

Analysis of Health Vocational School of Laboratory Management Health Analysis Program of Jayapura

Hesti Restu Kartika¹, A.L. Rantetampang², Yermia Msen³, Anwar Mallongi⁴

¹Magister Program of Public Health, Faculty of Public Health, Cenderawasih University, Jayapura.

^{2,3}Lecturer of Master Program in Public Health. Faculty of Public Health, Cenderawasih University, Jayapura

⁴Environmental Health Department, Faculty of Public Health, Hasanuddin University, Makassar

Corresponding Author: Anwar Mallongi

ABSTRACT

Background Health SMK The Jayapura Health Analyst expertise program is one of the health education institutions that aims to prepare students to become productive human beings, able to work independently in the health sector.

The purpose of this study is to analyze the management of laboratory management in the Health Vocational School of Jayapura Health Analyst Expertise Program.

The method used in this study is descriptive qualitative with a case study approach through data collection with focus group discussion (FGD) and in-depth interviews and observations to cross check with the Principal and Head of Student Section.

The results showed that in general the Health Vocational School of Jayapura health analyst program had good laboratory management to meet the Health Analyst Laboratory Standards, the Indonesian Ministry of Health, the Health Human Resources Development Agency, the 2010 Health Workers Education Center. Success has been achieved, on time and according to needs. Laboratory requirements were obtained by the absence of practicum waste handling and the absence of fume hoods. Placement of human resources is obtained by the absence of laboratory staff on maintenance and storage.

Keywords: Laboratory, planning, organizing, leadership, supervision.

1. INTRODUCTION

Laboratory management (laboratory management) is an attempt to manage a laboratory. A laboratory can be managed properly is determined by several factors that are interrelated with each other. Some

sophisticated laboratory equipment with skilled professional practicum teachers are not necessarily able to function properly, if not supported by good laboratory management. Therefore laboratory management is a part that cannot be separated from daily laboratory activities.

In the United States in the context of managing laboratory management from the 1930s to the 1940s, the ASCP Registration Agency played important roles in formulating laboratory training programs. ASCP continuously monitors US education programs in the fields of medicine and laboratories until the 1970s. At that time, clinical laboratory experts wanted greater autonomy so that the American Society of Medical Technologists (ASMT, an organization that was previously ASCLT), helped develop independence and led a monitoring body for laboratory education expert programs. Then ASCP also gave up its supervision of the laboratory expert education program. On the other hand, NAACLS (National Accrediting Agency for Clinical Laboratory) was founded in 1973, and has until now become the primary body for accrediting laboratory education programs in the United States, both within hospitals and universities. To certify health workers, there are only three organizations that carry out the certification process, namely ASCP, AAB and AMT. (AAB = American Association of Bioanalysts / AMT = American Medical Technology) (The Journal of the International Federation of Clinical Chemistry and Laboratory

Medicine "first quarter of 2013." by Stacy E. Walz, PhD, MS, MT (ASCP) (Assistant Professor, Department Chair, Clinical Laboratory Science Department, Arkansas State University- Jonesboro). Rewritten by Akhmad Haq with adjustments)

In Indonesia the forerunner of laboratory management management began with the existence of health analyst education institutions with the establishment of health personnel training centers by Dr. Y. Sulianti together with the establishment of the Bekasi Project (precisely Lemah Abang) as a pilot project or service model for the health development of rural communities in Indonesia. Next is the Analyst Regulating School (SPA) which was founded in 1958 in Medan and Yogyakarta. The education period at that time was 2 years from elementary school graduates. Graduates can continue their specialization education for another 2 years namely chemistry majors and bacterial majors. Including also with the establishment of the F Foster Health School in the 1970s. In 1982 due to government policies changed its name to Middle School Health Analysts and in 1998 was converted to D-III Health Analyst Academy. (Hardiko, 2013)

According to the recommendation of the Principal of the Vocational School of Health, the Jayapura Health Analysts Expertise Program is the only public school in eastern Indonesia that is managed by the local government is a good and well-established school so it can be used as a reference for other schools that have good infrastructure. in the field of Health Vocational Expertise Program Jayapura Health Analysts complete laboratories have met the standards of infrastructure, but there are several laboratory management problems that must be addressed.

Principal leadership is one of the factors that can encourage schools to realize the vision, mission, goals and objectives of the school.

Professionalism and noble attitudes become inspirational school principals,

smart to be able to manage schools, have a forward view to produce quality graduates, have creative, decisive souls and discipline in attitude, humanism and integrity in schools able to solve various problems and take initiatives to improve the quality of education with providing laboratories as facilities and infrastructure for an educational institution, namely by implementing a good Health Analyst laboratory management. (Mulyasa, 2001; Wonda N, et.al. 2019; Inyomusiet.al. 2019; Orboi, et.al. 2019).

Formulation of the problem According to this background, the problem formulation is whether the management of laboratory management in the Health Vocational School of the Jayapura Health Analyst Expertise Program meets ideal laboratory standards according to the Health Analyst Laboratory Standards, Health Worker Education, Republic of Indonesia Ministry of Health, Health Human Resources Development Agency, Energy Education Center Health 2010.

2. MATERIALS AND METHODS

2.1 Types of research

This study included a type of qualitative descriptive study with a case study approach through data collection with focus on group discussion (FGD) in-depth interviews and observations to cross check to the Principal and Head of Student Section. Qualitative descriptive research is conducted to determine the extent to which the process of activities is underway and the effects of a phenomenon. While the approach used is a qualitative method that is a method that uses a process of thinking that starts with collecting data, then the data from the results of the study are collected in general conclusions. Qualitative research methods are chosen with the consideration of more easily adjusting when dealing with reality, presenting directly the relationship between researchers and informants as well as being more sensitive and adaptable with a lot of sharpening the shared influence on the patterns of value faced

2.2 Location and time of research

1. Research location

The research was conducted at the Jayapura Health Vocational Health Analyst Program.

2. Time of research

When the study was conducted in September 2018

2.3. Population and sample

Population

The population in this study were 11 informants, namely: Principal, Head of Administration, Head of Education Section, Head of Student Section, 6 (six) people in charge of the laboratory 1 (one) person in charge of the warehouse.

