

Medical Library and Information System for India: A Proposal

Gayas-ud-din
(BSc., MLibSc., MPhil)

Thesis submitted to the University of London
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School of Library, Archive and Information Studies
University College London
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- 3 Gayas-ud-din, and Andrew Buxton. "The potential of CD-ROM for biomedical information in developing countries." INSPEL 26 (1992): [In press].
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Abstract

This research concerns the design and planning of a medical library and information system for India. Based on a questionnaire survey, it examines the strengths and weaknesses of the existing resources, services and cooperative activities in Indian medical and health science libraries. The study reveals the lack of coordination or resource sharing activities in these libraries and concludes that owing to inadequate budgetary provisions, document collections and a wide gap between the present service provisions and actual requirements, there is need to rationalise and supplement the existing infrastructural resources into a nationwide networking system.

In order to gain information about the concept and planning of regional library systems and the need for a regional library or regional library unit, four different regional medical library and information systems in the U.K., namely Oxford, South West Thames, North Western and Trent, were surveyed. The focus is to ascertain in what ways the development of a regional library system could result in improvement of library services in the region and the factors that lead to particular successes (or failures) in operation and administration of direct regional support services. The survey also examines the nature of relationships between the regional library unit and member libraries and the extent to which regional services are used and valued.

The proposed system for India (MEDLIS) is based on the particular context to which it relates. The results of the design are mainly presented by either descriptive or analytical models, decided by the category of issues involved. The research has focused on the organisational aspects of system planning and attempts to delineate and analyse those factors that will ultimately govern the configuration and functions of a national medical library networking system and its units on a regional basis. However, macro-considerations of technology are inevitable and three alternate programmes are suggested. Recommendations are made about the future developments of a national medical library system and a possible implementation plan is outlined.

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CHAPTER 1

INTRODUCTION

1.1 Background

In India, the Government activities have been characterised by national development plans, each being given a five-year period for its execution. In these plans, activities are mapped out with financial allocations to effect a successful implementation of each activity. The Government, in its various national policy and planning documents, has stressed the importance of information in national growth, and the development and improvement of library and information services is now a part of overall national planning. "In 1974, when the first ever science and technology plan was drafted under the Fifth Five Year Plan (1974-79), the role of scientific information was given due consideration. The role of libraries was also reviewed."¹ Under this plan the Government of India identified scientific and technical information as one of the 22 priority areas in science and technology. The Government launched a National Information System for Science and Technology (NISSAT) aimed at improvement of scientific and technical libraries, information centres and their integration into a national system (see section 8.2). With the introduction of NISSAT in 1977, India became the first developing country to adopt a national plan for scientific and technical information. The NISSAT programme continued under the Sixth and

Seventh Five Year Plans. The Sixth Five Year Plan (1980-85) also stressed the need for harnessing information for various scientific and technical activities. The background document on evolving a national information policy² recognised information as indispensable for the functioning of a true democracy; described the role of mass communication, press and parliament; and stipulated specific guidelines for Akashvani, Doordarshan, Films, Press Information Bureau, Publications Division, etc. The report of the Steering Group on Science and Technology and Environment for the Seventh Five-Year Plan (1985-1990)³ recommended that the present library community be concerned with the concept of computers and their usage. In March 1984, the Planning Commission appointed another Working Group on Modernisation of Library Services and Informatics⁴ to formulate proposals for the Seventh Five Year Plan (1985-90) indicating priorities, policies and financial costs. The report recognised libraries as the richest and the most economical source of information required for economic and social development and felt that they were one of the least coordinated and most poorly-planned sectors at the national level.

The vitality of science and technology, the work efficiency and productivity of scientists and the quality of work performed by them are affected significantly by the operation of information systems. The majority of the scientific and technical libraries in India are financed and managed by the Government and the latest directory of scientific and technical libraries⁵ lists 1154 libraries. At the national level, India has the National Science Library (INSDOC) in New Delhi; the National Medical Library (DGHS) in New Delhi, and the Indian Agricultural Research Institute Library also in New Delhi. The National Library in Calcutta also has a division of science and

technology. There has been a gradual evolution of bibliographical information centres and systems. At the national level, there are INSDOC, DESIDOC, National Informatics Centre, UGC Information Centres, BARC Library and Information Services Division, ICAR Agricultural Research Information Centres, National Documentation Centre for Health and Family Welfare and NISSAT Sectoral Centres. NISSAT, which is the foremost attempt to interlink and coordinate a large number of information sources, services and centres, started a trend to evolve national information systems during the Sixth and Seventh Five Year Plan periods. There are now plans to establish a Defence Science Information System, a Health Science Information System, an Information System in Social Science, and an Information System in Arts and Humanities.

Since independence there has been an enormous increase in the number of scientific/technical institutions and personnel in India, and its position in the field of scientific and technical research is now unique among the developing countries.

"India is categorised as a 'super power' among the Third World countries involved in scientific research and eighth in the world in terms of publishing scientific papers."⁶

The expenditure on research has also increased rapidly and "the national investment on research and development and related S&T activities has been of the order of Rs.128,656 million or about 1.10 per cent of the GNP."⁷

In the context of the Eighth Five Year Plan, 1990-95, the Planning Commission set up a Working Group on Libraries and Informatics under the Department of Culture, Ministry of Human Resources Development to formulate proposals for the

development and improvement of library and information services indicating priorities, policies and financial costs. The Group reviewed the status achieved in this field by the end of 1989-90 viz-a-viz the programmes set for the Seventh Plan, and assigned priorities for the Eighth Plan. The Working Group made recommendations for various 'sub-sectors' of library and information systems, programmes and activities. Section II-B about Special Libraries asserted that:⁸

- 1 Networking among specialised libraries should be given a high priority in order to rationalise information dissemination;
- 2 Special attention should be paid to the allocation of responsibilities to the specialised libraries through a centralised command system in order to prevent duplication of tasks;
- 3 It is necessary to devise appropriate staffing norms for different categories of specialised libraries in terms of their specific needs and requirements.

The financial projections for the whole sector of libraries and informatics is Rs.1516 Crores (Rs.151.6 billion) including Rs.150 Crores (Rs.15 billion) for the National Medical Library, New Delhi⁹. There is, however, an increasing realisation that it is not feasible to fund all the libraries in the country to be self-sufficient; and that the library and information services in the country suffer from under-growth mainly due to lack of coordination, networking and information system planning. It was further observed that even though a sum of Rs.150 Crores (Rs.15 billion= £30 million) is annually spent on books and periodicals by libraries concerned with higher education, still a researcher or teacher is handicapped due to the paucity of resources and services offered by his library¹⁰. The Working Group identified that the main thrust in the Eighth Plan (1990-95) with regard to development of Library and Information Systems in the country would be:¹¹

- 1 To set up a National Commission on Libraries and Informatics; and
- 2 To evolve a National Policy on Library and Information Systems.

