



CURRENT PRE- AND POST-GRADUATE VOCATIONAL EDUCATION AND TRAINING IN LABORATORY MEDICINE AND MICROBIOLOGY IN POLAND

Mieczyslaw Wozniak^{1,2}, Henryk Owczarek³

1. Department of Clinical Chemistry, Wroclaw Medical University, Wroclaw, Poland
2. Department of Pharmacology, , University of Saskatchewan, Saskatoon, Canada
3. Polish Chamber of Laboratory Diagnosticians, Warsaw, Poland

Correspondence

Dr. Mieczyslaw Wozniak
Department of Clinical Chemistry, Wroclaw Medical University
Pasteur 2 Street, 50-367 Wroclaw, POLAND
Phone: +4871 784 1205 Fax: +4871 784 0054
Email: wozniak@anmed.am.wroc.pl

Abstract

The status of Polish medical laboratories is continuously changing. Since 2001 the legal framework was established for the clinical chemists employed in medical and microbiological laboratories. Since that time, the job performance by clinical chemists is limited only to the specialist, member of the Polish Chamber of Laboratory Diagnosticians. According to that legal act, graduate in laboratory medicine is certified to perform the professional activities in medical or microbiological laboratories without further vocational training. After graduating from biology, chemistry, pharmacy or veterinary medicine, a person can perform the job only under supervision of a certified clinical chemist. Several Medical Universities have organized the system of post-graduation education for such graduates. The main courses taught are basic pathology, internal medicine, hematology, immunology, and clinical chemistry. In addition, the Ministry of Health and Chamber of Laboratory Diagnosticians are organizing and supervising the higher level of post-graduate education for clinical chemists, the education and vocational training which leads to the title of specialist in clinical chemistry or similar area in laboratory medicine. The professional qualification of such person are evaluated during the final exam at the national level. The specialist is eligible to act as director of clinical laboratories.

LEGAL FRAMEWORK FOR THE ESTABLISHMENT OF CLINICAL CHEMIST PROFESSION.

In accordance with the Polish legal act issued in 2001 (1) the formal establishment of a clinical chemist (laboratory diagnostician) profession has constituted a background for regulation of the principles and conditions concerning the professional activities in a medical; laboratory. The same legal act has established the rule of functioning the clinical chemist (laboratory diagnosticians) professional association – National Chamber of Laboratory Diagnosticians (NCLD). As a result of this law, the laboratory diagnosticians (clinical chemists), like medical doctors, nurses, pharmacists, and veterinarians are organised within the self-regulatory association, which independently governs and controls the profession.

All laboratory diagnosticians (clinical chemist) who perform their services in Poland, obligatory belong to the NCLD. The Professional association NCLD has adopted the code of conduct which is similar to the code of conduct presented recently by the EC4 (2) and it should comply with all member of NCLD.

According to the legal regulation the official registration of laboratory diagnosticians in Poland is not controlled by the Polish Government but this duty is delegated to a professional association – NCLD. In order to be accepted and received the license, the applicant should provide the documents – diploma of MSc in Laboratory Medicine (Medical Analytics), MD, or completion of post-graduate courses in laboratory medicine. The final examination after post-

graduate study is mandatory to enter the Official Register. Re-registration in Poland is based on awarding credit-points for the re-registration by the National Register.

The right to perform professional activities in medical laboratories is provided to:

1. Master's degree graduate of the medical analytics (laboratory medicine) is entitled to a direct performance of all medical laboratory activities.
2. Person with medical doctor's degree who performs the laboratory diagnostic activities in the medical laboratory.
3. Person with a University MSc degree at the Faculty recognised as useful for a clinical chemist profession such as biology, biotechnology, chemistry, pharmacy, microbiology, veterinary medicine. After graduation, the last category students are required to take a post graduate study (3 - 4 semesters). During this study, he/she should acquire the professional qualifications in the field of the biomedical technology at the Medical Analytics (Medical Laboratory) Faculty of the Medical University confirmed with the final exam.
4. The technician (technologist) without university education at the MSc level. The last category of laboratory workers can not perform the quality assessment, interpretation of laboratory results interpretation or validate test results.

The first to third categories of laboratory staff have legal capacity to sign out of a clinical laboratory report and it are recognized as the persons who have completed the entry level education in laboratory medicine.

