

# THE RELATIONSHIP OF HYGIENE SANITATION FOR FOOD PROCESSING WITH *SALMONELLA SP* CONTENTS IN CHICKEN MEAT PRODUCTS IN CAMPUS 7 POLTEKKES KEMENKES SEMARANG

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## Abstract

**Introduction:** Supervision and sanitation inspection of eating places is important to avoid cases of food poisoning, salmonellosis, and typhoid fever. These cases can be caused by the food factor itself, equipment, food processing, or the place where the food is processed and served. The purpose of this study in general is to describe the relationship between food processing hygiene sanitation and the content of *Salmonella sp.* on chicken meat products at Campus 7 Poltekkes Kemenkes Semarang.

**Method:** This type of research is cross sectional research, the number of sampel as many as 30 samples taken from food stalls around Campus 7. Data collection is obtained through observation, interview and measurement or examination of samples of chicken meat products. The data obtained was analyzed into univariate, bivariate analysis with Chi-square test ( $X^2$ ).

**Resut and Discussion:** The results of the study conducted in 30 food stalls, there are 4 samples from food stalls containing salmonella sp bacteria. The results of bivariate analysis showed variables related to the presence of *Salmonella sp* bacteria in chicken meat products, namely variable ways of storing foodstuffs with a value of  $P (0.048) < 0.05$ .

**Conclusion:** The researcher concluded that the variable associated with the presence of *Salmonella sp* bacteria in chicken meat products is a variable way of storing foodstuffs. It is expected that the owner and food processor in storing foodstuffs at the appropriate temperature and humidity, placed in a separate special container with other foodstuffs, storage containers in a clean state, placed separately with hazardous materials and foodstuffs stored in a place free from insects and mice.

**Keywords :** Hygiene, Sanitation, Food, *Salmonella sp*

## INTRODUCTION

Food poisoning is one of the consequences of providing food and beverages that do not meet health requirements. Food poisoning cases ranked as the second cause of extraordinary events (KLB) in Central Java that attacked 63 villages in 53 sub-districts with 1,298 people with CFR of 0.46%. In 2004, out of 35 districts / cities in Central Java there were 22 districts / cities that reported food poisoning outbreaks. The cities of Semarang, Boyolali, Cilacap, Banyumas, and Purbalingga are areas that are found in food poisoning (<http://www.dinkesjatengprov.go.id/dokumen/profil/profile2004/bab4.htm>).

Campus 7 Poltekkes Kemenkes Semarang consists of three departments, namely Environmental Health, Midwifery, and Radiodiagnostic Engineering and Radiotherapy. One of the places that is often visited by students from all three majors to eat is the cafeteria. Not infrequently when there are students who after consuming food in the canteen both foods from chicken products experience abdominal pain to cause diarrhea. Food handlers who manage are also lacking in maintaining sanitary hygiene of food sold.

Based on the background of the problem, the researcher is interested in conducting further research with the title “**THE RELATIONSHIP OF HYGIENE SANITATION FOR FOOD PROCESSING WITH SALMONELLA SP CONTENTS IN CHICKEN MEAT PRODUCTS IN CAMPUS 7 POLTEKKES KEMENKES SEMARANG**”

## METHODS

This research is a type of Cross Sectional research. This research method is used because it is to know the relationship between variables. In sectional cross researcher not only measured the salmonella sp content in chicken products but also intervened. Common interventions are observations and interviews on independent variables.

## RESULT AND DISCUSSION

Based on the all variables that have been

intervened, there is one variable that affects the content of Salmonella sp in chicken products, namely in the way of storing materials applied in stalls around Campus 7 Poltekkes Kemenkes Semarang.

Table 5.15 : How to Store Materials Used In Stalls Around Campus 7 Poltekkes Kemenkes Semarang.