1.2 Context of the Study

In 1985, the Indian Government had set up a committee of senior library professionals and others under the chairmanship of Professor D. P. Chattopadhyaya to prepare a document on National Policy on Library and Information Systems (NAPLIS) on the basis of two drafts already proposed on the subject by the Raja Rammohan Roy Library Foundation and the Indian Library Association. The Committee submitted the document on National Policy on Library and Information Systems to the Government in 1986. The Government then appointed an Empowered Committee, again with Professor Chattapadhyaya as chairman, to consider the recommendations of NAPLIS. The Empowered Committee finalised its report¹² for submission in 1988. Both the report of the Empowered Committee and the NAPLIS document are under the consideration of the Government. It is generally understood that the appointment of the Empowered Committee is an indication of the Government's approval in principle to go ahead with the formulation and implementation of the National Policy on Library and Information Systems.

The committee formulated the objectives of the National Policy on Library and Information Systems as follows¹³:

Library and information services are vital for all sectors of national activity. The availability of information expeditiously and pin-pointedly supports decision-making processes at all levels. Relevant information accelerates the pace of national development. ... The Government of India, therefore, realises the value of coordinating and upgrading the existing library and information systems and services and initiating new programmes relevant to our national

needs.

The main aims of library and information policy were formulated by the committee as follows:

- 1 To foster, promote and sustain, by all appropriate means, the organisation, availability and use of information in all sectors of national activity;
- 2 To take steps for mobilising and upgrading the existing library and information systems and services and initiating new programmes relevant to our national needs, taking advantages of the latest advances in information technology;
- 3 To encourage and initiate, with all possible speed, programmes for the training of library and information personnel, on a scale and of a calibre adequate to provide the library and information services and to recognise their work as an important component of the quality and level of such services;
- 4 To set up adequate monitoring mechanisms for ensuring a rapid development of library and information facilities and services for meeting the information needs of all sectors and levels of the national economy;
- 5 To encourage individual initiative for the acquisition and dissemination of knowledge, and for the discovery of new knowledge in an atmosphere of intellectual freedom;
- 6 In general, to secure for the people of the country all the benefits that can accrue from the acquisition and application of knowledge; and
- 7 To preserve and make known the nation's cultural heritage in its multiple forms.

The NAPLIS document is a policy statement and addressed itself to the needs of: 1) the public library system; 2) the academic library system; 3) the special libraries and information systems; 4) the national library system and its bibliographic services. The need for an improved medical library and information system has been attested by the policy document in section 5.3 of the chapter on Special Libraries and Information Systems as follows¹⁴:

A large number of existing, planned and projected information systems such as Health Science Information System, Environmental Information System,

Bio-technology Information System, Agricultural System, Non-conventional Energy Information system, etc. should receive due attention for development.

The establishment of working groups, central government committees, proposals to formulate a national information policy and other efforts to keep abreast of other new developments¹⁵ have given an impetus to the planning of information systems in India. In 1989, Pathan and Karisidappa¹⁶ recognised that medical library and information work is poorly organised in the country and that there are very slow improvements in their working. They observed that¹⁷:

It becomes essential that [medical] libraries in India co-operate between themselves and share the resources for mutual benefit and to improve the qualitative information being provided to the physicians in the nation. Coming together will be a step forward in realising the benefits of the facility called "Networks"... India with 613 plus medical/health science libraries has so far been unable to realise the importance and impact of developing a network facility. There exists a grave lack of interest and co-operation among health science librarians with regard to sharing and making available resources, either on a local, regional or a national level. The reasons behind this lack are the policy, philosophy, and regulations in individual libraries.

The authors called for the creation of a hierarchical network of health science libraries in the country with a provision of five regional libraries. They further prescribed that the national planning must take into consideration the existing patterns of libraries, the entire health care facilities, and that one of the most important phases of network planning is exploration and making an inventory of resources available.

The senior librarians, and more importantly other administrators and planners who have responsibility for library development in the country, have increasingly realised that they should learn from advanced countries in terms of experience and technologies in the improvement and establishment of the library and information

systems but must not copy the Western models since the situations in terms of politics, economics, technological developments, etc. are very different. When the focus is on larger issues, it is considered useful to benefit from similar developments beyond the borders of one country or even of one continent¹⁸. India has historical links with the U.K. and the Indian system of administration is largely based on the British system. It is therefore very natural to look at the U.K. health science library systems, which are very well developed at the grassroots level, as a prelude to the development of a medical library and information system for India. In the context of this study, four different regional medical library and information systems in the U.K., namely Oxford, South West Thames, North Western and Trent, were surveyed to gain information about the concept and planning of regional library systems and the need for a regional library or regional library unit. As the study progressed, it became evident that it would be advantageous to briefly review and benefit from the U.S. system which is managed on a different basis from the U.K., and that the size of the United States makes it much more comparable with India.

1.3 Objectives of the Study

The aim of the present work is to construct a descriptive model for the design and planning of a medical library and information system for India focussing on organisational aspects, guided by the study of direct regional support services to the member libraries in selected regional medical library and information systems in the U.K. When the study is put into this perspective, its objectives can be articulated as follows:

- 1 To identify elements which constitute the infrastructure of medical library and

information delivery in India. These elements will be examined in the context of what is available in the country to assess what role they can play (or have failed to play) in the development of a medical library and information system in the country;

- 2 To ascertain various functional areas in the present medical library provisions in India that are inadequate and need development and financial support to become compatible with the likely future medical library system;
- 3 To determine the adequacy or otherwise of the medical library resources, services and cooperative activities in Indian medical and health science libraries;
- 4 To evaluate of the member library perceptions of the regional medical library and information systems in the U.K., in order to gain information about the concept and planning of regional library systems;
- 5 To estimate of the role of the Regional Librarian or the Regional Library Unit with regard to the direct support services to the member libraries;
- 6 To examine the nature of relationships between the Regional Library Unit and member libraries and the extent to which regional services are used and valued;
- 7 To ascertain in what ways the development of a regional library system could result in improvement of library services in a region and the factors that lead to particular successes (or failures) in their operation.
- 8 To identify the impediments, with positive assumptions, to an orderly and coordinated medical library and information system in India;
- 9 To appraise the impact of the proposed plan on library staffing and

- management, and the possible inhibiting effects of present library staff availability and qualifications to improve delivery of medical library services;
- 10 To develop a conceptualised framework that will ensure good medical library practice, adequate documentation, expand information channels for the smooth flow of information to medical and health care professionals; and
 - 11 To propose the future developments for medical library and information system in India and to make appropriate recommendations which will enable the Government and its various agencies to support the improvements in the existing medical library and information provisions.

1.4 Methodology

Survey research has been used extensively in the social and behavioral sciences. Many studies in librarianship have also relied upon the survey approach¹⁹. These surveys have allowed scholars to obtain contemporary data about the attitudes and opinions of librarians, the utilisation of library services and collections, the roles of librarians in all types of libraries, and many other types of information relating to various facets of professional practice. The primary components of survey research include such instruments and methods as questionnaires, interviews, random and stratified samples, and a variety of statistical procedures to test hypotheses.

This study envisaged collection of data from: 1) the Indian medical and health science librarians, and 2) medical and health science librarians in the selected NHS regions of Oxford, Southwest Thames, North Western and Trent. In the prevailing circumstances of this study (for example, working on a subject based on India remote

from Britain, the geographical size of India, economic factors, availability of time, etc.) the questionnaire method of survey was adopted. This was strengthened with personal visits and discussions/unstructured interviews on a number of occasions, especially during professional conferences and seminars both in India and the U.K.

