



Food Poisoning Outbreak Prevention Model: The Role of Health Workers for Food Safety of Catering Owners

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<p>Track Record Article</p> <p>Accepted: 11 Oktober 2024 Revised: 26 November 2024 Published: 30 December 2024</p> <p>How to cite : Saragih, R., Dasman, H., Indrapriyatna, A. S., Yani, F., Indrawaty, N., Lipoeto, Yetti, H., Ilmiawati, & Harun, H. (2024). Food Poisoning Outbreak Prevention Model: The Role of Health Workers for Food Safety of Catering Owners. <i>Contagion : Scientific Periodical of Public Health and Coastal Health</i>, 6(2), 1450–1460.</p>	<p style="text-align: center;">Abstract</p> <p><i>Food poisoning is a serious problem that can have an impact on public health. This incident occurs when the food consumed is contaminated by bacteria, viruses, parasites or hazardous chemicals. Medan City is an area where food poisoning incidents occur every year. The purpose of this study is to examine the importance of the role of health workers in preventing extraordinary incidents of food poisoning. This study is an exploratory qualitative study through a phenomenological approach. The location of the qualitative research was conducted at the Medan City Health Office, in the working area of the Medan Area, Medan Deli, and Tuntungan Health Centers which were designated as research areas. Data collection was carried out through several main techniques, namely in-depth interviews with interview guidelines, observation, and focus group discussions. While The data processing process involves several stages, namely starting with data transcription, data reduction, and data presentation. The final stage is drawing conclusions and verification. Data analysis uses a triangulation approach to increase the credibility of research results, including data triangulation, observer triangulation, theory triangulation, and triangulation Methods. This study was conducted in 2024 with informants including the Disease Prevention and Control Team and the Public Health Team, the head of the health center. The results of this study indicate that efforts to prevent food poisoning outbreaks have not been going well. Where the cause is the suboptimal role of health workers in monitoring and evaluation due to limited human resources, in addition to the lack of training related to prevention and handling and the absence of a special policy for food poisoning outbreaks. This prevention can only be implemented if there is collaboration between health workers and catering owners to add a shared commitment to food safety. and it is necessary to carry out comprehensive coaching and supervision efforts.</i></p> <p>Keywords: Prevention, Extraordinary Events, Food Poisoning, Health Workers</p>
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INTRODUCTION

Food poisoning is a widespread and dangerous phenomenon in the world, according to data from (WHO, 2022) issued a statement that 1 in 10 people in the world fall ill after consuming contaminated food or foodborne illness which results in 420,000 people dying every year. In fact, in America it is estimated that there are 48 million cases related to foodborne

illness every year. Food-borne diseases, or what the (Nugahaeni, 2020) calls food-borne diseases, are infectious diseases or poisoning caused by microbes or agents that enter the body through the food consumed.

According to the World Health Organization (WHO, 2022), increasing incidents of food poisoning continue to be reported and are often associated with food contamination, which has raised concerns among the global community. Reliable statistical data about this disease is not available so the incidence cannot be estimated. However, the severity of this situation can be understood by looking at the high prevalence rate of diarrheal disease among infants and children. Every year there are around 1,500 million cases of diarrhea in toddlers. And as a direct result, more than 3 million children died (Fatmawati, 2022).

The Indonesian Ministry of Health (Direktorat, 2022) has declared an Extraordinary Event (KLB) of food poisoning and is ranked 2nd from reports submitted to the Public Health Emergency Operation Center (PHEOC) in 2018, Number 2 after the extraordinary event (KLB) of diphtheria. The data recorded at the Ministry of Health is 163 incidents in 2017 and 122 in 2018, and 133 in 2019. In 2019, 5958 cases were recorded with a Case Fatality Rate (CFR) of 0.4%. The trend of extraordinary events (KLB) of food poisoning by province shows that in the last three years (2017-2019) from the data above, it can be seen that cases in Indonesia in the 3 years have fluctuated, although there has been a decrease from 2017 to 2019, but this does not guarantee that extraordinary events (KLB) in Indonesia have decreased, so there must be continuous data so that it can continue to be monitored.