How to store materials	Frequency	Percentage (%)
Temperature and humidity as per requirements	Yes	27
	No	3
Total Number	30	100 %
Free from dust	Yes	27
	No	3
Number	30	100 %
Free from	Yes	25

hazardous materials	No	5	16,7 %
Total Number		30	100 %
Free from insects and mice	Ya	25	83,3 %
	Tidak	5	16,7 %
Total Number		30	100 %
Separated with finished groceries	Ya	28	93,3 %
	Tidak	2	6,7 %
Total Number		30	100 %

Based on the results of the study of 30 food stalls around campus 7 on the assessment of how food storage can be known 27 (90%) food stalls store foodstuffs at appropriate temperatures and humidity and are free from dust. There were 25 (83.3%) Food stalls store foodstuffs free of harmful ingredients and free from insects and rats. There were 28 (93.3%) food stalls store separate mkanan ingredients with finished foodstuffs.

Table 5.16 : Assessment of Storage of Materials Used In Stalls Around Campus 7 Poltekkes Kemenkes Semarang

No.	How to store material s	Frequency	Percentage (%)
1.	Qualified	22	73,3 %
2.	Ineligible	8	26,7 %
	Total	30	100 %

Based on the results of research on 30 food stalls around campus 7 can be known that as many as 22 (73.3%) food stalls in the way of storing groceries have been qualified. And as many as 8 (26.7%) food stalls in the way of storing groceries are no to eligible

Table 5.31 : Table Of Cross Tabulation Results How to Store Ingredients With Salmonella sp Content In Chicken Meat Products In Stalls Around Campus 7 Poltekkes Kemenkes Semarang.

How to store materials	Salmonella sp content				Total	
	Ineligible (Positive)		Qualified (Negative)		N	(%)
	n	(%)	n	(%)		
Ineligible	3	37,5 %	5	62,5 %	8	100 %
Qualified	1	4,5 %	21	95,5 %	22	100 %
Jumlah	4	13,3 %	26	86,7 %	30	100 %
P= 0,048						

Based on table 5.31 shows that from 30 samples processed chicken meat around Campus 7 obtained results with the storage of ineligible ingredients and containing salmonella sp is 3 samples (37.5 %). Storage of eligible ingredients containing salmonella sp is 1 sample (4.5 %). In the storage of ineligible ingredients and does not contain salmonella sp are 5 samples (63.5%) and in the storage of eligible ingredients and does not contain salmonella sp are 21 samples (95.5 %). Analyst of the value relationship P (0.048) < 0.05, meaning that there is a relationship between the variable storage of ingredients and the presence of salmonella sp bacteria.

Components assessed at the event of storage of foodstuffs are stored at appropriate temperatures and inertia, free from dust, free from hazardous materials, free from insects and rats and separated from finished foodstuffs. From the results of the study conducted that the presence of salmonella sp bacteria at most in the way of storage of ineligible materials is 3 samples (37.5%) than the way of storing eligible materials is 1 sample (4.5%). In samples that do not contain Salmonella sp the most in the way of storage of eligible materials is 21 samples (95.5 %) than the way of storing ineligible materials is 5

samples (62.5%). The relationship analysis obtained a value of p (0.048) < 0.05, meaning that there is a relationship between the variable way of storing ingredients and the presence of Salmonella Sp bacteria. The relationship of food storage with salmonella sp content in chicken products is caused by the storage of foodstuffs that are not up to standard. Foodstuffs are stored in the display where the temperature and humidity are not in accordance with the conditions. There is dust in the storage area. There are hazardous materials in the storage area. Storage is not free from insects and mice. The storage of foodstuffs is placed in the open and stored in conjunction with the finished foodstuff. This is in accordance with the research of Mubarak et al (2009) foodstuffs that are not stored properly will result in the food ingredients are damaged and produce low quality food. It is expected that owners and food processors store food ingredients at the appropriate temperature and humidity, placed in special containers separate from other food ingredients, storage containers are clean, placed separately from hazardous materials and food ingredients are stored in a place free from insects and rodents.

