Risk Perception and Risk Communication

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Food Incidents Involving High Health Risks

- Cases requiring clinical treatment or with casualties
- Methamedophos residue in vegetables (1987 HK & China)
  - acute toxic effect of pesticide residue at high levels
- Mad cow disease (90’s UK, 2005 USA)
  - use of meat and bone meal as feed banned
- Clenbuterol in pig liver (late 90’s HK & China)
  - acute toxic effect of veterinary drug residue at high levels
- Melamine in milk products (2008 China)
  - adulteration of infant formula
- E Coli O104:H4 in vegetables (2011 Germany)
  - micro-organism
- Food poisoning outbreaks
  - microbiological agents, toxins
Food Incidents Involving Health Risks Not High

- Perceived of posing potential chronic health effects
- Contaminants from environment
  - dioxins in meat due to contaminated feed (1999/2006/2008/2010 Europe)
  - radiological contamination in food (2011 Japan)
- Residues from agricultural practices
  - malachite green (veterinary drug) in fish and fish products (2005 China)
  - low levels of pesticide residues in fruits and vegetables
- Non-permitted additives used in food production
  - Sudan dyes in egg and egg products (2006 China)
  - plasticizers as clouding agent in beverages (2011 Taiwan)
- Fraudulent food cases
  - meat adulteration scandal: horse meat as beef (2013 Europe)
  - Husi incident: food products from expired meat (2014 China)
  - substandard lard incident: recycled oil as edible oil (China, 2014 Taiwan)
Impact of Food Incidents

- **Public’s Reactions**
  - avoid the food: considering injurious to health
  - from cast doubt to lose confidence in food supply and government policy
  - get into panic and rush on other food supplies

- **Food trade involved**
  - tangible economic loss; damage of brand name
  - emergency response: investigation, control, recall plan

- **Government**
  - require rapid response to control risk: activation of contingency plan for incident response and management
Food Incidents

- Emergency cases involving clinical treatment
- Incidents not involving high health risk but attracting media coverage and public concern
- Possible causes
  - food trade: malpractice
  - media and public: misunderstanding, misconception
- Scalability: develop over time
  - incident → emergency → crisis
  - triggers
    - likely severity of health risk to public
    - size and scale of incident
    - potential media interest
    - public’s perception of the risk or likely acceptability of the risk
Public’s Risk Perception

- Subjective view, different with individual
  - affecting factors include
    - knowledge and feeling about hazard and risk, past experience, publicity by the media, dietary and living habit

- Public’s perception in general
  - “safe food” means food with zero-risk
  - chemical/radionuclide detected → food not fit for consumption
  - toxic chemical detected → food injurious to health
  - exceeding regulatory limit → toxic/carcinogenic food
  - food supply increasingly unsafe

Misconception about hazard and risk
Risk Perception vs. Health Risk

• Gap between public’s risk perception and health risk from scientific assessment
  • zero-risk vs. acceptable level of risk
  • control level: good practices vs. risk to health

• Factors affecting the gap
  • knowledge on hazard and risk
  • availability of information and belief in the source
    • media, government, experts
  • technological development
    • novel food technologies
    • more sensitive instrument providing detection at lower levels

• Public concern over health and food supply, even get into panic
What can be done?

- **Quick action and effective control of risk**
  - government and food trade
  - contingency plan for incident response and management

- **Risk communication**
  - government and food trade to media and public
  - understand and respond to public’s risk perception and concern
  - timely and appropriate messages

- **Public education through routine activities**
  - to media and public
  - knowledge about hazard and risk, safety measures and hygiene practices
Food Safety Risk Communication

- Interactive exchange of information and opinions on food safety risks
  - among Government, food trade and other stakeholders
  - outcome of risk assessment and basis for risk management decisions
  - food trade’s control measures and remedial actions
  - public perception and concern about food-borne risks

Stakeholders
- risk assessor, risk manager, related government agency, public, food industry, academia
- other organizations: media, research institution, professional organization, consumer organization
Risk Communication to Public During Food Incidents

- Indispensable part of contingency plan
- Food trade to public via media
  - information on related hazard and risk, concerned products, follow up actions, recall arrangements
  - use clear and transparent messages, rebuild consumer’s confidence, minimize damage to brand name
- Government to public via media
  - client-oriented: respond to public’s risk perception and concern
  - correct science-based facts and information
    - nature of incident and control measures, method for handling purchased concerned products, etc.
  - timely, clear and easily understandable messages to prevent public from getting into panic
Routine Risk Communication with Public