Sample

The sample in this study is an analysis unit that has provided information in the form of data - data needed by researchers, in this case the informant. The informants taken were Head of Administration, Head of Education Section, 6 (six) people in charge of the laboratory as well as productive teachers and 1 (one) person in charge of the warehouse. As for the completeness of the data, a cross-check will also be conducted on the Principal and the Head of the Student Section. The criteria for informants are employees who carry out tasks at the Health Analyst Program in Jayapura and are willing to provide information or be interviewed.

3. RESULTS

3.1 Characteristics of Informants

Table 1. Characteristics of Informants

No	Informants	Sex	Age	Education
1	Mead master	Male	54 year	S2
2	Head of TU	Female	53 year	Diploma III
3	Chief of student Dept	Male	56 year	S1
4	Chief of student edu	Male	48 year	S2
5	Chief of storage	Female	44 year	S1
6	Teacher Produktif Bakteriologi	Female	45 year	S1
7	Teacher Produktif Hematologi	Male	39 year	D4
8	Teacher Produktif Parasitologi	Female	33 year	D4
9	Teacher Produktif Serologi	Female	35 year	S1
10	Teacher Produktif Kimia Klinik	Male	35 year	S1
11	Teacher Produktif Kimia Analitik	Female	34 year	S1

3.2. Planning of Health Analyst Laboratory

Based on the data from the document review, observation and interviews, the researchers found several findings related to the Health Analyst laboratory planning that the researchers observed and felt were: Medical Analysis Laboratory consisting of bacteriology laboratories, hematology laboratories, parasitology laboratories, serology laboratories that joined clinical chemistry laboratories, and analytical chemistry laboratories. Of the six laboratories, they have work programs that are regularly held every year at the beginning of the new school year, which is attended by all laboratory administrators led by the head of the student section. Planning in this case relates to the procurement of materials and reagents as material for students to carry out

laboratory practices, then also includes planning laboratory equipment.

1. Time of planning

This is in accordance with the statement of the person in charge of the clinical chemistry laboratory in his interview saying: "... Here the annual planning is not the same period, this means that in the 2016/2017 school year we budget it for 2016 or 2017 so for odd and even semesters but in 1 year. So for example, I want to plan for 2014, is it for 1 year displaced per 6 months, what are the 6 months? the process is like that. Now if I have ... I submit it as a program that is closed every year at the beginning of the new school year, for example, now 2018, meaning that the meeting was yesterday at the beginning of the new school year, I just entered what was needed ..." (A10)

This is similar to what was conveyed by the Head of Student Section Head at the discussion: "... So indeed we basically have a work program that now even in 2018 has entered the Papua Provincial Health Office. So we indeed plan to work a work program every year ... "(A3)

2. The planning process for preparing a work program

Then for the planning process in the interview explained by the head of the Student Section as follows: "... Enter what is needed by the person in charge of the laboratory first, then we discuss it at the meeting, after all agree, it is stated the financial value for the procurement of tools and reagents from the Health Office, of course not every request we can accommodate we see also the usage in the previous year then for the following year, if you agree, the Head of Student Section submits to the Health Office ... "(A3) Then the person in charge of the serological laboratory in the discussion also said the planning process was as follows:

"... In accordance with the practicum module that will be practiced, each student uses how much the reagent material is, from which the numbers are found to make details of the raw material to be purchased. This work program will be submitted to the Head of Student Affairs in a meeting each year. At the beginning of the new school year ... (A9)

Then the Head of the Student Section said: "... For example, if we join this one room, I show a file on how to procure like this: planning, procurement, expenditure, and reports. Made per year, the purchase must be licensed by the principal and submitted to the Health Office and the Health Office appoints the entrepreneur or contractor ... "(A3)

4. HR involved in planning

According to the Principal in the interview said that: "... Everything must be approved by the principal and the Head of the Student Section, meaning that all have their own parts and duties as the responsible person of the laboratory contained in the program ..."

(A1) The same thing was also conveyed by the head of the Education Section: "... What is the person in charge of their laboratory planning their needs? when they need it, they submit, and get close to planning at the beginning of the new school year ... "(A4)

5. Indicator of success in the planning process

In the discussion the Principal said in the discussion as follows:

"... All plans will succeed and run smoothly if all the person in charge of each laboratory submits requests according to their needs on time, all needs are well-documented, if there is a residual reagent in the past year, the request can be reduced. ... "(A1) This was also corrected by the Head of Administration:

"... The success of the planning process depends on the timeliness of the planning of reagents and medical instruments and planned according to needs and also adjusted to the funding ceiling at DPA (budget request list). Furthermore, the demand for reagents and medical equipment must be planned for one year. So the planning process must involve all parties in the school especially the Head of the Student section and the person in charge of the laboratory so that everything will be organized with baek ... "(A2)

3.2. Organizing the Health Analyst Laboratory

The Health Analyst Laboratory is a room designed according to the need to carry out activities related to the functions of education, research, and community service. The laboratory referred to in this standard is for learning in clinical laboratories, workshops, workshops. Laboratory activities will bring students to the formation of attitudes, skills, abilities to work together, and creativity in receiving knowledge. By carrying out good laboratory activities, in accordance with laboratory procedures and procedures, it can indirectly support the implementation of the curriculum. Theoretical learning that is learned through class and literature study is

abstract, can be actualized real through laboratory activities.

1. Vision and Mission

A laboratory must have a vision and mission formulated by an institution or manager. The vision and mission can differ from one laboratory to another. The vision implies that the laboratory is the center of retrieving the concepts of science, the development of science, and / or the discovery of new science and the application of science. Therefore the laboratory is expected to be beneficial for education. The mission of the laboratory should include the following:

- a. Creating a laboratory as a center for science and technology discovery and development.
- b. Understand, test and use concepts / theories to be applied during practice.
- c. Creating work safety and security in the laboratory.
- d. Creating a conducive learning environment.

2. Purpose

The purpose of the laboratory as a place:

- a. Test the science, theories and concepts that have been studied.
- b. The holding of practical activities and research that supports learning and development of science.
- c. To carry out testing and calibration of tools.

To achieve these objectives a laboratory is demanded to always be improved in accordance with the development of science and technology. Thus the orientation of a laboratory is not only aimed at its existence, but must be proactive and innovative.