Moser,²⁰ Line,²¹ Webb et al.²² have highlighted the short-falls of questionnaires and interviews as methods of surveys in research and lament over-dependence upon a single, fallible method. However, they admit that these are probably the most flexible and generally useful devices for gathering information. Stacy²³ observes that if the variables to be sampled are widely scattered geographically and the possibility of getting in touch with all is not feasible, postal enquiries in the form of questionnaires have a lot to commend them. Goode and Hart²⁴ maintain that a good questionnaire can lend itself to frankness and openness on the part of respondents as it provides a meaningful degree of anonymity and eliminates the fear of an immediate listener.

After the questionnaires were designed, they were pre-tested. The details of the data collection in the survey about Indian medical libraries are given in section 3.3 (methodology), and the details of the data collection from medical and health science librarians in NHS regions in the U.K. are given in section 6.3 (methodology), which is further supplemented by the "description of the population" in the individual regions in section 6.5.3.1 (Oxford), section 6.6.3.1 (South West Thames), section 6.8.2.1 (North Western), and section 6.9.2.1 (Trent).

1.5 Scope of the Study

The Ministry of Human Resources Development, Government of India, and other organs of the Government like the University Grants Commission, Indian Council of Medical Research, etc. have a regular programme for sending professionals to the developed countries, sometimes in collaboration with other agencies of the Commonwealth or WHO, for further study in various subject areas determined in view of national priorities from time to time. In most such cases, the areas of further study have to be reviewed, approved, and sometimes monitored by national selection committees. Since the present study is sponsored to be undertaken in a British university, its overall framework conforms to the approval of the national selection committee in India.

For the purposes of this study, the Indian medical library system or network will be considered generally to pertain to the libraries in medical schools in allopathic, homeopathic and Indian systems of medicine, teaching hospitals, dental schools, research institutes, nursing school and pharmacy departments. Other units, such as libraries in the non-teaching hospitals, dispensaries and primary health centres will be incorporated into the system as they develop. Presently they are not specifically covered in the design study. To ensure that the needs of these units will be served by the proposed system, a separate survey about their resources and a brief analysis of their needs and services will be required.

The study observes the role of the NHS Regional Librarian in the operation and administration of direct support services to member libraries. The other aspects of

the Regional Librarian's work of planning and developing services, negotiating policies and budgets at regional and local level, etc. are excluded from this study.

The study aims at focussing on the organisational aspects of system planning. The implementation will need great effort, patience and time. It can only be accomplished in a phased manner and is hence beyond the purview of this study.

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CHAPTER 2

MEDICAL EDUCATION AND HEALTH CARE SYSTEMS IN INDIA

2.1 India: the Geography

India became independent on 15 August 1947 and a Republic on 26 January 1950. After independence, the integration of about 560 former princely States was preliminary to the formation of new administrative units called States and Union Territories. The States are governed by the Council of Ministers (cabinets) responsible to the elected Legislative Assemblies, and the Union Territories are centrally administered. There are now 26 States and 6 Union Territories. India is the sixth largest country in the world (total land area= 3.29 million sq kms.), exceeded in size only by Canada, China, U.S.A., Brazil, and Australia¹. The diversity of India is reflected in the wide range of its climatic types. In the plains, the deserts of Rajasthan contrast with the humidity of Bengal and the winter snows of the Himalya contrast with the nearly equatorial heat of Kerala and Tamil Nadu.

2.2 The Health Care System

Under the constitution of India, the States are largely independent in matters relating to the delivery of health care to the people. Each State, therefore, has developed its own system of health care delivery, independent of the Central Government. The responsibility of the Central Government mainly consists of policy making, planning,

guiding, assisting, evaluating and coordinating the work of State health ministries so that health services cover every part of the country and no State lags behind for want of these services. The health care system in India has three main levels: Central, State, and Local.

2.2.1 At the Centre/National Level

The official "organs" of the health system at the national level consist of (1) the Ministry of Health and Family Welfare, (2) the Directorate General of Health Services, and 3) the Central Council of Health and Family Welfare.

Union Ministry of Health and Family Welfare

The Union Ministry is headed by a Cabinet Minister and consists of two departments (1) the Department of Health, and 2) the Department of Family Welfare. Its functions are set out in the constitution of India under (1) *the Union List*, and (2) *the Concurrent List*. The functions listed under the union list are the responsibility of the Central Government, and those of concurrent list are the responsibility of both the Union and State Governments. The functions given in the Union List are: 1) International health relations; 2) Administration of central institutes, such as, the All India Institute of Hygiene and Public Health, Calcutta; 3) Promotion of research; 4) Regulation and development of the medical, pharmaceutical, dental and nursing professions; 5) Establishment and maintenance of drug standards; 6) Collection of statistical data; 7) Coordination with States and other ministries for promotion of health, etc. The Concurrent List includes: 1) Prevention of communicable diseases; 2) Prevention of adulteration of foodstuffs; 3) Drugs control; 4) Vital statistics; 5)

Labour welfare; 6) Economic and social planning; and 7) Population control and family planning².

Directorate General of Health Services

The Directorate General of Health Services is the principal adviser to the Union Government in medical and public health matters. Its general functions are surveys, planning, coordination and programming of all health matters in the country. The specific functions include³:

- 1 Postgraduate training: the directorate is responsible for administration of national institutions, such as, the All India Institute of Hygiene and Public Health, Calcutta; the All India Institute of Mental Health at Bangalore; the National Institute of Communicable Diseases at Delhi; the College of Nursing at Delhi; the Central Research Institute at Kasauli; the National Institute of Health and Family Welfare at Delhi, etc.
- 2 Medical education: the directorate is directly responsible for some of the medical colleges, namely, Lady Hardinge, Maulana Azad, the medical colleges at Pondicherry, Goa, etc.
- 3 Medical research: medical research in the country is organised largely through the Indian Council of Medical Research (ICMR). The Council plays a significant role in aiding, promoting and coordinating scientific research on human diseases, their causes, prevention and cure. The research work is done through the Council's several permanent research institutes (**Appendix M**) and ad-hoc research projects.
- 4 Central Health Education Bureau: the Bureau prepares educational materials and offers training courses in health education to health workers.
- 5 National Medical Library: the Central Medical Library of the Directorate General of Health Services was declared the National Medical Library in 1966.

Central Council of Health and Family Welfare

A number of health matters fall in the Concurrent List of the constitution which calls for consultations, mutual understanding and cooperation with the States. The Central

Council promotes coordination between the Central and the State Governments in the implementation of such programmes and has the following functions:

- 1 To consider and recommend broad lines of policy in regard to matters concerning various aspects of health such as, preventive care, environmental hygiene, nutrition, health education, etc.
- 2 To make proposals for legislation relating to health and medical public health matters and to lay down patterns of development for the country as a whole.
- 3 To make recommendations regarding grants-in-aid to the States and to review the work accomplished through these grants, etc.

