ORAL

The Study Of The Type Laboratory Examination In Health Service Facilities With Integration Determination Of Local Content Courses DIII-Health Analyst

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Abstract

Introduction: Health Laboratory Services is an integral part of healthcare services to the public. The main task of health analyst conducts healthcare laboratory services. In order to produce health analyst personnel who meet the needs of graduates or stake holders, the education will apply the curriculum for the learning process. Diploma in Education 3 students must take at least 108 credits (semester credit unit). Meanwhile, the education core Curriculum 3 medical laboratory technology defined by 82 credits. In order to fulfill the credits set need to be arranged local content to meet the shortage of credits from the core curriculum that is suitable for learning access. **Purpose**: Obtain the amount of data on the number of laboratory tests and local subjects. **Method**: Secondary Data from the recording and reporting of each laboratory for 3 months. **Results**: A total of 48.04% clinical chemical test types. A total of 18.87% hematological examination. A total of 1.88% of parasitological and microbiological examination. A total of 19.54% of immunological examination. The curriculum that is used by the Poltekkes Department of Health analyst Semarang 108 SKS with 82 SKS core curriculum and 26 SKS local payload. The subject or number of face-to-face is based on the data proportion of three large groups of tests, namely clinical chemistry (48.04%). Immunological examination (19.54%) and hematological examination (18.87%). **Conclusion**: The most proportion of tests on fasyankes are clinical chemistry (48.04%). Courses "Knowledge of materials practice" could be added to the curriculum of the D3 of the Poltekkes health analyst Program in Semarang. **Suggestion**: Need to calculate the credits and proportion of face to face or depth to the local content course "knowledge of practice materials" and placement in the semester.

Keyword: Types of laboratory examinations, local charge courses DIII-Health analyst Program

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INTRODUCTION

Healthcare Laboratory service is an integral part of health care to the community. The function of health laboratories as one of the health service units, is expected to provide careful and accurate examination result information. Along with the advancement of Science and Technology (science) and disease development, it is expected that the quality of laboratory test results is also as rhythmic as the development of the science. The authority of examination tasks in the laboratory is performed by health analyst personnel. Health analysts conduct laboratory testing using the knowledge and methodology of various disciplines, including biology, chemistry, and physics to assist and or enforce disease diagnosis, treatment monitoring and Prevention of disease in humans. The main task of health analyst conducting Health laboratory services, covering the field of hematology, clinical chemistry, Microbiology, immunology-serology, parasitology, mycology, Toxicology, water chemistry, food/beverage, and anatomy pathology.

DIII educational institutions that produce health analyst power must always develop themselves in answering the needs of the community, namely users of health analysts, especially the laboratory of Quality assurance to the test results and demands on excellent service. The special profile of graduates are as flebotomy technicians, medical laboratory technicians, verivices of clinical Laboratory examination, implementing medical laboratory services and research assistants. In order to produce health analyst personnel who meet the needs of graduates or stake holders, the education will apply the curriculum for the learning process. Referring to the Book of higher education curriculum for the Program 3 Dilpoma students must travel at least 108 credits (unit credit semester). Meanwhile, the educational core curriculum 3 of the Madik laboratory technology set amounted to 82 credits.

In the process of drafting a curriculum both core and curriculum of institution in the form of local content, always involve the users of graduates. With the expectation of a structured curriculum

will give a provision of graduate skills and later ready to work in the community. One of the supporting data needed in the preparation of the curriculum is one of the data about the number of types of examination in the laboratory, including clinical laboratories, health laboratories in hospitals and in health centers, and laboratories Existing health. Such data is not present in health profiles such as other data that is easily accessed through the Internet or printed in the form of a health profile book.

The research results of 2011 Types of laboratory examination at RS.Dr. Muwardi, in 2 months showed hematological examination in the top order of a number of 24,464 patients and following clinical chemistry examination 121,193 patients and lowest examination Secretion of 3,061 patients. Weighted SKS of courses on the TLM 2014 curriculum for Hematology and bacteriology load 6 SKS, followed by clinical chemistry and bacteriology respectively 4 SKS. While the curriculum DIII Health analyst 2010 Distribution courses for hematology, clinical chemistry and bacteriology respectively 9 SKS, and Parasitology 6 SKS. Data on the number of patients based on the type of laboratory examination for Puskesmas and clinical laboratory is not available even difficult to access or obtain. But health analysts work as well as the sector. Therefore, it is necessary to compiled a course in the form of local content to fulfill credit shortage from core curriculum that suitable with learning achievement (CP) or learning outcome, so that can produce professional graduates in the effort Meet the needs of society.

