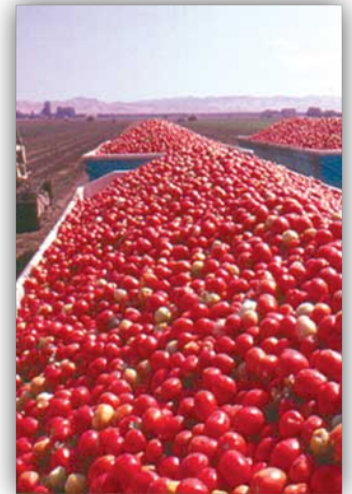


Managing a food incident



Case study: Hepatitis A in semi-dried tomatoes



Dr Duncan Craig

***APEC FSCF PTIN Developing Food Safety Plans for the
Supply Chain Module***

**November 9 – 12
Beijing, China**



Outline

- Elements of the incident
- Challenges
- Lessons learnt





Tomatoes cited for hepatitis

Michael Owen, SA political reporter | The Australian | May 23, 2009 12:00AM

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A NATIONAL food contamination alert has been issued after South Australian health authorities linked a semi-dried tomato product to a surge in hepatitis A cases.

The authorities yesterday said there had been a spike in hepatitis A cases in Queensland, Victoria and South Australia since late March.

The three states last night warned consumers not to eat semi-dried tomatoes purchased loose and unpackaged from supermarkets, independent stores and cafes.

South Australian wholesaler Siena Foods was yesterday recalling its semi-dried tomatoes in oil with garlic and herbs from stores.

Michael Mercuri, a spokesman for the family-owned company, said it received its product from

23 May, 2009

The three states last night warned consumers not to eat semi-dried tomatoes purchased loose and unpackaged from supermarkets, independent stores and cafes.

South Australian wholesaler Siena Foods was yesterday recalling its semi-dried tomatoes in oil with garlic and herbs from stores.

hygiene error

Adelaide Now, 8 Jun 2010

Abortion patients 'deliberately infected'

Adelaide Now, 1 Jun 2010

More test positive for hepatitis C

Herald Sun, 31 May 2010

Doctor regulation questioned after scandal

Adelaide Now, 9 May 2010

SA Health epidemiologists and food investigators this month linked the increase of hepatitis A cases in the three states to the contamination of the Siena product, which is packaged in Victoria and possibly Queensland.

"Investigations are continuing and the advice we are getting from epidemiology is the outbreak is ongoing," Dr Buckett said yesterday. "A national incident response process has been triggered."

Acting South Australian Health Minister Jane Lomax-Smith said the SA Health scientists had identified the hepatitis A spike sooner than it was recognised in other parts of the country.

"They've done a brilliant job in recognising the cause and how it occurred," she said.

<http://www.theaustralian.com.au/news/tomatoes-cited-for-hepatitis/story-e6frg6of-1225715005915>



2 November, 2009

"We still are unclear as to why there has been a recent spike in cases in Victoria.

"However, we are continuing to work with the manufacturers and suppliers of semi-dried tomatoes to try and identify the source."

Local producers had promised the Department of Human Services they were doing their best to reduce the risk, while importers of the tomatoes had also been instructed to ensure appropriate quality control measures were in place, he said.

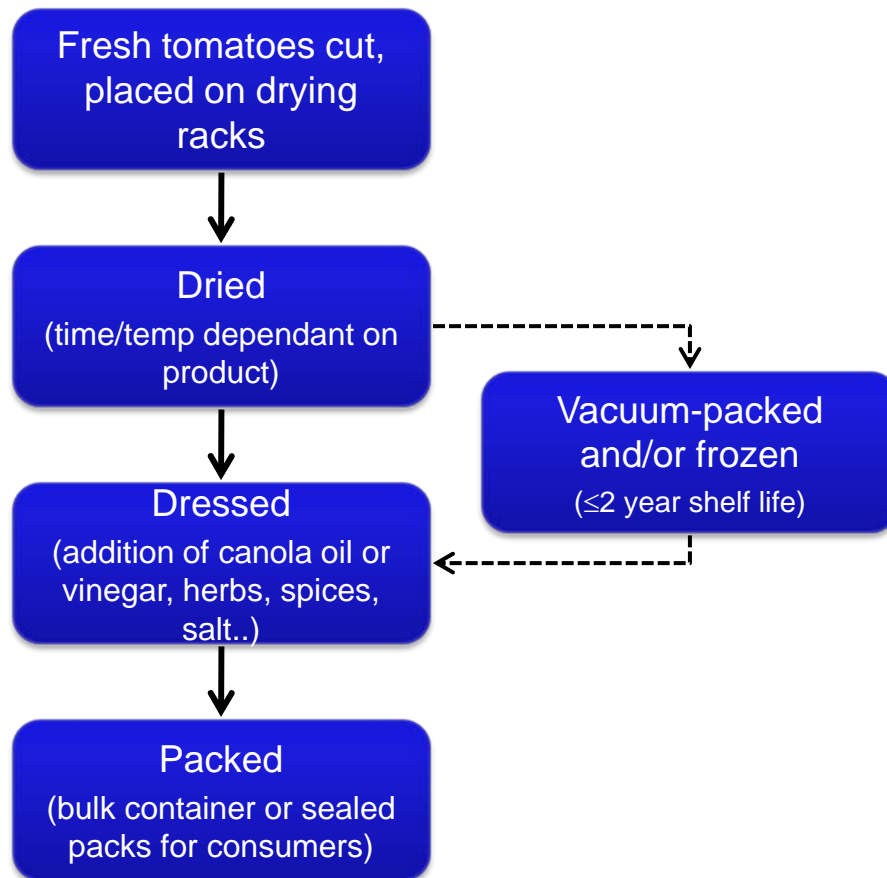
The greatest risk would appear to be at restaurants and cafes, where semi-dried tomatoes are served in foods such as salads and sandwiches.

