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TRAINING AND EDUCATION OF PHYSICIANS AND OTHER HEALTH WORKERS

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Introduction

There is a growing feeling among all parts involved in the process - laboratories themselves, physicians and other health workers, and health administrations - that there is a definite need for instituting or improving formal educational activities aimed at developing a more logical approach and a more critical attitude on what concerns the use of the clinical laboratory today.

It is a well known fact that in the last two decades the workload of clinical laboratories has increased yearly in a very dramatic way, not only as a result of the many scientific and technological developments achieved during this period, but also as a consequence of the evolution of health care delivery systems everywhere towards the extension of coverage to an ever increasing proportion of the population. The demand has, thus, augmented in a tremendous way.

This marked inflationary tendency generates a lot of problems both inside and outside the laboratory, creating a situation which, in terms of health care practice, is far from satisfactory, in technical as well as in economic terms.

The purpose of this paper is not to discuss in depth all these problems and their many implications but solely to try to identify some of the more important ones related with the user's side, as a basis for further discussion and for the eventual definition of general principles and guidelines aimed at the establishment of relevant methods for educating doctors and other health professionals in the effective and economical use of clinical laboratories.

Item 1. Education in proper request, utilization and interpretation of laboratory tests

Physicians and, in some countries, physicians' assistants and other health workers are the great consumers of clinical laboratory work. This means that, broadly speaking, they are the main determinant of the way in which laboratories are used. Strangely enough, however, these professionals receive practically no education in this particular aspect.

It is generally agreed that laboratories are used in a very uncritical and uneconomic way. Most of the times laboratory tests are requested in a stereotyped way, according to conventional routine patterns, sometimes even before the patient is seen.

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There is also a tendency for doctors to request the latest and newest tests which they come across in medical literature - some of them very expensive and not yet sufficiently tried - while at the same time they tend to keep on using many obsolete tests which, on scientific grounds, have proven to be of no interest at all.

Another problem is that many of the tests which are requested are redundant or clinically irrelevant. It is a well known fact that many times two or more tests giving the same sort of information are requested for the same patient and it is also quite widespread the habit of requesting routine batteries of tests, irrespective of the patient's complaints. This kind of practice will forcefully engender redundancy and waste.

On the other hand there are several studies which clearly show that a great percentage of the tests which are requested in hospitals and other services are of no use and totally irrelevant for the management of the clinical situation under study. Not to speak of the many cases in which the results of some tests will never be looked upon by the requesting physician.

This pattern of utilization of the clinical laboratory is, as far as we can judge, a universal one, and we can easily imagine some of its undesirable consequences, namely in relation with the generation of costs.

There are, of course, many factors leading to this situation but the lack of appropriate education of the consumer professionals (doctors and others) on what concerns the request of laboratory tests is undoubtedly one of the most prominent ones.

A different aspect which must also be looked into is the actual performance of laboratory tests by non-laboratory health workers.

In some countries there is a long tradition of physicians without any formal training in laboratory sciences performing laboratory tests (or having them performed to them by a technician) in their own offices - a practice with well-known advantages and disadvantages.

Recently, it is becoming more and more common, mainly in remote areas, the practice of some simple laboratory tests being performed by other health professionals (nurses, physicians' assistants, etc.), also without any special training. Although it is well acknowledged that this sort of practice corresponds to a real need dictated by the extension of health care coverage, one cannot forget that these professionals must receive some instruction regarding the tests they are performing, if this practice is to be meaningful and of real usefulness to the community.

Another point which deserves much attention is the lack of preparation of many of the laboratory users (doctors and other health workers) for the correct interpretation of laboratory tests. More often than not the information provided by the laboratory is used in an empirical way and not to its full extent.

This results in part from the lack of communication between the laboratory and the practitioners and from the fact that the latter do not know the rationale of the tests they resort to. This situation is aggravated from day to day by the new tests which are continuously being added to the list of determinations offered by the clinical laboratory.