This type of research includes descriptive research. The samples used in this research consist of 6 health centers in Semarang, 3 Puskesmas and 3 clinical laboratories in the city of Semarang. Sampling is done with several considerations related to laboratory type and location of laboratory.

RESULTS AND DISCUSSION

Descriptive results, Data collected from 12 fasyankes consist of data of the type of examination performed by each laboratory for 3 months.

1. Number of examination laboratory Data

Table 5.1. Type of examination in laboratory Puskesmas code "SAN" in June-August 2017

No	Type of examination	Total			Total (n)	Percentage (%)
		Month 1	Month 2	Month 3		
1	Hematology	333	175	145	653	24,59
2	Urinalysis	428	420	446	1294	48,72
3	Feses	0	0	0	0	0,00
4	Chemical clinic	105	111	56	272	10,24
5	Mikrobiology and Parasitology	4	2	2	8	0,30
6	Imunology	110	207	112	429	16,15
Total					2656	100,00

Out of a total of 2656 tests conducted showed that the urianalytical examination showed the result of the highest proportion of 48.72% (n = 1294) The second sequence was hematological examination of 24.59% (n = 653) and for the 0% stool test.

Table 5.2. Type of examination in laboratory Clinic "ONO" code in June-August 2017

No	Type of examination	Total			Total (n)	Percentage (%)
		Month 1	Month 2	Month 3		
1	Hematology	198	337	810	1345	39,88
2	Urinalysis	488	657	342	1487	44,09
3	Feses	0	0	0	0	0,00
4	Chemical clinic	62	144	106	312	9,25
5	Mikrobiology and Parasitology	0	0	0	0	0,00
6	Imunology	54	74	101	229	6,79
	Total				3362	100,00

From a total of 3362 laboratory examination at the ONO Code clinic shows the proportion of the highest urianalyzers of 44.09% (n = 1487) The second sequence is hematology test 39.87% (n = 1345). For 0% stool test.

Table 5.3. Type of examination in laboratory Puskesmas code "AW" in June-August 2017

No	Type of examination	Total			Total (n)	Percentage (%)
		Month 1	Month 2	Month 3		
1	Hematology	560	1008	612	2180	54,04
2	Urinalysis	341	267	272	880	21,81
3	Feses	0	0	0	0	0,00
4	Chemical clinic	97	273	179	549	13,61
5	Mikrobiology and Parasitology	3	2	13	18	0,45
6	Imunology	126	125	156	407	10,09
	Total				4034	100,00

Hematological examination shows the results of the highest proportion of 54.04% (n = 2180) of the 4034 examination in the "AW" Code Puskesmas Laboratory, the second order is a urianalyzers 21.81% (n = 880). For 0% stool test.

Table 5.4. Type of examination in laboratories "US" code Puskesmas in June-August 2017

No	Type of examination	Total			Total (n)	Percentage (%)
		month 1	month 2	month 3		
1	Hematology	193	292	230	715	35,64
2	Urinalysis	104	368	125	597	29,76
3	Feses	0	6	2	8	0,40
4	Chemical clinic	67	284	97	448	22,33
5	Mikrobiology and Parasitology	5	12	17	34	1,69
6	Imunology	48	85	71	204	10,17
	Total				2006	100,00

Hematological examination shows the result of the highest proportion of 35.64% (n = 715) The second sequence is the examination of Urianalyzers 29.76% (597). For 0.40% stool Test (n = 8).

