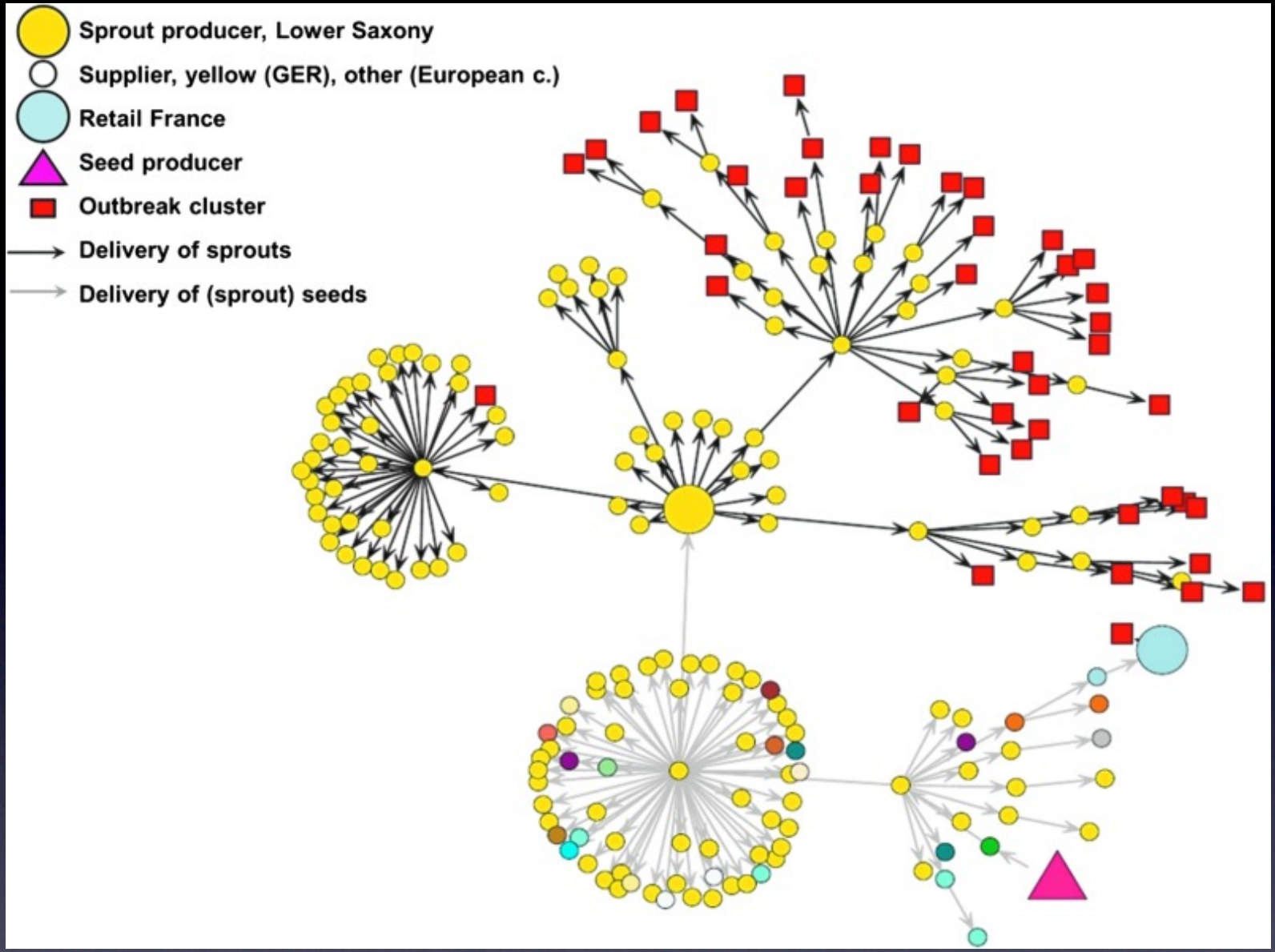
- 16 casi – AGOSTO 2013
- Associazione significativa tra casi e consumo di latte crudo in azienda
- We do not exclude water from being the cause" for the cases all throughout the region.
- From information collected through statements by the parents, children affected by HUS had eaten fruit (watermelon in particular), dairy products, and salad. Perhaps the source was well water drawn for irrigation of cultivated fields, but [investigations] are still in progress.
- The origin and means of spread of the disease are still unclear; the only thing left is to follow a few basic rules: wash hands and utensils after contact with food, avoid consumption of undercooked meat (especially ground or carpaccio), and do not consume milk that is not pasteurized.

E. COLI EHEC – GERMANIA Luglòio-Dicembre 2011 - FIENO GRECO

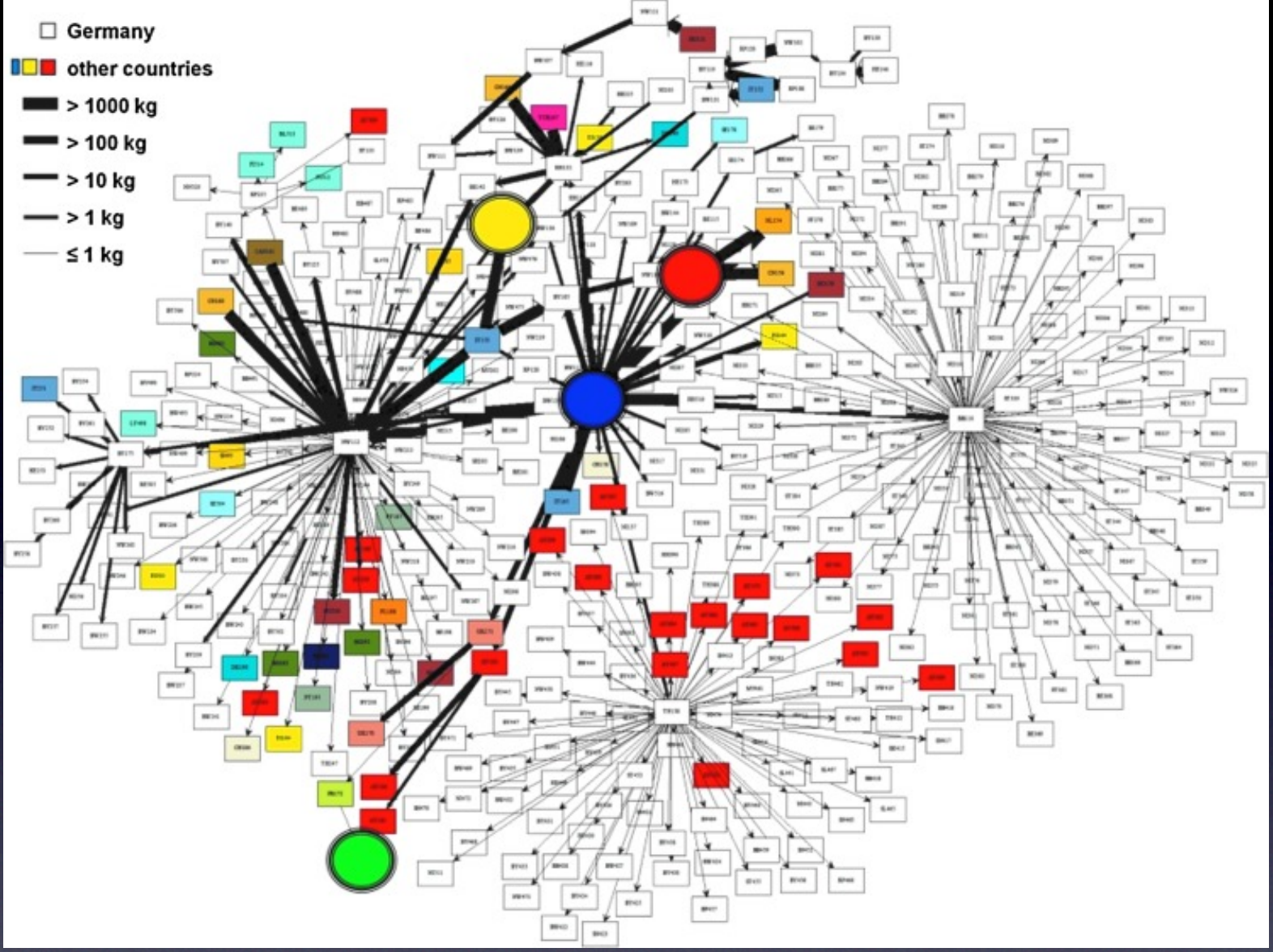


Distribution of fenugreek seeds (lot 48088) in Germany





Combined network of all relevant fenugreek seed and sprout supplies. Supplier network of the STEC O104:H4 outbreak in 2011; results of combined forward and backward tracing of the supply chain. Here, all the companies are represented that have come in contact with the suspected batch of seeds or produced sprouts (created with the R-Package "network," available at http://statnet.org) (Butts, 2008).



Representation of the delivery quantities and routes of all examined seeds (six varieties, including fenugreek). The rectangles contain anonymized names of companies and provide distributors, producers, and retailers (foreign companies are represented in color). The delivery quantities vary between a minimum of 50-g pack and a maximum of 15 tons—indicated by the thickness of the arrows. The most important spots in the network are circled and colored: horticultural farm in Lower Saxony (yellow), French retailer (green), German importer (blue), and Egyptian exporter (red) (created with graphviz, available at www.graphviz.org).

RASFF

1.	alert	30/10/2014	31/10/2014	2014.1464	NL	shigatoxin-producing Escherichia coli (STX2 and eae /25g) in frozen kangaroo meat from Belgium	meat and meat products (other than poultry)
2.	information for attention	30/10/2014	30/10/2014	2014.1466	IT	high count of Escherichia coli (1300 MPN/100g) in chilled mussels from Italy	bivalve molluscs and products thereof
3.	information for attention	28/10/2014	03/11/2014	2014.1451	CH	too high count of Escherichia coli (600 MPN/100g) in chilled live mussels from France	bivalve molluscs and products thereof
4.	alert	27/10/2014	28/10/2014	2014.1447	FR	shigatoxin-producing Escherichia coli (O26H11 serotype with eae and stx1 genes) in raw milk camembert from France	meat and meat products (other than poultry)
5.	alert	10/10/2014	30/10/2014	2014.1389	IT	too high count of Escherichia coli (16000 MPN/100g) in live clams from Italy	bivalve molluscs and products thereof
6.	border rejection	25/09/2014	25/09/2014	2014.BNB	IT	shigatoxin-producing Escherichia coli in chilled beef from Argentina	meat and meat products (other than poultry)
7.	alert	19/09/2014	03/10/2014	2014.1305	DE	shigatoxin-producing Escherichia coli (stx1+ stx2+ eae-) in frozen lamb leg steaks from New Zealand	meat and meat products (other than poultry)
8.	information for follow-up	18/09/2014	30/09/2014	2014.1298	DE	Listeria monocytogenes (skewer: 100 CFU/g), high counts of Enterobacteriaceae (beef: 8.2x10*6; 2.4x10*7; skewer: 4.9x10*5 CFU/g) and of Escherichia coli (beef: 8.2x10*6) in and high aerobic plate count (beef: 1.0x10*7; 4.4x10*7; skewer: 5.8x10*7 CFU/g) for chilled vacuum packed beef and beef/veal skewer from Poland	meat and meat products (other than poultry)
9.	border rejection	15/09/2014	15/09/2014	2014.BMC	NL	difenoconazole (2.1 mg/kg - ppm) in broccoli from China	fruits and vegetables
10.	information for follow-up	10/09/2014	24/09/2014	2014.1258	IT	shigatoxin-producing Escherichia coli (stx1+, stx2+, eae+ /25g) in frozen roe deer meat for further processing from Germany	meat and meat products (other than poultry)
11.	information for follow-up	27/08/2014	04/09/2014	2014.1189	IT	shigatoxin-producing Escherichia coli (O26, O103, O145 stx1+, stx2+, eae+) in frozen deer goulash meat from Germany	meat and meat products (other than poultry)
12.	border rejection	25/08/2014	11/09/2014	2014.BJI	NL	shigatoxin-producing Escherichia coli (stx1+, stx2+, eae+, O128 /25g) in frozen lamb from New Zealand	meat and meat products (other than poultry)

Ecologia microbica

:

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E. coli

Listeria monocytogenes

Campylobacter spp.