3. Benefits

The benefits of a laboratory for health personnel education include at least the following:

- a. Is a supporting element in carrying out the achievement of student competencies according to the curriculum?
- b. To improve the learning process in a laboratory that is regular and sustainable, so that it can improve the quality of education.
- c. Prepare students to be skilled before going to the land (Hospital, Community

Health Center, Maternity Home, Pharmacy, Clinic, and community)

Based on the findings of the observations, interviews and documentation, researchers found findings related to organizing the laboratory of Health Analysts in the Health Vocational School of Jayapura Health Analyst Program, namely:

4. Type of Laboratory

The types of laboratories include:

- a. Bacteriology Laboratory
- b. Hematology Laboratory
- c. Parasitology Laboratory
- d. Serology Laboratory joins the Clinical Chemistry Laboratory
- e. Analytical Chemistry Laboratory

The following is an interview quote from the principal: "... There are 5 Health Analyst laboratories. But there is one laboratory combined, this is due to the lack of a laboratory building ... "(A1)

5. Laboratory Requirements

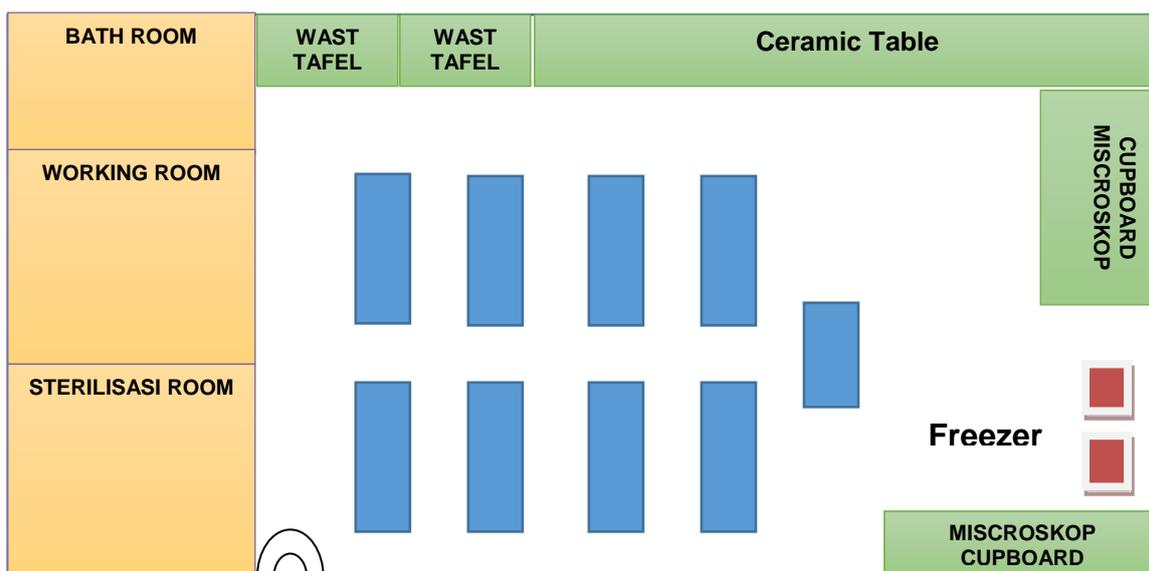
A laboratory can function effectively and efficiently must pay attention to matters related to the minimum requirements, namely the type and amount of equipment, as well as consumables based on the competencies to be achieved which are expressed in the ratio between tools and students. In accordance with the interview person in charge of the bacteriology laboratory as follows:

... "But for raw materials, for example, we make Mac Conkey media for bacterial breeding, before we have to count the number of students who want to practice first, for example there are 36 students, so we have to calculate according to the formula that has been standardized by bacteriological laboratories, if weighed 8 grams of mac Conkey media dissolved with 300 ml distilled water will be 12 plates, if the number of students is 36, then the media weighed as much as 24 grams of mac conkey media is dissolved with 900 ml of distilled water and 36 plates, so each student gets 1 plate. In this way the use of media will be well controlled and effective in its use ... "(A6)

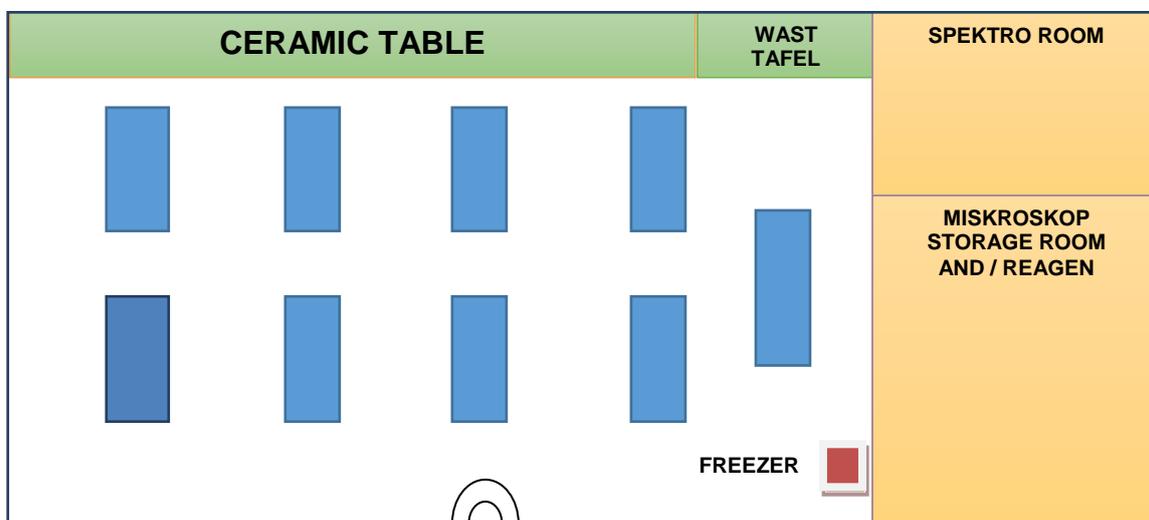
Then the form / design of the laboratory must pay attention to safety or security aspects. The shape and design of the laboratory analysts are adjusted to the capacity of the number of students, each of which consists of 36 students. For the floor plan and size of each laboratory the researcher obtained documents from the staff in charge of the laboratory, where he said that: "... For 9x12 bacteriology laboratories, 9x12 hematology laboratories, 6x9 parasitology laboratories, 6x9 serology and clinical chemistry laboratories, and 6x8 analytical chemistry laboratories, so that students carry out practicum activities for sufficient space and safety and health

aspects. Besides that the laboratory is safe and comfortable for students and teachers / instructors and allows the teacher / instructor to see all students working in the laboratory without being obstructed by furniture or other objects in the laboratory. Students must be able to observe demonstrations / simulations from a maximum distance of 1 m from the demonstration table. Based on the observations of researchers, the bacteriology and hematology laboratory rooms are almost the same, there are 8 tables and each of them has 4 bench seats, 1 microscope cabinet, 1 cupboard for medical devices and 2 refrigerators