Table 5.5. Type of examination in laboratory Clinic "RAN" code in June-August 2017

No	Type of examination	Total	Total

		month 1	month 2	month 3	(n)	Percentage (%)
1	Hematology	79	244	280	603	33,08
2	Urinalyisis	48	288	48	384	21,06
3	Feses	0	0	0	0	0,00
4	Chemical clinic	49	119	86	254	13,93
5	Mikrobiology and Parasitology	5	6	10	21	1,15
6	Imunology	97	292	172	561	30,77
	Total				1823	100,00

Hematological examination shows the result of the highest proportion of 33.08% (n = 603) The second sequence is immunological examination 30.77% (n = 561). For 0% stool test.

Table 5.6. Type of examination in laboratory Puskesmas code "IRU" in June-August 2017

No	Type of examination	Total			Total	Percentage (%)
		month 1	month 2	month 3		
1	Hematology	180	84	36	300	31,51
2	Urinalisa	84	12	36	132	13,87
3	Feses	0	0	0	0	0,00
4	Chemical clinic	49	36	59	144	15,13
5	Mikrobiology and Parasitology	3	2	5	10	1,05
6	Imunology	84	252	30	366	38,45
	Total				952	100,00

Immunological examination shows the result of the highest proportion of 38.45% (n = 366) The second order is a hematology test of 31.51% (n = 300). For 0% stool test.

Table 5.7. Type of examination in laboratory Health Code "NUK" in June-August 2017

No	Type of examination	Total			Total	Percentage (%)
		month 1	month 2	month 3		
1	Hematology	297	283	181	761	35,95
2	Urinalysis	106	192	122	420	19,84
3	Feses	0	0	0	0	0,00

4	Chemical clinic	160	370	228	758	35,81
5	Mikrobiology and Parasitology	7	3	1	11	0,52
6	Imunology	47	77	43	167	7,89
	Total				2117	100,00

Hematological examination shows the result of the highest proportion of 35.95% (n = 761) in the second order is clinical chemistry test 35.81% (n = 758). For 0% stool test.

Table 5.8. Type of examination in laboratory Health Code "AY" in June-August 2017

No	Type of examination	Total			Total (n)	Percentage (%)
		month 1	month 2	month 3		
1	Hematology	129	1286	1174	2589	52,30
2	Urinalysis	235	495	495	1225	24,75
3	Feses	0	0	0	0	0,00
4	Chemical clinic	112	163	133	408	8,24
5	Mikrobiology and Parasitology	46	56	29	131	2,65
6	Imunology	129	251	217	597	12,06
	Total				4950	100,00

Hematological examination shows the result of the highest proportion of 52.30% (n = 2589) in the second order is an examination of analysis of 24.75% (n = 1225). For 0% stool test.

Table 5.9. Type of examination in laboratories "ARI" code Puskesmas in June-August 2017

No	Type of examination	Total			Total	Percentage (%)
		month 1	month 2	month 3		
1	Hematology	264	586	456	1306	37,84
2	Urinalysis	174	470	346	990	28,69
3	Feses	0	0	0	0	0,00
4	Chemical clinic	138	199	129	466	13,50

5	Mikrobiology and Parasitology	1	1	5	7	0,20
6	Imunology	232	256	194	682	19,76
	Total				3451	100

Hematological examination shows the result of the highest proportion of 37.84% (n = 1306) The second order is a urianalyzer 28.69% (n = 990). For 0% stool test.

2. Number of inspection laboratory in private Clinic laboratory

Among the various types of clinical diamond examination with the others, it is grouped into 6 types of examinations such as table 5.10 shows that:

Table 5.10. Type of examination at laboratory Laboratory Clinic Code "UM" in June-August 2017

No	Type of examination	Total			Total (n)	Percentage (%)
		month 1	month 2	month 3		
1	Hematology	1779	1956	726	4461	18,78
2	Urinalysis	1166	1430	598	3194	13,45
3	Feses	10	32	23	65	0,27
4	Chemical clinic	2060	3921	1177	7158	30,14
5	Mikrobiology and Parasitology	367	693	263	1323	5,57
6	Imunology	2656	3463	1428	7547	31,78
	Total				23.748	100.00

Of the total number 23,748 The examination turns out that the immunological examination shows the results of the highest proportion of 31.78% (n = 7547) The second sequence is the clinical chemistry test 30.14% (n = 7158).

