

## LEADERSHIP AND MANAGEMENT IN CLINICAL BIOCHEMISTRY LIDERSTVO I RUKOVOĐENJE U KLINIČKOJ BIOHEMIJI

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### Summary

Challenging times lay ahead for laboratory medicine in Europe due to at least three factors. 1) The scientific and technological developments increase the diagnostic possibilities but at the same time they will also change the interfaces among the different specialties of laboratory medicine. 2) The demographic changes with a more elderly population increase the demands for laboratory tests. 3) The increased complexity of the health care system combined with more well-informed patients calls for more coherent clinical pathways across the different sectors, for an increased focus on patient safety, and for a stronger involvement of patients and relatives. These issues cause both threats and opportunities for laboratory medicine – and they have to be handled in a situation with limited economic growth and shortage of money. This calls for a new organization of laboratory medicine in many hospitals as well as for a more active involvement of laboratory medicine in the clinical work and in the contact with the patients. Laboratory medicine will need dedicated and skillful leadership in order to prosper and grow during these challenging changes.

**Keywords:** Leadership, management, laboratory medicine.

### Kratak sadržaj

Izazovi u laboratorijskoj medicini u Evropi danas su uslovljeni sa najmanje tri faktora: 1) naučni i tehnološki razvoj povećava dijagnostičke mogućnosti i istovremeno takođe menja vezu između različitih specijalnosti laboratorijske medicine; 2) demografske promene zbog što starije populacije menjaju zahteve za laboratorijskim analizama, 3) povećanje kompleksnosti zdravstvenog sistema uz kombinaciju sve bolje informisanog pacijenta traži sve složenije kliničke protokole u raznim oblastima medicine vodeći računa o sigurnosti pacijenta i sve veću uključenost pacijenata i srodnika. Sve navedeno pruža sve veće mogućnosti za laboratorijsku medicinu ali i sve veće probleme imajuću u vidu ograničene ekonomske mogućnosti i sve manje novca za zdravstvene usluge. Ovo je izazov za novu organizaciju laboratorijske medicine u brojnim bolnicama i uključenje laboratorijske medicine u klinički rad i kontakt sa pacijentima. Iz ovog razloga u laboratorijskoj medicini potrebni su posvećeni i stručni rukovodioci kako bi se išlo u susret izazovima i promenama.

**Ključne reči:** liderstvo, upravljanje, laboratorijska medicina

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## Introduction

Interesting and challenging times lay ahead for laboratory medicine in Europe. Scientific and technological progress will cause new and exciting possibilities for laboratory medicine such as for instance personalized medicine. However, at the same time the whole health care sector is strained by significant challenges. One of these challenges is the demographic changes, which will increase the need for health care services. Another challenge is the increased complexity of the health care system which, together with more demanding patients, raise a demand for better and more coherent clinical pathways across the primary, secondary and tertiary sector. This happens in a situation with limited economic growth and shortage of both money and well educated human resources. It means that the new scientific opportunities for laboratory medicine have to be grasped in a situation where the rest of the health care sector is under severe strain. If laboratory medicine is going to get enough funding it is necessary to demonstrate how modern laboratory medicine can be a part of the solution to the challenges in the health care sector. This calls for good leadership and management in laboratory medicine. The leadership will have to focus both at »domestic issues« (inside the laboratories) as well as »foreign issues« (in relation the rest of the health care sector). The following sections will discuss some of the most important domestic and foreign issues and the last section will touch upon some relevant aspects of modern laboratory leadership and management.