Based on the epidemiology of food poisoning in Indonesia, according to (Syifa Mustika, 2019) every year in Indonesia there are always cases of food poisoning with quite high incidence rates. In 2017, the Indonesian POM Agency recorded that the number of people exposed to food poisoning was 5293 people. Cases of extraordinary events (KLB) of food poisoning (cases) reported in 2017 were 2041 people sick, 3 people died with an attack rate (AR) of 38.56% and a case fatality rate (CFR) of 0.15% . This shows that extraordinary incidents (KLB) of food poisoning are still a public health problem that needs to be prioritized for handling (Kemenkes RI, 2020).

Data reported in the Profile of the North Sumatra Provincial Health Office (2020) explains that out of 33 regencies/cities consisting of 25 regencies and 8 cities, where every year the number of extraordinary food poisoning incidents is still found in the province of North Sumatra where in 33 regencies/cities there have been fluctuations in the last 5 years with the highest death rate occurring in 2017 there were 2 people who died and in 2021 there was 1 person who died due to the Extraordinary Event (KLB) of food poisoning (Sumut, 2019).

Medan City itself as the research locus of the extraordinary event (KLB) of food poisoning in 2017 amounted to 132 cases, in 2018 there were 45 cases, in 2019 there was an increase of 127 cases and in 2021 there were 54 cases. The data above shows that the extraordinary event (KLB) cases in Medan City have fluctuated over the last five years, so there must be ongoing early warning so that extraordinary event (KLB) cases can continue to be monitored and it is easy to carry out warnings as early as possible (Sumut, 2020).

Based on data obtained from the Medan City Health Service, the most cases of food poisoning are caused by failure to meet food safety standards such as the absence of hygiene and sanitation certification permits, lack of cleanliness in the food processing process, and the use of raw materials. This phenomenon reflects a fundamental problem in the application of hygiene and sanitation principles by catering business owners.

In addition, weaknesses in coordination between programs at the Medan City Health Office also become obstacles in preventing cases of food poisoning. Lack of supervision and education for food business actors, especially catering owners who are more dominant causes of poisoning incidents. Although various efforts have been made, such as field inspections and socialization, their effectiveness is still not optimal. This problem not only has a negative impact on public health, but can also reduce trust in local catering services and create economic losses for the community and business actors. The urgency of this research lies in the need to understand and strengthen the role of health workers, especially in preventing food poisoning outbreaks. Health workers have an important responsibility in educating food business actors, supervising the implementation of food safety standards, and establishing cross-program coordination to ensure that preventive measures are carried out effectively. By clarifying the role and function of health workers, it is hoped that cases of food poisoning can be minimized, while improving the quality of food services by catering.

METHODS

This study uses a qualitative type with a phenomenological approach. The phenomenological approach was chosen because it aims to understand the life experiences and subjective perspectives of health workers in their role in preventing food poisoning outbreaks. With phenomenology, researchers can explore the deep meaning of the experiences, perceptions, and views of health workers in this context. Informants in this study were health workers who had direct experience in preventing and handling food poisoning outbreaks. The selection of informants was carried out by purposive sampling with the criteria of health

workers who work in the fields of public health, disease prevention and control and health centers. And willing to participate in this study. (Kemenkes RI, 2020).

The location of the qualitative research was conducted at the Medan City Health Office where the informant in this study was the Head of the Disease Prevention and Control Team (Inf- 1), the head of the public health work team (Inf-2), in the work area of the Medan Area Health Center (Inf-3), Medan Deli Health Center (Inf-4), and Tuntungan Health Center (Inf-5) which were designated as research areas, were used as health centers that met the criteria because based on data obtained from the Medan City Health Office, it was known that the Health Center was a Health Center that had experienced an extraordinary incident of food poisoning compared to 33 other Health Centers. The determination of informants in this qualitative research used a survey method. The sampling technique used purposive sampling, namely the selection of samples intentionally, a mechanism, namely a technique for determining and selecting informants based on characteristics (Kemenkes RI, 2020).