- Introduzione
- Carta di identità di *Listeria monocytogenes*
- Serbatoi

- Habitat naturale: piante in decomposizione (saprofiti), ambiente e ruminanti.
- Medicina: fino agli anni ‘80 (Listeria hysteria) solo germe di interesse veterinario e per gli studi sulla risposta cellulo-mediata
- Dal 1985 malattia alimentare, 5° agente di meningite batterica in USA, 2° in neonati e anziani

- In veterinaria: infetta oltre 40 specie, soprattutto ruminanti (infezioni al SNC, infez sistemiche, aborto e setticemia nei cavalli)
- Nei monigastrici l'infezione è lieve: gastroenterite, febbre, influenza-like
- Nei soggetti immunodepressi è più grave
- Nelle gestanti è sempre flu-like, ma nel feto le conseguenze sono devastanti

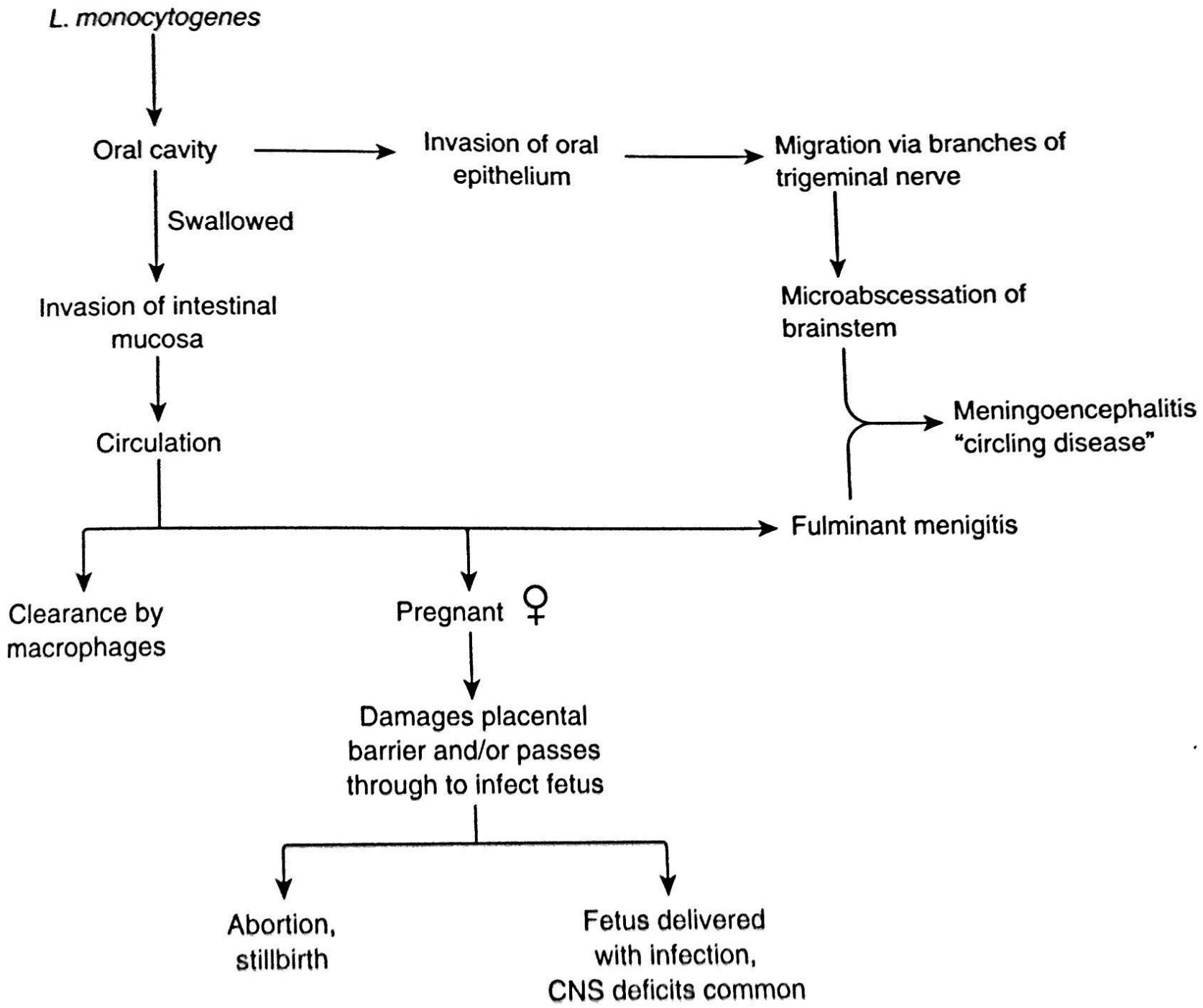
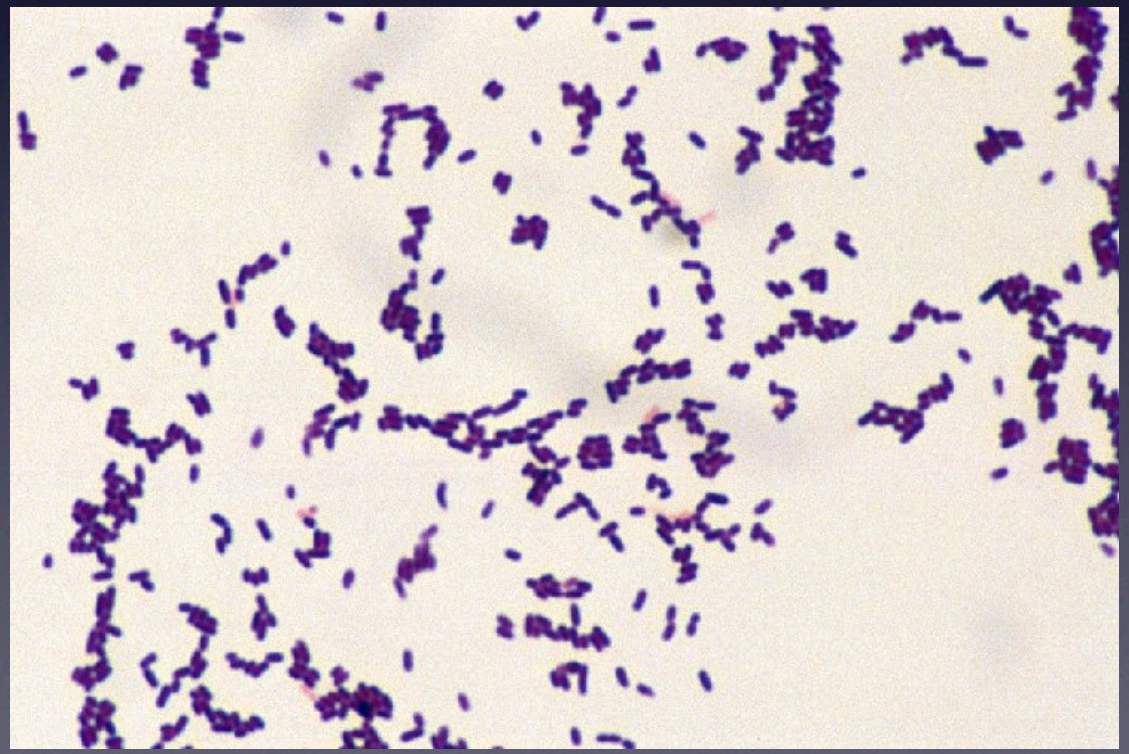
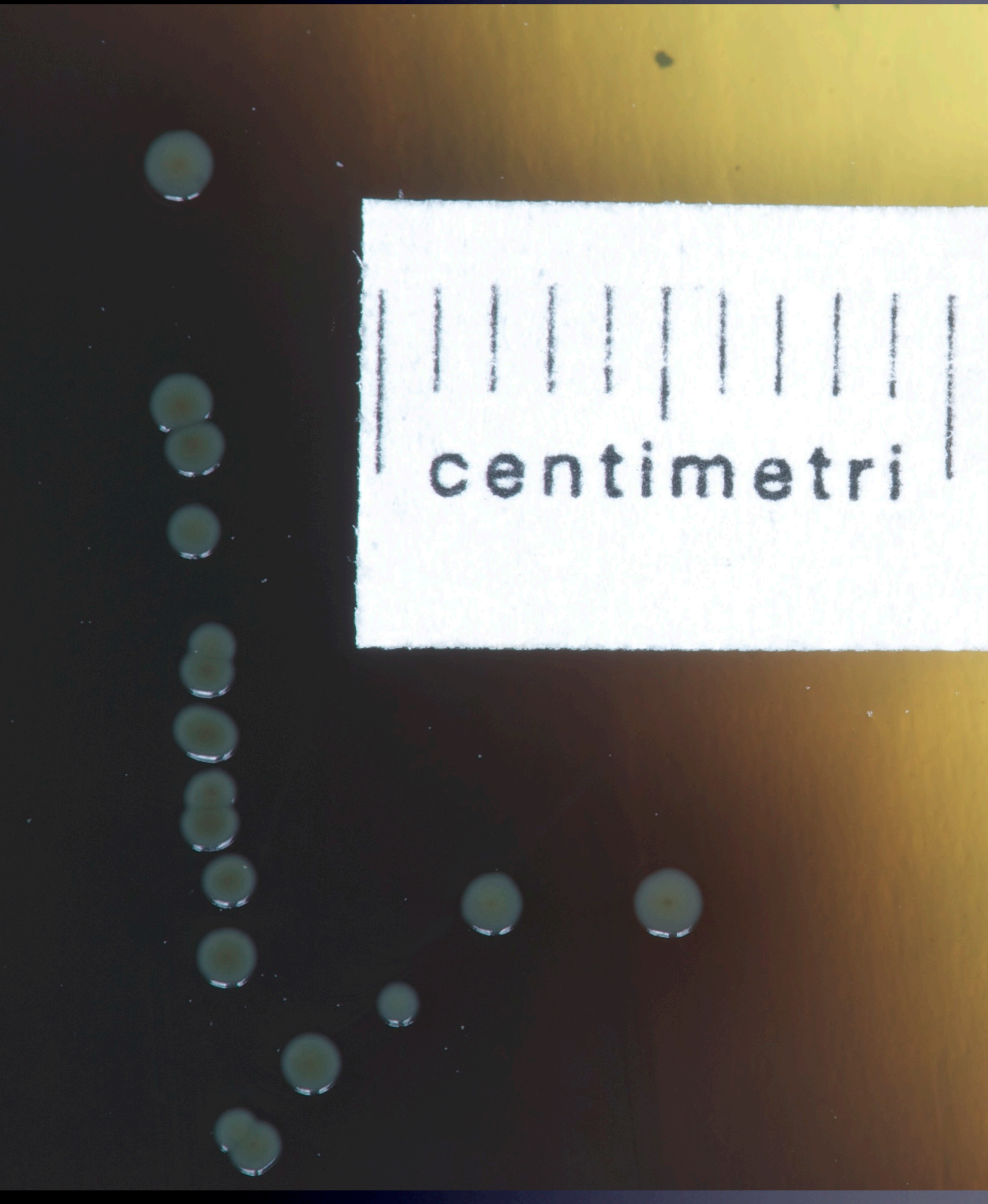


FIGURE 10-2 Natural history of *Listeria monocytogenes* infections. *CNS*, Central nervous system. (Courtesy Ashley E. Harmon.)

