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## ANALYSIS OF HEALTH CARE DURING CLINICAL LABORATORY TESTS

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**Assist. Prof. Tsveta Hristova**

Department of Health Care,  
Faculty of Public Health and Health Care  
„Angel Kanchev” University of Ruse  
E-mail: tshristova@uni-ruse.bg

**Assoc. Prof. Ivanichka Serbezova, PhD**

Department of Health Care,  
Faculty of Public Health and Health Care  
„Angel Kanchev” University of Ruse  
E-mail: iserbezova@uni-ruse.bg

**Chief nursing officer Tsvetelina Stancheva**

University General Hospital for Active Treatment - Ruse  
E-mail: c\_stancheva@abv.bg

***Abstract:** An original research is conducted by professors, leading Clinical practice in the Faculty of Public Health and Health Care, Department of Health Care, professional specialty Midwife at Ruse University “Angel Kunchev”. The research is conducted within a group of 4<sup>th</sup> year students, specializing midwifery as a bachelor degree during their internship in the school year 2016-2017. A targeted observation has been carried out by the professors on the clinical bases of Ruse University Hospital, Obstetrics – Gynaecology ward /Pathological pregnancy and Labour departments/, monitoring the students’ knowledge, skills and competences retrieving material for a clinical laboratory tests, reading the results and organizing midwife medical care. Analysis by three criteria has been performed: communicational skills, working by the necessary clinical algorithm for preparation and retrieving material for clinical laboratory test and clinical thinking towards aspects of the professional midwife’s activity.*

*A conclusion has been drawn pointing that the internship helps student midwives develop their knowledge regarding clinical laboratory activities and build the necessary qualities for a future professional realization.*

***Keywords:** clinical laboratory tests, healthcare, student midwife, competence, skills, knowledge*

***JEL Codes:** I 23*

### INTRODUCTION

The clinical laboratory is independent medical specialty and scientific discipline which by quantitative and qualitative methods of test provides necessary information for early diagnosis, control of the dynamics of illness process and the effect of the treatment, effective prevention and evaluation of the stage of health recovery and working capability (Tsvetkova, T, 1998).

For the premises of the scientific laboratory diagnosis is written in the work of Paracelsus in XV – XVI century. It is pointed out the clinical meaning of the physical and chemical analysis of blood and urine.

Laboratory results are sum of large number of factors which with different mechanisms show influence on the received values. The patient must be well informed whether to be hungry before the tests or to have been on diet for few days and for the medications she can and cannot take. The intaken food influences on the concentration of many components of the blood – increases the number of leucocytes and raises the level of blood sugar and of serum lipids, it raises the concentration of substances which interfere when implement clinical-chemical reactions.

The body position during the test influences on the concentration of few laboratory indicator. It is accepted that the standard conditions for blood test is between 7 – 9am, while hungry in sitting position (for pregnant women – in lying position).

Taking venous blood is appropriate for testing all indicators with small exceptions, it takes priority over the rest and is manipulation which should be known by nurses and midwives.

Important component while taking blood for clinical laboratory test is following the sequence of monovettes – their content influences the blood components for evaluation and reliability of the results.

The profession of midwife and nurse requires knowledge, skills and competency while taking the material for the clinical laboratory test. Students which study in this professional fields win and confirm their skills in these practical exercises. The clinical practice is in the Pre-graduate internship. Under the guidance of the teachers and midwives in the clinical base they master the ability which will be necessary in emergency situations in their future practical work (Serbezova, I, 2014).

## **EXPOSITION**

The information received from the laboratory tests is often determinative for giving diagnosis and appointing a treatment. According to International Federation of Clinical Chemistry and Laboratory Medicine, 2014, the results of laboratory tests:

- represents 94 % of objective data in medicine documentation;
- define 60 ÷ 70 % of the decisions taken;
- define 37 % of the recommendations in clinical guides;
- define 23 % of differential diagnosis.

