

Foodborne disease out break investigation – A case study

Mandate of NIN

Salient findings of recorded cases of food poisoning

70% outbreaks involved 2-5 persons

50% affected are < 15years of age

Location – home – parties/functions

stale food –sweets

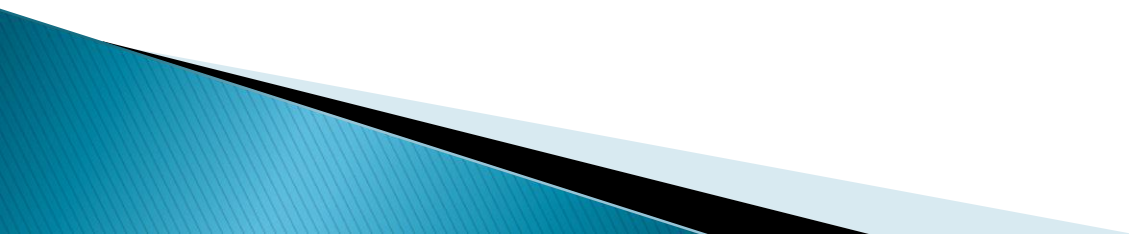
Non epidemic nature of outbreaks

Development of model for foodborne disease investigation

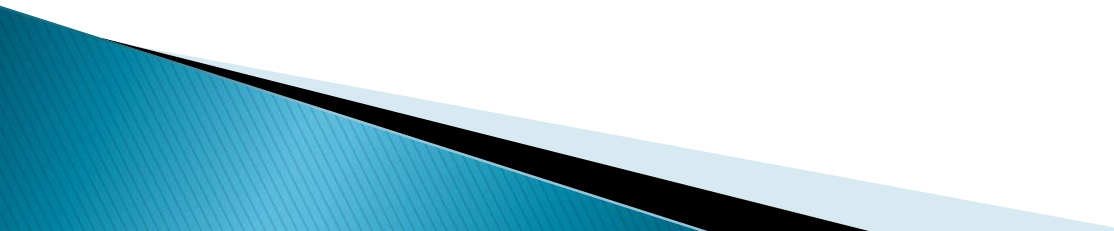
Tie up with referral hospital

First information report

Initiation of the investigation



Steps And Components Of An Investigation

- a. Initial data
 - b. Verification of the diagnosis.
 - c. Determination of whether an outbreak has occurred.
 - d. Search for additional data and cases.
 - e. Description of the cases in terms of time, place and person.
 - f. Formulation of hypothesis.
 - g. Analytical epidemiological, environmental and laboratory studies.
 - h. Synthesis of finding with conclusions and recommendations.
 - i. Control measures
 - j. Written reports
- 

Bacterial pathogens detected in food samples implicated in food poisoning out breaks

Sample	<i>Staph aureus</i> Cfu /g	<i>Salmonella sps</i> Cfu/g
Kaddukakheer	4.5-5.5x10 ⁸	ND
Fruit salad	6.5X 10 ⁸	ND
Milk shake	4.0x10 ⁸	ND
Chicken biryani	8.5-9.5 x10 ⁸	ND
Colostrum milk cake	9.0x10 ⁸	ND
Mango juice	ND	3.0x10 ³
Jaggery rice	4.0x10 ⁸	ND

Stool /rectal swabs
cfu/g

Staph. aureus $5-8.5 \times 10^8$
Salmonella sps 2.5×10^6

7/10 cases significant association between
illness and consumption of implicated food

Sudershan etal 2014

Identification of food implicated in outbreak by calculating Odds ratio

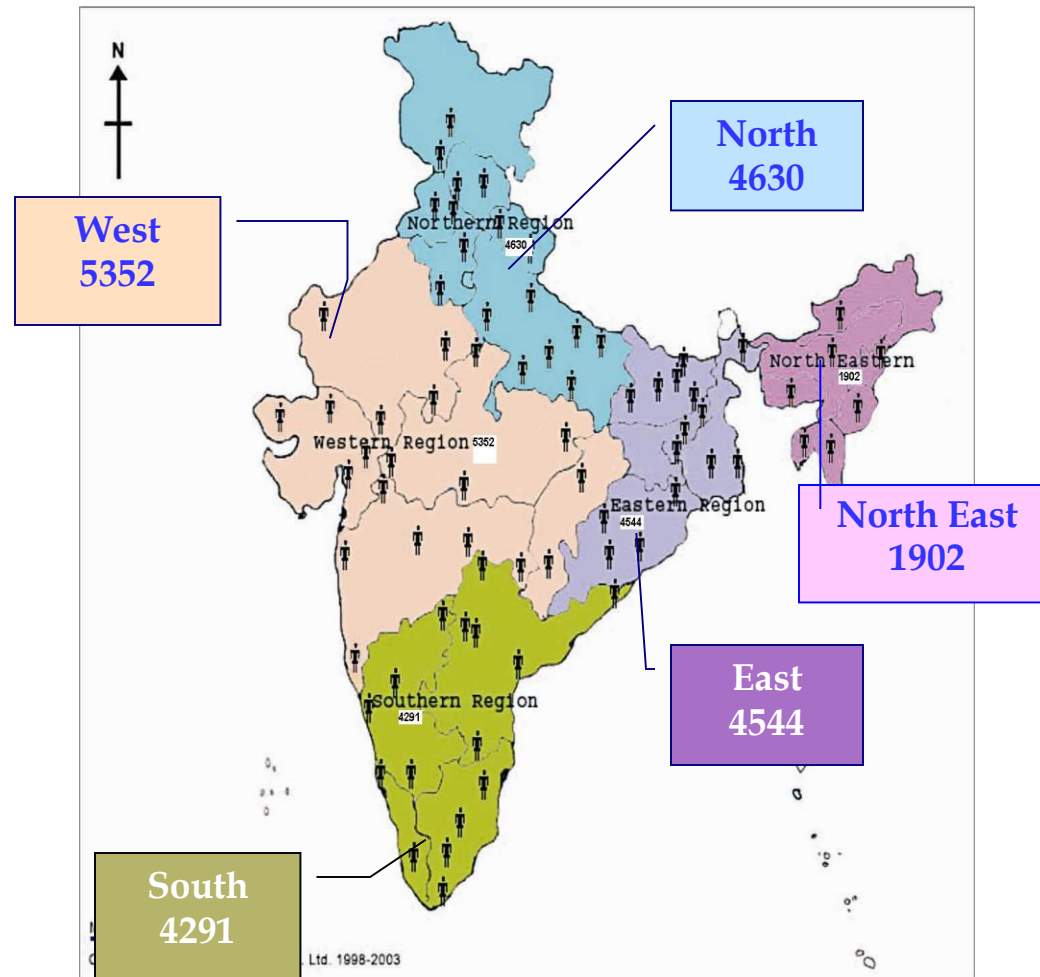
Food Items	OR	95%CI
Chicken Masala	0.7	0.2-1.8
<i>Dile firdaus (Khoa based sweet)</i>	27.3	5.2-142
Palak Dhal	0.7	0.2-2.1
Veg kurma	1.1	0.4-3.7
Sambhar	0.9	0.2-3.5
Pickle	1.7	0.2-3.5
Papad	0.5	0.2-1.8
Veg.salad	0.5	0.2-1.9
Plain Rice	0.9	0.3-2.6