This research was conducted using the focus group discussion (FGD) method using tools such as voice recordings, stationery, and cameras to document activities. Data collection was carried out through several main techniques, namely in-depth interviews with interview guides, observations, and focus group discussions (Sugiyono, 2019). The data processing process involves several stages, starting with data transcription, which is changing raw data from interviews and discussions into written text. Furthermore, data reduction is carried out to filter relevant information, followed by data presentation (data display) in the form of narratives, tables, or diagrams to provide a systematic picture. The final stage is drawing conclusions and verification, which aims to interpret findings based on the data that has been presented and ensure the validity of the analysis results. Data analysis uses a triangulation approach to increase the credibility of research results, including data triangulation, observer triangulation, theoretical triangulation, and method triangulation. Data triangulation compares information from multiple sources, observer triangulation involves more than one researcher to reduce bias, theoretical triangulation uses multiple theoretical perspectives to strengthen interpretation, and method triangulation combines multiple data collection techniques to ensure the accuracy of the results. All of these processes are supported by systematic documentation and field notes as additional references, resulting in valid, comprehensive, and scientifically accountable findings.

RESULTS

Based on the research results obtained at the Medan City Health Service by conducting interviews, information was obtained that early warning of food poisoning outbreaks in Medan City is still not optimal regarding food supervision of catering entrepreneurs, increasing the awareness of catering entrepreneurs regarding the risk of food poisoning and how to prevent it, as well as special training provided to officers in anticipating the prevention of food poisoning outbreaks.

"...food supervision regulations for catering entrepreneurs do exist, but their responsibilities are not included in the duties and functions of p2p.... "if the catering section is under the authority of the public health team..." so we only if there is an incident of food poisoning, for example there is a report from the health center then we go down to see how many people have experienced poisoning, when it happened, whether there were any that resulted in death,..". (Inf-1)

"...self-supervision in Medan city according to regional regulations and mayoral regulations does not exist yet but our role in supervising this food is carried out every six months, but not all areas can be supervised due to budget limitations and large areas..."well...usually friends from health centers, especially those who monitor catering. "eee...for friends who implement in the field, they usually calculate the risk first and friends have instruments according to the rules,...well...after they decide the risk based on the analysis, then they will provide intervention, what is the input to the catering entrepreneur....for example the risk is in the kitchen or in the equipment, they will provide education on the spot at that time....(Inf-2)

Officers are still experiencing problems in conveying information that should be conveyed to catering owners because there has been no special training on food safety for catering owners.

"...Training has been conducted by the health department, but only in general. There has been no specific training for food safety in food poisoning in health centers. "However, special training for officers and catering entrepreneurs is still limited and has not been specifically certified because the current training is still general and there is no specific training for preventing food poisoning" (Inf-1) Specifically, there has never been any training on food safety". (Inf-2)

In addition, the results of interviews with informants also obtained information that apart from the lack of training for officers and catering owners, especially regarding food safety, the processing of permits was also not optimal and the availability of the required funds was lacking.

"..if for licensing it is done in the public health sector, if for special funds there are none in the health service in carrying out supervision and prevention of food, it only becomes the job description." (Inf-1).

"...related to licensing and extensions, they must calculate the risk first, we minimize the risk first, after that we can give them permission or extend the permit..." "it's just that our obstacle is the budget, one more thing related to the large number of catering and food entrepreneurs... those friends can be overwhelmed with such a large number for special funds there are none in the health service in carrying out supervision and prevention, it only becomes the job description". (Inf-2)

The results of interviews with several informants obtained information that they were still experiencing difficulties in quickly detecting early causes of food poisoning that had the potential to become an extraordinary event.