2.2.2 At the State Level

At the State level, there are as many types of health administration patterns as the present number of States. However, in all States the management comprises the State Ministry of Health and a Directorate of Health. The Director of the Health Services (known as Director of Medical and Health Services in some States), is the chief technical adviser to the State Government on all matters relating to medicine and public health and is responsible for the organisation and direction of all health care activities. A recent development in some States is the appointment of a separate Director of Medical Education in view of increasing numbers of medical colleges. The number and distribution of medical and allied health science colleges in various States and Union Territories in the country is presented in table 9.1

2.2.3 At the District Level

The principal unit of administration is the District. There are 430 Districts in the country which vary widely in area, population and medical/health care facilities⁴. There are no "average" Districts, but within each District there are usually 6 types of

administrative units: 1) Sub-divisions; 2) Tehsils; 3) Villages; 4) Municipalities or Corporations; 5) Community Development Blocks; and 6) Panchayats⁵. It has been recognised that the health status of the people cannot be improved unless primary health care is provided to the people at the grassroots, and the lowest levels of administration become involved more actively. In the Sixth Five Year Plan (1980-85), a Working Group on Community Involvement was thus established. In the Seventh Five Year Plan (1985-90), even greater stress was laid upon community involvement, to be achieved through the following measures⁶:

- 1 Use of mass media to create public awareness.
- 2 Intensive training in community organisation and mobilisation for all service providers from village health guides through medical specialists.
- 3 Organising opinion leaders and training camps at the primary health centre level throughout the country.
- 4 Encouraging voluntary and non-governmental organisations to play a more definite role in health service projects.
- 5 Enhancing the involvement of village panchayat cooperatives, health clubs, mahila mandals, religious leaders and social workers.

During the Sixth Five Year Plan (1980-85), a decision was taken to increase the proportional outlay for primary health care services, and declare the funds allotted to the States for primary health care as an "earmarked outlay". Roughly one third of the total health budget was allocated to primary health care, and the "earmarked" portion of this amount was not to be transferred to other sectors. About 3% of the GNP was spent on health and family welfare development during 1980-85⁷. Great improvements were made in the health infrastructure, including the training and deployment of about 350,000 village health guides; establishment of 75,000 sub-

centres and 6,000 new primary and subsidiary health centres. Training capacities for paramedical personnel (particularly for female multi-purpose workers) increased from an intake of 5,000-6,000 to 15,000 per year⁸. The establishment of sub-centres and primary health care centres is monitored both by the Ministry of Health and the Planning Commission. Individuals as well as institutions in primary health care are evaluated by the Rural Health Division, Ministry of Health, which also monitors the training of village health guides (primary health care workers). In order to improve coordination and to get feedback of health programmes from the State Governments, the Union Secretary of Health holds biannual meetings. An annual meeting of the Central Council of Health and Family Welfare brings together Ministers of Health from States and Union Territories with the administrative and technical heads of Health and Family Welfare Departments.

2.3 Health Care Sectors/Agencies and their Workforce

The health care system is intended to deliver the health care services and constitutes the management sector, involves organisational matters, and operates in the context of the socio-economic and political framework of the country. In India, it is represented by five major sectors or agencies which differ from each other by the health technology applied and by the sources of funds for operation⁹. These can be summarised as follows:

1 PUBLIC SECTOR

1.1 Rural Health Schemes

Primary Health Centres

Sub-centres

1.2 Hospitals/Health Centres

Community Health Centres

Rural Hospitals

District Hospitals/Health Centres

Specialist Hospitals

Teaching Hospitals

1.3 Health Insurance Schemes

Employees State Insurance Scheme

Central Government Health Schemes

1.4 Other agencies

Defence/Armed Forces Medical Services

Health Care of Railway Employees

2 PRIVATE SECTOR

2.1 Private hospitals, polyclinics, nursing homes, and dispensaries

2.2 General practitioners and Clinics

3 INDIGENOUS SYSTEMS OF MEDICINE

3.1 Ayurveda and Siddha

3.2 Unani and Tibbia

3.3 Homeopathy

3.4 Unregistered practitioners

4 VOLUNTARY HEALTH AGENCIES

Indian Red Cross Society

Tuberculosis Association of India

Family Planning Association of India

Indian Council for Child Welfare

The All India Blind Relief Society

Professional Bodies

International agencies, etc.

5 VERTICAL HEALTH PROGRAMMES

National Malaria Eradication Programmes

National TB Control Programme

National Leprosy Control Programme

National Programme for Prevention of Visually

Impaired and Control of Blindness

National Filaria Control Programme

National Goitre Control Programme, etc.

Since independence, the health sector has seen the emergence of a number of health service schemes due to social pressures, political decisions and scientific advances in the country. Consequently, there has been a phenomenal increase in the number of personnel engaged in the development of medical education, research and practice to improve the health status of people. The Institute of Applied Manpower Research (IAMR) made the following estimates about the workforce engaged in various health sectors on the basis of 1981 census¹⁰:

Primary Health Centres	25%
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Hospitals

Public Sector	13%
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Voluntary/Private	11%
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Dispensaries

Public Sector	51%
Voluntary/private	0.2%

It was further observed that majority of doctors (89%) have been working in the public sector institutions. Their distribution by occupation and sector of employment was reported as: Public Institutions = 44%; Voluntary/private institutions = 3%; Self-employment = 53%.

The distribution of medical and paramedical personnel and their population ratios were estimated as follows:

	<i>Rural</i>	<i>Urban</i>
Total number	484,300	631,000
Doctors	161,905 (33.4%)	236,282 (37.4%)
Paramedical	322,398 (66.6%)	39,7180 (62.6%)
<i>Ratio to Population</i>	<i>Rural</i>	<i>Urban</i>
Doctors (all systems)	1:3245	1:676
Doctors (allopathic)	1:9040	1:1100
Nurses	1:6075	1:1179

Source: India. Planning Commission. Study of the availability of health and medical manpower in the rural areas. New Delhi: Institute of Applied Manpower Research, 1981.

As of 1987, there were 331,630 doctors in modern medicine, 137,507 homeopaths, and 312,554 in indigenous system (271,696 Ayurveds; 29,097 Unani; 11,632 Siddha, and;

129 naturopaths)¹¹. There were 207,430 trained nurses in 1986 (as against 7,000 in 1946), according to the Indian Nursing Register compiled from State Registers by the Nursing Council of India¹². The development of plans for the delivery of required medical and health literature to such a vast and dispersed body of health professionals of all categories is a real challenge.

2.4 Medical Education

India has at present about 503 medical and allied health science colleges/institutes affiliated to 83 universities (table 9.1). The concept of affiliating to universities had been borrowed from the University of London, when the first three universities in India (Calcutta, Bombay and Madras), were established in 1857¹³. The essence of this system is that the teaching is done in colleges but the syllabus is laid down and the examinations are conducted by the universities. The largest number of universities belong to the affiliating and teaching type. They have some departments in the university which undertake teaching at postgraduate level. At the same time the universities have a number of colleges including medical and allied colleges and institutes affiliated, and one of their main tasks is to look after them. Some of the affiliate universities provide undergraduate teaching as well.