Table 5.11. Number of inspections by type of examination in laboratory Laboratory Clinic Code "CO" in June-August 2017

No	Type of examination	Total			Total (n)	Percentage (%)
		month 1	month 2	month 3		

1	Hematology	900	1965	1655	4520	7,56
2	Urinalysis	649	1477	1240	3366	5,63
3	Feses	10	25	13	48	0,08
4	Chemical clinic	8268	15.505	15.023	38.796	64,88
5	Mikrobiology and Parasitology	156	216	165	637	1,07
6	Imunology	3146	3437	3828	12.430	20,79
	Total				59.763	100,00

Clinical Chemistry test shows the results of the highest proportion of 64.88% (n = 38.796) The second order is immunological examination 20.79% (n = 12.430).

Table 5.12. Type of examination in laboratory laboratory Clinic "PM" code July-September 2017

No	Type of examination	Total	Percentage (%)
1	Hematology	3500	27,62
2	Urinalysis	85	0,67
3	Feses	5	0,04
4	Chemical clinic	8862	69,92
5	Mikrobiology and Parasitology	90	0,71
6	Imunology	132	1,04
	Total	12.674	100,00

Clinical Chemistry examination shows the results of the highest proportion of 69.92% (n = 8862) The second order is a hematology test of 27.61% (n = 3500).

Table 5.13. Recapitulation of laboratory examination type at 9 Puskesmas in June-August 2017

No	Puskesmas Code	Total of examination						Total
		Hematology	Urinalysis	Feses	Chemical clinic	Mikrobiology & Parasitology	Imunology	
1	SAN	653	1294	0	272	8	429	2656
2	ONO	1345	1487	0	312	0	229	3362
3	AW	2180	880	0	549	18	407	4034
4	US	715	597	8	448	34	204	2006
5	RAN	603	384	0	254	21	561	1823
6	IRU	300	132	0	144	10	366	952
7	NUK	761	420	0	758	11	167	2117
8	AY	2589	1225	0	408	131	597	4950
9	ARI	1306	990	0	466	7	682	3451
Total		**10452**	**7409**	**8**	**3611**	**240**	**3642**	**25362**
Percentage (%)		**41,21**	**29,21**	**0,03**	**14,24**	**0,95**	**14,36**	**100,00**

The recapitulation from 9 Puskesmas showed that the proportion of hematological examination was 41.00% and subsequent examination of Urianalyzers as much as 29.28%. For 0.03% stool test.

Table 5.14. Recapitulation of examination type at 3 Private Clinic laboratories in June-August 2017

No	Lab clinic code	Total of examination						Total
		Hematology	Urinalysis	Feses	Chemical clinic	Mikrobiology & Parasitology	Imunology	
1	UM	4461	3194	65	7158	1323	7547	13.748
2	CO	4520	3366	48	38756	637	12.430	59.757
3	PM	3500	85	5	8862	90	132	12.674
Total		**12481**	**6645**	**118**	**54776**	**2050**	**20109**	**96179**
Percentage (%)		**12,98**	**6,91**	**0,12**	**56,95**	**2,13**	**20,91**	**100,00**

The recapitulation from the 3rd clinical laboratory shows that the proportion of clinical chemistry examination is 56.95% and the subsequent immunology examination as much as 20.91%. For fecal inspection 0.12%.

DISCUSSION

Clinical laboratory is a health laboratory that conducts examination services in the field of hematology, clinical chemistry, clinical Microbiology, parasitology clinics, clinical immunology, anatomical pathology, or other areas related to Personal health interests primarily to support or determine the diagnosis, travel monitoring of diseases and therapies as well as the prognosis.

A wide range of tests are conducted in laboratories, such as hematology, Urinalisa, clinical chemistry, feces/stool, immunology, microbiology and parasitology. Essentially, an authorized laboratory examination is a health analyst

In order to produce health analysts, health analyst DIII education institutions refer to the curriculum, both core curriculum and institutional curriculum in the form of local content that always involve the user of graduates. The supporting Data used in the preparation of the curriculum is one of which is the number of laboratory tests in public

health care facilities. In this study we involve 9 health centers and 3 laboratory private clinics.