It has been made an author's study in obstetric health care in preliminary preparation of tests of which are highly dependent the analytical and diagnostic reliability of the results of the clinical laboratory test.

**The purpose** of our research is to study the performance of the modern medical requirements in taking material for clinical laboratory tests by student midwives during Pre-graduate internship.

### **Methodology of research:**

**The scope and object** of the research are 20 students from professional field Midwife, Bachelor degree, VII semester in Pre-graduate internship. Observation is important in sector Abnormal pregnancy, Maternity ward in Midwife gynecology department of University General Hospital for Active Treatment Ruse for the period January – May 2017.

**The object** of the research are communicative skills, organization of health care /work on an algorithm/, clinical thinking /diagnose problems/ while taking material for the clinical laboratory tests.

It is used targeted surveillance by lecturers of Ruse University Angel Kunchev, department of Health care, professional specialty Midwife, Bachelor degree in clinical units of Pre-graduate internship. The results are analysed and reflected in graphical form and conclusions have been made.

### **Analysis of the results:**

For the effective implementation of multilateral and responsible tasks of the future midwives, for satisfying the needs of health care of the pregnant woman, the woman in labor and gynecologically ill woman an open factor is the professional communication.

When taking a material for clinical laboratory test it's expressed in:

- ✓ Informing the patient about the necessary conditions for quality results – the test must be done before/after eating, the patients shouldn't have intaken a certain foods or liquids, after a period of certain drug treatment, in a certain time of the menstrual cycle, in certain hours of the day, etc.;
- ✓ Giving information for the necessary position of the body and/or a part of the body: lying, sitting position, appropriate position of the hand, etc.;

- ✓ Taking the necessary anamnesis;
- ✓ Receiving an informed agreement for the following manipulation: for blood test, taking a sterile urine, etc.;
- ✓ Conversation with relatives (Hristova, Ts., 2017).

At the observed student-midwives only one didn't show all the necessary elements of professional communication with patients during the manipulation of taking sterile urine with catheter – using medical terminology brought extra tension in the patient which reflected in prolonging the time for carrying out the tests.

Half of the students show good communicative skills, with gaps which didn't come from lack of knowledge but of uneasiness. The most common gap was nonfilling the document for informed agreement which is important part of the medical documentation.

The analysis data are showed graphically of Fig.1.

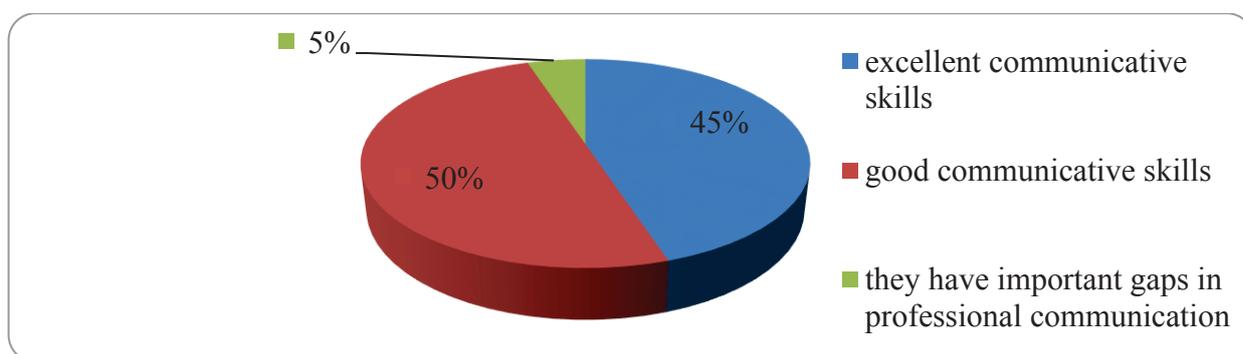


Fig. 1. Analysis of midwifery communication skill for respondents

With the good professional communication the midwife provides psychological comfort for the patient – the psychological tension hardens the process of taking the material for the clinical laboratory tests, on the other hand it reflects on the results of a high number of the samples. (Stancheva, Tsv., 2013).