Hepatitis A involves inflammation of the liver and is spread when traces of faecal matter containing the virus contaminates hands, objects, water or food and is then taken in through the mouth.

Symptoms include abdominal pain, nausea, fever and chills and jaundice.

<http://www.news.com.au/breaking-news/national/hepatitis-outbreak-linked-to-semi-dried-tomatoes/story-e6frfku9-1225793533916>

Semi-dried tomatoes





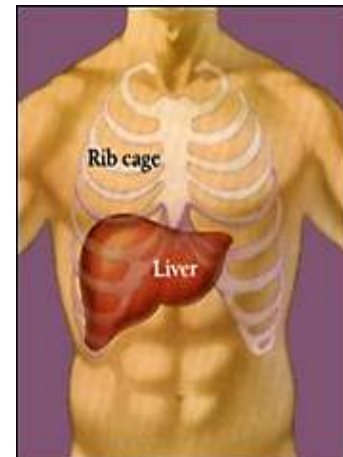
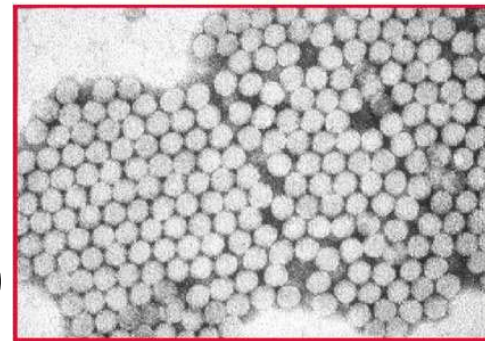
Australian semi-dried tomato industry

- Mainly small, family-owned businesses
- No national industry body
- Either
 1. Dry and dress locally grown tomatoes
 2. Purchase frozen semi-dried tomatoes from Australian or imported sources, and then dress; or distribute to other companies for dressing

Hepatitis A Virus (HAV)

- HAV is a picornavirus transmitted primarily through the fecal-oral route
- Incubation period: Average 30 days (range 15-50 days)
- Virus is shed in feces before symptoms of illness begin
- Illness ranges from inapparent infection to severe hepatitis

Hepatitis A Virus



Some unique features of hepatitis A virus

- ‘Non-enveloped’ RNA virus
 - Persists in the environment
- Requires host cells to replicate
 - Does not ‘grow’ in food/environment
- Difficult to culture in the laboratory
 - Requires use of molecular techniques to detect and characterise