Carta d'identità

- Gram positivo, piccolo, non sporigeno, anaerobio facoltativo. Cocchi piccoli, catalasi positivi e mobili.

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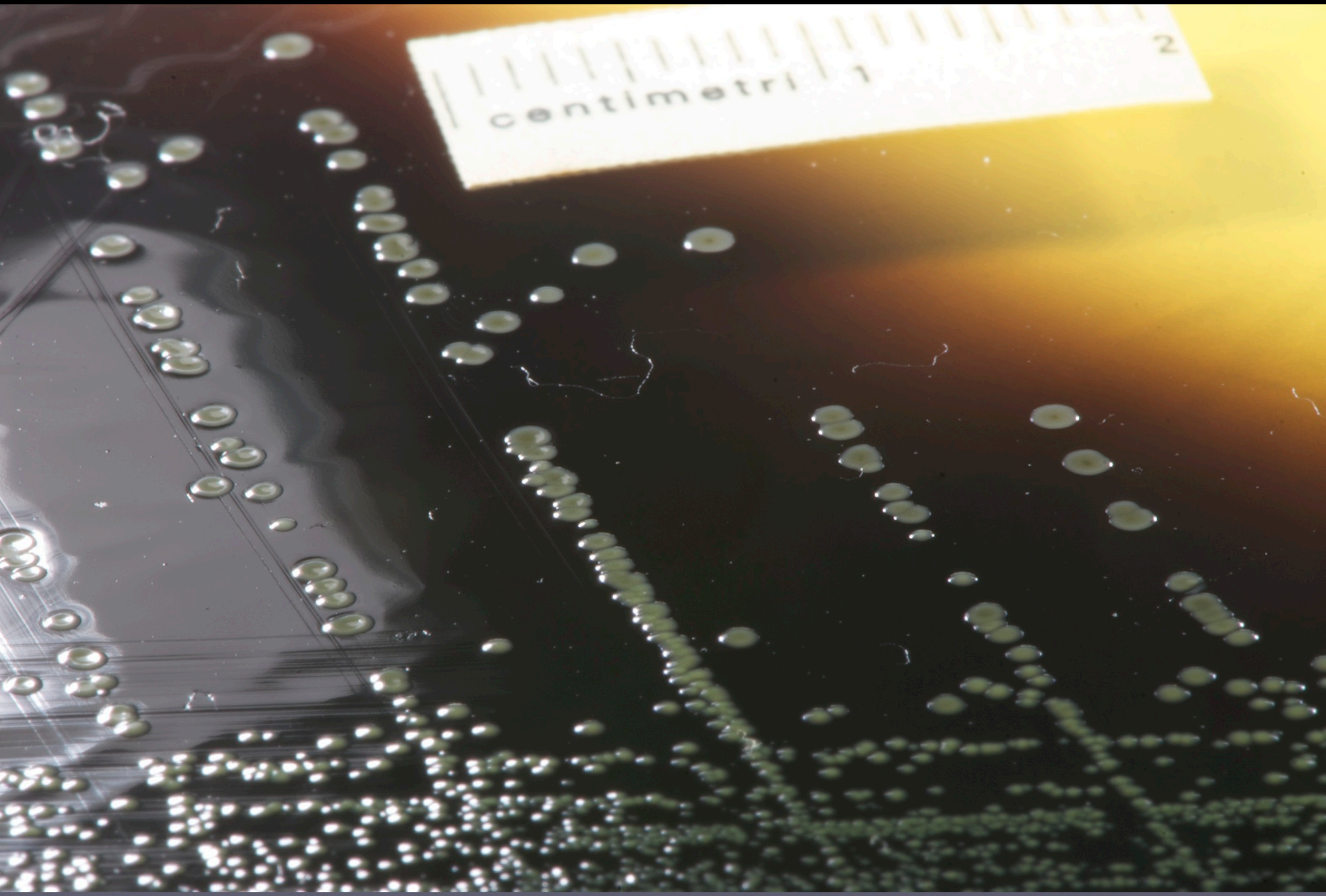
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- Classe: gamma proteobacteria
- Ordine: Bacillales
- Famiglia: Listeriaceae
- Genere: Listeria
- Specie: *Listeria monocytogenes*
- Scoperta nel 1920 da due ricercatori che la chiamarono così in onore di Joseph Lister – medico britannico di fine ‘800, pioniere dell’antisepsi in chirurgia

Reg. 2073: Criteri di sicurezza alimentare per Listeria

Alimenti pronti che costituiscono terreno favorevole alla crescita di *Listeria monocytogenes* diversi da quelli destinati ai lattanti e a fini medici speciali

- n=5 c=0 m: 100/g sul mercato
- n=5 c=0 m: assente prima

Reg. 2073: Criteri di sicurezza alimentare per Listeria

Alimenti pronti che non costituiscono terreno favorevole alla crescita di *Listeria monocytogenes*, diversi da quelli destinati ai lattanti e a fini medici speciali

n=5 c=0 m: 100/g

Cosa dice il CDC

Fonti secondo CDC

- **How does someone get listeriosis?**
- People get listeriosis by eating food contaminated with *Listeria monocytogenes* 1. Babies can be born with listeriosis if their mothers eat contaminated food during pregnancy. However, healthy people may consume contaminated foods without becoming ill. People at risk can prevent listeriosis by avoiding certain higher-risk foods and by handling and storing food properly.

Fonti secondo CDC

- **Reservoir**
- *Listeria monocytogenes* is commonly found in **soil** and **water**. Animals can carry the bacterium without appearing ill and can contaminate **foods of animal origin**, such as **meats** and **dairy products**.

Fonti secondo CDC

- Transmission
- Most human infections follow consumption of contaminated food. Rare cases of hospital-acquired transmission have been reported in newborns.
- When *Listeria* bacteria get into a food processing factory, they can live there for years, sometimes contaminating food products. The bacterium has been found in a variety of foods, such as:
- Uncooked meats and vegetables
- Unpasteurized (raw) milk and cheeses as well as other foods made from unpasteurized milk
- Cooked or processed foods, including certain soft cheeses, processed (or ready-to-eat) meats, and smoked seafood
- *Listeria* are killed by cooking and pasteurization. However, in some ready-to-eat meats, such as hot dogs and deli meats, contamination may occur after factory cooking but before packaging or even at the deli counter. Also, be aware that Mexican-style cheeses (such as queso fresco) made from pasteurized milk and likely contaminated during cheese-making have caused *Listeria* infections.
- Unlike most bacteria, *Listeria* can grow and multiply in some foods in the refrigerator.

1600

About 1,600 people in the US get sick from *Listeria* germs each year.

3rd

Listeria is the 3rd leading cause of death from food poisoning.

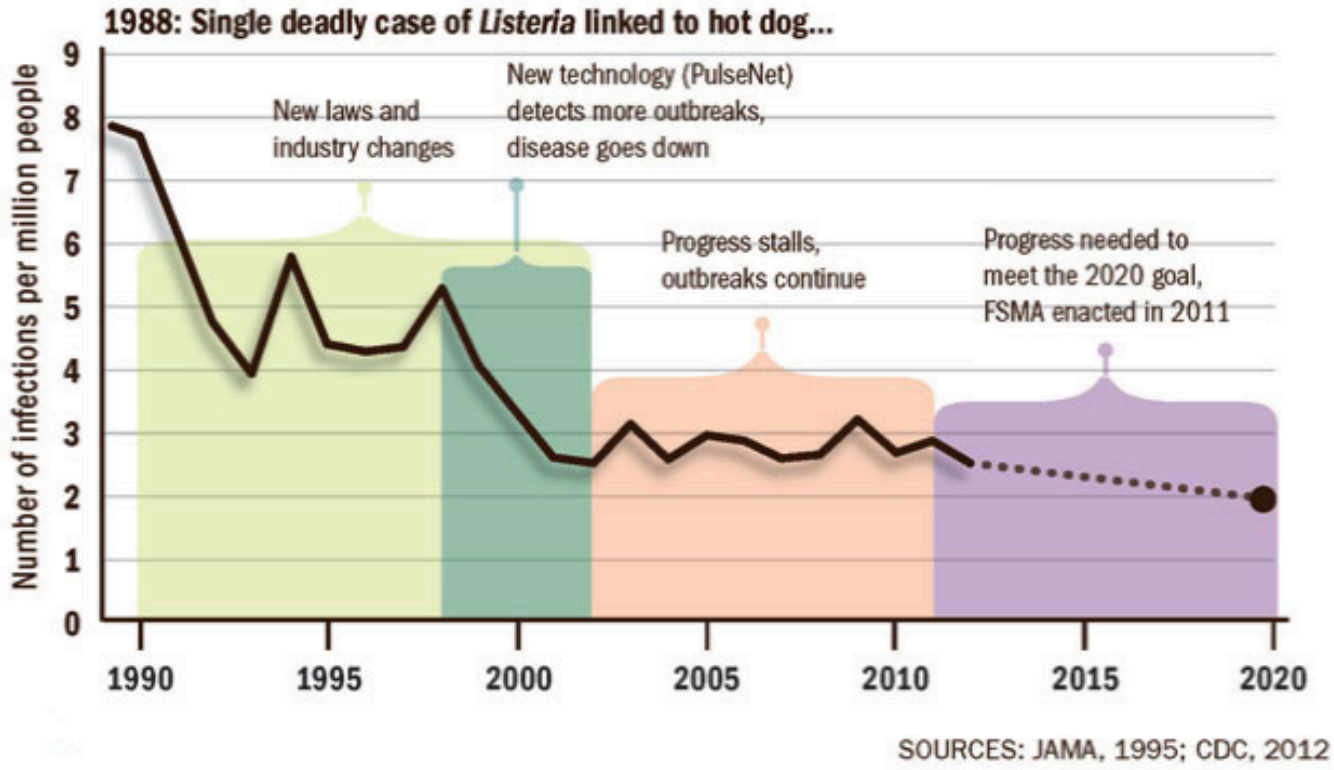
90%

At least 90% of people who get *Listeria* infections are either pregnant women and their newborns, people 65 or older, or people with weakened immune systems.

Detecting more outbreaks points the way to prevention

Outbreaks from *Listeria* in the 1990's traced to hot dogs, and later to deli meats, led to changes that made processed meats safer and reduced the number of such outbreaks. But, *Listeria* infection rates have not gone down since 2001.