"...yes, like yesterday we got a report from the Islamic boarding school that many children were vomiting, ... yes ... then we from the health center officers went there, what caused them to be poisoned ... "but there were also those who had come directly to the health center because the health center and the orphanage were close, just walking distance, there were also those who were taken to the hospital.. ..the officers immediately checked the food samples, there were no more, they had been thrown away, so we got the samples from the trash can ..." so we officers only got information that the food was given by people from outside the Islamic boarding school "... (Inf-3), (Inf-4)

Specific policies and training on food supervision in the health center environment.

"...if there is no special policy and training on food poisoning outbreaks, but health center officers do conduct inspections on food businesses such as restaurants, eateries and regular catering to check and ensure the cleanliness of food management,..."when there is a report of food poisoning, officers immediately go down, usually the surveillance team and the environmental health team..."food samples are taken for further examination..."to ensure the source...we coordinate with the city health office to report the findings..."then we wait for further direction"... (Inf-5), (Inf-5)

From the answers, it can be concluded that health center officers do not yet have a policy or special training to handle Extraordinary Events (KLB) of food poisoning. The following are quotes from several informants.

"... there has never been any special education for catering owners ..." most do not have permits ..." if there are permits that have expired, they are rarely extended.. (Inf-3), (Inf-4), (Inf-5)."

It can be concluded from the results of the informants' answers that catering owners do not yet have special permits from the health office. The results of the informants' answers can be seen in the Data Triangulation Matrix in Table 1

Table 1. Triangulation matrix of data on the role of officers in extraordinary food poisoning incidents

No	Theme	Indepth Interview			Conclusion
		Head of P2P Team/Head of Public Health Team	Head of Health Center	Surveillance Coordinator	
1.	Case identification	<ul style="list-style-type: none"> a. There is no specific policy on food poisoning outbreaks. (01a, 01b) b. Starting from reports from the community and health facilities (01a, 01b) c. Reported symptoms, evaluating environmental factors and laboratory analysis. d. Direct observation at the location of the incident 	<ul style="list-style-type: none"> a. Receive reports from the public. b. Analyze by looking at the symptoms experienced c. What factors are most likely to be the cause (02a, 02b, 02c) 	<ul style="list-style-type: none"> a. If there is a report from the public about a new incident, go to the field b. Record how many people are affected, the symptoms they experience. c. Only people who consume certain foods are affected (03a, 03b) 	Health workers play an active role in collecting data, analyzing, and interpreting investigation results to identify sources of transmission and risk factors.
2	Sampling	<ul style="list-style-type: none"> a. Taking various types of samples, depending on the condition of the case b. Sampling is carried out with good procedures to avoid contamination c. Comparing laboratory results with previously collected epidemiological data 	<ul style="list-style-type: none"> a. Leftover food consumed by the patient b. Each sample is packaged properly to prevent spillage or contamination during transit c. Laboratory results are the basis for determining the cause of poisoning 	<ul style="list-style-type: none"> a. Take related materials at the scene b. Take according to procedures and cooperate with the health department c. Determine the source of poisoning and appropriate control steps 	Health care workers are responsible for taking appropriate samples and sending them to the laboratory for further testing. The results of the tests are used to confirm the diagnosis and identify the causative agent.
3.	Prevention	<ul style="list-style-type: none"> a. Conduct tracing of close contacts to provide treatment and monitoring b. Health services and health centers in providing education to the community c. Coordinate with the police and villages to handle cases in an integrated manner 	<ul style="list-style-type: none"> a. Coordinate with the health office and community leaders to help disseminate information to catering owners and the community b. Hold meetings with community groups c. The health office and community health centers work together to provide education 	<ul style="list-style-type: none"> a. Conduct active surveillance to monitor case developments and prevent subsequent outbreaks b. Health centers and services work together to provide education c. Involve health cadres in providing education 	Health workers have not played an active role in providing health education, taking preventive measures, and coordinating with related parties to prevent similar outbreaks in the future.
4.	Reporting	The first reporting system comes from the health center and the report is followed up by going directly to the scene of the incident.	Have a special form to report KLB events. After there is a suspicious case, it is reported to the health department	Record patient identity, clinical symptoms, date of incident, food suspected to be the cause, number of cases, and actions taken.	Health workers are required to report outbreaks in a timely and accurate manner to the authorities for follow-up.
5	Evaluation	The importance of strong coordination between sectors in handling KLB as well as reporting and evaluating environmental control	Internal evaluation to see to what extent the health center has carried out its duties in handling the outbreak and improving human resources	Evaluation of the existing surveillance system requires the development of an early warning system to be able to respond quickly to outbreaks.	Health workers are involved in evaluating the outbreak response to identify deficiencies and make recommendations for system improvements.