MODEL OF EDUCATION OF LABORATORY MEDICINE (MEDICAL ANALYTICS) IN POLAND.

Since 1975, there is a separate education system of Laboratory Medicine at the Medical Analytics (Laboratory Medicine) Faculty in Medical Universities educating employees for work in medical laboratory. The syllabus for pre-graduate and post-graduate training in clinical chemistry and laboratory medicine is similar to the syllabus prepared by EC4 committee (3,4). The graduates of this faculty obtain the medical analytics (laboratory medicine) master's degree title. Currently, they represent 30% of all persons performing the laboratory diagnostic activities in Poland according to the NCLD register. After completing the vocational training in university hospital laboratories the graduate should have the skills and competence in analytical principles and procedures, clinical assessment of medical laboratory tests, effects of collection and specimen storage, the organization of work in a medical laboratory, maintaining quality control procedures and carrying out laboratory documentation in accordance with the good laboratory practice and code of conduct. Those holding a master degree in laboratory medicine (medical analytics) should possess the advanced knowledge concerning various areas of laboratory medicine. They should use the laboratory algorithms of diagnostic procedure in various clinical stages, validate and interpret test results, suggest a potential diagnosis of specific pathology or disease entity, conduct and document quality assurance, assess the diagnostic value of test result and consult diagnostic problems in several areas of laboratory medicine. The graduate is prepared to cooperate with other health professionals, possess some knowledge of medical laboratory management, and participate in medical sciences research.

The Medical Analytics Faculty (Laboratory Medicine) of Medical University consolidates:

- the undergraduate education for laboratory diagnosticians' profession (master's degree of medical analytics, laboratory medicine),
- the postgraduate education for laboratory diagnosticians' profession (master's degree of: biology, biotechnology, chemistry, pharmacy, microbiology, and veterinary medicine),
- organization and supervision of specializations in a number of laboratory medicine.

The model of post-graduate education for graduates in biology, chemistry etc. allows the acquisition of theoretical knowledge and practical skills necessary for job performance in a medical laboratory but the quantity of courses were carefully selected due to the fact that they possess the basic knowledge in biology and chemistry at the University level (Tab. 1)

Table 1. Chosen examples from syllabus of pre- / post-LM education of laboratory medicine. The comparison of total hours of lectures, seminars and practical skills training between pre-graduate (ten semester) system and post-graduate (three semester) system.

Lectures & seminars & laboratory skills training	Pre-LM	Post-LM
Anatomy, physiology & cytology	285h	105h
Clinical chemistry procedures	290h	146h
Clinical pathology	210h	123h
Microbiology & virology	210h	90h
Hematology & immunohematology	210h	123h
Pre-analytical phase	65h	32h
Case-related medical evaluation of laboratory tests	120h	51h
Transfusiology	75h	40h
Pathomorphology	90h	55h
Molecular biology	45h	25h
Medical genetics	45h	25h
Laboratory management & QA	45h	14h
Vocational training	260h	120h

MODEL OF SPECIALIZATION IN DIFFERENT AREAS OF LABORATORY MEDICINE IN POLAND

In order to continue the development of professional qualifications, a clinical chemist (laboratory diagnostician) can enter into an appropriate specialization program after completing the entry level of education in laboratory medicine and fulfill the entry internship in an appropriate medical laboratory (1 – 2 years) in order to get sufficient professional proficiency. The program of specialization encompasses:

1. Basic internship – 3 – 4 years in an appropriate medical laboratory
2. Internship in special type of medical laboratories whose profile corresponds to a certain type of hospital ward eg. hematology, cardiology, gynecology etc.
3. Courses 8 – 13
4. Final exam at the national level

Only a clinical chemist specialized in one of the disciplines in the laboratory diagnostic field is entitled to become a head of the medical diagnostic laboratory. In Poland, several monovalent specializations in certain types of laboratory medicine areas have been offered to clinical chemists who are members of NCLD : medical laboratory diagnostics, medical microbiology / virology, toxicology, medical laboratory genetics, medical laboratory immunology, medical laboratory transfusiology, medical laboratory hematology, medical cytomorphology, medical laboratory parasitology, forensic medicine, public health and environmental health.