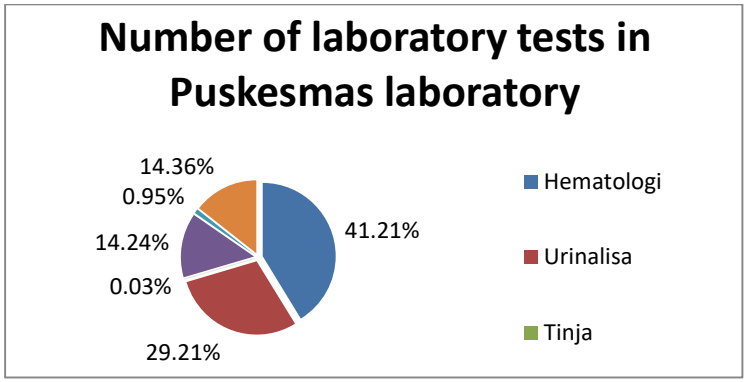

Figure 5.1. Diagram of laboratory examination amount in Puskesmas laboratory in June-August 2017

The type of examination conducted in the Puskesmas laboratory, from the above diagram shows the most percentage of laboratory examination is the field of hematology group as much as 41.21%. Laboratory tests, including hematologic tests, include three processes: pre-analytical, analytical and post-analytical processes. Hematological examination using a whole blood sample, using coagulant and without coagulant, depends on the type of examination and its usefulness. Hematology examination also uses a variety of materials or reagents according to the type of examination and its usefulness. Therefore, the hematological examination should be observed at the pre-analytical stage, including the preparation of samples and materials or reagents.

The second most percentage of rank sequence is the field of Urinalisa examination. The examination of urinalysis in practice is to use urine samples which are the human body fluid produced by the excretion system. Urinalysis examination also requires

sample preparation in accordance with the examination procedure. For example, the morning urine sample is a urine sample of the patient that was first secreted in the morning, usually this urine is used for examination requiring a representative outcome of the number of bacteria, sediment, even residual metabolites esmi biochemistry (reduced sugar, protein, vitamins, and more) in the body. In addition, examination of urinalysis conventional way also requires reagents that are various types depending on the type of examination and its usefulness. Of course, this examination requires proper and precise preparation of the sample.

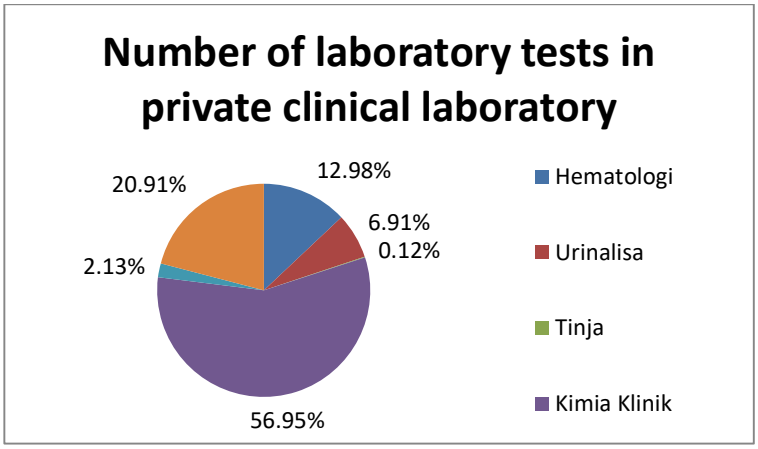

Figure 5.2. Diagram of laboratory examination amount in Puskesmas laboratory in June-August 2017

While the type done in the clinical laboratory shows that the most percentage check is the field of clinical chemistry examination of 56.95%. Clinical chemistry Screening is one of the tests that often appear on laboratory demand. A wide range of clinical chemical testing uses a sample of blood serum or blood plasma according to the examination and Kegunaaanya. In this case, the preparation of samples should be considered because the serum used must be a minimum of hemolysis in order to produce representative results.

