

Outbreak of gastroenteritis at a local  
restaurant on Easter Sunday, 16<sup>th</sup>  
April 2017

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# Steps of an outbreak investigation



1. Confirm outbreak and diagnosis
2. Form Outbreak Control Team
3. Define a case (case definition)
4. Identify cases and obtain information
5. Describe data by time, place, person
6. Develop hypothesis
7. Test hypothesis: analytic studies
8. Additional studies
9. Communicate results: 
  - Outbreak report, publication
10. Implement control measures

# Background

- 18<sup>th</sup> April 2017:
  - Contacted IDCU directly by the public by two separate groups of people who ate at the restaurant
  - Symptoms: abdominal cramps, diarrhoea and nausea
- Outbreak investigation:
  - To assess the extent of the outbreak
  - To identify the mode and vehicle of transmission
  - To identify the causative agent
  - To implement appropriate control measures

# Methods

- Retrospective cohort study
- Case Definition:
  - A person who had consumed food at the restaurant on the 16<sup>th</sup> April and developed diarrhoea (3 or more loose stools in 24 hours) within the next 72 hours
- Case Finding:
  - List of all bookings the restaurant had on the day
  - Social media (Facebook)
  - Detailed menu of the food served was provided
  - Google Form questionnaire was developed
  - Telephone / Online questionnaire

# Methods

- Analysis: descriptive and analytical
- Laboratory Analysis: stool samples
- Environmental investigations
  - Thorough inspection
  - Risk assessment of the premises
  - Collect details on food preparation and storage
  - Take environmental swabs/samples

# Results

- Descriptive Findings:

- 178/200 persons participated (89%)

- 64 (32%) reported an illness of which 59 (30%) met the case definition

- Main symptoms:

- Diarrhoea (100%)

- Nausea (49%)

- Fever (3%)

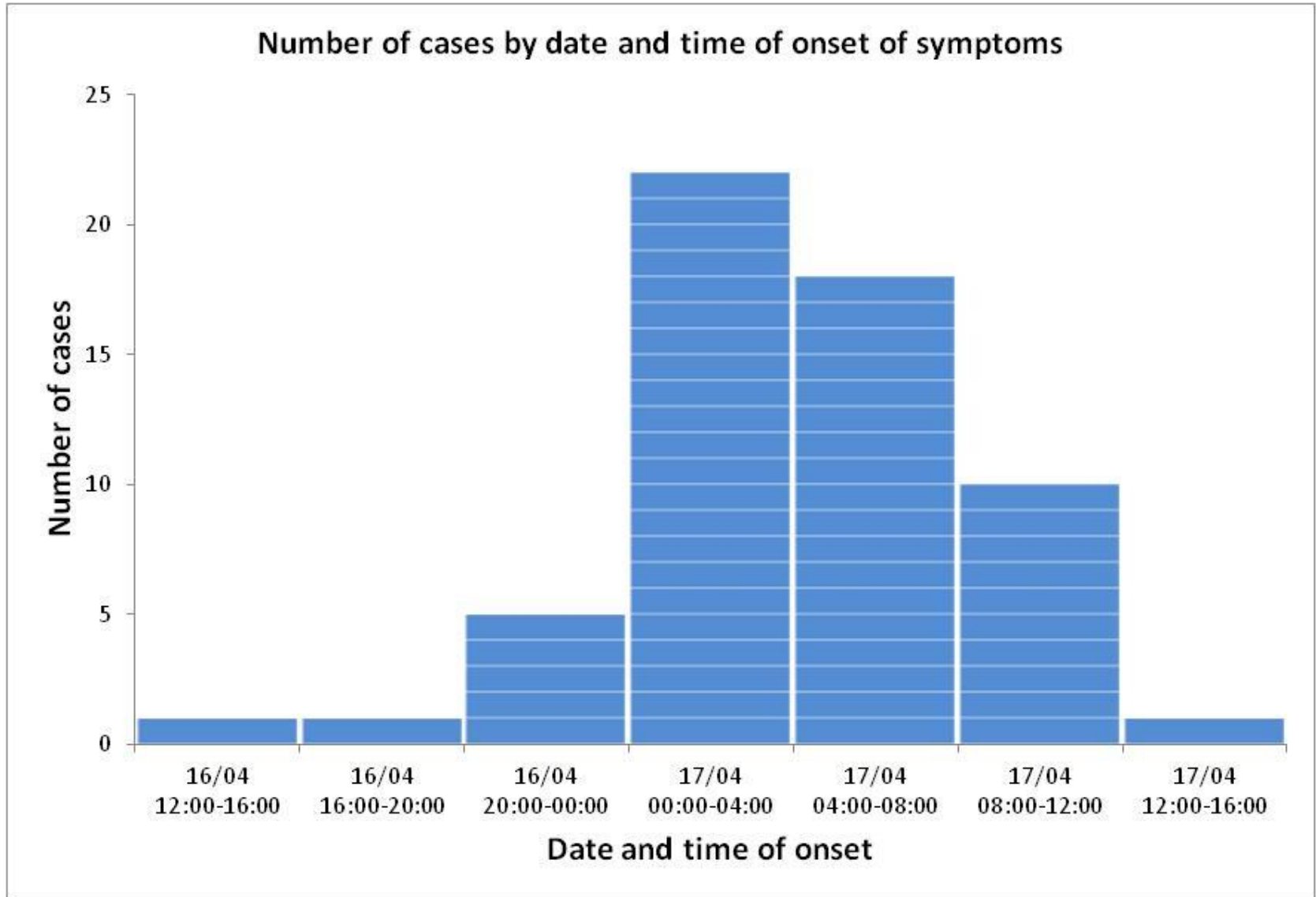
- Lethargy (2%)

- Abdominal cramps (75%)

- Vomiting (10%)

- Headache (2%)

# Results - Epicurve



# Results

- Laboratory Findings:
  - 2 stool samples were collected from only one person, which were negative for norovirus and pathogenic bacteria
- Environmental Findings (19/04/2017):
  - Hygienic conditions: good
  - Premises and equipment: good (only minor issues)
  - No ghost meals were kept / Leftover food was discarded
  - None of the staff reported being sick or showed suspected symptoms during inspection
  - Environmental swabs/samples: negative



# Results – Analytical Findings

	Univariate analysis			Multivariate analysis
Exposure	Risk Ratio	95% Confidence level	<i>p</i> value	<i>P</i> value
Rib eye steak with mushroom sauce	6.12	3.59-10.42	<0.001	<0.001
Vegetables	1.58	1.05-2.38	0.035	>0.050
Spaghetti marinara	1.65	1.09-2.49	0.026	>0.050
Chips (adults)	2.55	1.01-6.44	0.021	>0.050

# Conclusions

- The epidemic curve of this outbreak suggests a common point source.
- The rib eye steak, which was served with mushrooms sauce was the most likely vehicle of transmission.

# Limitations

1. The public contacted the IDCU two days after the event.
2. Cases were reluctant to submit stool samples for analysis in view of short-lasting symptoms, which had already subsided at the time of contact.
3. Ghost meals were not available.

# Public Health Message

This study highlights the importance of:

1. Epidemiological investigations
2. The use of social media to detect and investigate outbreaks
3. Establishment to keep ghost meals
4. Early notification of outbreaks to health authorities to:
  - be able to conduct timely investigations
  - find cases more willing to submit samples and
  - find environmental samples for analysis

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Thank you