The first university to deviate from this pattern was the Banaras Hindu University. Established in 1916, it was an unitary and residential type rather than being an affiliating type. The other unitary-type universities include Aligarh Muslim University and Allahabad University. Such universities have no affiliate colleges and provide postgraduate education and research in their own departments and schools. Many

States have established separate medical universities, for example, the University of Health Sciences at Vijaywarda in Andra Pradesh; Dr. M.G.R. Medical University at Madras in Tamil Nadu.

The universities are autonomous bodies established or incorporated under a Central or State Government Act. The relationship between the parent universities and their affiliated medical college varies, but the functions of the universities are mainly limited to the holding of examinations and the conferring of degrees and diplomas. Before a college is accepted for affiliation by a university, the latter must be satisfied about the standing of its sponsors, financial resources, fees, its teaching staff, and provisions made for student accommodation, equipment, etc. Affiliated colleges must comply with requests by the university for information, submit themselves to inspection, and must take action recommended as a result of such inspection. The actual administration of most of the medical colleges is the responsibility of the respective State Health Departments. Of the 183 universities, only 10 are Central universities, that is funded by the Central Government through the University Grants Commission (UGC). All others are financed and managed by the States. There are some non-university institutions that have university status, like the All India Institute of Medical Sciences in New Delhi, and the Postgraduate Institute of Medical Education and Research in Chandigarh, which are administered by Acts of Parliament and empowered to award undergraduate and postgraduate degrees in medical sciences.

2.4.1 Admission and Enrolments

The basic requirement for admission to an Indian university is possession of Higher

Secondary Examination certificate - the school leaving certificate, obtained after 12 years of study. In conformity with a recommendation of the Medical Council of India, candidates for admission to the MBBS (Bachelor of Medicine and Bachelor of Surgery) course must have passed the Intermediate Examination in science, which covers physics, chemistry, and biology, including practical tests in these subjects. The minimum marks for admission to a medical course is 50% in science subjects, but since there are more applicants than vacancies, the selection is made on the basis of marks obtained in Intermediate Examination or in a competitive entrance examination. In 1988-89, about 4 million students were enrolled in universities and their constituent and affiliate colleges. This excludes the students enrolled in pre-university and intermediate classes. Of this total, 142,125 belonged to medicine¹⁴. The range of courses studied and the number of degrees awarded during 1987 in medicine, including Ayurveda, dentistry, homeopathy, nursing, pharmacy and Unani is given in table 2.1.

2.4.2 Curriculum

Preliminary qualifications for the study of medicine, the period of study, the subjects of study, and examinations are regulated by the Medical Council of India, which is empowered to lay down the minimum standards of medical education required in the country. Each school is responsible for the design of its curriculum, and the Dean together with the members of teaching staff work for its implementation. The medical course consists of 1½ years preclinical studies, 3 years para-clinical and clinical

TABLE 2.1

Courses Offered/Degrees Awarded in
Medicine and Allied Subjects

ALLOPATHIC (19,140)			
Degree	No.	Degree	No.
MBBS	11,764	BSc-audiology & speech..	25
MD	2,705	BSc-medicine	63
MS	1,577	BSc-occupational therapy	27
MCh	89	BSc-physical therapy	60
DM	42	BThO	12
BSc-nursing	686	MSc-medicine	100
MSc-nursing	41	MSc-speech & hearing	11
BDS	700	MSc-occupational therapy	16
MDS	127	MSc-physical therapy	7
BPharm	891		
MPharm	197		
INDIAN SYSTEMS & HOMEOPATHY (3,644)			
BUMS	458	BAMS/BSAM/GAMS	2595
GUMS/MD-una.	3	Pranacharya	98
BIM	13	MD- Ayurveda	69
BHMS	146	Ayurvedacharya	185
		MAMS	77

Source: Figures pertain to 1987 and have been compiled from: 1) India. University Grants Commission. Report for the year 1987. New Delhi: UGC, 1988. 2) Commonwealth universities yearbook 1991. London: the Association of Commonwealth Universities. 1991.

subjects, and 1 year rotating internship.

2.5 Regulatory Bodies for Research and Training

Although health is a State responsibility under the constitution, the Central Government discharges its supportive and promotive obligations to ensure a better quality of medical education, health care, research and adequate training facilities by providing central support to various activities and also by directly running the needed institutions in various fields. In addition, the Central Government has set up regulatory bodies to monitor the standards of medical education in various spheres and to undertake periodic inspections¹⁵:

2.5.1 The Medical Council of India

The Medical Council of India (MCI) was established under an Act of Parliament in 1933 and the Act was repealed by a New Indian Medical Council Act, 1956. The main functions of the Council are to maintain uniform standards of medical education, to establish reciprocity with foreign countries, and the maintenance of an All India Medical Register. The Council lays down minimum standards for teacher-student ratio, standard requirements in terms of clinical facilities, equipment, library provisions and also undertakes periodical inspection of medical colleges to ensure that the prescribed standards are maintained. The Indian Medical Register lists medical practitioners who possess recognised medical qualifications and is compiled from the State Medical Registers.

2.5.2 Dental Council of India

The Dental Council of India is a statutory body which was set up under the Dentists Act, 1948 with the prime objective of regulating the dental education, dental profession and dental ethics in the country. For this purpose, the Council periodically carries out inspections of dental institutions to ascertain the adequacy of courses and facilities available for the teaching of dentistry.

2.5.3 The Indian Nursing Council

The Indian Nursing Council is a statutory body constituted under the Indian Nursing Council Act, 1947. The Council is responsible for the regulation and maintenance of a uniform standard of training for nurses, midwives, auxiliary-nurse-midwives and health visitors. The Council prescribes the syllabus and regulations for various nursing courses.

2.5.4 Pharmacy Council of India

The Pharmacy Council of India is a statutory body constituted under the Pharmacy Act, 1948. The Council is responsible for regulation and maintenance of a uniform standard of training of pharmacists in the country. It prescribes the syllabus and regulations for diploma courses in pharmacy and registration of pharmacists.

2.5.5 National Academy of Medical Sciences

The National Academy of Medical Sciences was established in 1961 as a non-official body of biomedical scientists for promoting the growth of medical sciences and recognition and encouragement of meritorious professionals. The Academy consists

of Honorary Fellows, Fellows and Members. Medical scientists are elected to membership and fellowship on the basis of academic research, professional eminence and contributions to medical and health services.

2.5.6 Indian Council of Medical Research

The Indian Council of Medical Research is an apex body in the country for the formation, coordination and promotion of biomedical research programmes. Its activities include basic as well as applied research in a number of areas, such as communicable diseases, maternal and child health, reproductive biology, nutrition, non-communicable diseases, investigation of traditional systems of medicine of current relevance and application, etc. The Council administers its research programmes through *Intramural* and *Extramural* modules. The Intramural component consists of 25 permanent research institutes and centres located in different parts of the country which are mission-oriented towards a particular disease; and 6 regional medical research centres at Bhubaneswar, Port Blair, Dibrugarh, Jabalpur, Belgaum and Jodhpur, which address regional health problems¹⁶. The Extramural research is promoted through national task force projects; centres of advanced research; fellowship programmes for human resources development; and ad-hoc research schemes. During 1989-90, there were 319 Task Force Projects, 17 Centres for Advanced Research, 414 ad-hoc projects and 328 Fellowship programmes operating in various parts of the country¹⁷.