MAP OF BACTERIOLOGY LABORATORY

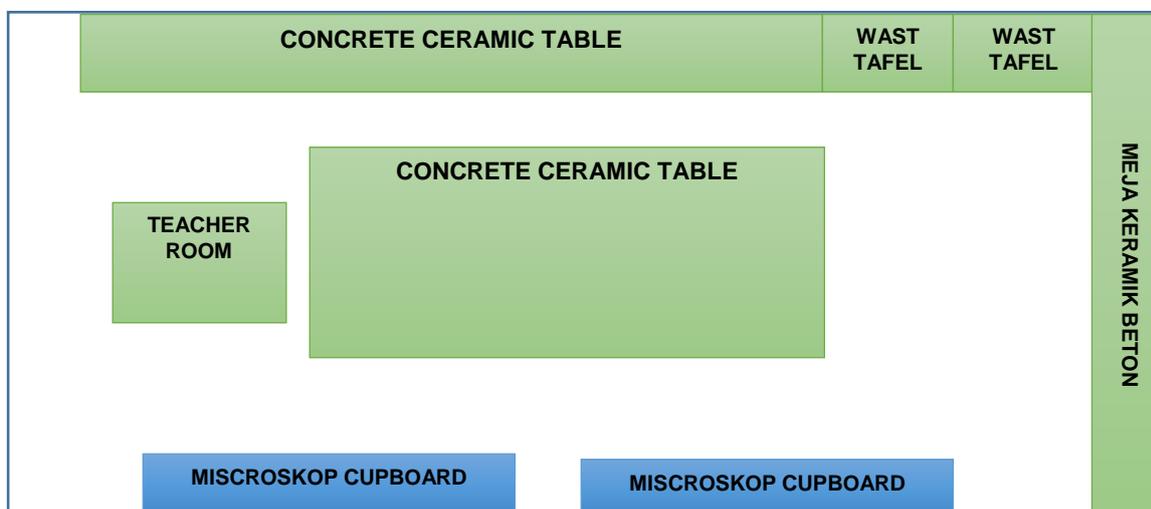


MAP OF HEMATOLOGY LABORATORY

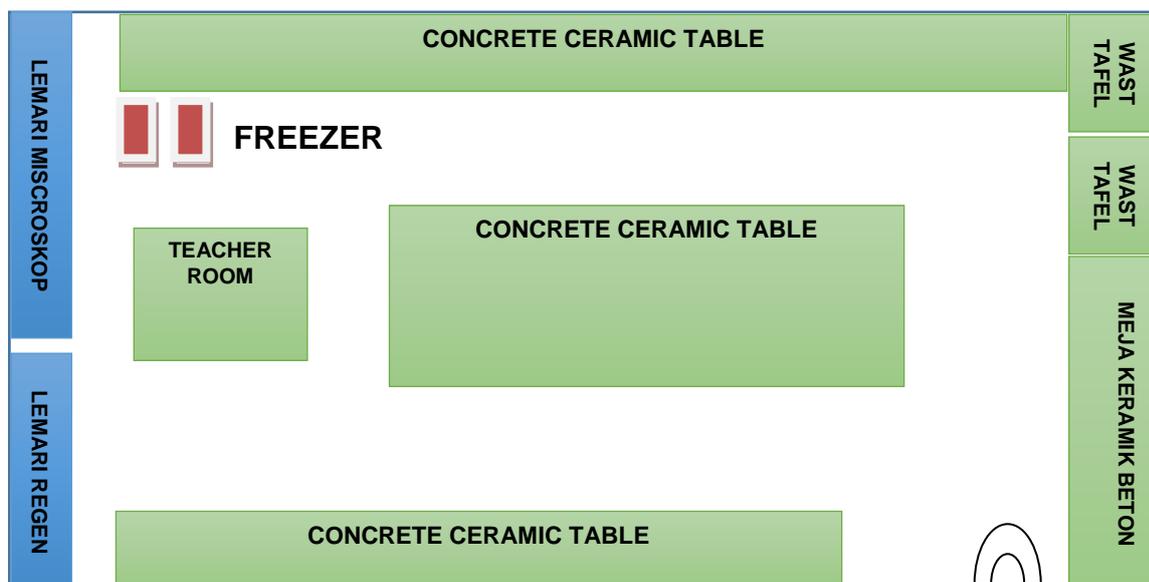


While the parasitology laboratory, serology which joins clinical chemistry, and analytical chemistry laboratory has the same spatial layout, namely 1 large table in the middle and 32 seats to do student labs, 1 microscope cupboard, 1 cupboard for medical devices and 1 refrigerator.

MAP OF PARASITOLOGY LABORATORY



MAP OF LABORATORY OF SEROLOGI/KIMIA KLINIK



Thus the teacher can supervise students at the time of practice, because there are no assistants who assist in the laboratory. This is in accordance with the interview said by the productive teacher:

"... for the practice of each teacher the field of study is responsible for the students who practice it, because we don't have assistants

and laboratory staff, so the teacher is also the supervisor and assistant ..." (A10)

Laboratory floors should not be slippery, must be easy to clean, and resistant to spills of chemical materials, because it would be very dangerous if not immediately cleaned up, so that it would interfere with the movement of students who are practicing back then not translucent, resistant to acids

and bases (made of porcelain). This is to anticipate work safety in first aid during the implementation of practical activities. Such information is conveyed by productive teachers:

"... If students are exposed to chemicals, the action we take is first handling washing with water and treating it with an existing first aid kit, only the first treatment. If it's bad we bring it to the hospital ... "(A7)

The existence of Standard Operating Procedures (SOP) or work instructions. This procedure is operational and binding on all laboratory users. Before students carry out the practicum, they must pay attention to practicum guidelines such as laboratory rules and fixed procedures (PRP) for practicum implementation of each related subject. The following are the Rules of the Bacteriology Laboratory of the Jayapura Health Vocational School which researchers obtained from supporting documents:

⌘ General Rules

1. Must wear a clean and neat work coat
2. Long hair must be tied
3. Nails should not be long
4. Not allowed to smoke, eat and drink in the laboratory room
5. It is prohibited to wet paper labels with saliva, it is forbidden to bite - bite pens and handkerchiefs
6. Bring enough stationery or other furniture
7. Clean the lab table after the practice is complete.
8. After work or practice, you should wash your hands with soap and disinfectant if necessary.

