

## Education on The Identification of Evidence of Blood Spots Against the Determination of Blood Type

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### ABSTRACT

Blood type is important to know, for transfusion purposes, the right donor as well as identification in Forensic Medicine cases such as identification in some criminal cases. Blood spots have an important role to reveal various legal cases and criminal cases. In the process of identifying blood spots as evidence, the thing to do is to make sure in advance whether the blood spots really contain blood molecules so that the blood group can be identified. Blood group identification is generally done based on the blood type of the ABO system. There have been many criminal cases that have been revealed through the identification of the blood type of the ABO system. Blood type examination is one of the methods used when a crime case occurs in the community. There are 4 human blood groups (A, B, AB, and O) which are grouped based on the presence or absence of antigens on the surface of erythrocytes. Identification of the blood group of the ABO system on fresh blood samples is easier to do than dried blood samples. This is because the cells in the dried blood are damaged. However, blood group identification of dried blood samples is still possible. This is because the antigens found on the surface of red blood cells remain intact even though the cells have been destroyed. A common method for identifying the blood group of a dry blood sample is the elution absorption method. This method is a very sensitive method and can detect the presence of antigens indirectly.

**Keywords:** Evidence, Blood Spots, Blood Type

### INTRODUCTION

Blood is a body fluid that is red in color and is found in the closed circulatory system and is essential for human survival. Blood serves to enter oxygen and food throughout the body and take carbon dioxide and metabolic from tissues (Oktari & Silvia, 2016). Blood type is important to know, for the benefit of transfusion, the right donor as well as identification in Forensic Medicine cases such as identification in some criminal cases (Darmawati, 2019). Criminal acts are all forms of acts that are economically and psychologically harmful and violate laws, social norms, and religion. Crimes such as murder, rape, arson, shooting, robbery and so forth can leave evidence of the victim or perpetrator, one of which is blood spots. Blood spots have an important role to reveal various legal cases and criminal cases (Rahayu et al., 2021). In the case of murder, evidence is often found in the form of blood stains at the crime scene. This blood is part of a person's identity in the form of a blood type (Susilo et al., 2020).

In the process of identifying blood spots as evidence, the thing to do is to make sure in advance whether the blood spots really contain blood molecules so that the blood group can be identified. Blood group identification is generally done based on the blood type of the ABO system. There have been many criminal cases revealed through the ABO system blood group identification (Rahayu et al., 2021).

Blood type examination is one of the methods used when a crime case occurs in the community. Blood type examination to determine whether the evidence found at the crime scene has similarities with the blood type owned by the perpetrator or victim (Susilo et al., 2020).

There are 4 human blood groups (A, B, AB, and O) which are grouped based on the presence or absence of antigens on the surface of erythrocytes (Susilo et al., 2020). Identification of the blood group of the ABO system on fresh blood samples is easier to do than dried blood samples. This is because the cells in the dried blood are damaged. This is because the antigens

found on the surface of red blood cells remain intact even though the cells have been destroyed. A common method for identifying the blood group of a dry blood sample is the absorb elution method. This method is a very sensitive method and can detect the presence of antigens indirectly. The success of blood group identification with this method is greatly influenced by the condition of the dry blood sample found at the crime scene so that the speed of the investigator's handling becomes an important factor in the identification process (Rahayu et al., 2021).

### **METHOD OF IMPLEMENTATION**

This educational activity is one of the activities of Tridharma University, namely community service. The main focus of the activity is to improve the understanding and knowledge of the Mekar Sari Puskesmas Laboratory Officer in Rantau Alai district on the determination of blood group on blood spotting samples. This activity starts from:

1. Stages of preparation for activities

Coordinating with team members in preparing the design of activities, educational materials through literature studies on blood group determination using absorption elution method, Licensing Letter to the head of Mekar Sari Puskesmas in Rantau Alai District in Ogan Ilir regency and poster making by the team.

2. Stage implementation activities

Plan activities to be carried out during the implementation of community service is:

a. Educational activities

Coordinate with the head of Puskesmas Mekar Sari, Rantau Alai District in Ogan Ilir regency by submitting a permit, explaining the purpose, procedure of activities, and containing activity contracts. Conduct counseling by explaining the importance of identification of evidence of blood spots to the determination of blood group. Counseling is assisted by students as members of community service (Veny Tresia Utari). Educational activities at 09.00 WIB. The implementation steps are :

- 1) The facilitator opens the event, explains the purpose of the activity.
- 2) Pre-test and post-test to participants.
- 3) Explanation of the material on the identification of evidence of blood spots to the determination of blood group. Through poster media.
- 4) Demonstration of blood group determination using elution absorption method on blood spot sample (video link attached)

b. Monitoring Activities Evaluation

After the educational activity is given, a post test will be held to measure the ability of participants to the material that has been given. The results of all series of activities will be made a final report accompanied by documentation of community service activities.

