The fight against economically motivated violations of food law

Real world examples and strategies to combat food fraud

An enforcement perspective

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Areas discussed

1. Can we learn from History?
2. The crooks already know what we will find out?
   a. Dietetic foods and quasi medicines
3. Combating Fraud - The fight begins
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1. Can we learn from history?

1860 London: Food Safety Act

Little girl: “If you please, Sir, Mother says, will you let her have a quarter of a pound of your best tea to kill the rats with, and an ounce of chocolate as would get rid of the black beetles.”

Punch 14 August 1855

1860 adulterants

- Red cheese: Coloured with red lead (Pb₃O₄) and vermilion (mercury sulphide, HgS)
- Confectionery: White comfits often included Cornish clay. Red sweets were coloured with vermilion and red lead. Green sweets often contained copper salts (eg verdigris: basic copper acetate) and Scheele’s (acetic copper arsenite) or emerald green (copper arsenite)
- Olive oil: Often contained lead from the presses.
- Vinegar: ‘Sharpened’ with sulphuric acid; often contained tin and lead dissolved when boiled in pewter vessels.
- Custard powders: Wheat, potato and rice flour, Lead chromate, turmeric to enhance the yellow colour.
- Coffee: Chicory, roasted wheat, rye and potato flour, roasted beans, acorns etc, burnt sugar (black jack) as a darkener.
- Tea: Used tea leaves, dried leaves of other plants, starch, sand china clay, French chalk, Plumbago, gum, indigo, Prussian blue for black tea, turmeric, chinese yellow, copper salts for green tea.
- Cocoa and chocolate: Arrowroot, wheat, Indian corn, sago, potato, tapioca flour, chicory Venetian red, red ochre, basic copper acetate.
- Cayenne pepper: Ground rice, mustard seed husks, sawdust, salt, Red lead, vermilion, Venetian red, turmeric.
- Pickles: Copper salts for greening.
- Gin: Water. Cayenne, cassia, cinnamon, sugar, alum, salt of tartar (potassium tartrate).
- Porter & stout: Water. Brown sugar, Cocculus indicus, copperas, salt, capsicum, ginger, wormwood, coriander and caraway seeds, liquorice, honey, Nux vomica, cream of tartar, hartshorn shavings, treacle.

Adulterants identified by Accum (1820) and Hassall (1850)

http://www.rsc.org/education/eic/issues/2005mar/thefightagainstfoodadulteration.asp
2. Do the crooks already know what we are about to find out?
£200 Million chicken fraud

May 03

The plastic chicken that's only 51pc meat - Daily Mail

Beef traces found in chicken - BBC News

Scandal of beef waste in chicken - The Guardian

Network Analysis Dashboard Live Demonstration
2a. Dietetic foods, the internet and the difficulty in regulating and the need for a new approach

A particular area of concern for me... ...
Cardiac arrest in the last few metres of the London Marathon
Energy boost, a bit like caffeine
Legally sold at the time

Banned slimming drug kills medical student: Coroner attacks online dealers who target the vulnerable
Sarah Houston, 23, was secretly taking a banned and dangerous slimming pill.

She was a healthy medical student whose parents, brother and sister were all doctors.
But – obsessed with her weight – Sarah Houston, 23, was secretly taking a banned and dangerous slimming pill.

And just when she told her psychiatrist her bulimia was finally under control, the drug, which is linked to 62 deaths worldwide, claimed her life too.

Although banned for human consumption, DNP is easily available online – in capsule form – because it is also a pesticide.

At her inquest yesterday, coroner David Hirschfield said it was 'entirely' responsible for Miss Houston's death.

Demanding a crackdown on the sale of the capsules, he said manufacturers knew they were bought for weight control.

'The only motive for manufacturing a toxic substance as a slimming aid would be to profit from people who have the misfortune of having a condition such as Sarah's,' he said.

'Anyone who professionally manufactures capsules to be taken as a drug has the intention of people using it as a drug. Sarah's death is a consequence of that.'
Post Mortem Results

Blood - Mitragynine, N-alpha-diethylphenethylamine and alpha-ethylphenethylamine

Conclusions

- The mitragynine concentration determined in the blood (1.6mg/L) is above that measured in a previously reported fatality associated with 'Kratom' use. The effect of the blood 7-hydroxymitragynine concentration (0.19mg/L) is unknown, but this compound is reported to be more active than morphine. It is likely that the combined levels of mitragynine and 7-hydroxymitragynine contributed to this fatality.

- Due to the lack of available information relating to N,a-DEPEA and AEPEA, the combined effect of the two stimulants together is impossible to accurately estimate. It would be surprising, but not impossible that the combined effect could cause a fatality.
FDA has seen an increase in the number of shipments of dietary supplements and bulk dietary ingredients that are, or contain kratom, also known as Mitragyna speciosa, mitragynine extract, biak-biak, cratom, gratom, ithang, kakuam, katawn, kedemba, ketum, krathom, krton, mambog, madat, Maeng da leaf, nauclea, Nauclea speciosa, or thang.

These shipments of kratom have come in a variety of forms, including capsules, whole leaves, processed leaves, leaf resins, leaf extracts, powdered leaves, and bulk liquids made of leaf extracts. Importers websites have sometimes contained information about how their products are used.

3. The fight begins

3a. From hindsight to insight

- Early signs precede food safety incidents
- Early signals have generic characteristics
- Early signals often reside in science based data
- There is a small to large time window to influence emerging risk
- An open search strategy is needed to identify unexpected hazards

Bru et al, 2014, food control 39, p 75-86
3b. The intelligence continuum

Contextualisation

Information

data

analytics

intelligence

actionable intelligence

3c. Focused intelligence

Contextualisation the bringing together of knowledgeable partners
Partners will bring their expertise, their data and understanding of problems and harms in their domain.

Data

Contextualization

Dashboard Visualization

Actionable Intelligence
4. the next problem area

A final Thought

• Transition economies - BRACS
  - 1860 Food Safety Act for London
• Weaknesses in our system
  - Austerity
  - Border Inspection Posts
  - W.W.W

Bibliography:
Gate keepers of EU food safety: Four states lead on notification patterns and effectiveness;
Food and Chemical Toxicology, Volume 48, issue 7, July 2010, pages 1957-1964
The Procrustean bed of EU food safety notifications via the Rapid Alert System for Food and Feed: Does one size fit all?
Food and Chemical Toxicology, Volume 56, June 2013, Pages 411-418
Early signals for emerging food safety risks: From past cases to future identification
Brug et al. Food Control Volume 39, May 2014, Pages 75–86

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