⌘ Special regulations

To avoid work accidents, transmission of disease and to get the maximum possible work results, it is necessary to adhere to the bacteriological laboratory rules as follows:

1. The tools used to move / plant cultures / samples, for example ose, planter needles, etc., after and before use must be sterilized by burning them on a flame that does not burn, while other tools such as cotton sticks, syringes and so on can be soaked in disinfectant.

2. Other equipment such as microscopes, practical work tables must always be clean and tidy and ready to use.

3. Tools and reagents that have been used are returned to their original storage area.

4. If you need a work coat, footwear is only used in the work room / practice only.

5. Preparations, cultures, tissue paper, used cotton and other unused materials are disposed of in the already sited place.

6. Every accident includes falling / spilling culture, methylated lights exploding and burning, pierced by the glass, immediately overcome with a known method and immediately report to the supervisor of the practice / the person in charge of the laboratory, especially if it cannot overcome.

The reporting and documentation system of each practical activity in each laboratory is after the practicum must make a practicum report in an official journal that must be submitted before starting the next practicum. The official journal is a report that has been completely and completely rewritten by students when they did the previous lab. From the date of practicum, title, purpose, work principle, work procedures, results and conclusions. All practical activities must be signed by the teacher in the study area. If in 1 (one) practical session is complete 1 subject in 45 minutes X 3, then the student must report to the teacher of the study field by bringing a temporary report book that the student has been working on the lab that day to sign. This is as expressed by the productive teacher as a teacher of study:

"... The name of the practicum report book is the proof of practice at that time, which was collected after completion of the practice and then signed by the subject matter teacher then rewritten on the official report collected in the coming week before starting practicum ..." (A9)

Laboratory Spatial

a. Type of Laboratory Room

Each type of laboratory has the following rooms:

1. Laboratory management room

2. Student practice room
3. Workspace and teacher preparation
4. Room / storage area for tools
5. Material storage space

b. Form of space

The shape of the laboratory room should be square or close to a square or can be rectangular. The square shape allows the distance between the teacher and students to be closer so as to facilitate contact between the teacher / instructor and students.

c. Room Area

1. Area of workspace practice space of at least 2.5 m²
 - a. 1 (one) student requires a minimum work space of 2.5 m²
 - b. An empty space is provided between the wall and the workbench space of around 1.7m to facilitate and secure the circulation of tools and students in the laboratory.
 - c. The distance between the ends of an adjacent table should be no less than 1.5m so that students can move freely at work and when moving or moving tools (materials) from one place to another.
 - d. The area of space must be proportional to the number of students and types of educators.

2. Extensive storage of tools and materials tailored to the types of tools / materials available in each type of education.

Room facilities are tailored to the needs of each laboratory. Based on the observations that the researchers saw then: In the bacteriology and hematology laboratory there are 8 (fruit) tables and each - each table has 4 chairs, at the front there is a teacher's desk, beside the right there is a refrigerator and a medical cabinet and on the left is a cupboard microscope, beside the student practice table there is a ceramic table and 2 washbasins, behind the student practice table there are 2 rooms, namely, 1 practice room for teacher practice and 1 room for practice tools / sterilization room.

Whereas in the laboratory Parasitology, serology and clinical chemistry there is 1 large table in the middle made of ceramics for student practicum and

has 30 chairs, at the front there is 1 teacher chair table, on the right side of the teacher's desk there is a microscope cabinet and besides 1 practicum place and 1 refrigerator, beside the student practice table there is a circular semicircular ceramic table and there are 2 sinks. The following is conveyed by the person responsible for the serology laboratory:

"... Because the serology laboratory and clinical chemistry are still joining, for the preparation of the practicum we set different days ..." (A9)

In the analytical chemistry laboratory there is 1 large table in the middle made of ceramics for student practicum and has 30 seats at the front there is 1 teacher chair table, on the left side of the teacher's desk there is one cupboard for practicum tools and materials and 1 refrigerator beside one left acid. Besides the student practice table there is a circular ceramic table and there are 2 sinks. The right and left sides of the laboratory have 4 (four) large glass which must always be opened at the time of the lab work as air circulation

4. DISCUSSION

4.1. Planning of Health Analyst Laboratory

Based on the findings of researchers in the data collection process, there are 6 (six) Health Analyst laboratories at the Health Vocational School of Jayapura Health Analyst Program. The researcher knows that the planning of the six health analyst laboratories must go through a thorough planning process. In accordance with the planning process (Terry, 1998) suggests planning involves the act of choosing and combining facts and making and combining assumptions about the future in visualizing and formulating proposed activities and deemed necessary to achieve desired results.

Broadly speaking there are 4 (four) stages in the health analyst laboratory planning process including: planning work program planning, which includes time and

human resources involved in planning, the process of procuring laboratory equipment and materials, the process of dispensing goods and the final report.

In this laboratory planning process, the performance of the organization in the future provides tasks using the resources needed to realize the goals. According to (Handyaningrat, 2013) planning is a process of systematic thinking in determining everything that will be implemented in order to achieve goals. While planning functions include a series of decisions in the form of establishing objectives, wisdom, making programs, determining the methods to be achieved, and procedures and compiling an implementation schedule. The strategy used by the Jayapura Health Analyst Program is to create a work program (Progja).