Then ranked second in the number of laboratory tests in private clinical laboratory is immunology examination area of 20.91%. The screening includes

endocrinology examination, tumor marker, vaccination, antigen-antibodies, etc. Quantitatively, this examination can only be done in certain laboratories. The immunology and examination materials are performed very carefully because if the infection is positive, there is a risk of contracting the infection. Therefore, knowledge of sample Handbook on immunological examinations should be observed. The recapitulation of laboratory examination of Puskesmas and clinical laboratory can be seen in the following.

Table 5.14 recapitulation of laboratory examination type in Puskesmas and laboratory clinics in June, July and August 2017.

No	Type of examination	Total (n)	Percentage (%)
1	Hematology	22933	18,87
2	Urinalysis	14054	11,56
3	Feses	126	0,10
4	Chemical clinic	58387	48,04
5	Mikrobiology and Parasitology	2290	1,88
6	Imunology	23751	19,54
	Total	121.541	100

Three large groups of clinical chemical examinations are shown to represent a large proportion of 48.04%. The magnitude of this figure is widely donated from the examination conducted by clinical laboratory nearly half as more (56.95%) and in Puskesmas for 14.24%. Immunological examinations placed second in 19.54 and the Third Order of hematological examination was 18.87%.

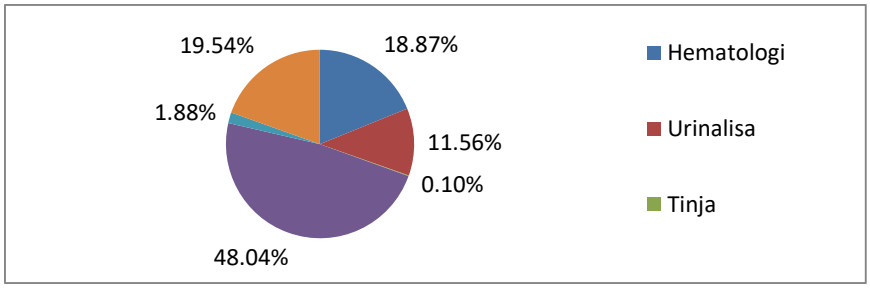

Figure 5.3. Diagram of recapitulation of examination amount in Fasyankes in June-August 2017

With regards to laboratory tests to obtain good and precise results there are a few things to note. Among other administrative validation refers to the measures that begin with the proper selection and test request, the collection of appropriate information to understand the context of the test, as well as the validation of the correct patient's condition, correct preparation, and Other. Further ⊠ sample validation is related to obtaining the right sample, at the right time, in appropriate patient processing, and the delivery of samples, and the proper use of samples for analytical measurements. In order to obtain or obtain the correct results, technical validation requires to know the quality required for the test, validating the accuracy and accuracy of the measurement process, the appropriate Quality Control procedures, and implementing Measurement and control procedures correctly. Validate the accuracy and accuracy of the measurement process, precise Quality Control (QC) procedures, and properly apply measurement and Control procedures.

Laboratory examination stages include pre-analytic, analytical stage and post-analytical stage.

Pre-analytical stages include related patients, sample collection techniques, preservatives and anticoagulants, sample transport, processing and storage of sample inspection materials.

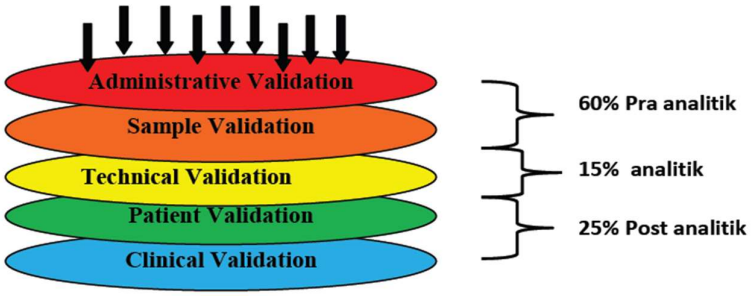

Figure 5.4. Contributions to the laboratory by Plebani and Carraro

Some of the events related to pre-analytical errors in the laboratory include incorrect patient preparation, incorrect sample collection, incorrectly selected container tubes and specimen storage errors, so in the eyes Local content lectures can be determined that knowledge of materials and samples.