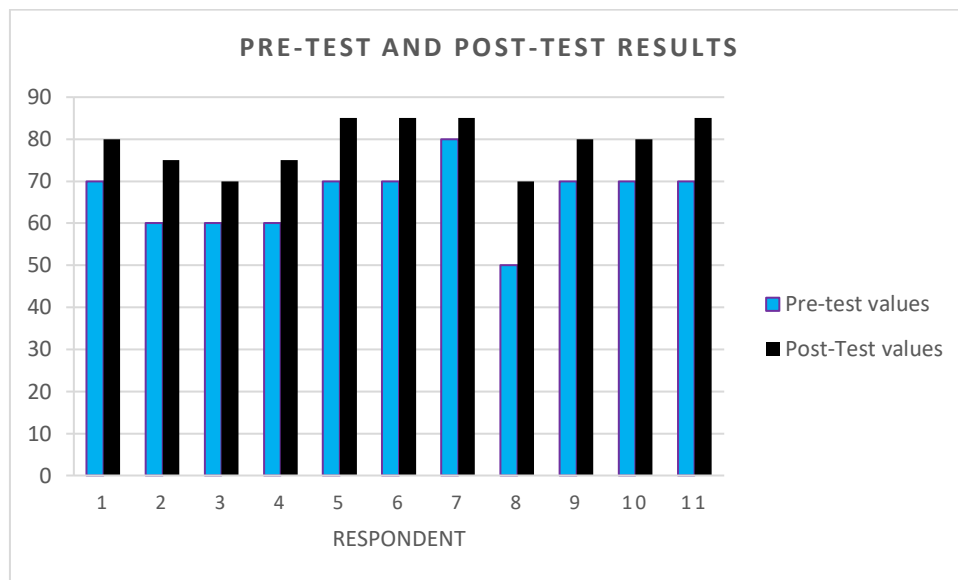
### **RESULTS AND DISCUSSION**

#### **Activity results**

An educational community service activity on the identification of blood spot evidence against blood group determination at the Mekar Sari Puskesmas, Rantau Alai District, Ogan Ilir regency, took place on January 31, 2022. Some of the activities of identification of evidence of blood spots to the determination of blood group as follows:

1. Monitoring Activities Evaluation

After the educational activity is given, a post test will be held to measure the ability of participants to the material that has been given. The results of all series of activities will be made a final report accompanied by documentation of community service activities. The results of the pre test and post test values can be seen in Figure 1 below:



**Figure 1.** Results Of Pre-Test And Post-Test Values

Based on Figure 1 above, it can be concluded that there is an increase in the value of all participants. The results of the pre-test value obtained a value of 50 as many as 1 respondent, a value of 60 as many as 3 respondents, a value of 70 as many as 6 respondents, a value of 80 as many as 1 respondent and the results of the post-test value obtained a value of 70 as many as 2 respondents, a value of 75 as many as 2 respondents, a value of 80 as many as 3 respondents, a value of 85 as many as 4 respondents.

## 2. External

Education was carried out to increase knowledge about the identification of evidence of blood spots to the determination of blood group at the Mekar Sari Puskesmas officer, Rantau Alai District, Ogan Ilir regency, given through the delivery of material using leaflet media.

## CONCLUSIONS AND SUGGESTIONS

Based on the results of the implementation of community service on the identification of evidence of blood spots to the determination of blood group can be concluded that:

1. There is still a lack of knowledge when there is a criminal act that leaves evidence in the form of blood spots, even though blood spots have an important role in the disclosure of a case by means of laboratory examinations. The identification of blood spots can be done based on the ABO system blood type, so the identification of blood groups using dry blood samples is still possible to do using the elution absorption method.
2. Quite high enthusiasm of puskesmas officers in educational activities. The Puskesmas officer asked related to the influence of time on the evidence of blood spots. In addition, the increasing knowledge because puskesmas officers are able to answer questions given by editing

Based on the activities that have been carried out by lecturers and students of the Medical Laboratory Technology div program carried out at the Mekar Sari Puskesmas, Rantau Alai District, Ogan Ilir regency, which is expected to be useful for improving the quality and quality of all parties, namely Puskesmas officers can follow blood type examination activities on evidence of blood spots so as to be able to apply the knowledge education that has been given.

## BIBLIOGRAPHY

- Darmawati, S. (2019). Determination Of The Blood Group Of The Abo System By Serum And Anti-Sera Reagents Slide Method. *Gaster*, 17(1), 77. <https://doi.org/10.30787/gaster.v17i1.330>
- Hasan, Z., Arif, M., & Bahrin, U. (2017). Variation Of Serum Sample Handling Treatment And Its Effect On Blood Creatinine Test Results. *JST Health*, 7( 1), 72-78

- Oktari, A., & Silvia, N. D. (2016). ABO system blood group examination Slide method with Serum reagents blood groups A,B, O. *Journal of Laboratory Technology* 5 (2), 49-54 <http://teknolabjournal.com/index.php/Jtl/article/78>
- Rahayu, D. P., Cahyaningrum, D. C., & Nurcahyo, B. (2021). The effect of Wall Type and Environmental Conditions toward blood Type Identification Success Rate in Identifying Criminal evidence.
- Susilo, B., Junitha, I. K., & Ramona, Y. (2020). Changes In Blood Type And Identification Of Bacteria That Play A Role In Changing Blood Type. *Metamorphosis: Journal of Biological Sciences*, 7(1), 96. <https://doi.org/10.24843/metamorfosa.2020.v07.i01.p13>