The work program is made by each head of the pharmaceutical laboratory submitted at the school meeting which is held at the beginning of each new school year. In relation to the work program, (Moch Jefri, 2015) states, "the program is an activity that describes in advance the part about the work to be carried out along with instructions on how to implement it. A program also includes what activities will be carried out, when activities are carried out, why activities need to be carried out, who is implementing them, where and how the activities are carried out. Programs are made to clarify the planning of an activity. The work program at the Health Vocational School of the Jayapura Health Analyst Program is planned every year, input from the work program parts, then discussed at the meeting, after all approved by the principal then we submit it to the Papua Provincial Health Office. The request is adjusted to the budget in DPA (budget execution document) which if approved then we will carry out procurement of goods, where the procurement committee comes from the Papua Provincial Health Office involving entrepreneurs (contractors) Then the next step we make HPS (temporary request price) for given to the

Papua Provincial Health Office's procurement committee, as stated by the student section head:

"... When procuring reagent materials and medical devices, each laboratory responsible person submits any request that is needed, then submitted to the procurement committee of the Papua Provincial Health Office, after the winner of the procurement is determined then we make the HPS (temporary request price) to make an offer with the businessman, after the offer is approved by the procurement committee, the goods order arrives, is received, is checked by the recipient of the goods, after being accepted into the warehouse, the warehouse will be released to each laboratory according to the request ... "(A3)

4.2 Organizing the Health Analyst Laboratory

Based on the research findings in the data retrieval process, researchers know that organizing a health analyst laboratory is carried out by examining the laboratory types of laboratory requirements, laboratory layout, laboratory organizational structure, laboratory funding, maintenance and storage of tools and materials, administration of tools and materials and safety and security in the laboratory.

Organizing is a process for determining, grouping tasks, and setting together, activities to achieve goals, determine the people who will carry out activities, provide the necessary tools, determine the authority that can be delegated to each individual who will implement the activity (Hasibuan, 1990). First, based on the results of laboratory research in the Health Vocational School of the Jayapura Health Analyst Program there are 6 (six): bacteriology laboratories, hematology laboratories, parasitology laboratories, serology laboratories and clinical chemistry and analytical chemistry laboratories, the six laboratories are suitable for students with his competence at the Jayapura Health Vocational Health Analyst Program.

Second, laboratory requirements, namely a laboratory that can function effectively and efficiently must pay attention to matters relating to minimum requirements, namely type and amount of equipment, and consumables based on competencies to be achieved which are expressed in the ratio between tools and students. For example, to make Mac Conkey raw material for bacterial breeding, before we have to count the number of students who want to practice first, for example there are 36 students, so we have to calculate according to the formula standardized by bacteriological laboratories, if weighed 8 grams of media Mac Conkey is dissolved with distilled water 300 ml will be 12 plates, if the number of students is 36, then the media weighed as much as 24 grams of mac conkey media is dissolved with 900 ml of distilled water and becomes 36 plates, so each student can get 1 plate. Then form / laboratory design must pay attention to safety or security aspects.

The form and design of the health analyst laboratory is adjusted to the capacity of the number of students, each of which has 36 students. For the floor plan and size of each laboratory in the Health Vocational School of the Jayapura Health Analyst Program is the 9x12 bacteriology laboratory, 9x12 hematology laboratory, 6 x 9 parasitology laboratory, 6x9 serology and clinical chemistry laboratory, and 6x8 analytical chemistry laboratory, so that students carry out practical activities for the space and aspects of safety and health are quite adequate.

Besides that the laboratory is safe and comfortable for students and teachers / instructors and allows the teacher / instructor to see all students working in the laboratory without being obstructed by furniture or other objects in the laboratory. Students must be able to observe demonstrations / simulations from a maximum distance of 2 (two) m from the demonstration table. Laboratory floors should not be slippery, must be easy to clean, and resistant to chemical spills,

because it will be very dangerous if not immediately cleaned, so it will interfere with the movement of students who are practicing back and forth. Likewise, the tools or objects installed on the wall should not stand out to the part of the room where students walk and circulate the tool, because it will disturb the student's space. Then there must also be a practice supporting reference book.

Then there must be flowing water and the practicum table must be translucent, resistant to acids and bases (made of porcelain). This is to anticipate work safety in first aid during the implementation of practical activities. At the Health Program Vocational School, Jayapura Health Analysts already have medical devices, first aid must be available, if there is a work accident, the first one must report to the practice teacher, then flush with water and treat it. If we are severe, we refer to the hospital. Furthermore, there are Standard Operating Procedures (SOP) or work instructions. This procedure is operational and binding on all laboratory users. Before students carry out the practicum, they must pay attention to practicum guidelines such as laboratory rules and fixed procedures (PRP) for practicum implementation of each related subject.

The reporting and documentation system of each practical activity in each laboratory is after the practicum must make a practicum report in an official journal that must be submitted before starting the next practicum. The official journal is a report that has been completely and completely rewritten by students when they did the previous lab. From the date of practicum, title, purpose, work principle, work procedures, results and conclusions. All practical activities must be signed by the teacher in the study area. If in 1 (one) practical session is complete 1 subject in 45 minutes X 3, then the student must report to the teacher of the study field by bringing a temporary report book that the student has been working on the lab that day to sign.

Third, laboratory layout, the form of laboratory space should be square or close to a square or can be rectangular. The square shape allows the distance between the teacher and students to be closer so as to facilitate contact between the teacher / instructor and students. Fourth, laboratory organizational structure. The implementation of a laboratory activity requires a rule or provision so that activities can run smoothly, so that the objectives of learning activities can be achieved. Operational rules or conditions need to be clearly arranged. This is because the laboratory is a system consisting of infrastructure and facilities to support activities, both in the form of laboratory equipment and human resources. Therefore, the laboratory needs to be regulated in accordance with the applicable regulations in each institution. Given the large number of equipment and workload in a laboratory, an adequate management system is needed to manage the infrastructure and facilities and activities in the laboratory. This management system includes the organizational structure, division of labor, and the composition of personnel managing the laboratory. (Winardi, 2000) says organizing is a process in which a job is divided into components that can be handled and activities to coordinate the results achieved to achieve the objectives .

School residents in the Health Vocational School of the Jayapura Health Analyst Program involved in laboratory management activities of health analysts have their duties and responsibilities. The job description includes the principal as the supervisor responsible to the head of the student section and guiding the implementation of practical activities in the health analyst laboratory, the principal is assisted by each person in charge of the health analyst laboratory.

Fifth, laboratory funding. A laboratory will not be able to carry out its functions properly, if it does not have sufficient funds, both for operations and for the development of the laboratory.