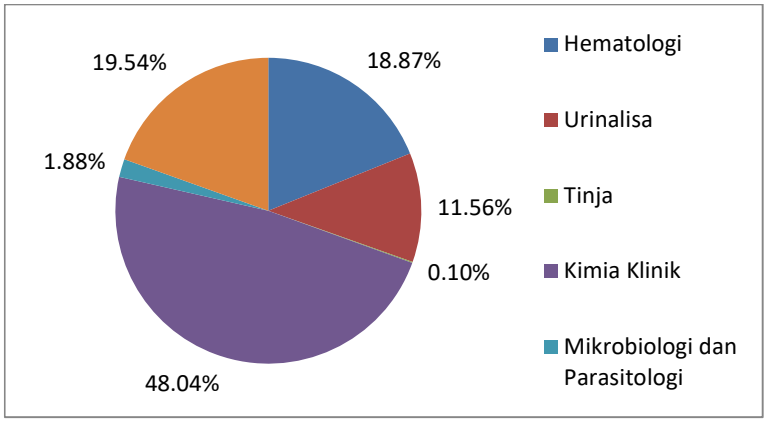

Figure 5.5. Diagram of recapitulation of examination amount in Fasyankes in June-August 2017

Overall, the most examination is a clinical chemistry test of 48.08%, followed by immunology examination of 19.54% and a hematology test of 18.87%. These three checks are very critical in the pre-analytical process in order to produce representative results. Pre-analytical stage is an activity or step that must be done before the sample in the analysis. DiplomaIII Core curriculum of Poltekkes Ministry of Health analyst in Semarang is using Diploma III medical laboratory technology in 2014 with a program structure of 82 SKS. Further to meet the requirements of higher education curriculum DIPLOMA3 equipped to be 108 credits, consisting of 50 SKS theory and 58 SKS practice that adds a burden of as much as 26 credits are broken down by adding a load of credits from existing courses, and adding local content courses. Local content courses include:

1. The education of Anti-corruption culture (local charge required) in semester IV as much as 2 SKS
2. Disaster response alert 2sks theory and practice

3. Laboratory Information System 2 credits Tori and practice.
4. Introduction to medical laboratory in the first semester 2 SKS
5. Identification of TB (local charge required) in semester V as much as 2 SKS
6. Organic chemistry and analytical in the first semester 3 SKS

The results of the assessment and discussion with several lecturers are still possible to increase the free credits more than 108 credits. Some inputs include subjects such as pathophysiology practice for revisit, can be replaced with local content subjects that are more support for learning achievement. In accordance with the data on the type of laboratory examination with the ability to work, among others, able to take precautions on the examination of clinical chemistry, hematology, Immunoserology, Immunohematology, Bacteriology, Virology, mycology, parasitology, systohistotechnological and toxicology clinics covering pre-analytical, analytical and post-analytical stages of confirming the conformity of processes to the standard to achieve quality test results. It is possible to add local content courses on "knowledge inspection materials" covering the aspect of all types of inspections with the proportion of depth of field material based on the three large groups of clinical chemical examinations (48.04%). Immunological examinations occupy the second stage of 19.54 and the Third Order of hematological examination is 18.87%. The expense of credits will be calculated based on material depth.

CONCLUSION

1. As much as 48.04% (n = 58.387) is a type group of clinical chemical examinations of a total of 121,541 laboratory examinations.
2. As much as 18.87% (n = 22.933) is a group of hematology test types from a total of 121,541 laboratory tests.
3. As much as 1.88% (n = 2.290) is a group of types of parasitology and microbiology examinations of a total of 121,541 laboratory examinations.
4. As much as 19.54% (n = 23.751) is a group of immunological examinations of a total of 121,541 laboratory examinations.

5. As much as 19.54% (n = 23.751) is a group of immunological examinations of a total of 121,541 laboratory examinations.
6. As much as 0.10% (n = 126) is a type of stool examination group of a total of 121,541 laboratory tests
7. Describe the data of laboratory examination type related to the courses for the access of learning in the applicable curriculum.
8. Proposed local content for health analyst institutions is the knowledge of examination materials.

SUGGESTION

Need to be counted and type of credits that are theory or Terori and practice for local payload courses that have been specified and reviewed the placement of the credits per semester.

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