Hepatitis A in Australia

- Incidence of HAV declined since 1990's

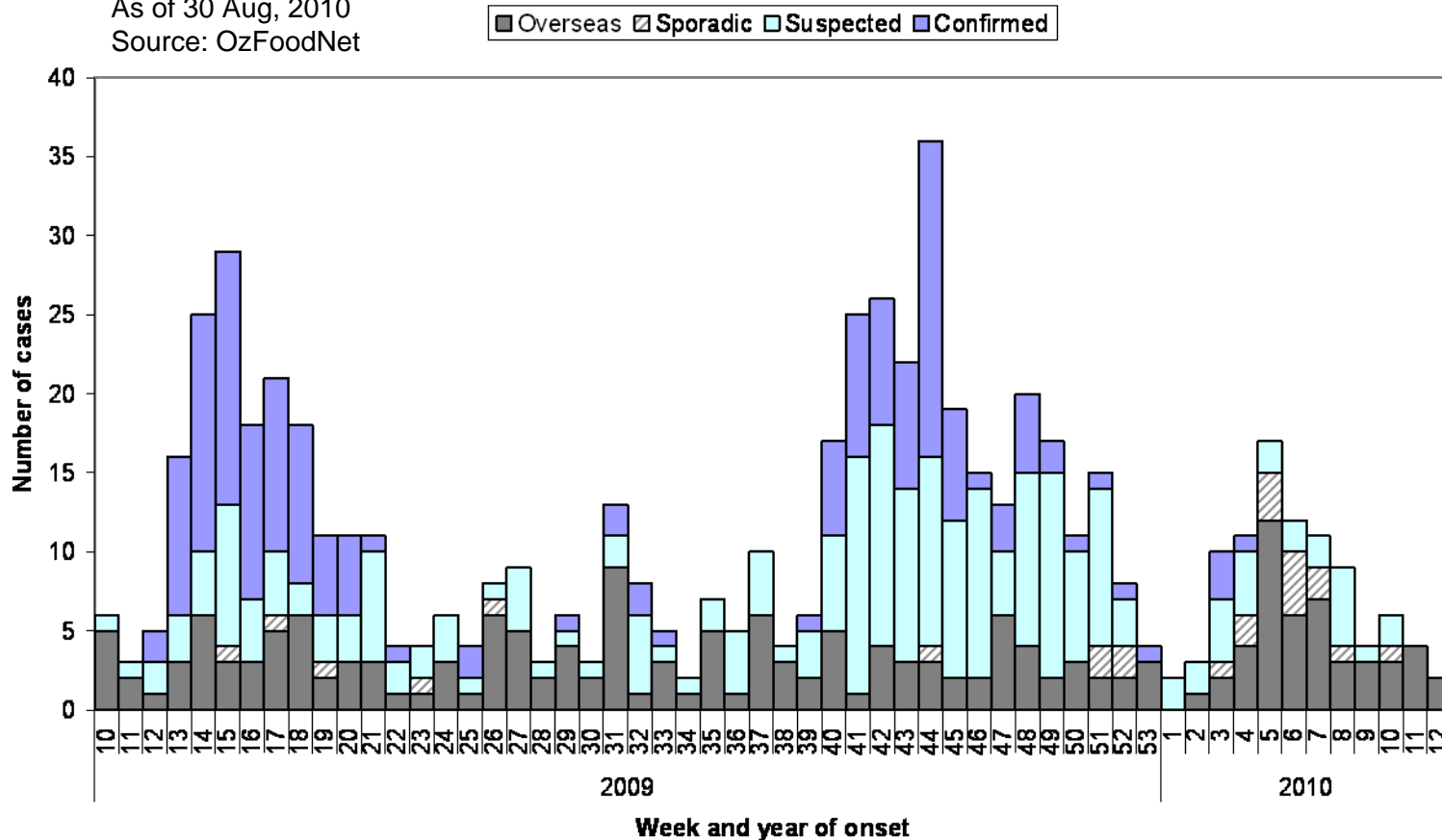
Years	Average notifications per year
1991–2000	1,974
2003–2008	300

Source: OzFoodNet

- In 2008, 55% of cases acquired overseas (travel-associated)

Hepatitis A notifications during outbreak period

As of 30 Aug, 2010
Source: OzFoodNet



Outbreak cases



Approximately 70% of cases reported in Victoria

Illustrative only – not to scale

Source of contamination

Production?



Processing?



Handling?