Faster detection and response saves lives and protects people



SOURCES: JAMA, 1995; CDC, 2012

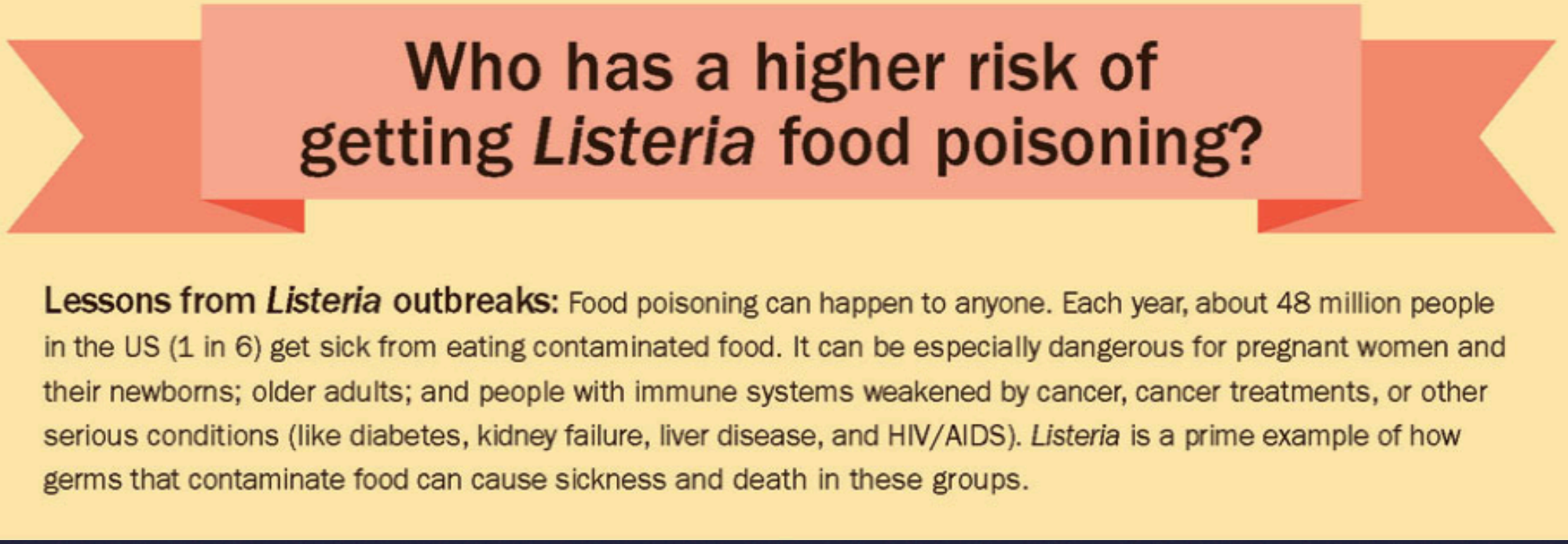
Listeria Outbreaks

Days from outbreak detection to first public warning

SOURCES: New England Journal of Medicine, 1988; Morbidity and Mortality Weekly Report, 2011

Detecting more outbreaks points the way to prevention.

This chart shows the trend in outbreaks from Listeria in the 1990s traced to hot dogs and later deli meats, leading to changes the made meats safer and reduced the number of outbreaks. Listeria rates have not gone down since 2001 and more progress is needed. The Food Safety Modernization Act was passed in 2011 to help with this. Faster detection and response saves lives.



This chart shows those groups most at risk for Listeria food poisoning: Pregnant women and their newborns; older adults, and people with weakened immune systems. It also shows that when it comes to Listeria, some foods are more risky than others. Some foods where Listeria is known to hide include raw sprouts, raw milk (unpasteurized), deli meats and hot dogs (cold, uncooked), soft cheeses and smoked seafood.

Pregnant women, fetuses, and newborn infants

Listeria can pass from pregnant women to their fetuses and newborns. It can cause miscarriages, stillbirths, and newborn deaths.

Chancy cheese

LISTERIA OUTBREAK: Queso fresco (a type of soft cheese) sickened 142 people, killed 10 newborns and 18 adults, and caused 20 miscarriages.

People with weakened immune systems

Listeria can spread through the blood-stream to cause meningitis, and often kills. The weaker your immune system, the greater the risk.

Contaminated celery

LISTERIA OUTBREAK: Pre-cut celery in chicken salad served at hospitals sickened 10 people who had other serious health problems. Five of them died as a result.

This chart shows those groups most at risk for Listeria food poisoning: Pregnant women and their newborns; older adults, and people with weakened immune systems. It also shows that when it comes to Listeria, some foods are more risky than others. Some foods where Listeria is known to hide include raw sprouts, raw milk (unpasteurized), deli meats and hot dogs (cold, uncooked), soft cheeses and smoked seafood.

Adults 65 or older

Listeria can spread through the blood-stream to cause meningitis, and often kills. The older you are, the greater the risk.

Tainted cantaloupes

LISTERIA OUTBREAK: Contaminated whole cantaloupes sickened 147 people in 28 states and caused one of the deadliest foodborne outbreaks in the US. There were 33 deaths, mostly in adults over 65, reported during the outbreak.

SOURCE: CDC, 2013

What foods are risky?

When it comes to *Listeria*, some foods are more risky than others. Meet some of the other foods where *Listeria* is known to hide.

Raw Sprouts

Raw Milk
(unpasteurized)

Soft Cheeses

Deli Meats and Hot Dogs
(cold, not heated)

Smoked Seafood

This chart shows those groups most at risk for Listeria food poisoning: Pregnant women and their newborns; older adults, and people with weakened immune systems. It also shows that when it comes to Listeria, some foods are more risky than others. Some foods where Listeria is known to hide include raw sprouts, raw milk (unpasteurized), deli meats and hot dogs (cold, uncooked), soft cheeses and smoked seafood.

- ***Listeria* is a deadly germ that is hard to control**
- ***Listeria* is challenging because**
- When someone eats food contaminated with *Listeria*, sickness or miscarriage may not occur until weeks later when it is difficult to identify which food was the source.
- *Listeria* can contaminate many foods that we don't usually cook, like deli meats, cheeses and sprouts.
- Some foods we might not suspect can be contaminated with *Listeria* and cause sickness and outbreaks, such as cantaloupe and celery.
- *Listeria* is a hardy germ that can even grow on foods that are refrigerated.
- *Listeria* can hide unnoticed in the equipment or appliances where food is prepared, including in factories and grocery stores.

- We can prevent Listeria infections by
- -) Identifying outbreaks fast by using special laboratory tests and disease detectives.
- -) Rapidly finding and removing contaminated food before people eat it.
- -) Using lessons from outbreaks, including environmental investigations, to make food safer.
- -) Applying new safety measures for food production, like those included in the Food Safety Modernization Act (FSMA), so that food doesn't get contaminated in the first place.
- -) Reducing Listeria contamination of ready-to-eat meat and poultry products by following USDA guidanceÊÊ[PDF - 2.34 MB].
- -) Having a robust public health system that provides the tools and resources needed to promote food safety.
- -) Learning more about which polices and practices work best.

- **People at higher risk and those who cook for them can:**
- Know which foods are risky for pregnant women, older adults, and people with weakened immune systems, and avoid these foods. See http://www.cdc.gov/*Listeria*/prevention.html
- Heat deli meats and hot dogs until steaming hot before eating.
- Not drink raw (unpasteurized) milk or eat soft cheeses made from it.
- Be aware that Mexican-style cheeses made from pasteurized milk, such as queso fresco, likely contaminated during cheese-making, have caused *Listeria* infections.
- Refrigerate leftovers within 2 hours in shallow covered containers and use within 3-4 days.
- Be careful to avoid cross-contamination in the refrigerator or other places in the kitchen.
- Use a thermometer to make sure your refrigerator is 40°F or lower and your freezer is 0°F or lower.

Grafico 1.

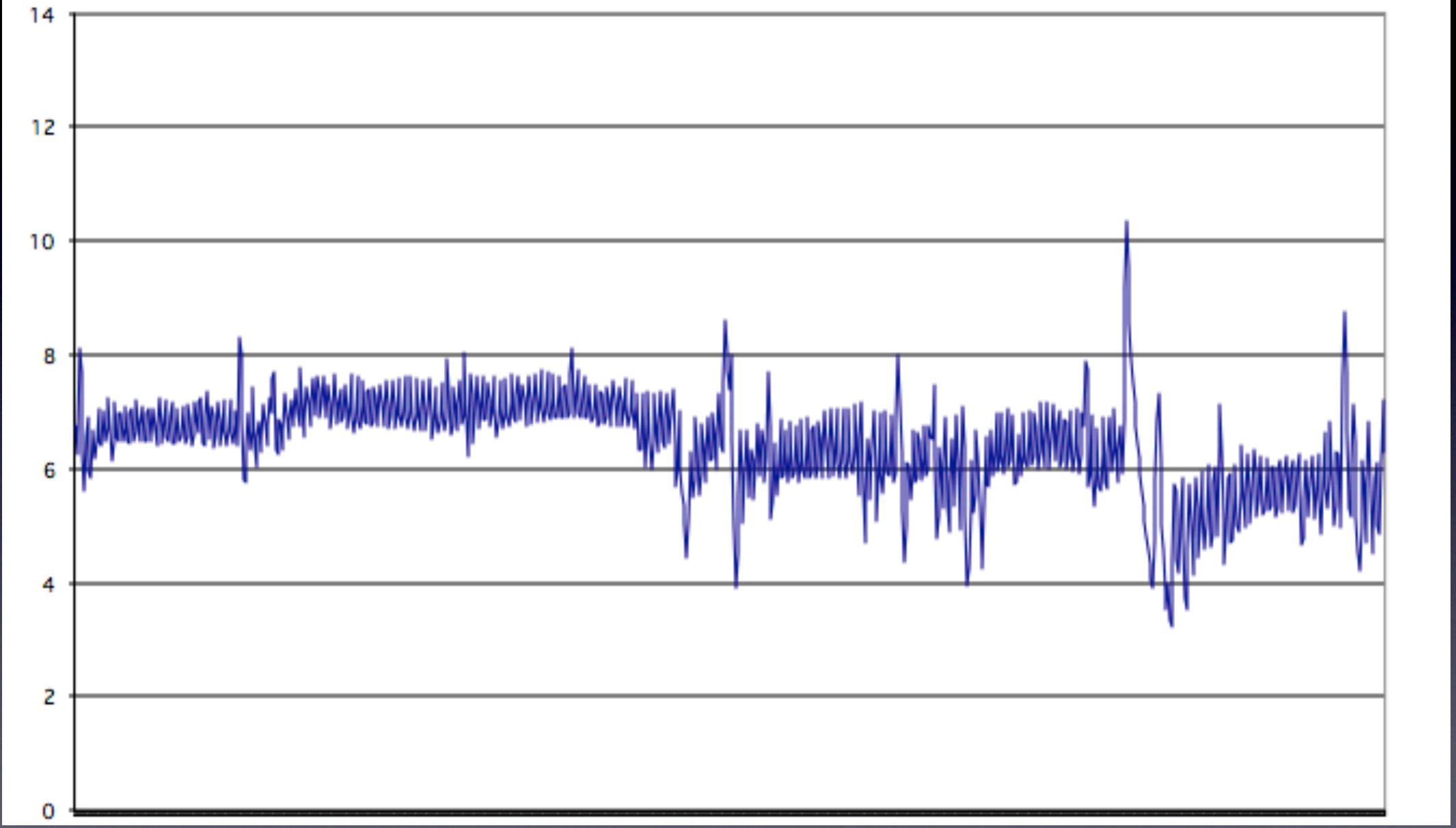
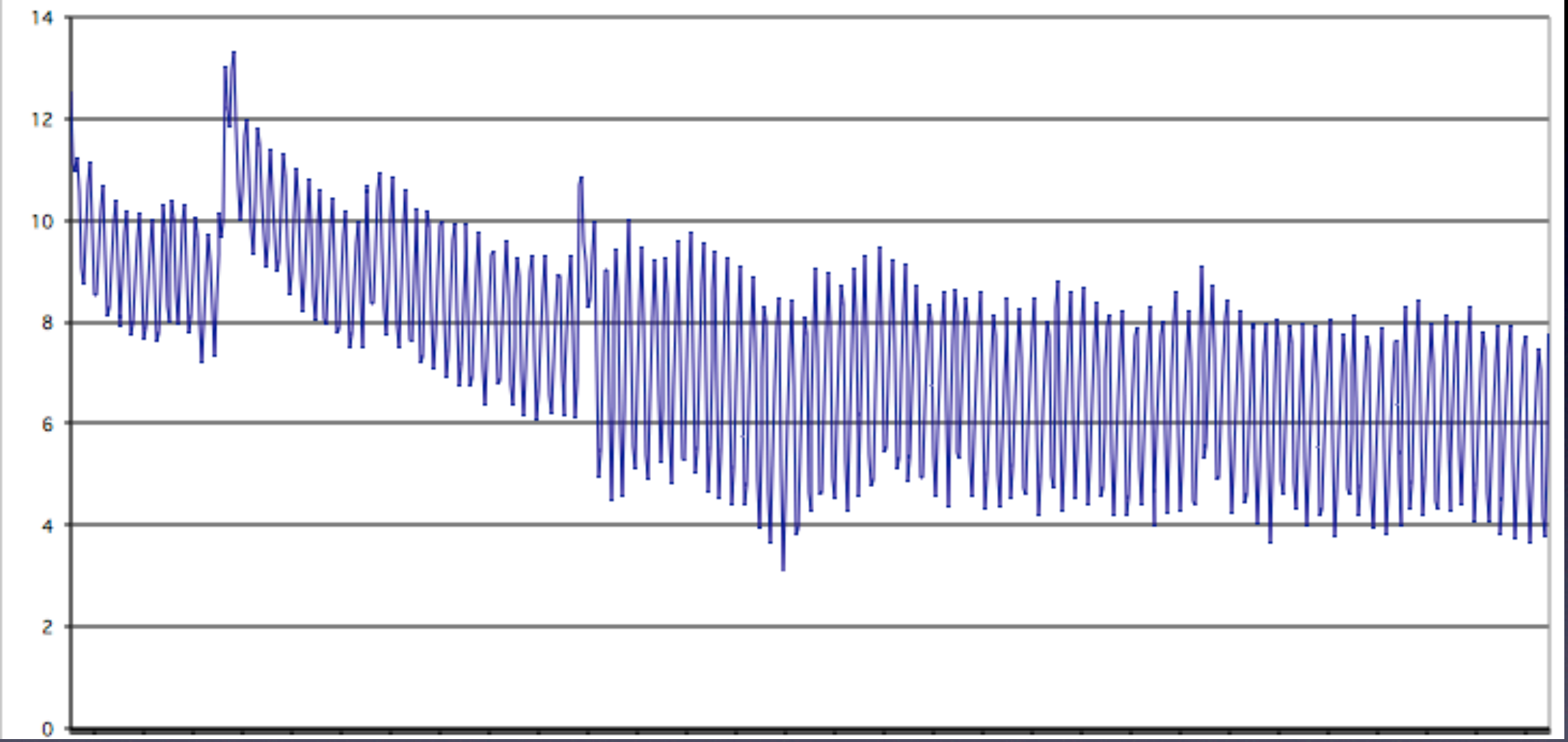