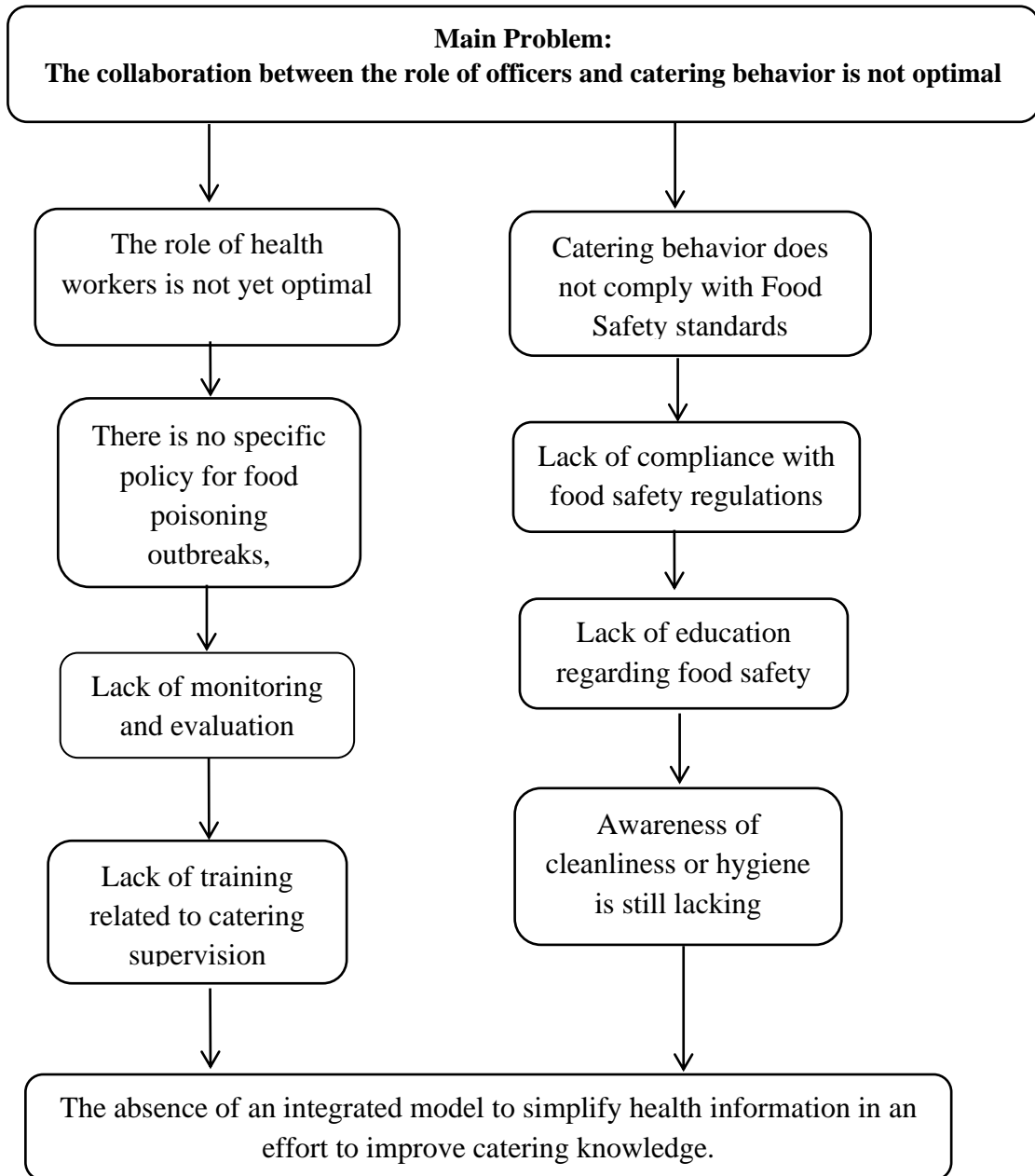


Figure 1. Problem tree of suboptimal collaboration between officer roles

DISCUSSION

Food hygiene and sanitation supervision involves various activities, namely conducting regular inspections of production facilities, equipment, raw materials and production processes, testing food products to ensure their safety and quality (Fatmawati, 2022). Provide training to personnel on good sanitation hygiene practices and record all monitoring activities and test results. By implementing good food sanitation hygiene principles, we can ensure the safety and quality of the food we consume (Hassan, 2022).

Apart from supervision, according to Putri (2021) and Sihombing et al., (2019) resources also have some constraints. The limited number of human resources who are special officers in hygiene and sanitation supervision, monitoring officers have a certain influence on the implementation of the program. As a result of this, there are limited hygiene and sanitation supervision officers. However, this condition also causes overlap between routine environmental health tasks and their roles and responsibilities as supervision officers (Anak et al., 2022).

According to Palupi et al., (2024) and Sharon (2021), the government needs to improve food supervision and management by paying attention to hygiene and sanitation according to established food safety standards and increasing public knowledge and about how to properly manage food to improve food safety. According to research conducted by (Salsabela, 2022) in Uganda there was a food poisoning outbreak of 211 cases. From the results of interviews using structured questionnaires about their potential exposure history, history of receiving and eating aid food, eating other foods, drinking unsafe water, and avoiding social gatherings. Several other researchers such as (Limbardon et al., 2022); (Permatasari & Hidayati, 2018); (Fithria, 2023), (Lubis et al., 2019) and (Cecep, 2021) showed that all catering still did not meet the physical feasibility in the implementation of catering service hygiene and sanitation and the implementation of catering service hygiene and sanitation in this catering is expected to be a reference for obtaining a certificate of hygiene and information for the Health Office to verify the implementation of catering service hygiene and sanitation (Retnani et al., 2022).