A premise for receiving high quality in health care is the presence of communicative skill in professional communication. They are build with professionalism, ethics, personal characteristics, motivation. Communicative skills are direct connection with effective professional relationships – with the necessity to motivate the patient for active participation and cooperation in the process of health care; with achievement of a proportional emotional support and the ability to lower the pain and anxiety, with the ability to inspire confidence, to teach and help maintain the appropriate health attitude (Hadjideleva, D., 2016).

The object of impact of midwifery health care – the living person, imposes strictly keeping the exact algorithms while taking material for clinical laboratory tests.

Before and during taking biological samples is needed physical rest – the physical stress leads to high activity of many enzymes, high aggregation of platelets and factors of coagulation. The position of the patient's body – the transition from lying to standing position and back changed the hemoconcentration of blood.

If needed to take an intravenous blood for different indicators it's necessary to keep the order of monovettes: red, black, blue, purple /the colour is defined by the cap/. The analysis data for implementation the correct algorithm for taking an intravenous blood for clinical laboratory test is showed in Fig. 2.

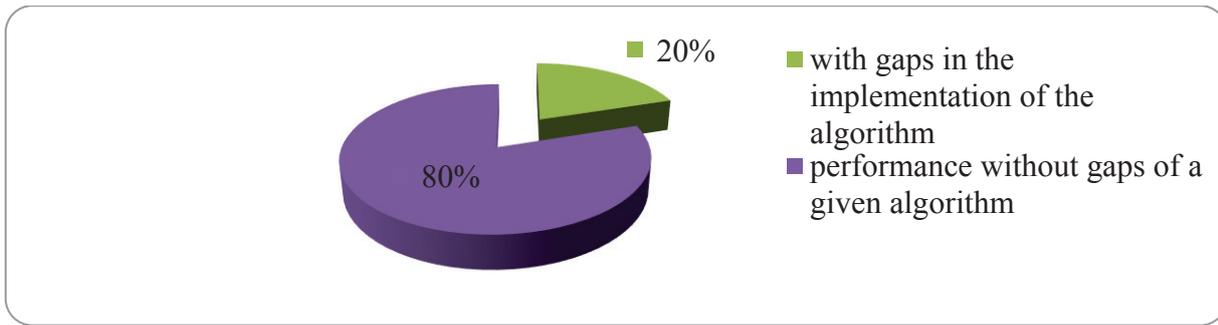


Fig. 2. Implementation of a blood sampling algorithm by midwives students

The order of the sequence of the necessary monovettes is required according to the substance that is contained in it and the necessary test.

In preparation for acceptance of pregnant woman and woman in labor in hospital the midwife should have the competence for clinical thinking – to be oriented to the correct reception diagnosis and the condition of the woman so she can organize the needed health care: completing the medical records, putting an intravenous source if needed, carrying out the necessary test in case of emergency until the arrival of the doctor on duty.

Almost half of the observed students are managing well in this professional situation (9 students), 35% (7) show very good clinical thinking /the metric is evaluated in the given aspect/, 20% manage the given task with the help of a lecturer of the clinical base – graphical presentation in Fig.3.