- **Educational and informational activities**
  - communicate positive information to public
    - food-borne risk and control measures, hygiene and safe practices, hazard and risk
    - enhance public understanding of food safety, hazard and risk
  - collect opinions; understand public’s risk perception and concern

- **Establish and maintain mutual trust**
  - disseminate correct food hygiene safety information to reduce misunderstanding
  - increase public’s confidence in food safety control through client-oriented communication activities
Fake Egg Scandal in China

- Early 2000’s, training course to make fake egg with real egg properties publicized in internet
  - from alginate, alum, colourant, calcium carbonate, etc.
- News of fake egg spread widely via internet
  - further amplified by media, public greatly concerned safety and being cheated
  - authorities received many perceived fake egg cases
    - all samples had characteristics of egg
- February 2009
  - Xiamen: egg from market with elastic yolk after broiling
  - Macau: elastic yolk looked abnormal, bigger with unsmooth surface
    - study found some albumen got into yolk after raw egg frozen and shaking
- December 2010, after investigation CCTV disclosed
  - training course in internet a fraudulent case
    - not able to produce “egg” with real egg properties
    - cheating for money
Shanghai Husi Incident in 2014: Food Products from Expired Meat (1)

- **20 July, reports from media:**
  - Shanghai Husi Food Co. Ltd., a subsidiary of OSI Group LLC supplied deep-fried chicken meat products from expired meat to fast food chains, including McDonald’s, KFC
  - Shanghai FDA suspended operation of the food factory

- **21-22 July, follow up actions**
  - regional FDAs nation-wide investigated fast food chain outlets and concerned products banned from sale
  - law enforcement action against Shanghai Husi

- **28 July, President of OSI Group announced**
  - recall of all concerned products
  - restructure of the operation in China

- **Health risk and public’s perception**
  - health risk insignificant: cooked food products
  - public: concerned safety of product; felt disguising and being deceived; avoided similar products
Shanghai Husi Incident in 2014: Food Products from Expired Meat (2)

- 24 July CFS, Hong Kong announced investigation result
  - one of the fast food chains imported product from Husi in 2013-14
  - suspended import of all foods from Husi

- McDonald’s Hong Kong
  - 21 July: told media no food product from Shanghai Husi
  - 24 July: found to have import from Shanghai Husi in 2013-14
    - apologized and suspended sale of chicken nugget, etc.
    - media and public accused McDonald’s attempt of cover-up and cheating customer
  - 27 July: Managing Director read out statement of apology but without Q&A
  - risk communication not based on evidence, lacking transparency
    - deficiency in contingency planning or traceability system
  - regain brand name and customer’s confidence by sales promotion and enhancing quality assurance measures
Substandard Lard Incident in 2014 (1)

- **1 September: Taiwan**
  - police raided non-licensed oil factory
    - refined spent oil to make lard supplying to food factories over Taiwan
    - TFDA banned sales of related food products from concerned food factories
- **5 September: TFDA reported preliminary investigation result**
  - oil factory mixed refined spent oil and lard from fat, sold as edible lard with various brand names in Taiwan and overseas
- **10 September: further tracing**
  - lard from fat for mixing imported from Hong Kong meant for feed use only
- **Up to 14 September**
  - over 150 concerned food products banned from sale and recalled
  - names of concerned food establishments disclosed
- **Health risk and public’s perception**
  - health risk insignificant: meeting edible lard specifications except not from wholesome fat
  - public: concerned safety of product; felt disguising and being deceived; avoided similar food products involving lard
Substandard Lard Incident in 2014 (2)

- **Action by CFS, Hong Kong**
  - 5 September started investigation and released information
    - appealed to the trade to stop selling or using oil or food products that may be affected
    - tracing importers and downstream food establishments based on information from Taiwan
  - 9-10 September investigated exporter of lard to Taiwan
    - local oil and fat factory manufactures lard from unwholesome fat, intended for feed use only, but
    - exporter’s invoice indicated lard product fit for human consumption
  - 14 September: CFS issued Food Safety Order
    - prohibit import and supply of concerned lard/lard products and concerned food products; recall of related products
  - up to 15 September, CFS disclosed names of over 300 food establishments, including food factories, bakeries, caterers, that might have used the concerned lard and sell related products

- **Lard is food ingredient ⇒ lots of food products and food establishments affected**
Thank You

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