2.6 Indian Systems of Medicine and Homeopathy

Indian systems of medicine include all the non-allopathic systems of medicine

excluding homeopathy, viz., Ayurveda, Siddha, Unani medicine, Nature Cure and Yoga. Ayurveda, based on the Vedas and developed more than 3,000 years ago, is perhaps the earliest medical science that laid stress on positive health, blending physical, mental, social, moral and spiritual welfare. Unani medicine originated from Greece, enriched and developed by the Arabs and Persians, was introduced into India about 1,000 years ago. The Siddha System, also called the Agasthya System, is confined mainly to Tamil speaking areas of South India. Homeopathy was introduced to India in the middle of 19th century.

Though in modern times the Western system has established itself with its multifarious growth, there is also a growing awareness about the distinctive efficacy of the ancient systems of medicine. After independence, India made planned efforts through the Five Year Plans to develop the Indian systems of medicine and homeopathy. The National Health Policy¹⁸ assigns them an important role in the delivery of primary health care and envisages their eventual integration in the overall health care delivery systems in the context of the national target of achieving "Health for All by 2000 AD". It stresses the need to initiate organised measures to enable each system of medicine and health care to develop in accordance with its genius. The policy further emphasises that steps should be taken to move towards meaningful phased integration of the indigenous and the modern systems. There are at present 450,000 registered practitioners of Ayurveda, Unani, Siddha, and homeopathy throughout the country, particularly in villages and remote areas. Of these 270,000 are of Ayurveda, 140,000 of homeopathy, and the rest are of Unani and Siddha. The total number of dispensaries, hospitals and training institutes is 22,749 approximately. Of these 13,956

are of Ayurveda, 7363 of homeopathy and the rest are of Unani and Siddha¹⁹. The practitioners of Indian systems of medicine and homeopathy generally enjoy high local acceptance in rural and urban areas and consequently exert considerable influence on health beliefs and practices. The National Health Policy, therefore, lays emphasis on the adequate utilisation of this large number of health personnel, including private practitioners, available in these systems of medicine.

Education and training for the Indian systems of medicine and homeopathy is at present imparted in about 94 colleges of Ayurveda, 11 colleges of Unani, 93 colleges of homeopathy and 3 colleges of Siddha dispersed in various States (table 9.1). These colleges undertake graduate and postgraduate level education in the respective systems. Apart from these, two National Institutes of Ayurveda and Homeopathy have been set up at Jaipur and Calcutta respectively to act as centres of excellence in their fields of education, training, research, and medical care. Similarly, plans are under way for setting up similar National Institutes for Naturopathy at Pune, and Unani Medicine at Bangalore. In order to regulate the standards of education and practice by qualified persons, two councils were set up in New Delhi under Acts of Parliament, namely, the Central Council of Indian Medicine (CCIM), and the Central Council of Homeopathy (CCH). Besides, four Research Councils work as apex bodies for research and are fully financed by the Central Government. They are: 1) the Central Council for Research in Ayurveda and Siddha; 2) the Central Council for Research in Unani Medicine; 3) the Central Council for Research in Homeopathy; and 4) Central Council for Research in Yoga and Naturopathy. These councils initiate, aid, guide, develop and coordinate scientific research in different aspects, fundamental and applied, of the

respective systems.

To ensure quality control of drugs, two pharmaceutical laboratories have been established in Ghaziabad which determine standards for drugs used in homeopathy and Indian systems of medicine. A public sector undertaking, the Indian Medicine Pharmaceutical Corporation Limited was set up in 1978 by the Central Government in collaboration with the State Government of U.P. to manufacture quality Ayurvedic and Unani drugs. This company had a turnover of more than Rs.10 million in the year 1988-89²⁰.

In the Seventh Plan, Rs.43.25 crores were provided by the Central Government for the development of Indian systems of medicine and homeopathy²¹. The Government is providing an assistance of Rs.160,000 for books and laboratory equipment to colleges of Indian systems of medicine and homeopathy which are administered by voluntary organisations or by the State Governments. So far this has been provided to 83 such colleges²². The Working Group set up by the Planning Commission for the Eighth Five Year Plan has stressed special efforts to give a fillip to the various programmes, particularly in the field of standardisation of education, quality control of drugs of Indian systems of medicine and improvement in the health care services.

2.7 Summary and Conclusions

The Constitution of India provides that health is a State responsibility, but the central Government is liable for implementing many programmes of national importance which form the main planks of the development efforts. Health development is

recognised as an essential and integral part of national socio-economic development. The national health policy, adopted in 1982, declares India's commitment to the goal of "Health for All by the Year 2000" through the primary health care approach. Health related activities are planned and coordinated at all levels and carried out through a number of Central sector schemes as well as centrally-sponsored schemes implemented through the States. The Ministry of Health and Family Welfare and the Directorate General of Health Services are the nodal agencies which oversee and coordinate health programmes in the country. Central Councils for Health and Family Welfare secure coordination between the Centre and the States and Union Territories. The primary health work at grassroots level is carried out by Village Health Guides (VHG), under the overall supervision of the Rural Health Division, Ministry of Health. Both the allopathic and Indian systems of medical education and health care have passed through different stages of evolution after independence and reflected the socio-political changes in the country. They have developed according to the existing needs and to keep pace with the changing concepts and have undergone appreciable changes. The infrastructural facilities have greatly improved in education and practice, accrediting agencies have been strengthened to monitor standards, and a vast body of better qualified personnel in modern and Indian systems of medicine is available. During the Fifth and Sixth Five Year Plan periods, significant improvements and expansions have been made in both the specialist medical centres and the primary health care provisions and there is general satisfaction with the progress. Though it is recognised that many difficulties persist, primarily because even now the Government is spending less than 4% of its national income on health as compared to 10 to 15% in the West²³.

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CHAPTER 3

MEDICAL AND HEALTH SCIENCE LIBRARIES IN INDIA: THEIR RESOURCES AND SERVICES

3.1 Background

Before India's independence in 1947, there were less than fifty medical and health science libraries as indicated in the report of McDonald¹, an Indian Medical Services Officer, who conducted a survey of libraries in medical colleges and research institutions in 1945. This report about the conditions of libraries included 25 medical colleges and seven research institutions. In 1983, Bhatt² reported that there were about 613 medical and health science libraries in the country. These libraries form essential components of the existing infrastructure of medical and health science information and are attached to various organizations imparting education, research and training in medical and health sciences, professional associations and societies, hospitals, pharmaceutical houses, directorates of Central and State health services.

According to Long³ there are three steps in a successful information plan: 1) a *survey*, or audit of information resources as they are at present, involving techniques such as questionnaires, interviews, discussions, open seminars and literature searches; 2) *analysis* of the results of the survey to identify problems and issues that need to be

tackled; 3) a *plan*, or set of recommendations or objectives that are approved or adopted by participants and are designed to improve awareness of, access to and availability of information.