### »Domestic issues« in the laboratories

The increased specialization in the health care sector has also affected laboratory medicine. In Denmark, there is five specialties of laboratory medicine: clinical biochemistry, clinical microbiology, clinical immunology, clinical genetics, and clinical pathology. Originally each specialty had its own area: clinical biochemistry analyzed blood and urine samples, clinical microbiology looked at bacteria and viruses, clinical immunology dealt with blood banking and tissue types, clinical genetics focused on analyses in relation to genetic counselling, and clinical pathology looked at cells and tissues samples microscopically. Due to the scientific developments the areas of each specialty have grown and today there is a significant overlap among the specialties. The new DNA and RNA analyses are just making the interfaces between the different specialties even more unclear. The modern laboratory equipment is another issues. Today, many apparatuses are so potent that they are able to perform analyses which previously belonged to a number of different specialties. At the same time this equipment is often so big and expensive, that it is impossible for a hospital to buy an apparatus for each of the involved specialties – and from a clinical point it is also unnecessary.

The idea of one specialty – one department with its own equipment seems to become obsolete. The different specialties will have to work closer together and to benefit from »economics of scale« – both in relation to equipment and in relation to the use of medical doctors and other laboratory specialists. Economics of scale in relation to laboratory equipment means that the different specialties will have to share some of the equipment. The advantage of this is that a hospital is more likely to be able to give their laboratory specialties access to modern and potent equipment. Such core facilities will affect the laboratory specialists, especially the medical doctors. Today, the identity of a medical doctor who is a specialist in laboratory medicine embraces both profound knowledge of the analyses and knowledge of the clinical impact of the test results. An increased use of core facilities will probably shift the focus from very specific analytic knowledge towards a greater involvement in evidence based use of the tests, at least for some of the medical doctors. Actually an increased focus on evidence based use of laboratory medicine is needed. A study on the most comprehensive national guidelines in Denmark back in 2004 demonstrated that 75% of the recommendations about diagnostic use of biochemical test were based on the lowest evidence based level possible (1, 2). A closer collaboration among the laboratory specialties might also release human resources so that the results of tests from different specialties can be compared for a given patient. In this way, a cumulative and more adequate result can be given to the clinicians.

Laboratory units with a significant use of core facilities and a closer scientific and clinical collaboration among the laboratory specialties will save money and at the same time improve the quality of the laboratory services. The clinicians will welcome such a development. It is difficult for them to be aware of which of the local laboratories that perform a certain test. They will appreciate to have one diagnostic entrance and to receive fully treated results.

The construction of such laboratory units are not easy. The specialties will resist if they feel that they are losing status, or even worse a part of their identity. The merging of laboratories is a huge task for the leaders. It calls for much more than scientific qualifications. It calls for a profound knowledge of laboratory and clinical medicine as well as interest and talent for change management and human resource management.

### »Foreign issues« in the laboratories

Some of the most urgent »foreign issues« are scarce resources, the need for more coherent clinical pathways across the primary and secondary health care sector, interprofessional collaboration and patient involvement, and patient safety. A laboratory

which helps the decision makers with their problems is likely to get their attention and some goodwill. It is therefore, important for leaders in laboratory medicine to consider how their laboratory can contribute to the solution of these urgent challenges. In most cases, it will be relevant to look both inside the laboratory and towards the collaboration with the clinical partners.

In relation to the scarce resources it is, off course, important to run the laboratory as efficiently as possible. This includes a continuous effort looking for new possibilities for rationalizations and economics of scale in order to release resources that can be used to improve the health care services, the research and teaching activities in the laboratory. Another important issue is to optimize the use of the laboratory services by the clinicians, i.e. that the right tests are applied for the right patient at the right time, and that the results are presented quickly and interpreted correctly. An efficient diagnostic process is a prerequisite for a fast and correct treatment – and this saves money.

In European countries, there is a demand for more coherent clinical pathways across the primary, secondary and tertiary sectors. Laboratory medicine cannot solve this problem alone, but it can make a significant contribution. It is important that the laboratory results for a given patient are easily accessible for all doctors irrespective of their localization in primary care or in highly specialized hospital departments. It is likewise important that results of a certain analysis can be compared and easily interpreted even though the test might have been performed at different laboratories.