Grafico 3.



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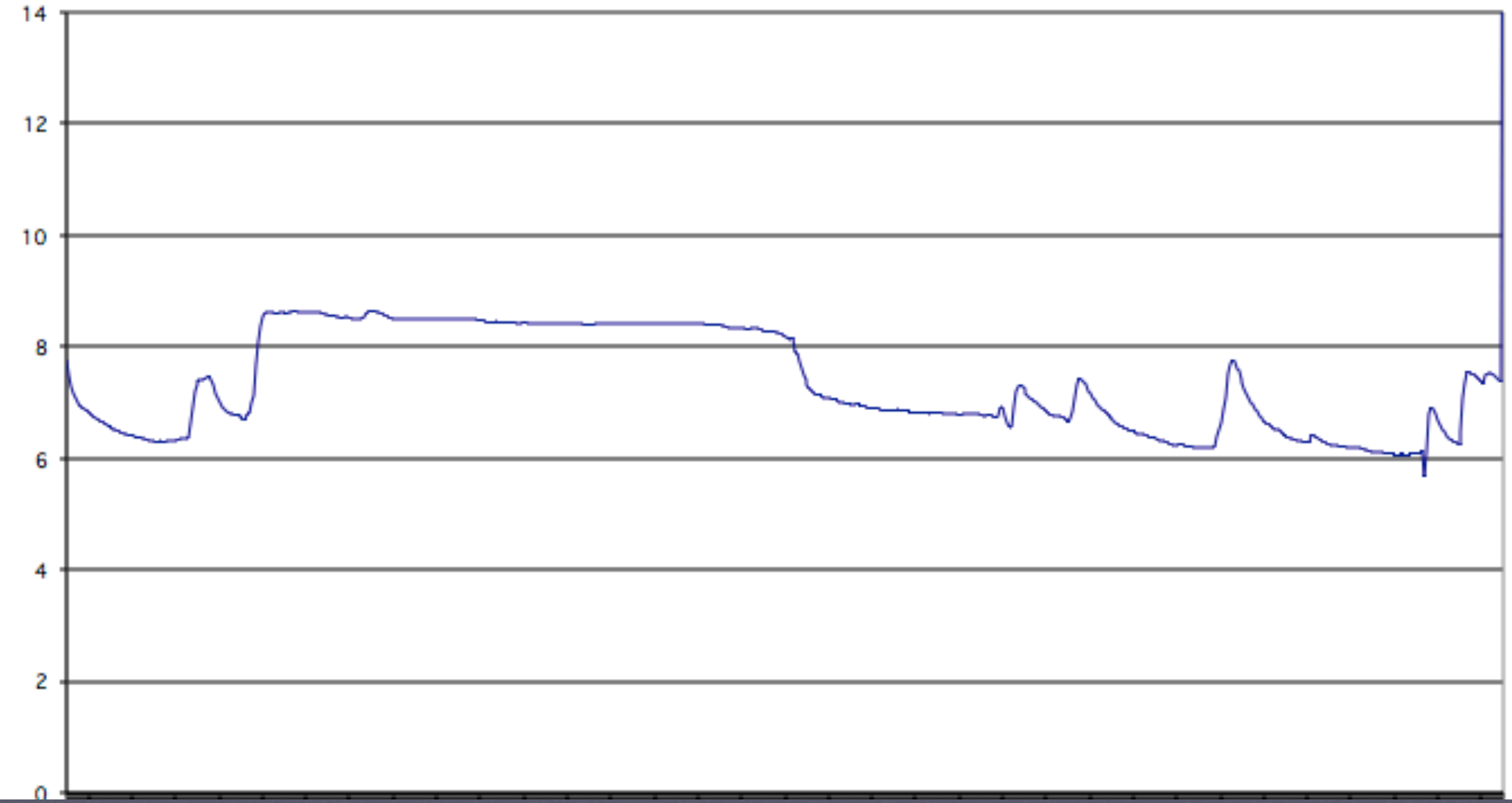


Grafico 12.

