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CENTRALIZATION VERSUS DECENTRALIZATION - REGIONALIZATION

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1. Introduction

Laboratory services are characterized by a wide variety of organizational and structural set-ups, varying not only from country to country but also within the same country, with a consequent variety in services provided and population covered. On the other hand, there is an ever-increasing workload of activities, both quantitatively and qualitatively. Apart from the great demand arising from the development of primary health care services, the number of new tests is increasing and existing tests are becoming more sophisticated. It may also be noted that there are at present two somewhat opposed trends, the first aims at a maximal extension of laboratory services to the periphery, while the second is to regroup these services in well-defined geographical and/or demographic centres. The general pattern of the health services as well as communication and transport facilities often determine the type of organization.

2. Public health and hospital laboratories

The work of public health laboratories is mainly community oriented, though for technical and economic reasons it may often be rational to make their services available to both the public health sector and the hospitals. When a separation between sanitary-epidemiological and clinical laboratories still exists at all levels, a coordination of both types of laboratories and the remaining components of the national health services is considered important. A central laboratory usually serves as a national reference laboratory, developing methodology and supplying standard strains and reagents, and collaborates with a network of regional and peripheral laboratories.

Hospital laboratories may similarly be organized as large laboratories associated with university campuses, regional, provincial and municipal hospitals with over 1000 beds, intermediate laboratories associated with hospitals of around 500 beds and smaller laboratory units in district or communal hospitals. Even smaller units may exist at primary health care level, where only a certain amount of basic investigations are performed. The present rapid development in kits and monitoring devices has brought testing facilities right into the sector of self-care. Fig. 1 shows the interrelationships of the levels of health care, laboratory technologies, health care administration and the industries developing equipment and reagents.

3. Centralization

While it is a generally accepted policy in practically all countries to install a central laboratory dealing with public health problems and serving at the same time as reference and training centre, a central hospital laboratory on the other hand, having similar responsibilities with regard to clinical laboratory disciplines, is usually lacking. The value of both these central types of laboratories cannot be denied as they could, each one in their specific field, provide guidance in methodologies, prepare and distribute reference materials, develop training programmes, initiate and supervise quality assurance programmes and provide various types of specialized services which would be irrational to maintain at lower levels. In a comparatively small and compact country with a good communication system, it may be possible to have practically all work carried out at a single central laboratory. In larger countries it is necessary to spread out laboratory services of both the hospital and public health type with a system of integration depending on the local conditions. Regional and district laboratories are then implanted and these may be attached to the provincial hospitals (often as part of a university) and the district or county hospitals respectively. It is understood that the terminology used by countries is so different and that in the present paper the various terms are only used to indicate different levels of health care.

The advantages of centralization may be summarized as follows:

- Automated equipment becomes cost-effective as it will be carrying a heavy workload.

- There is no duplication of staff and equipment and overhead costs are reduced through bulk buying of reagents resulting in an overall economy.

- There is a concentration of high quality staff with a wide range of expertise thus giving more opportunities for research and development.

- Standardization of methods and monitoring of performance is easier.

- Credibility of laboratory results is higher.

- Epidemiological information can be readily and quickly obtained by the national health authorities; but this depends on the relative geographical area of the country covered by the central laboratory.

The main disadvantages of centralization include the danger of overuse or even misuse of a central laboratory, simply because of availability of machinery and expertise, and the gradual selection of top-graded specialists who may be unable to deal with field situations, where a more or less "generalist" is often needed. Education in laboratory utilization for users and adequate training programmes for laboratory staff may help to minimize these disadvantages.

4. Decentralization

Once decentralization of laboratory services is decided, the first question which may be asked is whether an administratively-oriented division (central, provincial or peripheral) is considered, whether this division is expected to be activity oriented (clinical hospital, public health, research) or whether both parameters are to be integrated in some way. While this may have been true at some stage in the developmental history of health laboratories, and still is in many countries, at the present the lines of demarcation appear to be less strict, mainly due to economic and personnel constraints.

It is therefore proposed to divide the laboratories into a more service-oriented system. The first one to be termed primary laboratory is either close to the patient for the monitoring of his condition and may be on wheels or in a fixed position such as in intensive care stations, or close to the community to monitor persons or the environment as an activity of preventive surveillance. The characteristics of the primary laboratory are that a wide variety of personnel participates in its running, that its location is in a "front-line" position (emergencies and early warning) and that all its findings need careful interpretation and generally require prompt action.

The secondary laboratory will offer a wide variety of tests covering most health care activities. It is comparable to the presently existing "Regional Laboratories" which provide hospital and public services to a population of one to two million inhabitants.

The tertiary laboratory will perform complex tests and is generally associated with a national or sometimes regional public health institute or a university. Its main functions include reference facilities, national or regional quality control programmes, training, elaboration of guidelines, manuals and research.

All three types of laboratory need well-developed transportation and communication systems. The generated data will have to be collated, monitored, integrated and redistributed to all interested parties.

Decentralization has the following advantages:

- The decentralized system with its smaller laboratory units becomes the linking body between the primary health care centre or the community (general) practitioner, the health care service and the public at large thus defining the laboratory's important place in the community approach to health care.

- More "personal" service is given through better and continuing contacts.

- There are no delays in reporting which does often occur with centralization, even when rapid methods of communication are used.

- The system ensures the constant availability of "generalist" laboratory workers at the periphery and a good cross-fertilization of these generalists with the more specialized workers available at the intermediate level.