Risk estimate of different food samples using odds ratio and confidence Interval

S.No	Food	Odds ratio	95% CI
1	Kadduka kheer	5.6	2.1-11.2
2	Fruit salad	4.0	1.8-8.5
3	Milk shake	4.5	1.9-10.2
4	Chicken biryani	3.1	0.6-154
5	Colostrum milk cake	10	1.4-69.2
6	Mango juice	6	0.3-101.5
7	Jaggery rice	6	0.3-101.5

Knowledge, Attitude, Behaviour and Practices of Mothers of under five children (2006)

- ▶ **Multi-stage stratified, proportional random sample**
- ▶ **20, 719 households (HHs)**
- ▶ **82 districts of 28 states from five regions**
- ▶ **284 FGDs (U5 Mothers and Adol. Girls)**
- ▶ **1372 In-depth interviews**



13.2% of Households reported at least one of their family members had experienced the symptoms of foodborne illness

3% of villages reported at least one outbreak in a year



Food Borne Disease Surveillance Portal (FBDSP)

Biomedical Informatics Centre(BIC), National Institute of Nutrition (ICMR), Hyderabad



- Home
- Foodborne Outbreaks
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- ### Browse Database
- Search By News
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 - Reporting Foodborne Outbreak
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 - Facts on Food Poisoning
 - Food Safety Steps
 - Other Foodborne Databases
 - List of Micro-Organisms
 - Downloads

Outbreak Search By - News, Print and Mass Media

Year	Meals Place	Consumed Food Item	State
All	All	All	All
2015	Mid-Day Meal/Noon Meal/Govt Schemes	Alcoholic Beverages	Andhra Pradesh
2014	Temple/Community Puja Ceremony	Bakery Items	Arunachal Pradesh
2013	Community Festival/Ceremony/Feast	Break Fast	Assam
2012	Family Function	Cereal/Pulses & Legumes	Bihar
2011	Function/Party/Feast	Common Meals	Chattisgarh
2010	Funeral/Condolence Ceremony	Contaminated Food	Dadar and Nagar Haveli
2009	Home Made Food	Dairy Products	New Delhi
2008	Hostel/Canteen/Mess	Fast Food	Goa

Welcome to the Foodborne Diseases Surveillance Portal (FBDSP). This Portal provides access to national information available through open to public information and is intended to be used for limited descriptive summaries of outbreak data.

This has been updated till **May, 2015**. You can search the data to find outbreaks by year, state, location, and pathogen?

Disclaimer: This site was developed by the Biomedical Informatics Centre of National Institute of Nutrition for Indian Council of medical Research (ICMR) to make Foodborne Disease Outbreak data more available to the public and stakeholders.

Summary for the search performed

Searched By	Records Found	Year Selected	Organism Selected	Meals Place Selected	State Selected
UNREPORTED DATA	90	2015	-	ALL	ALL

Cost of foodborne disease outbreak

Outbreak in the institution

All the persons who ate common food were available for investigation

Actual expenses

Sudershan etal 2010



❖ The loss of wages or productivity loss was calculated by determining each employee's daily income and multiplying by the days of work lost.

❖ The ill persons expenses include

➤ transport charges,

➤ physician charges

➤ cost of medicines,

➤ cost of electrolytes

➤ cost of investigation

Cost of foodborne disease outbreak

Cost components	Total amount	Percentage
Hospitalization including medicinal charges	Rs.41423/-	45.5
Transport charges	Rs.1600/-	1.7
Electrolytes	Rs.1518/-	1.6
Loss of wages	Rs.18800/-	20.6
Cost of Investigation	Rs.17960/-	19.7
Administrative charges	Rs.9600/-	10.5
Total	Rs.90901/-	

Thank you for your attention