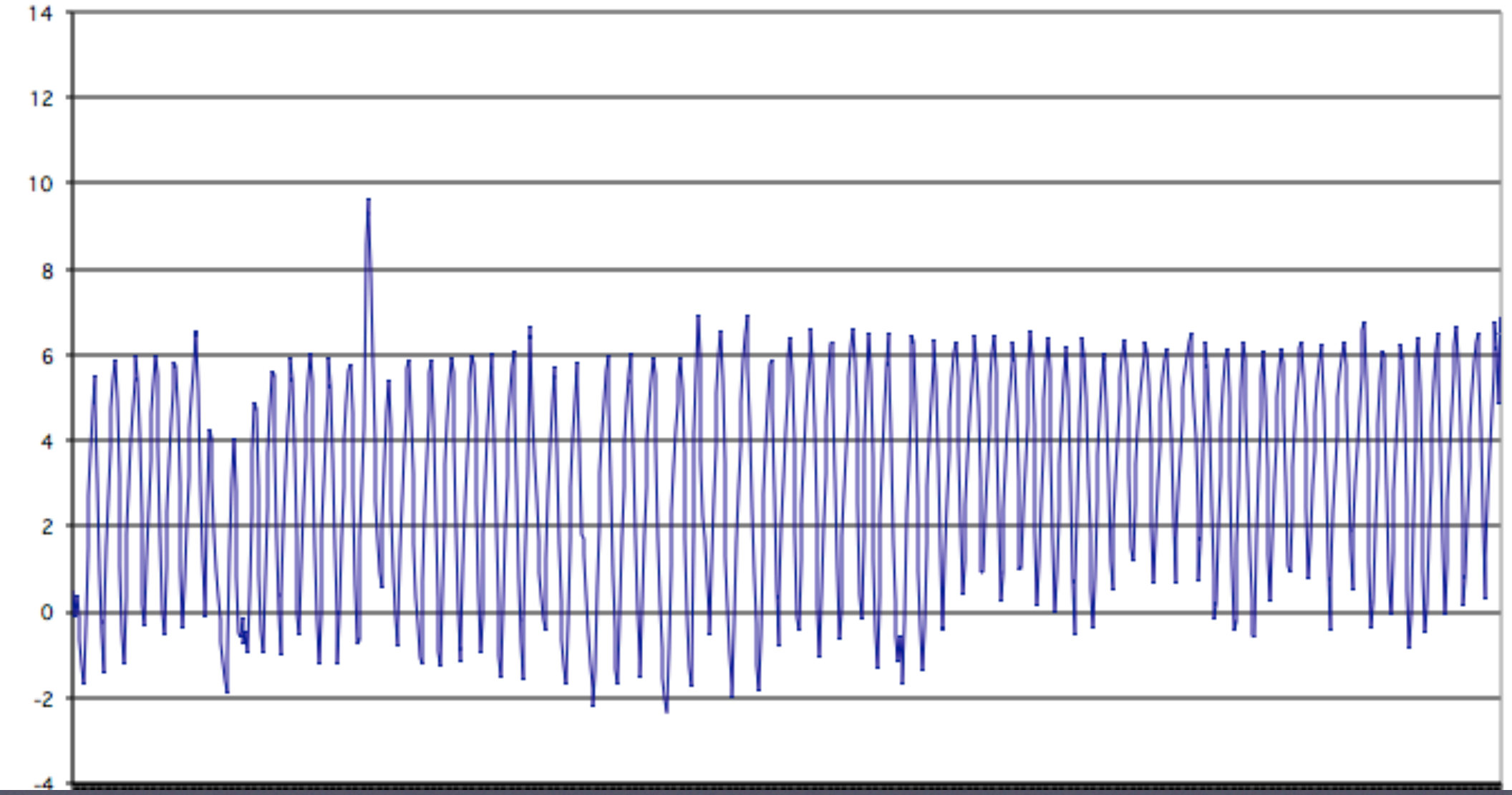
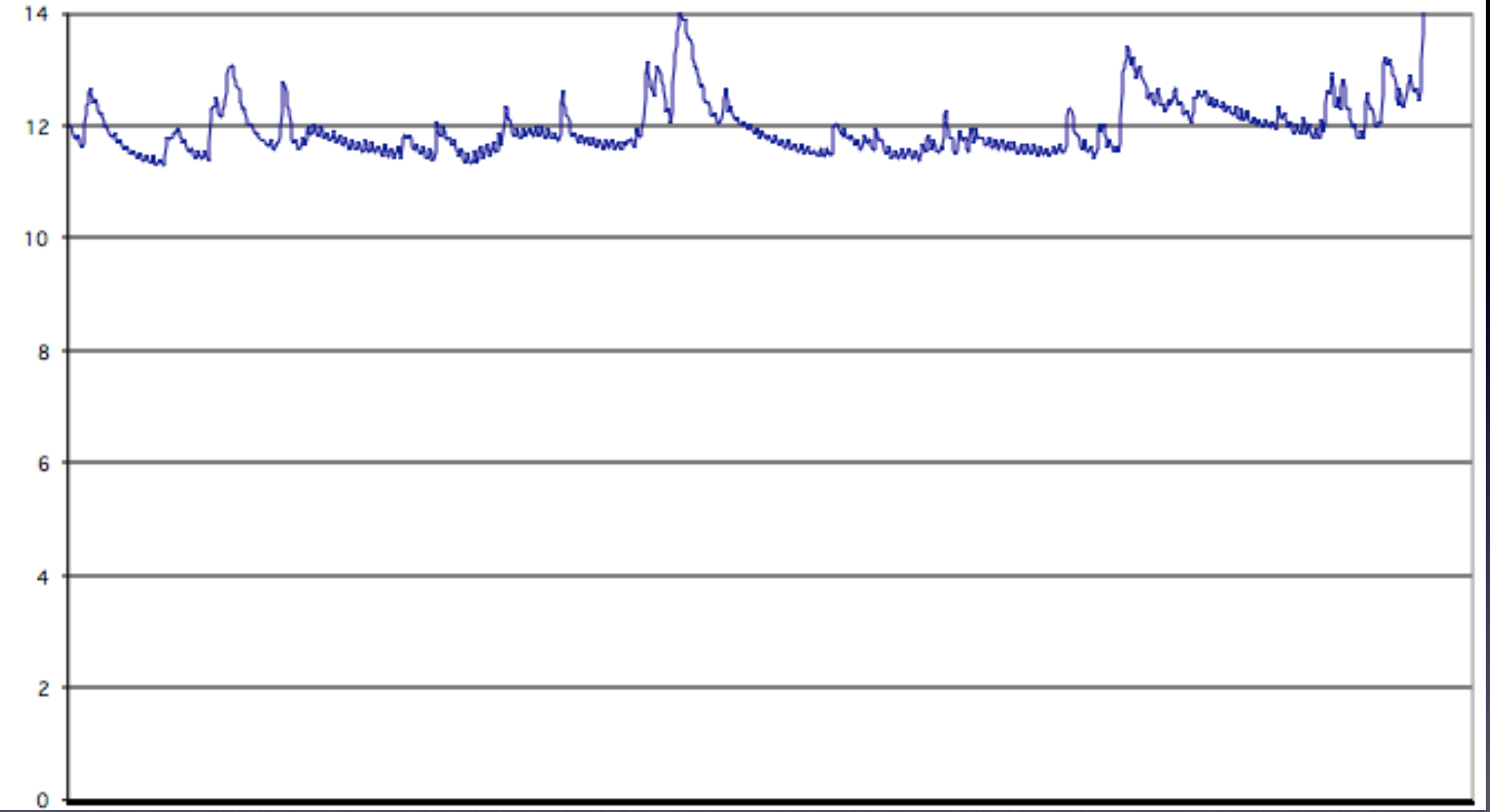
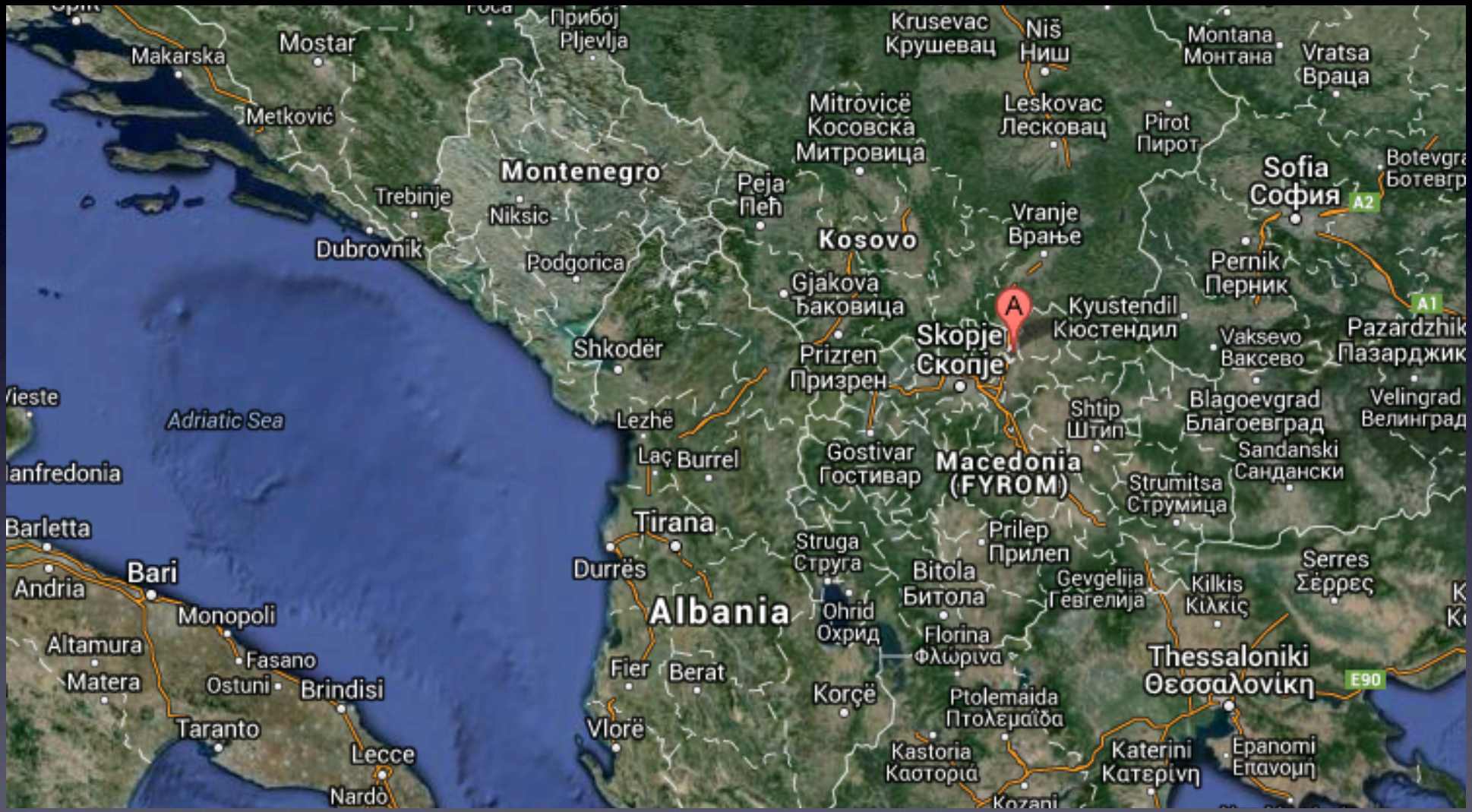


Grafico 14.



LISTERIOSIS – MACEDONIA NOVEMBRE 2014 (KUMANOVO), FATAL, PORK MEAT PRODUCT

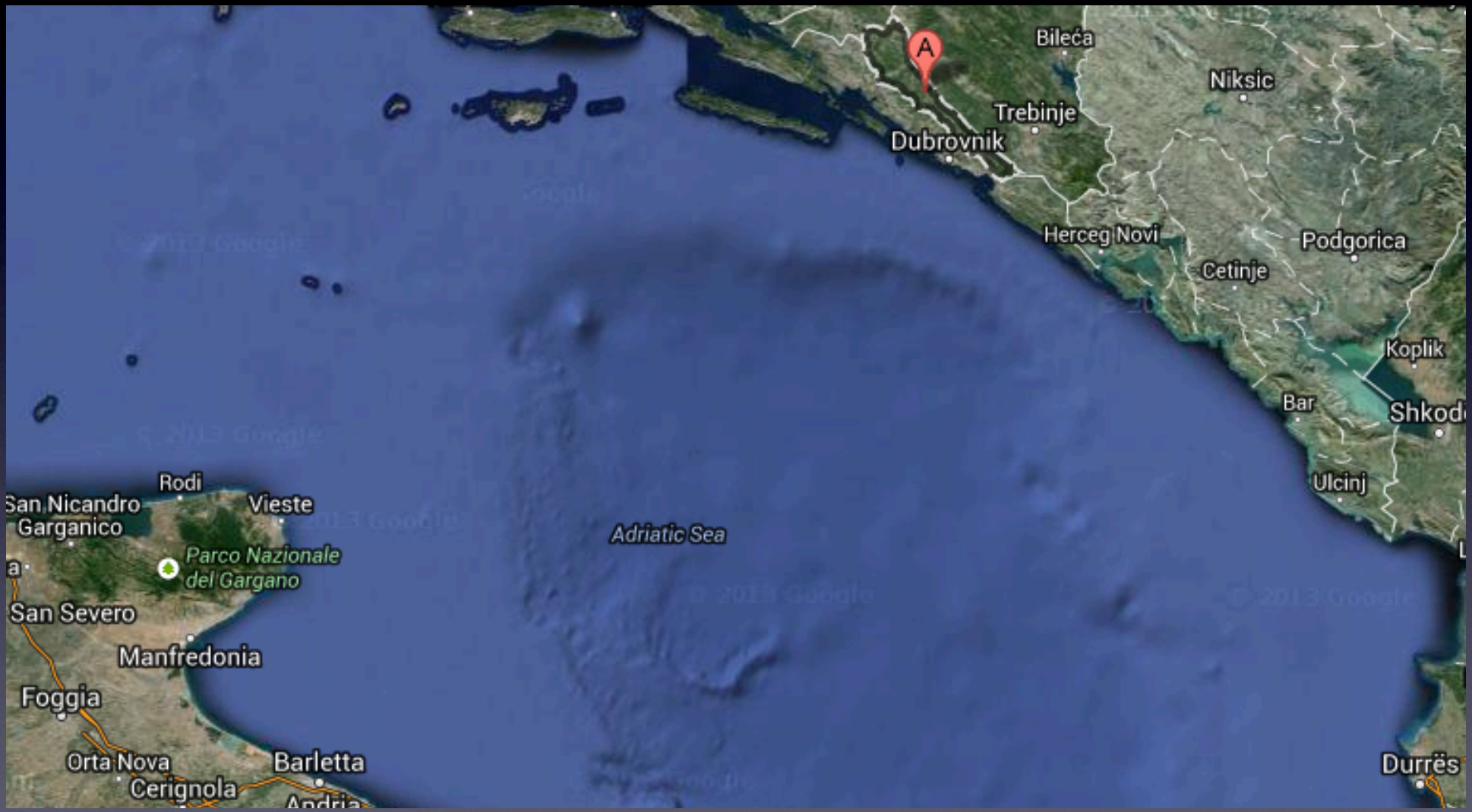


- There are now 10 patients involved in the Macedonian listeriosis outbreak, including 5 deaths, associated with consumption of the smoked pork product "Extra Mein" made by a Kumanovo-based company. The above news report says that Louis Pasteur Institute and Anses confirmed this association, presumably by pulsed field gel electrophoresis of isolates of _L. monocytogenes_. However, in the prior post on this outbreak, the manufacturer of the pork meat product contended that contamination with _L. monocytogenes_ occurred after the product left their facility.
- Two prominent French reference laboratories have confirmed that the source of the listeriosis outbreak here was the smoked pork product "Extra Mein," made by a Kumanovo-based company, the Macedonian health minister said on Friday [31 Oct 2014].
- The test results from the Paris-based Louis Pasteur Institute and Anses confirmed the primary findings of the source investigated by Macedonian institutions. The results will be submitted to the Macedonian Public Prosecutor's Office, where the case has already been filed.
- 10 patients were infected with _Listeria_ bacteria in July and August [2014] in Macedonia, 5 of whom died.