This area is, of course, another one in which education is badly needed.

## Item 2. Cost consciousness

The escalation of costs of health care is a well known matter of concern for all nations, even for the more affluent ones. Most of the industrialized countries of Western Europe are now spending something like 10% of their gross national product with health and they are progressively realizing that they cannot afford it, since these expenses are steadily increasing from year to year. Cost containment is, thus, the "mot d'ordre" everywhere.

Many factors contribute to this undesirable trend. We may briefly summarize some of the principal ones:

- the more extensive coverage of the population ("health as a right")
- increase in demand, both from the public and the health professions
- low prescribing standards (as stated in item 1)
- unethical incentives provided by some systems of health care
- promotion of unnecessary consumption habits by the development of high laboratory technology (e.g. scanning)

Although laboratory costs correspond to a minor fraction of all the health expenditures (5-10% in many places) they may represent a large amount of money considered in absolute terms. In the United States, for instance, it is estimated that about six billion tests are now performed annually, at a cost of approximately 18 billion dollars. And it is estimated that, by 1986, some 15 billion tests will be conducted annually at a cost of about 25 billion dollars.<sup>1</sup> This picture is still darkened by the fact that, according to a survey of the College of American Pathologists, there is an overall error rate of 14-16% in the tests currently performed in the USA.<sup>2</sup>

On the other hand, most of the other health expenses are not contractible. So, the development of a logical approach to the use of auxiliary diagnostic means - including clinical laboratories - may prove to be one of the few possible ways in which to economize.

If this sort of situation, which is rather generalized, worries governments and, in particular, health authorities everywhere, it is striking to see that the main originators of laboratory expenditures (physicians and other consumers) seem to live in a different world, since they ignore the situation and just behave accordingly. Physicians are indeed the most important single contributing factor to the abuse and misuse of laboratory tests, which means that it is absolutely essential to promote the development of an attitude of cost consciousness among them in order for clinical laboratories to be used in a rational and useful way.

### Conclusion

If the gloomy situation which has been depicted - which, unfortunately, is prevailing everywhere, even in the more developed countries - is to be changed, urgent educational measures must be taken. The lack of relevant education among the health professionals who utilize the laboratory is, in fact, a common denominator to all the problems which have been pointed out.

During their formal education and training, physicians and other health workers do not learn how to use laboratory tests in a sound, criterious way. It is, therefore, mandatory that this aspect be considered in the definition of educational objectives and the establishment of curricula and learning methodologies for these professionals.

On what concerns physicians this sort of education should start at the undergraduate level and be pursued through postgraduate and continuing education. The notions of redundancy, clinical relevance, health care costs and cost consciousness should have an important place in the minds of the educators. Students should learn to identify and critically select the most economical and informative tests which are really relevant for the particular situation under study. Perhaps one should turn back a little and try to make medical students more proficient in their clinical skills and expertise so that patients will be more carefully examined and laboratory tests used more intelligently, in their true quality of supplementary tools and not as a substitute for the clinical examination.

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<sup>1</sup>Robinson, R.Q.: Laboratory Improvement in the United States - Working Paper for the Consultation for International Conference on Good Laboratory Practice - Brussels, 29 October - 1 November 1979.

<sup>2</sup>Op. cit.

Education should cover the four aspects included under item B.2 (requesting utilization, interpretation and costs of laboratory tests) without forgetting the adequate instruction of the non-laboratory health workers who actually perform laboratory tests.

Some notions of health economics should also be included in the curricula to foster the development of the sense of cost consciousness in the medical profession.

Finally, the educational role of laboratories themselves should also be kept in mind. National and official reference laboratories may have an important role in providing the practising physicians with periodical information in such aspects as: the "value for money" of some selected tests, advice on the choice of tests, and elimination of obsolete tests.

If a vast educational effort is made along these lines we may be sure that in some years from now clinical laboratories will be used in a more critical, economical and rational way for the benefit of all communities.

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