Laboratory operational activities depend on the availability of materials and tools. All necessary materials must be provided, and funds are needed. Funds are also needed for other laboratory operational costs, such as routine maintenance, repairs to damaged equipment, and the purchase of unexpected laboratory equipment. In the Health Vocational School, Jayapura health analyst funding programs are obtained from the Regional Budget (regional income and expenditure budget) of the Papua Provincial Health Office.

Sixth, Maintenance and storage. In the Health Vocational School of Singapore Health Analyst program the use, storage and maintenance of materials and tools in the laboratory is entrusted to the person in charge of the laboratory and adjusted to the schedule of their respective laboratory use. In accordance with what the productive teacher informs. For the use of broken laboratory equipment, there are two handling systems, namely, students have the responsibility to replace them if they solve / damage the tool because of their own mistakes. As for storage of tools and materials placed in accordance with their respective places. For hazardous materials must be placed at the bottom so it is not difficult when taking it. For the maintenance of laboratory equipment handled by the person in charge of the laboratory, each damaged device is repaired first by calling the technician, if indeed it cannot be repaired, the school will buy again.

Seventh, Administration of tools and materials. The administration of tools and materials means to record the number / number of tools and materials available. Administration can be done by the warehouse manager. The most important things to note are the name of the tool, the number / quantity, specifications, and date of procurement or the date the tool was issued. Recording can be done in a traditional way using books or card stock, at the Health Vocational School of Jayapura health analyst program the administration / record keeping has been carried out in the

warehouse section. The goods recording system which includes tools and raw materials is recorded manually in the stock card, starting from the receipt of goods, to the issuance of goods. For scheduling the hospitalization stock for these materials is done once every 6 months or per semester.

Eighth, Safety and Occupational Safety in the Laboratory. In each laboratory has met the standards in work safety. Laboratory activities have been supported by standard work safety equipment. It's just that the laboratory does not have a laboratory waste installation. Waste is only thrown into the air and does not have a fume hood. For drains used by removing water first then practicum waste and finally given enough water to neutralize waste. Organizing a health analyst laboratory at the Health Vocational School of Jayapura Health Analyst program has followed the Health Analyst Education Laboratory Health Standards set by the Head of the PPSDM Health Agency as a reference for the Health Workforce Education Laboratory Department of Health analysts.

4.3. Health Analyst Laboratory Leadership

Based on the research findings in the data retrieval process, researchers learned that the Health Vocational leadership of the Jayapura health analyst program was very good in managing the school as a whole as well as the management of the analyst health laboratory in particular. In this case, leadership is a dynamic process that always moves to improve the quality of subordinate work with the leadership style that he has. Furthermore, the leadership role is to guide subordinates to achieve group goals because the success of the leader is also determined by the situation factors. Leadership can also be said to influence people between individuals (interpersonal) through the process of communication to achieve something or some purpose (Gibson, 1990; Melalolin et al 2019;).

In terms of leadership, a leader must have self-ability and self superiority compared to subordinates, including the

authority and power possessed. So that a leader can influence the subordinates he leads, he must have or be equipped with power or authority. Furthermore, Stoner and Freeman explained "reward power, coercive power, and expert power, which are available from managers, the greater the potential for effective leadership." The more types of power a leader has, the greater the potential to become an effective leader.

The principal as manager in the management of facilities and infrastructure is the function of the principal in planning facilities, arranging facilities and infrastructure, placing facilities and infrastructure in accordance with the expertise of each member of the organization and overseeing facilities and infrastructure by comparing the use of facilities in accordance with the standards predetermined as stated by the Head of Student Section in the interview as follows:

"... The Principal of the Vocational School of Health Jayapura health analyst program has an overall descriptive and systematic work program for a period of 1 (one) year starting every new school year ..." (A2).

The work program carried out by the principal in managing facilities and infrastructure by carrying out activities, namely: (1) planning equipment that is useful and needed in the implementation of education (2) guiding staff in utilizing existing equipment to the maximum extent (3) dividing facilities freely and fairly (4) equipping teachers with existing facilities to help them work properly (5) encouraging continued exploration of new and better services (6) fostering honesty of staff to determine facility requirements in carrying out tasks (7) submit proposals to fulfill school needs for higher facilities for superiors / leaders.

In this case because the Health Vocational Program of Jayapura Health Analyst is an educational institution under the auspices of the Papua Provincial Health Office, all forms of school facilities and infrastructure along with their laboratories

are facilitated by the Papua Provincial Health Office. Principal leadership is one of the factors that can encourage schools to realize the vision, mission, goals and objectives of the school. Dedication, obedience, wisdom and creativity of the principal are able to solve various problems and take the initiative to improve the quality of education by providing laboratories as a means and infrastructure of an educational institution that is by applying good health analyst laboratory management so that students who excel and excel are produced.

4.4 Supervision of health analyst laboratories

Based on the research findings in the data retrieval process, the researcher knows that supervision activities can take the form of examinations, checks and efforts to prevent errors that may occur, so that if there are frauds or irregularities, improvements can be made. So supervision has two functions including: first, comparing the results that have been achieved with a predetermined plan and second, recording all the results of supervision to be taken into consideration in an effort to improve and improve. All managers must control their units when planning because they do not really know unless they have evaluated what activities have been done and compared actual performance against the desired standards. As said (Siagian in Subagio, 2000) is the process of observation of the implementation of all organizational activities to ensure that all work that is being carried out goes according to a predetermined plan.

Supervision at the Health Vocational School of the Jayapura Health Analyst program, the supervision process is so well-integrated and well-programmed that it is routinely carried out every 6 (six) months or per semester. Supervision is carried out on an ongoing basis starting from the principal, head of the student section and laboratory responsibility. The Health Vocational School of Jayapura Health Analyst program is a school under the auspices of the Papua

Provincial Health Office so discipline and responsibility are the most important factors that are applied in the school to make an accountability report if an examination is conducted.

5. CONCLUSIONS

1. Characteristics of information from 11 informants who were all aged 35 years and over, 2 stratum education had 2 people, strata 1 education had 8 people and diploma education III there was 1 person.

2. Data collection with focus on group discussion (FGD) In general, the Health Vocational School of Jayapura Health Analyst Program Management Health Analyst Laboratory includes: planning, organizing, supervisory leadership has been running well in accordance with the Health Analyst Laboratory Standards, Health Workforce Education, Republic of Indonesia Ministry of Health PPSDM Health Agency, Health Worker Education Center 2010.