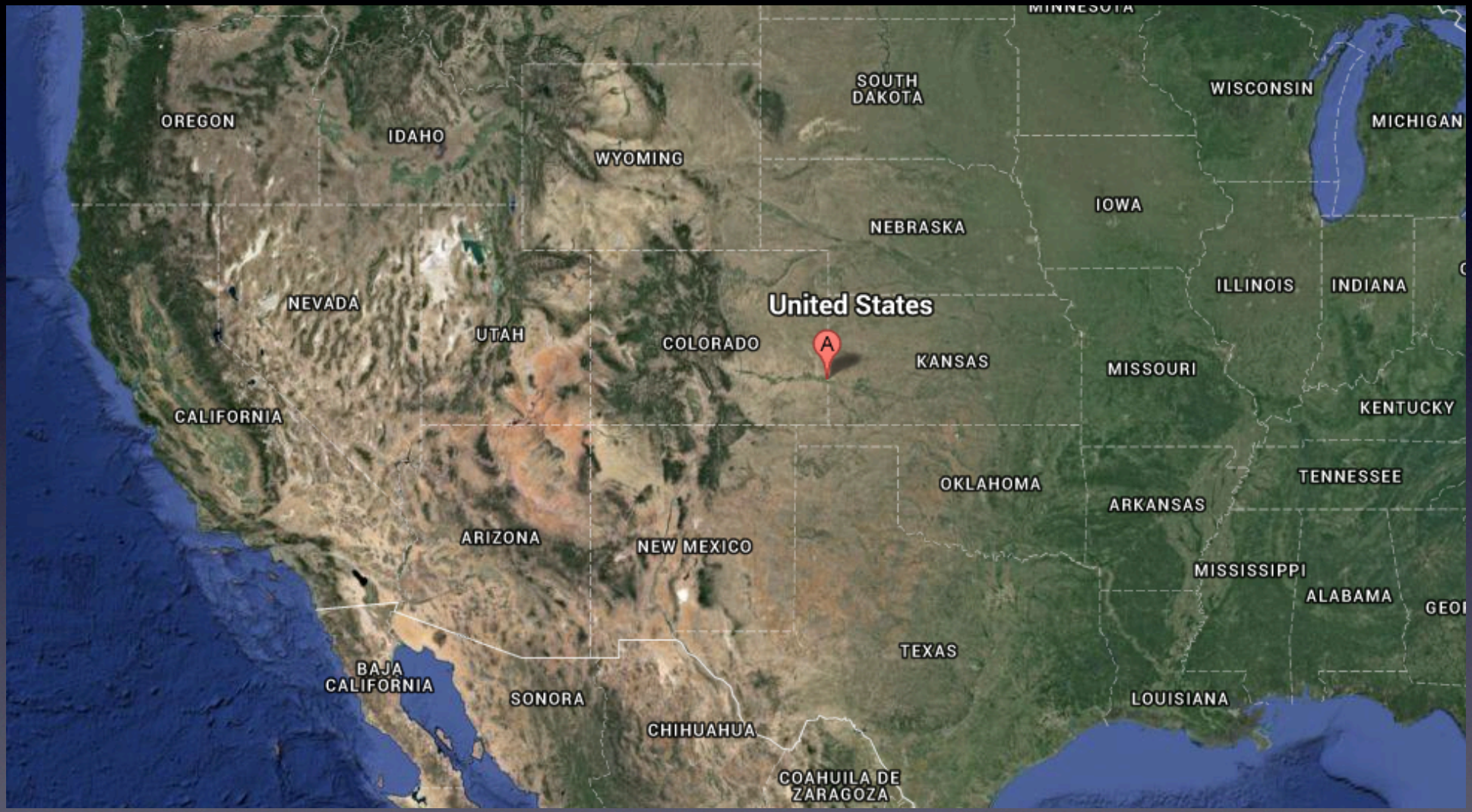
CALIFORNIA, MARYLAND) FATAL, HISPANIC-STYLE SOFT CHEESE, RECALL
FEBBRAIO 2014

- A listeriosis outbreak linked to cheese has killed 1 person in California and sickened 7 in Maryland, including 3 newborns.
- The Centers for Disease Control and Prevention (CDC) said Friday [21 Feb 2014] that the outbreak is linked to semi-soft, Latino-style cheese called Cuajada en Terron that is sold from a chain of grocery stores in Maryland.
- The cheese was made by Roos Foods of Kenton, Delaware. The Maryland Department of Health and Mental Hygiene issued a warning Wednesday [19 Feb 2014] to avoid products made by Roos Foods, which also sells cheese under the brand names Santa Rosa de Lima, Amigo, Mexicana, Suyapa, La Chapina, and La Purisima Crema Nica.
- The CDC did not name the grocery chain linked to the outbreak.

LISTERIOSIS – USA: (CONNECTICUT) ex BOSNIA AND HERZEGOVINA, CHEESE LUGLIO 2013



- A a man in his 30s originally from Ravno, Bosnia and Herzegovina traveled with his wife and children to his home town for a family event. The man had no significant past medical history. While there, the family visited a local zoo, hiked, and visited ta cheese factory (which employs 4 people) outside Ravno. The factory uses cow and goat milk for producing cheese, and all cheese preparation is manual.
- Two days after this visit, the patient started having a low grade [fever]. Five days later, upon returning to the USA to Connecticut, he presented to an emergency room with a fever of 101 F [38.3 C], significant headache, and some watery diarrhea. Because of sensitivity to light and some neck rigidity, a spinal tap was performed. The cerebrospinal fluid (CSF) culture grew _Listeria monocytogenes_. The following day, his wife was admitted with a similar clinical picture but with a less severe headache, and her CSF culture also grew _L. monocytogenes_.
- The factory also reported 3 more cases of a similar disease locally over 2 weeks. Both milk sources, goat and cow, were cultured, and the goat culture was positive for _L. monocytogenes_.
- Cheese production was temporarily halted for "terminal cleaning."


SOUTH DAKOTA
WISCONSIN
MICHIGAN
OREGON
IDAHO
WYOMING
IOWA
NEBRASKA
ILLINOIS
INDIANA
NEVADA
United States
UTAH
COLORADO
A
KANSAS
MISSOURI
CALIFORNIA
KENTUCKY
TENNESSEE
OKLAHOMA
ARKANSAS
ARIZONA
NEW MEXICO
MISSISSIPPI
ALABAMA
TEXAS
BAJA CALIFORNIA
SONORA
LOUISIANA
CHIHUAHUA
COAHUILA DE ZARAGOZA

- The death toll linked to _Listeria_-contaminated cantaloupe in the United States rose to 29 as another death was reported, the Centers for Disease Control and Prevention (CDC) said on Wednesday
- Whole or **pre-cut Rocky Ford-brand cantaloupe** from Colorado-based Jensen Farms has been traced as the cause of what has become one of the deadliest U.S. food-borne outbreaks in U.S. history. A total of 139 people in 28 states have fallen ill so far in the outbreak, and the CDC has said that one woman, who was pregnant at the time she fell ill, had a miscarriage.
- The deadliest known food-borne listeriosis outbreak prior to the current spate of illnesses in the United States was in 1985, when Mexican-style soft cheese contaminated with _Listeria_ was tied to the deaths of 18 adults, and 10 newborns, as well as 20 miscarriages, according to a CDC report.

RASSF

	Classification	Date of case	Last change	Reference	Country	Subject	Product Category
1.	alert	31/10/2014	31/10/2014	2014.1468	DK	Listeria monocytogenes (presence /25g) in herring pate from Sweden	fish and fish products
2.	information for attention	29/10/2014	03/11/2014	2014.1458	FR	Listeria monocytogenes (120 CFU/g) in chilled smoked salmon from Sweden, via Belgium	fish and fish products
3.	information for attention	29/10/2014	29/10/2014	2014.1454	NL	Listeria monocytogenes (15000 CFU/g) in smoked salmon from Poland	fish and fish products
4.	alert	27/10/2014	27/10/2014	2014.1448	FR	Listeria monocytogenes (<10 CFU/g) in chilled smoked salmon from Poland	fish and fish products
5.	information for follow-up	24/10/2014	24/10/2014	2014.1440	IT	Listeria monocytogenes (presence /25g) in smoked salmon from Poland	fish and fish products
6.	information for follow-up	22/10/2014	29/10/2014	2014.1430	IT	Listeria monocytogenes (2900; 9700; 4700; 4100; 4400 CFU/g) in chicken breast stuffed with ham and cheese from the United Kingdom	poultry meat and poultry meat products
7.	alert	16/10/2014	28/10/2014	2014.1416	FR	Listeria monocytogenes (> 1500 ; < 240 ; < 40 ; < 10 CFU/g) in chilled salads from France	prepared dishes and snacks
8.	information for follow-up	14/10/2014	14/10/2014	2014.1397	IT	Listeria monocytogenes (presence /25g) in smoked salmon from Poland	fish and fish products
9.	alert	10/10/2014	23/10/2014	2014.1386	FR	Listeria monocytogenes (< 10 CFU/g) in pate with riesling wine from Belgium	meat and meat products (other than poultry)
10.	alert	09/10/2014	30/10/2014	2014.1374	FR	Listeria monocytogenes (110 CFU/g) in organic cooked ham and mortadella from Italy	meat and meat products (other than poultry)
11.	alert	08/10/2014	10/10/2014	2014.1372	DK	Listeria monocytogenes in organic soft white cheese from Denmark	milk and milk products
12.	alert	07/10/2014	10/10/2014	2014.1366	BE	Listeria monocytogenes (presence /25g) in raw milk soft cheese from Belgium	milk and milk products
13.	alert	03/10/2014	03/11/2014	2014.1349	DK	Listeria monocytogenes (presence /25g) in soft white brie cheese made from goat milk from Denmark	milk and milk products
14.	alert	01/10/2014	09/10/2014	2014.1337	DK	Listeria monocytogenes (presence /25g) in camembert cheese from Denmark	milk and milk products
15.	information for attention	30/09/2014	03/10/2014	2014.1325	CH	Listeria monocytogenes (800 CFU/100g) in gorgonzola from Italy	milk and milk products
16.	information for follow-up	26/09/2014	03/10/2014	2014.1317	NL	Listeria monocytogenes (presence /25g) in helva with pistachio nuts from Turkey, via Belgium and via Germany	nuts, nut products and seeds
17.	information for follow-up	18/09/2014	30/09/2014	2014.1298	DE	Listeria monocytogenes (skewer: 100 CFU/g), high counts of Enterobacteriaceae (beef: 8.2x10*6; 2.4x10*7; skewer: 4.9x10*5 CFU/g) and of Escherichia coli (beef: 8.2x10*6) in and high aerobic plate count (beef: 1.0x10*7; 4.4x10*7; skewer: 5.8x10*7 CFU/g) for chilled vacuum packed beef and beef/veal skewer from Poland	meat and meat products (other than poultry)

Ecologia microbica

:

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E. coli

Listeria monocytogenes

Campylobacter spp.