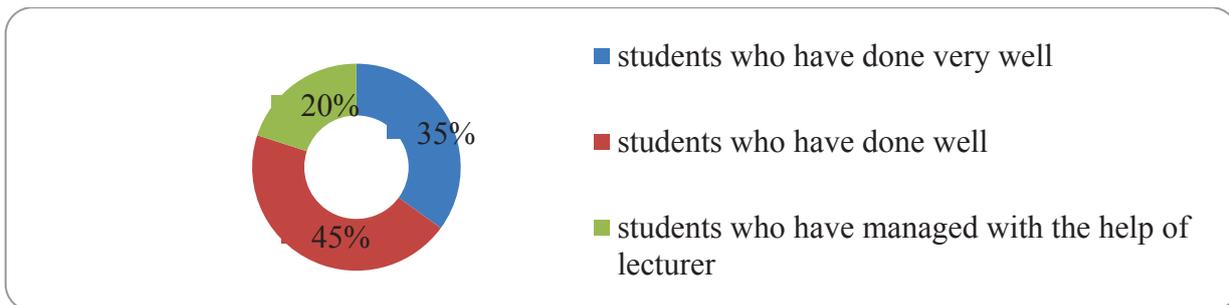


Fig. 3. Using clinical thinking of respondents.

Clinical thinking is the thinking associated with the disease, serious process which builds extremely slowly and difficult. It's necessary time and effort so the students learn the principles of the clinical thinking and clinical estimation and the clinical estimation is important skill for every health specialist. The clinical thinking has all features of the practical thinking – it starts from practice and returns to it but it realized in close connection with theoretical thinking. (Vodenicharov, Ts., M. Mitova, 1995).

## CONCLUSION

Laboratory results are sum of high number of factors which with different mechanisms influences on the received values. Knowing all the factors is precondition for identifying the ways to manage them.

All respondents are unanimous that the Pre-graduate internship contributes to a high degree for building a communicative skills, organization qualities, professional clinical thinking, personal characteristics and moral values, which are essential components of professional competences of the medical specialist.

In the last years in Europe the clinical estimation for nurse and midwife has become a synonym for nursing and midwifery model of practice. In this model the clinical opinion is

considered as problem solving activity that starts with collecting and analyzing the information which is followed by the nursing and midwifery diagnosis, with planning and implementation of the manipulations, to solving the diagnosed problem and ends with evaluation of the efficiency of the interventions.

The study data are indicative that including students in the active, real professional environment creates a favourable opportunity to build on their knowledge, skills and competence for successful future professional realization.

## REFERENCES

Hadzhideleva, D., T. Veselinova, kol. (2016). Praktikum po akusherski grizhi pri normalna bremennost, normalno razhdane i normalen puerperium, MU Sofiya, TSM Biblioteka, Sofiya. (**Оригинално заглавие:** *Хаджиделева, Д., Т. Веселинова, кол., практикум по акушерски грижи при нормална бременност, раждане и нормален пуерпериум, МУ-София, ТСМ Библиотека, София*).

Hristova, Ts. (2017). Spetsialni akusherski grizhi pri bremenni s normalna bremennost, Narachnik za akusherki i meditsinski sestri, MEDIATEH – Pleven. (**Оригинално заглавие:** *Специални акушерски грижи при бременни с нормална бременност, Наръчник за акушерки и медицински сестри, МЕДИАТЕХ - Плевен*)

Serbezova, I. (2014). Spetsialni akusherski grizhi za bremenni, razhdashti, rodilki i novorodeni, Pечатna baza na Rusenski universitet, Ruse. (**Оригинално заглавие:** *Специални акушерски грижи за бременни, раждащи, родилки и новородени, Печатна база на Русенски университет, Русе*).

Stancheva, Ts. (2013). Narachnik na klinitsista, MBAL, Ruse. (**Оригинално заглавие:** *Наръчник на клиниста, МБАЛ, Русе*)

Tsvetkova, T., (1998). Klinichno laboratorni rezultati, Rakovodstvo za meditsi, Ch. I i Ch. II, ET „Vasil Petrov“ – VAP, Plovdiv. (**Оригинално заглавие:** *Клинично лабораторни резултати, Ръководство за медици, Пловдив*)

Vodenicharov, Ts., M. Mitova, S. Mladenova, (2008). Meditsinska pedagogika, ARTIK Sofiya. (**Оригинално заглавие:** *Медицинска педагогика, АРТИК, София*)