The modern health care system depends on well-functioning teams consisting of different persons and professions, often coming from different departments or different sectors. Relational coordination and interprofessional collaboration are important tools in order to improve the teamwork and to make more coherent clinical pathways. The two theories were developed in different settings and with slightly different purposes. Relational coordination was developed by Jody Gittel. She looked at different airlines and focused on efficiency and improved quality of the core services (3). Later, she also applied the theory on the health care sector (4). Interprofessional collaboration was developed in the health care sector, primarily in Canada and England. Interprofessional collaboration focus on how to improve the collaboration among the members of the team around the patient so that the patient and her/his relatives are involved and well informed during their entire contact with the health care system (5, 6). Both theories claim that mutual respect among the different members of a team, thorough knowledge about each other's tasks and competencies as well as a timely and problem solving communication are key factors in order to

build a »high performance team« (7). Jody Gittel demonstrated that a good relational coordination in health care improve both quality, efficiency and the work environment (4). It is obvious that there is a need for good interprofessional collaboration within a laboratory. However, it is an important task for the laboratory leaders to ensure that the laboratory staff also establish a good interprofessional collaboration with the clinical staff so that they become a part of the team around the patient. If not, there is a risk that laboratory medicine will be considered as a service department instead of an integrated part of the clinical setting.

Many patients and their relatives want to be well informed and to tell the doctors which treatment goals that are especially important for them in their life. This issue has probably received greater attention in clinical medicine than in laboratory medicine. However, leaders in laboratory medicine should consider how their laboratories can contribute to the patients access to, and interpretation of, their own laboratory results. A recent study demonstrated that many European patients want thorough information about their results (8). The conditions for laboratory medicine differs across Europe, and local solutions have to be found (9).

Accreditation or certification have been very important tools for laboratory medicine in order to ensure a high quality of the laboratory services. A number of health care systems in USA and Europe have decided to move away from a formal accreditation of their hospitals and to build a culture of continuous quality improvement based on clinical data instead. This is inspired by the Institute for Health Care Improvement in Boston (10–12). The purpose is to increase both patients safety and the quality of the clinical services. Laboratory leaders have to consider how their laboratory handle this development in the best way. It might be dangerous to rely solely on the laboratory accreditation, at least in the interface between the laboratory and the clinical departments. Again local solutions have to be found.

### **Laboratory management and leadership**

In relation to laboratory management and leadership it might be a relevant to ask: what are the tasks and which professional and personal background is needed? The tasks of laboratory management and leadership is of course strongly affected by local conditions. However, the task can generally be divided into four areas: Strategic leadership, human resource leadership, administrative management and professional leadership. Strategic leadership is about the strategic development of the laboratory – i.e. what needs to be done in the next years in order to ensure that the laboratory is still »fit for fight« and hopefully even better in the future than it is today? Human

resource leadership is about leading and managing the personnel – i.e. stuff such as duty rosters, salary, sickness absence, competency development, employment, dismissal etc. Administrative management is running the administrative work at the laboratory – i.e. all the formal paper work. Professional leadership is leading or managing the health care services at the laboratory – i.e. the clinical work with the analyses, the research and the teaching activities.

All the four aspects of leadership stated above call for a person with strong leadership competences. Administrative management and to a certain degree the human resource leadership can be handled by a leader with little or no knowledge about laboratory medicine. However, a strong background in laboratory medicine is an advantage in relation to the strategic and the professional leadership in a laboratory. A leader with no knowledge about laboratory medicine will often fall short in laboratory medicine. The same

applies to even the most reputable professor in laboratory medicine if she/he is not taking management and leadership seriously. In most cases, the best leader is a »hybrid leader«, i.e. a person with a strong background in laboratory medicine who consider leadership her/his second profession. Ideally, it is a specialist in laboratory medicine who understands the work in the clinical departments, has a good track record in research and teaching – and a formal education in leadership.

This is severe demands but laboratory medicine will need good »hybrid leaders« in order to prosper and grow during the challenging times that lay ahead.

### Conflict of interest statement

The authors stated that they have no conflicts of interest regarding the publication of this article.

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