- Introduzione
- Carta di identità di *Listeria monocytogenes*
- Serbatoi

- Commensale di mammiferi e uccelli.
- C. jejeuni – malattie alimentari
- C. coli – meno frequente
- Non jejuni e non coli: medicina veterinaria

- In veterinaria

TABLE 28-1 *Campylobacter* Species Encountered in Veterinary Medicine

Species	Comments
*C. coli**	Porcine, poultry normal intestinal flora; rare mild porcine diarrhea
C. fetus ssp. *fetus**	Ovine abortion; sporadic bovine abortion; ruminant normal intestinal flora
C. fetus ssp. *venerealis*	Venereally transmitted bovine abortion and infertility
C. helveticus	Feces of normal and diarrheic dogs and cats
C. hyointestinalis ssp. *hyointestinalis*	Porcine normal intestinal flora; once thought to cause porcine proliferative enteropathy
C. hyointestinalis ssp. *lawsonii*	Stomachs of pigs; unknown virulence
C. jejuni ssp. *jejuni**	Diarrhea in young dogs, cats, pigs, calves, lambs, ferrets, mink; sporadic ruminant abortion; "avian vibrionic hepatitis" in chickens and ratites; normal intestinal flora in most birds, ruminants, dogs, cats, rabbits, primates
C. lari	Feces of healthy gulls, other birds, dogs
C. mucosalis	Porcine normal oral, intestinal flora
C. sputorum ssp. *bubulus*	Normal genital flora in cattle and sheep of both sexes; differentiate from *C. fetus*
C. sputorum ssp. *fecalis*	Sheep feces, bovine semen and vagina; questionable virulence
*C. upsaliensis**	Feces of healthy and diarrheic dogs and from healthy cats

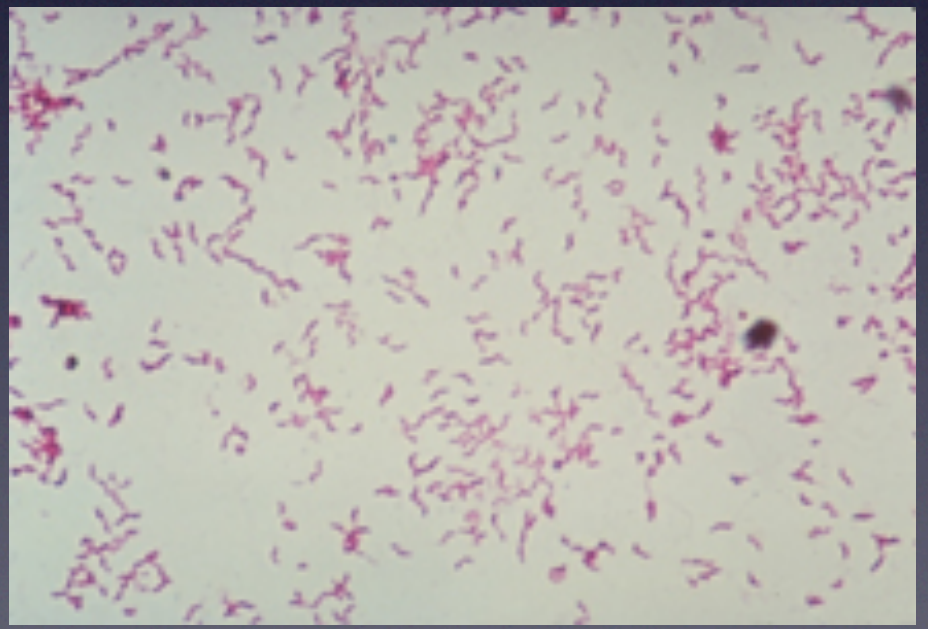
*Zoonotic agent.

C. jejuni e C. coli

- 10^7 per grammo di nell'intestino
- Carni poco cotte
- Incubazione 24-72h: diarrea, febre, vomito.
- Anche cani e gatti serbatoio e trasmissione

Carta d'identità

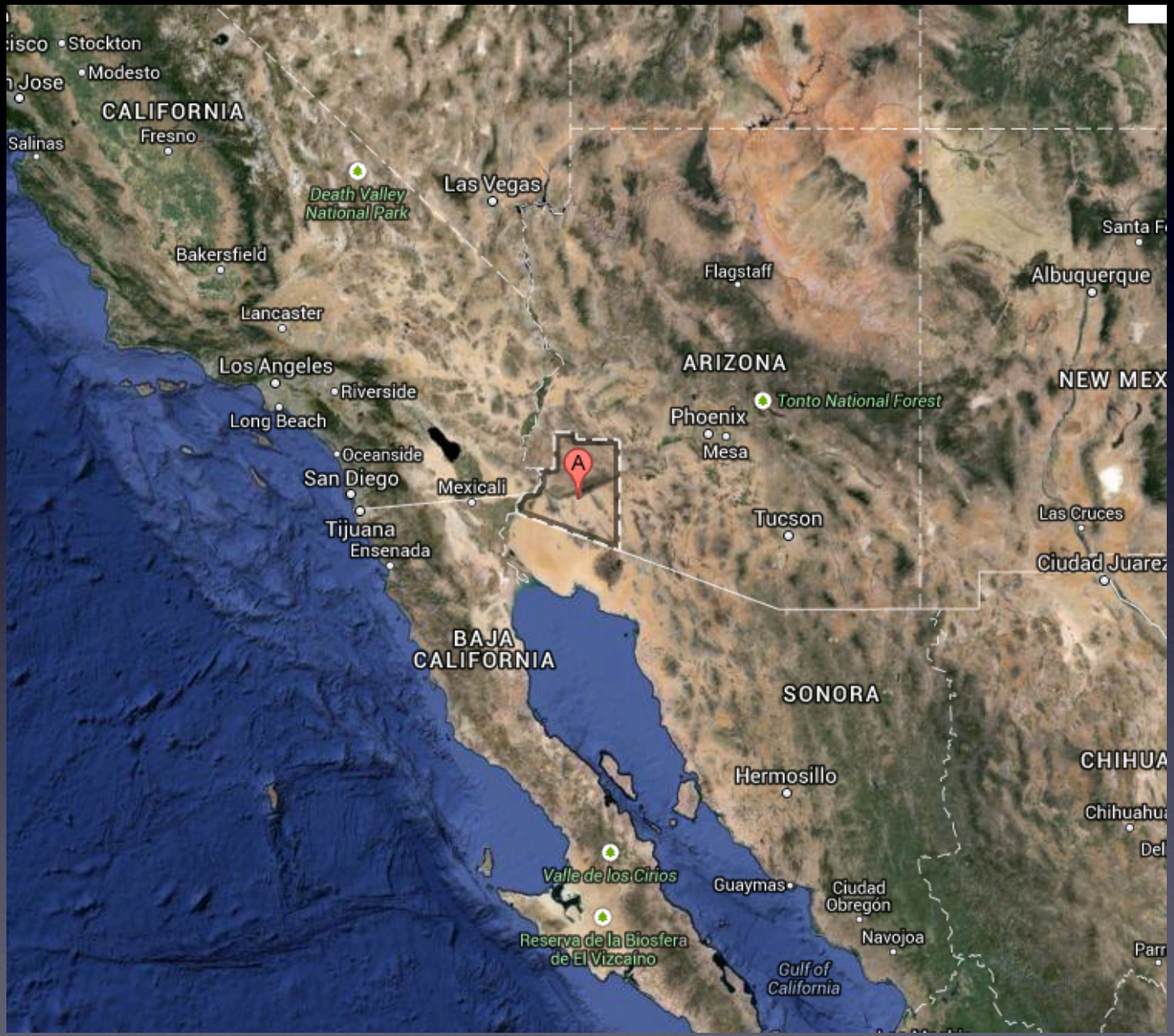
- Gram negativo, bastoncellare, sottile, spiraliforme. Microaerofilo (3-5% CO_2 e 3-15% O_2). Ossidasi +ve, catalasi +ve,



CAMPYLOBACTER, CHICKENS - UK: FREE-RANGE REARING 2002

- Free-range and organic chickens are twice as likely to carry a food poisoning bacteria than battery hens, research said yesterday. Initial findings from a study sponsored by the Government show much higher levels of campylobacter in flocks reared outdoors. The study, led by Prof Tom Humphrey at the University of Bristol, investigated 60 organic and 130 conventional flocks. He found campylobacter in 58 percent of indoor-reared flocks, but in all the organic flocks. All chickens studied were destined for human consumption. Campylobacter and _E. coli_, Britain's most common bacterial causes of food poisoning, are thought to be carried by wild birds, a theory explaining high levels in outdoor-bred flocks. Prof Humphrey, professor of food safety and well-known for his work on bacteria in poultry and eggs, was unavailable for comment. His research is sponsored by the Food Standards Agency, whose spokesman said: "The birds that remained outside were organic and free-range so it is therefore more about the method of production."
- Richard Young, policy adviser at the Soil Association, which campaigns for organic food and farming, said: "If there is an issue here it is about whether chickens should be kept indoors or outdoors and not whether they are organic or conventional." The research was incomplete and not peer-reviewed.

GUILLAIN-BARRE SYNDROME - MEXICO (SONORA), USA (ARIZONA): CAMPYLOBACTER 2011



- The CDC is helping Arizona and Mexico health authorities investigate a diarrhea outbreak. It started back in May 2011. "We've seen some increases in our campylobacter infections, which is a real fancy name for a diarrheal kind of infection," said Becky Brooks, director of the Yuma County Public Health Services District. "It causes diarrhea, sometimes abdominal pain, and fever." Brooks said there have been 36 cases in Yuma County in the past 2 months. Normally, there are 28 cases in an entire year. 15 cases also are being studied in the northern Mexican state of Sonora which borders Arizona. 6 of the Yuma cases have developed into Guillain-Barre syndrome (polineuropatia - mimetismo molecolare), which, Brooks said, "is relatively rare." "It is a condition that can sometimes lead to paralysis in individuals." Officials have not determined how the outbreak started or whether it originated in Arizona or Mexico. "We don't know that part of it," Brooks said. "We are just now finding out all the cases and if there's any kind of connection. We really don't have a source yet. That's what we're working toward." She said there's no sign the infection has spread to other Arizona counties.

1.	alert	09/10/2014	09/10/2014	2014.1379	DK	Campylobacter (present /25g) in mixes baby leaves from Denmark	fruits and vegetables	food
2.	information for attention	23/07/2014	25/08/2014	2014.1012	DK	Campylobacter (present /25g) in fresh mushrooms from Poland	fruits and vegetables	food
3.	information for attention	16/07/2014	18/08/2014	2014.0976	DK	Campylobacter jejuni (presence /g) in chilled chicken breast fillets from Poland	poultry meat and poultry meat products	food
4.	information for attention	16/07/2014	16/07/2014	2014.0975	DK	Campylobacter jejuni (100; 700; 100; 700; 6100; 1100; 1600; 800; 400 CFU/g) in chilled chicken breast filet from Poland	poultry meat and poultry meat products	food
5.	information for attention	26/06/2014	02/07/2014	2014.0880	DK	Campylobacter spp. (1.200 -> 8.600 CFU/g) in chilled whole chicken from Germany	poultry meat and poultry meat products	food
6.	information for attention	22/05/2014	22/05/2014	2014.0716	DK	Campylobacter jejuni (between <100 and 2500 CFU/g) in chilled chicken from Germany	poultry meat and poultry meat products	food
7.	information for attention	29/11/2013	29/11/2013	2013.1572	DK	Campylobacter coli (8 of 12 samples /25g) and Campylobacter jejuni (4 out of 12 samples /25g) in chilled boneless skinless chicken breast fillets from Poland	poultry meat and poultry meat products	food
8.	information for attention	22/11/2013	22/11/2013	2013.1542	DK	Campylobacter spp. (presence /25g) in chilled chicken thigh from Poland	poultry meat and poultry meat products	food
9.	information for attention	21/10/2013	07/11/2013	2013.1394	DK	Campylobacter (between 400 and 17000 CFU/g) in chilled chicken thighs from Poland	poultry meat and poultry meat products	food
10.	information for attention	17/10/2013	23/10/2013	2013.1383	DK	Campylobacter jejuni (100 - 5.300 /g) in chilled whole chicken from Germany	poultry meat and poultry meat products	food
11.	information for attention	17/09/2013	04/10/2013	2013.1263	DK	Campylobacter coli (2800; 45000 CFU/g) and Campylobacter jejuni (3200; 120000 CFU/g) in fresh whole chicken, breast fillet from France	poultry meat and poultry meat products	food
12.	information for attention	03/09/2013	03/09/2013	2013.1203	DK	Campylobacter jejuni (presence /g) in fresh poussins from France	poultry meat and poultry meat products	food
13.	alert	27/05/2013	05/07/2013	2013.0731	NO	Campylobacter (presence /25g) in fresh dill from Italy	herbs and spices	food
14.	information for attention	06/08/2012	22/11/2013	2012.1133	DK	thermotolerant Campylobacter (300-7300 CFU/g) in chicken breast fillet from France	poultry meat and poultry meat products	food
15.	information for attention	30/07/2012	30/10/2012	2012.1089	DK	Campylobacter spp. (presence /g) in chilled chicken breast fillets from France	poultry meat and poultry meat products	food
16.	information for follow-up	18/07/2012	18/07/2012	2012.1010	DK	Salmonella Stanley (in 1 out of 12 samples) and Campylobacter jejuni (in 4 out of 12 samples) in chilled whole chickens from Germany	poultry meat and poultry meat products	food