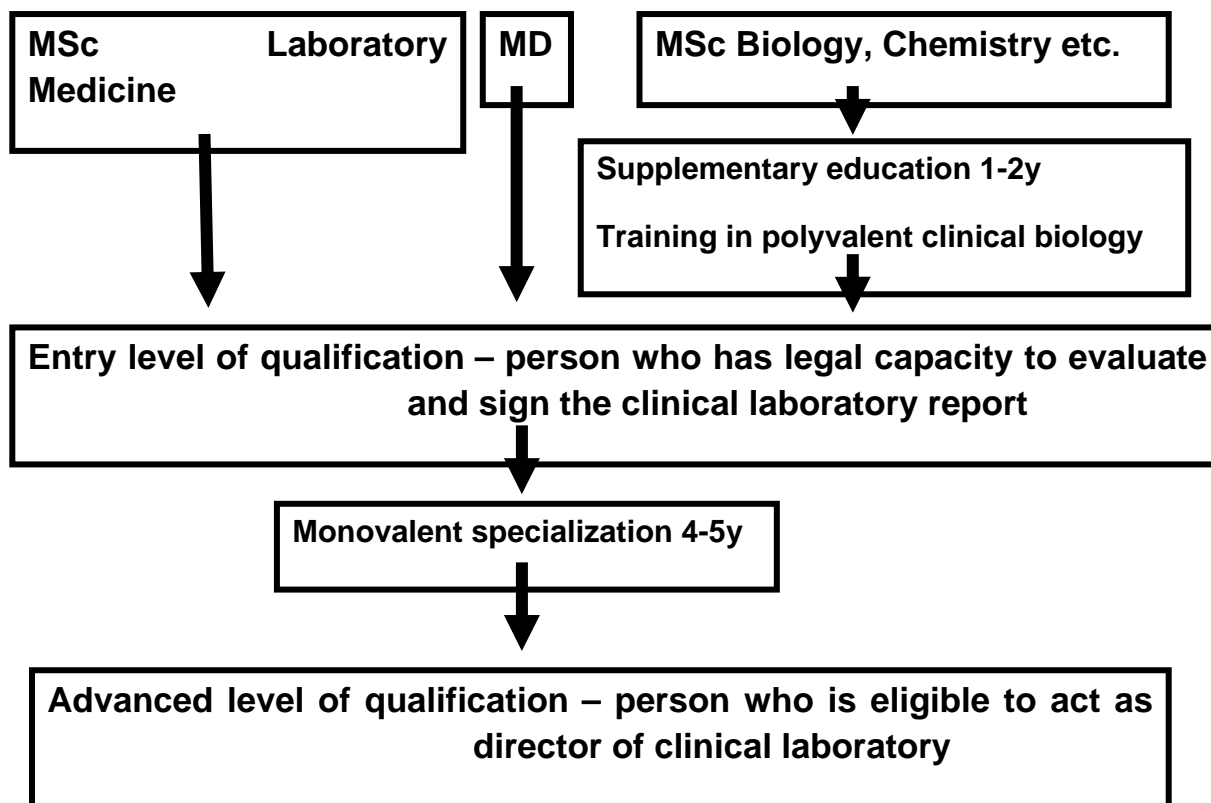
NCLD participation in postgraduate vocational education and training

1. Development of the e-network connected to all medical laboratories in Poland
2. Development of the e-library (e-books and e-papers)
3. Development of e-learning of relevant area of laboratory medicine
4. Editorial work on tradition library – scientific publications.

5. Advanced courses concerning all areas of laboratory medicine

In close cooperation with EFCC especially with members of the EC4 committee the NCLD together with Polish Ministry of Health is continuously changing the program of education and vocational training in laboratory medicine and harmonizing it with compliance of the core program elaborated by EC4 committee (3,4,5).

Fig. 1. Polish model of education and vocational training of laboratory medicine



MAIN PROBLEMS WITH VOCATIONAL TRAINING IN MEDICAL LABORATORIES IN POLAND

1. Lack of a legal and financial system preferring high quality performance in medical laboratories (Legal contracts with National Health Care Funds).
2. Outsourcing – several advantages and disadvantages of this process - separation of the patients from medical laboratory staff and facility. Lack of possibility to verify and consult the results with a physician (no more patient only the number of specimens). Similar problem was mentioned by Langlois and Wallemacq (6).

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