3. At the sub focus of the health analyst laboratory planning when planning is carried out every year at the beginning of the new school year. The process of preparing work program planning includes: 1) Time and human resources involved, 2) Process of procuring laboratory equipment and materials, 3) Expenditures of goods and 4) Final report.

4. Indicator of success has been achieved 1) Timely in planning. 2) Planning is in accordance with needs.

5. On laboratory requirements the focus of organizing health analyst laboratories is that there are still obstacles in the absence of practicum waste disposal sites and the absence of fume hoods.

6. In the sub-placement of human resources, organizing is found that there is no laboratory staff, especially in maintenance and storage

REFERENCES

- Arikunto, Suharsini, 2006. *Prosedur Penelitian Suatu Pendekatan Praktek*, Jakarta PT Rineka Cipta

- Arikunto, Suharsini, 2010. *Prosedur Penelitian Suatu Pendekatan Praktek*, Jakarta PT Rineka Cipta
- George R Terry, 1998. *Dasar – Dasar manajemen*, Bina Aksara Jakarta Edisi Revisi
- Gibson, James L, 1990. *Organisasi dan Manajemen*, Penerbit Erlangga
- Hardyaningrat, Soewarno, 1985. *Pengantar Studi Ilmu Administrasi dan Manajemen*<http://www.thefreedictionary.com/nonpartisan> diakses 2013
- Hardiko, 2013. Haqahmad blogspot com. *Sejarah Analis Kesehatan di Indonesia*.
- Hasibuan Malayu SP, 1990. *Manajemen Sumber Daya Manusia dan Kunci Keberhasilan*. Penerbit Haji Masagung, Jakarta
- Handoko T. Hani, 1991. *Manajemen Personalia dan Sumber Daya Manusia*. Yogyakarta BPPE Heijrachman dan Husana Suad diakses 2002
- Inyomusi S, Rantetampang AL, Pongtiku A et.al. The factors affecting to the performance of midwifery in antenatal care services of mother and children's health program in Ransiki health primary Manokwari Selatan district and Bintuni borderline. *International Journal of Science & Healthcare Research*. 2019; 4(1): 211-219
- Joko Subagyo, 1997. *Penelitian Dalam Teoridan Praktek*. Jakarta Rineka Cipta
- Lexy. J Moleong, 2002. *Metodologi Penelitian Kualitatif*. Bandung Remaja Rosdakarya
- Lexy J Moleong, 2009. *Metodologi Penelitian Kualitatif*. Bandung Remaja Rosdakarya
- Moch. Jefri, 2015 “Pengertian Program”, onli<http://id.schvoong.com/social-sciences/educatio/2179905-pengertian-program-kerja/Online>
- Mulyasa E,2001. *Menjadi Kepala Sekolah Profesional*. Bandung PT.Remaja
- Melalolin A, Rantetampang AL, Msen Y et.al. Determinant factors in remote regional health services in the Wondiboy health center in teluk Wondama district (case study in Sendrawoi district health center). *International Journal of Science & Healthcare Research*. 2019; 4(1): 163-170.
- Magdalena I, Rantetampang AL, Pongtiku A et.al. The risk factors environment and behavior influence diarrhea incidence to child in Abepura hospital Jayapura city. *International Journal of Science & Healthcare Research*. 2019; 4(1): 171-180
- Nusa Putra dan Ninin Dwilestari, 2012. *Penelitian Kualitatif, Pendidikan Anak Usia Dini*. Jakarta, Rajagrafindo Persada.
- Orboi Y, Msen Y, Ruru Y et.al. The factors influencing four visited antenatal care in primary health centre in Sanggeng Manokari district, West Papua province. *International Journal of Science & Healthcare Research*. 2019; 4(1): 202-210.
- Sarwoto, 2017. *Dasar – Dasar Organisasi dan Manajemen*, Ghalia Indonesia Edisi/Cetakan
- Sondang P. Siagian, 2000. *Manajemen Abad 21*. Jakarta Bumi Aksara.
- Stoner, 1989. *Management (USA: Prentice-Hall International)*
- Stoner, 1990. *Principles of Management. American with disabilities Act*.
- Suciati dan Prasetyo Irawan, 2001. *Teori Belajar dan Motifasi*. Jakarta PAU
- Sugiyono, 2008. *Metode Penelitian Kuantitatif, Kualitatif R dan D*. Bandung Alfabeta.
- Sugiyono, 2009. *Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif, R dan D)* Bandung Alfabeta
- Sule Saifullah, 2005. *Pengantar Manajemen Edisi Pertama*. Prenadamedia Group.
- Winardi, 2000. *Kepemimpinan Dalam Manajemen*. Jakarta Rineka Cipta.
- Widyarti, 2005. *Jurnal Pendidikan dan Pengawasan vol 2 no 2, Oktober 2012*.<http://ciahutapea.blogspot.co.id/p/makalah-pengelolaan-laboratorium.html>.
- *Standar Laboratorium Analis Kesehatan, Pendidikan Tenaga Kesehatan, Kementerian Kesehatan RI, Badan PPSDM Kesehatan, Pusat Pendidikan Tenaga Kesehatan 2010.*
- *The Journal of the International Federation of Clinical Chemistry and Laboratory Medicine" kuartal pertama di tahun 2013." oleh Stacy E. Walz, PhD, MS, MT (ASCP) (Assistant Professor, Department Chair, Clinical Laboratory Science Department, Arkansas State University- Jonesboro). Ditulis ulang oleh Akhmad Haq dengan penyesuaian)*
- *Undang – Undang no 36 Tahun 2014 Tentang Tenaga Kesehatan*
- Wilil M, Rantetampang AL, Msen Y et.al. Determinant factors of incidence of

helminthiasis among student of SD In press
42 Taman Ria in Kelurahan Wosi
Manokwari district. International Journal of
Science & Healthcare Research. 2019; 4(1):
181-189.

- Wonda N, Rantetampang AL, Msen Y et.al.
Case detection rate by health employee
tuberculosis program in Puncakjaya district.
International Journal of Science &
Healthcare Research. 2019; 4(1): 190-201.

How to cite this article: Kartika HR,
Rantetampang AL, Msen Y et.al. Analysis of
health vocational school of laboratory
management health analysis program of
Jayapura. Galore International Journal of
Applied Sciences & Humanities. 2019; 3(1): 43-
58.