There is no tool which documents the existing resources, services and cooperative activities in medical and health science libraries in India. The earlier efforts are now outdated and scanty. In 1980 the National Medical Library (New Delhi) and the National Institute of Health and Family Welfare (New Delhi) separately surveyed medical and health science libraries^{4,5}. The World Health Organisation, Regional Office for South-East Asia (WHO/SEARO) published a directory of health science libraries in the region in 1978⁶. It was wider in scope and included eight countries (Bangladesh, Bhutan, India, Indonesia, Maldives, Nepal, Sri Lanka and Thailand). About 100 Indian health science libraries are listed in it. The data in all the three directories is now about a decade old. In 1985 the Indian Library Association (ILA) published the Directory of Libraries in India⁷ but it included only about 28 medical libraries.

In order to examine the strength and weakness of the existing resources, services and cooperative activities in Indian medical and health science libraries, a questionnaire survey was thus undertaken during August 1989 to March 1990.

3.2 Objectives of the Survey

The data collected will provide answers to the following questions:

- 1 What are the various types of medical and health science libraries?

- 2 How old and established are medical and health science libraries in India?
- 3 Does India have sufficient document resources today in its medical and health science libraries to permit initiation of a viable resource sharing network?
- 4 Is the level of professional expertise sufficient to operate a network?
- 5 To what extent are the services of subject specialists available?
- 6 To what extent are these libraries equipped for transfer and dissemination of information?
- 7 What is the level of financial support available to maintain the development of document resources?
- 8 What are the prevailing and preferred methods for the organisation of document resources and information processing?
- 9 What sort of services are offered in-house in these libraries?
- 10 To what extent are the MEDLINE search services used and what is their source?
- 11 How many libraries are open to the members of other medical and related institutions for use and borrowing of reading material?
- 12 What kind of cooperative activities exist among these libraries and to what extent are they shared?

3.3 Methodology

The medical and health science libraries in India are associated with various medical and health related organizations. However, their main concentration is in departments

engaged in education and research of medical and allied sciences. They are mainly located in the following institutions^{8,9}:

1	Medical Colleges and Institutes of Postgraduate Medical Education and Research	136
2	Dental Colleges and Hospitals	30
3	Schools, Colleges and Institutes of Nursing	27
4	Colleges/Departments of Pharmaceutical Sciences	71
5	Indian Council of Medical Research Institutes	25
6	Homeopathic Medical Colleges [Recognised by State Homeopathic Boards/Councils/Universities]	93
7	Ayurvedic Degree Colleges	94
8	Unani Degree Colleges	11
9	Other Institutions [Diploma/Postgraduate courses]	41
10	World Health Organisation	1
11	National Medical Library	1
	TOTAL	530

For the purposes of this study all the libraries in the above institutions were chosen for a postal questionnaire survey. The questionnaire (Appendix A) was pre-tested by 15 medical librarians in India, finalised in view of their comments (Appendix B) and then distributed to all the librarians in the 530 institutions listed above. A total of 174 questionnaires were returned. A reminder (Appendix C) was sent to the non-responding librarians, resulting in the receipt of 93 more questionnaires raising the total number to 267, a response rate of 50%. Out of this, 27 departments of pharmaceutical sciences, 10 dental colleges and 20 other institutes returned the questionnaires with the comments that their organizations do not have a

separate/library. In this way a total usable response of 210 questionnaires was received. The main areas covered in the questionnaire are: 1) types of libraries and their age; 2) resources; 3) information processing methods; 4) services; and 5) cooperative activities.

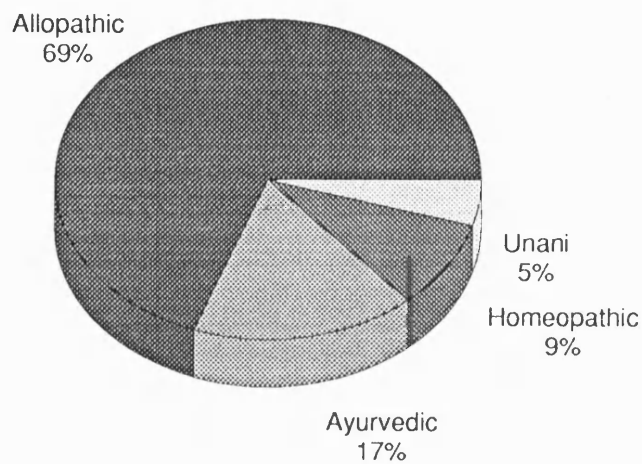
ANALYSIS OF THE DATA

3.4 Types of Libraries

The respondents were provided with 12 options stating various possible types of medical and health science libraries. The options related to: 1) institutional affiliation of the library like hospital, academic and research; 2) subjects/disciplines covered like pharmacy, nursing, dentistry, medical or multi-disciplinary; 3) orientation by the system of medicine like allopathic, Ayurvedic, homeopathic or Unani. An open 'other' section was provided for any other possible option that may be preferably chosen by any librarian to reflect their main emphasis. The respondents were asked to choose one or more type/s to indicate the nature of their own library.

The predominant group of the respondent libraries belong to the allopathic (modern) system of medicine (figure 3.1). In the Indian system of medicine, Ayurvedic libraries outnumber homeopathic and Unani respondent libraries. Whereas some of the libraries support more than one discipline and are multi-disciplinary, there are a small number of libraries supporting specific subjects like pharmacy, nursing and dentistry (figure 3.2). 'Medical' libraries are, however, the major group of libraries in all the systems of medicine (figure 3.3). The libraries thus appear to be of varied nature supporting different disciplines and systems of medicine with their main concentration