## CONCLUSION

Based on the results of the analysis and discussion, the following conclusions can be drawn:

1. There is no relationship between the variables of the food handler's behavior and the presence of Salmonella sp. with P value (1,000) > 0.05.
2. There is no relationship between the variables of sanitation hygiene certificates with the presence of Salmonella sp. with P value (1,000) > 0.05.

3. There is no relationship between the variables of food ingredients with the presence of Salmonella sp. with P value  $(0.126) > 0.05$ .

4. There is no relationship between the variable use of equipment and the presence of salmonella sp. bacteria with a value of P  $(0.126) > 0.05$ .

5. There is no relationship between the variable way of selecting ingredients and the presence of Salmonella sp bacteria. with a value of P  $(0.126) > 0.05$ .

6. There is a relationship between the variable way of storing ingredients and the presence of Salmonella sp bacteria. with a value of P  $(0.048) < 0.05$ . 7. There is no relationship between the variable way of processing and the presence of salmonella sp. bacteria with a value of P  $(1,000) > 0.05$ .

8. There is no relationship between the variable way of storing food and the presence of Salmonella sp bacteria. with a value of P  $(0.611) > 0.05$ .

9. There is no relationship between the variable way of transporting food and the presence of Salmonella sp bacteria. with a value of P  $(1,000) > 0.05$ .

10. There is no relationship between the variable way of serving food and the presence of Salmonella sp bacteria. with a value of P  $(0.130) > 0.05$ .

### **Research Limitations**

The limitation of this study is that researcher only conduct Salmonella sp examination on chicken products only. Researcher did not conduct an examination on chicken meat before processing. So although it has been found variable that

causes the content of Salmonella sp in the event of storage of ingredients but it can not be ascertained that chicken meat before production already contains Salmonella sp or not. Therefore, to optimize the research can be done examination of salmonellas sp content both in chicken meat before processing and after processing.

### **Suggestion**

1. It is expected that all food stall owners provide information to the food vendors in their stalls to maintain the hygiene condition of food vendors. Food vendors should not work in sickness. Get used to always washing your hands with soap and clean running water before work and after urinating, so that the hands are always in a clean state. Do not smoke or chew while at work. Do not use jewelry. Wear clean clothes, accompanied by aprons and headgear. Always use the tool when picking up food.
2. It is recommended for stall owners and food handler to take training or courses on food sanitation hygiene.
3. It is recommended to stall owners and food vendors to prevent bacterial contamination preferably for the placement of foodstuffs is carried out separately from each other.
4. It is recommended to stall owners and food vendors to always strive for the process of washing good and correct equipment, correct slicing, good and correct storage, and using equipment as it should be.
5. It is expected to all food owners and processors to conduct the selection of foodstuffs by paying attention to the

physical condition of foodstuffs are good, using foodstuffs derived from official sources and using food ingredient products registered with the Ministry of Health. That way it can produce good quality food products.

6. It is expected that the owner and food processor store foodstuffs at the appropriate temperature and humidity, placed in separate special containers with other foodstuffs, storage containers in a clean state, placed separately with hazardous materials and foodstuffs stored in a place free from insects and rats.

7. It is expected that food owners and processors in managing food wear clean and correct work clothes, equipped with aprons and headgear. Finished food intake using special tools that are not mixed with raw food ingredients. Use the equipment correctly. Wash chickens and other foodstuffs using clean running water. Foodstuffs are processed with attention to cleanliness.

8. It is expected that the owner and food processor in storing food are stored in special containers. Food is stored in a closed place, or the container where food is stored is covered. Food storage is kept clean. It is placed in a place free of hazardous materials and free from insects and mice. Eating is stored at a certain temperature according to the type of food.

9. It is expected that the owner and food processor in delivering food must be separated from raw food, food is transported in a closed state. Food transported using containers is not

fully filled. The inner surface of the conveying device is easy to clean.

10. It is expected that the owner and food processor in serving food using a clean tool. Meals are served in a closed condition and in a clean place.

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