Control measures

- Processing
 - Sanitisation of raw product
 - Heat inactivation



Validation studies – highly dependent on food matrix

- Prevention of faecal contamination is key
 - Inputs
 - Handling

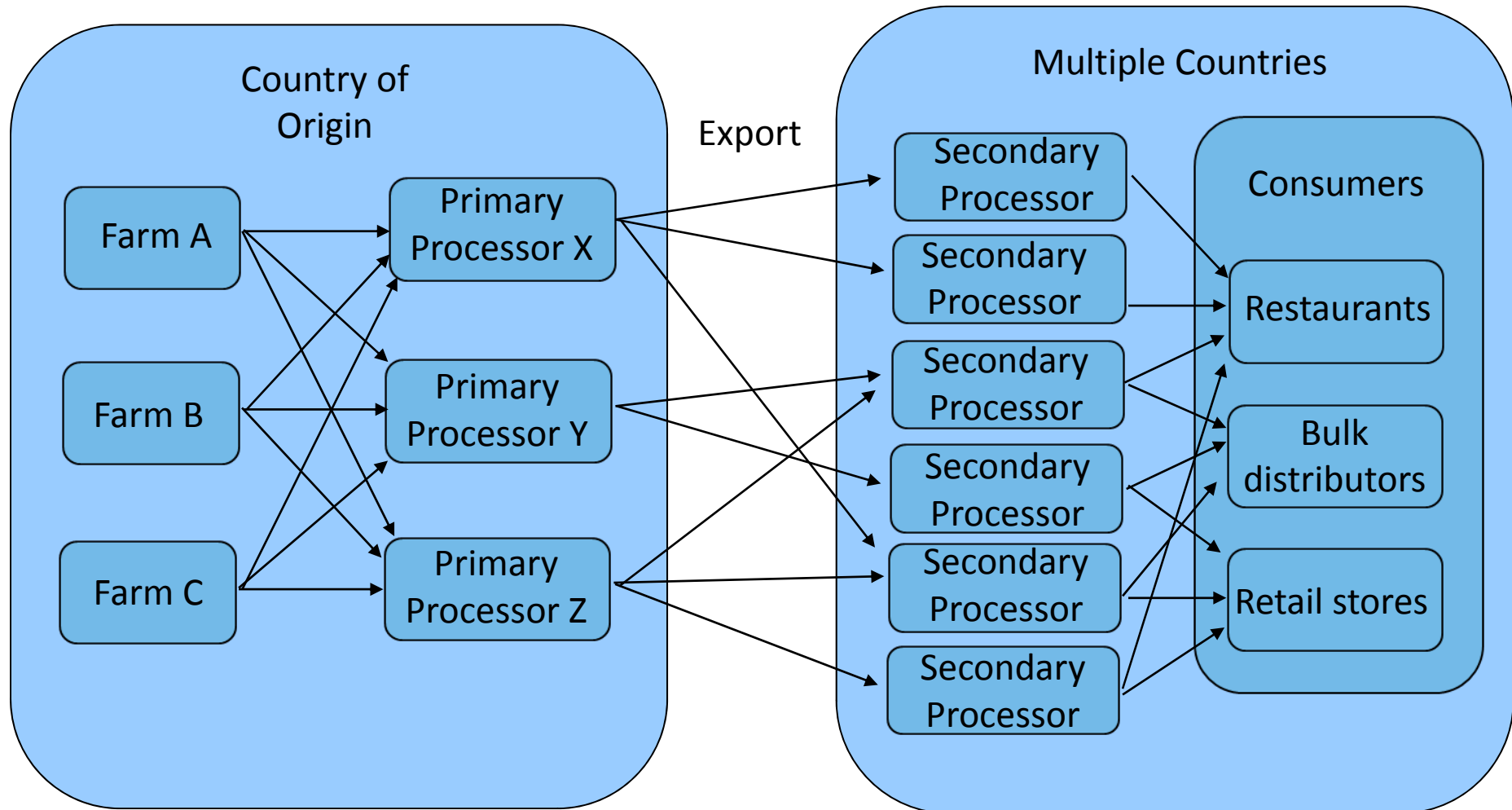
Major challenge

- Laboratory capability to detect hepatitis A virus in food(s)
 - Australia
 - Internationally
- Interpretation of results from molecular detection methods
 - Was the genetic material from an ‘infectious’ virus particle?

National Food Incident Response Protocol

- Triggered in May 2009
- Total of 9 teleconferences held over the course of the incident (May, 2009–March, 2010).
- Participants included:
 - Commonwealth, State and Territory health/food departments
 - Epidemiologists
 - Laboratories
 - Communicators

Semi-Dried Tomatoes: Complex Production & Distribution Chain



International collaboration

- Strong epidemiological link to semi-dried tomatoes sourced from Turkey
- World Health Organization notified in early November 2009 (International Health Regulations)
- Information sought from other countries
 - Increased notification of specific HAV genotype ?

Trace back investigation - France

- Semi-dried tomatoes served in sandwiches and salads purchased at sandwich shops
- Tomatoes originated from the same lot of imported frozen semi-dried tomatoes distributed between Oct 2009 and Jan 2010



Evidence of outbreak in The Netherlands

- Through comparison of virus sequences, 5 cases were identified with the identical sequence seen in Australia
- Numbers of cases were not above expected levels
- Two adult patients required liver transplants because of the severity of their liver damage
- Epidemiological investigation also found link to consumption of semi-dried tomatoes



NFIRP Debrief

- Purpose:
 - Review the operation of the National Food Incident Response Protocol during the Hepatitis A in semi dried tomato incident
- Outcomes:
 - To identify corrective actions and recommendations for improving future responses to food incidents / emerged food issues.

Debrief recommendations

- 🍅 Information sharing
- 🍅 Traceability
- 🍅 Breaking deadlocks
- 🍅 Threshold for action
- 🍅 Jurisdictional powers
- 🍅 Viruses as an emerging issue



Ongoing work

- Advice to Australian Quarantine Inspection Scheme (AQIS)
- Consideration of
 - existing measures in food legislation to manage future outbreaks
 - extent and scope of existing traceability requirements, and potential gaps, in the Code
 - **Primary Production and Processing Standard**

Lessons learnt

- The value of having the National Food Incident Protocol in place
- Importance of effective communication throughout the incident
- The need to engage with industry early
 - Understand the production and supply chain (assist with identifying risk factors and possible control measures)
- Human enteric viruses an emerging foodborne disease issue



Thank you

Questions?

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