As disadvantages of decentralization one may quote difficulties in supervision, diminished credibility of results, and training problems (as due to the workload, the workers may not be released for refresher courses). Most of these problems could be remedied by organizing a quality assurance programme covering all types of laboratory.

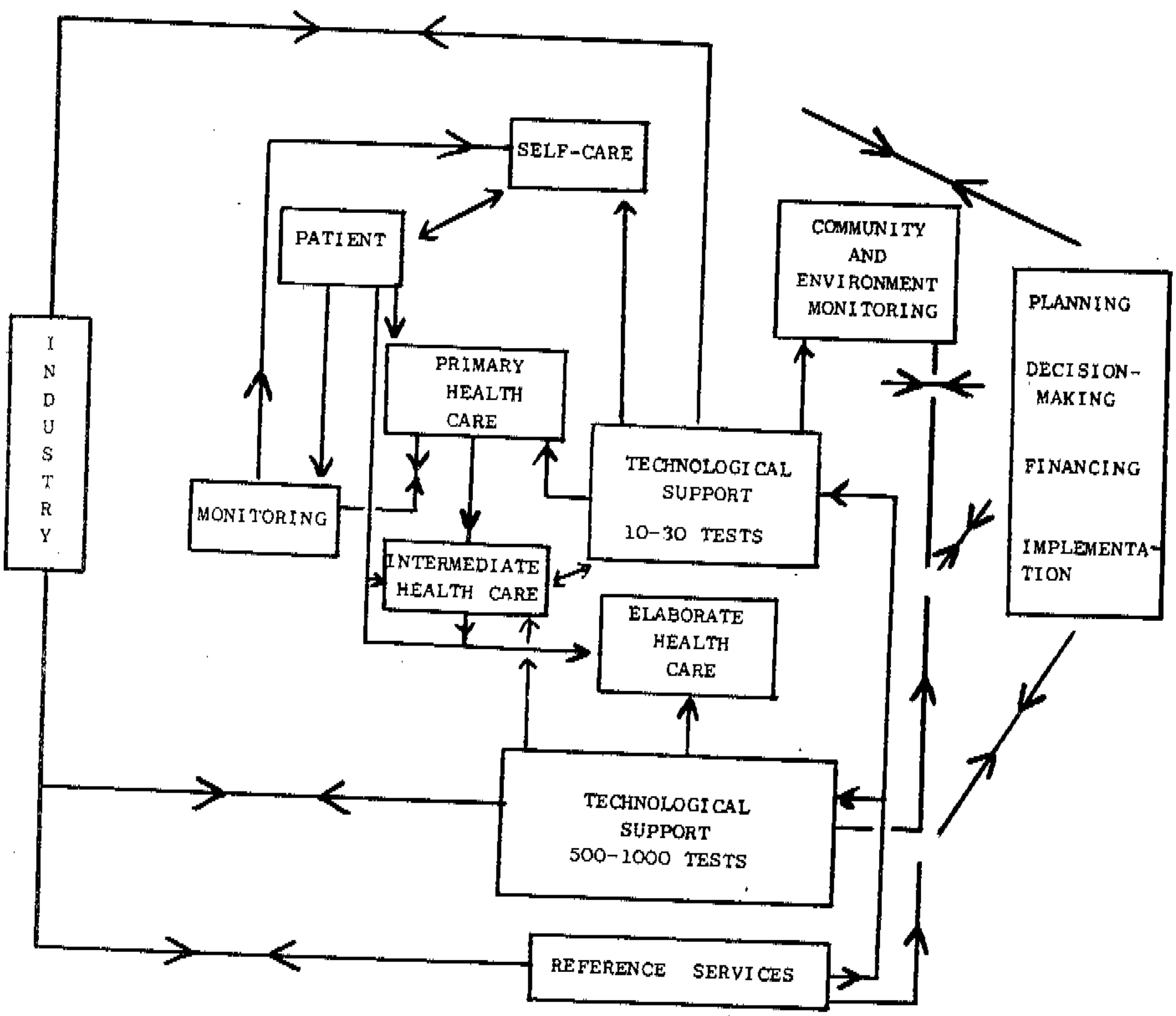
5. Regionalization

While decentralization is favoured in many countries, it still needs rather extensive coordinating bodies at central level, particularly when rational purchase of equipment and reagents is envisaged in view of standardized methodologies. When this coordination is deficient, expensive resources and facilities are usually wasted. Laboratory disciplines need reference centres, guidelines, procedures and manuals, and consumers need to be informed about available expertise, its exact location and the proper utilization.

The concept of regionalization has recently been introduced and consists of dividing the country into several practically autonomous health regions, each covering approximately one to two million inhabitants in a defined geographical area. A region will be self-contained, more or less self-supporting and will provide all health care services needed; this will include a laboratory service with a complete set of tests, except some very highly specialized and reference services which will still be done at central level. In a region there will be several "primary" laboratories and one "secondary" or regional laboratory, usually implanted at the regional hospital centre which may form part of a medical faculty. At this regional level, there are often other types of laboratories in which human health-related activities are taking place, such as the water, food and other environmental laboratories, as well as agricultural, occupational health and medico-legal laboratories. The regional administration will provide an improved horizontal coordination of these various activities, which is often difficult in other types of administration where all information follows vertical pathways.

Regionalization of laboratory services stimulates harmonization of methods, creates schemes for instrument evaluation, enhances antibiotic policies, develops hospital infection control, promotes quality assurance, improves training and, in general, upgrades laboratory services thus raising credibility of results.

FIG. 1. HEALTH CARE SYSTEM, LABORATORY TECHNOLOGIES AND INDUSTRY INTERRELATIONSHIP



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