The importance of availability and access to adequate resources to support prevention efforts. The resources in question include competent workers, sufficient budget, adequate equipment, and supporting infrastructure. The availability of sufficient resources enables health workers to carry out effective surveillance, provide quality training to food business operators, and implement other prevention programs (Robidi et al., 2022).

Health workers play a role in creating a safe food environment and protecting the community from the risk of food poisoning. There needs to be a model for preventing extraordinary food poisoning incidents, especially for catering owners, with education from the Health Service and Health Centers to improve the knowledge of catering owners in processing food in accordance with the provisions of the Minister of Health Decree Number 1096 of 2011, so that this prevention model can be applied by catering owners and reduce the risk of extraordinary food poisoning incidents in the community.

CONCLUSION

Supervision of the implementation of hygiene and sanitation principles, as well as the provision of comprehensive training, health workers can effectively improve food safety awareness and practices among catering owners. Efforts outbreak prevention relies heavily on the active involvement of health workers, the availability of adequate resources, and cross-sector collaboration. To achieve optimal results, it is necessary to develop a more comprehensive and practical training curriculum that is tailored to the needs of catering operators and strengthen partnerships and collaboration between health workers, health and catering owners to foster a shared commitment to food safety. These findings have significant implications for the development of policies related to food safety and can form the basis for designing more effective programs to protect public health.

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