TYPES OF MED & HEALTH SC LIBS According to the Systems of Medicine

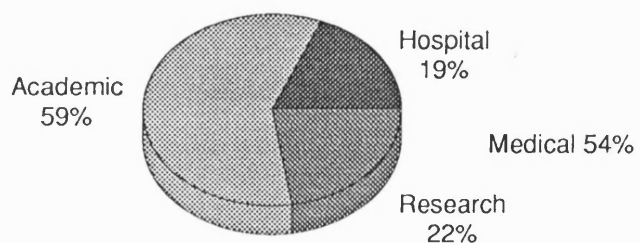


Survey of Indian Med Libs, 1990 :Gayas

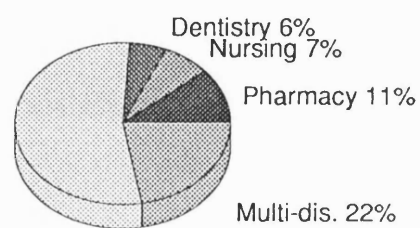
Fig. 3.1

TYPES OF MED & HEALTH SC LIBS

According to
Institutional Affiliations



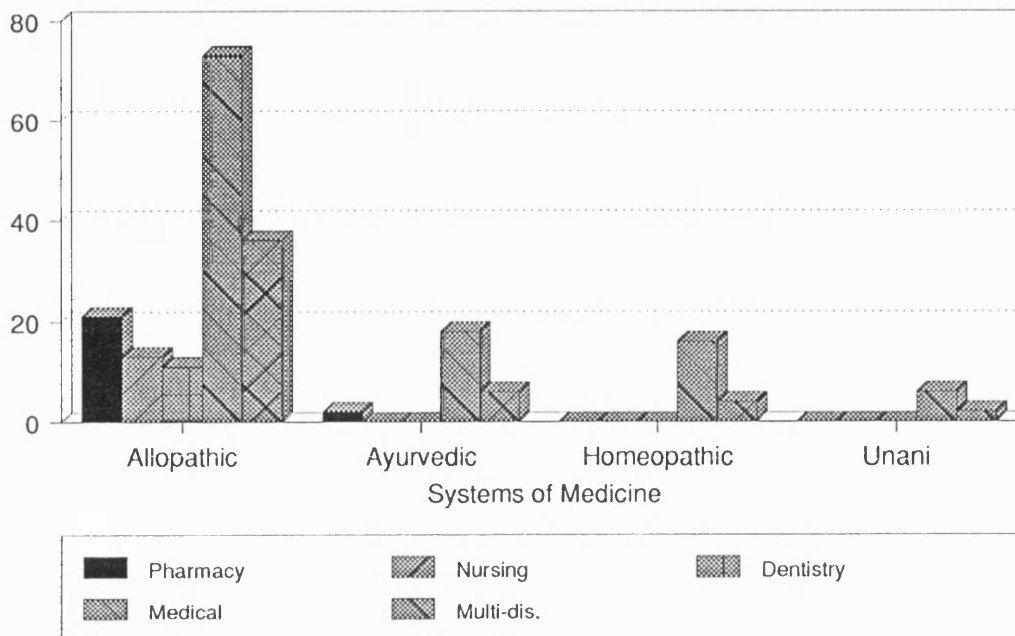
According to
Subjects/ Disciplines Covered



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Fig. 3.2

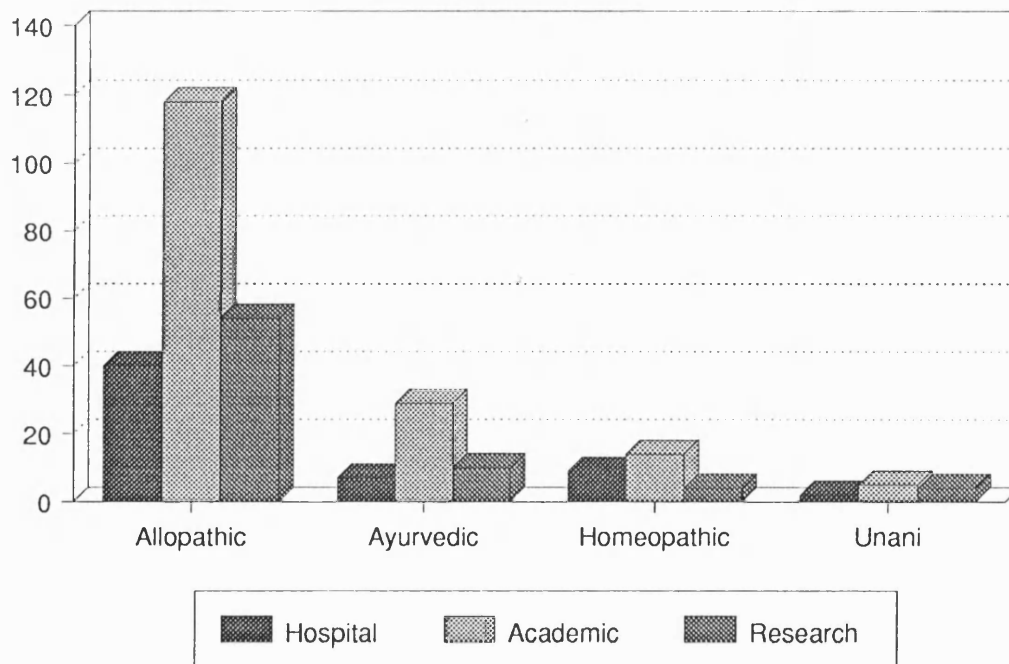
Subjects/Disciplines covered by Libs According to the Systems of Medicine



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.3

Institutional Affiliations of Libs According to the Systems of Medicine



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.4

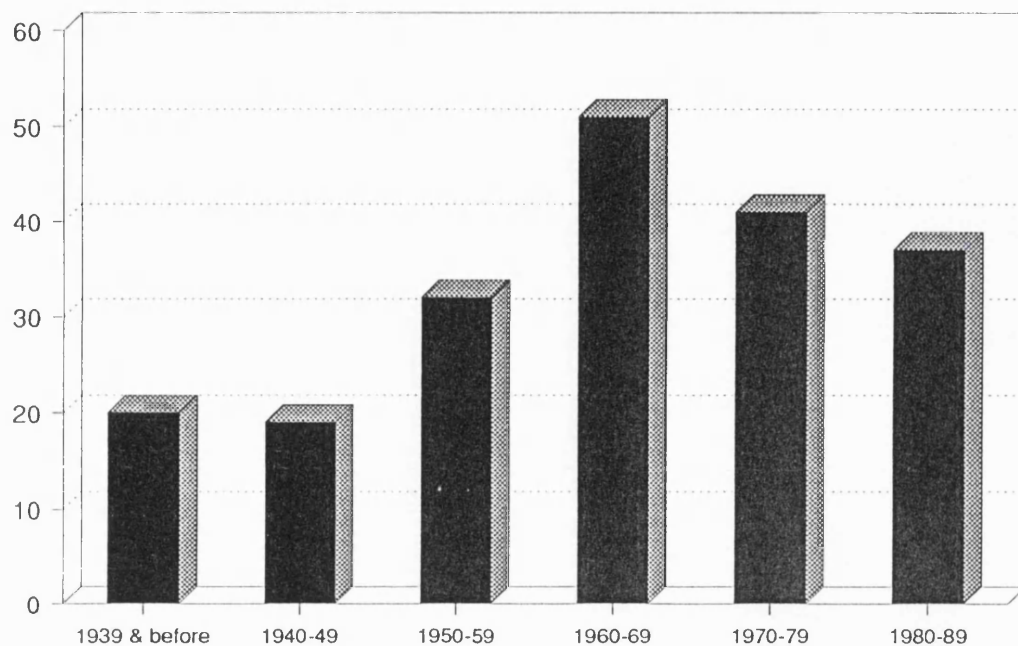
in the teaching institutions in all the systems of medicine (figure 3.4).

In some cases it was observed that with regard to the institutional affiliation of the library, the respondent librarian has chosen all the three options, namely, hospital, academic and research. This holds good for teaching hospitals which are actively involved in research as well. There is, therefore, an element of overlap in the percentages of their numbers as shown in figure 3.2. For example, the percentage of 'hospital' libraries does not necessarily refer to libraries affiliated to only non-teaching hospitals. It may to some extent include teaching hospital libraries as well. The number of libraries attached to hospitals (which are not part of teaching institutions) is otherwise very small. Over 90% of them do not have a library attached¹⁰. In a similar way the percentage of 'research' libraries in figure 3.2 may be inclusive of research oriented teaching hospitals in addition to the institutions (like ICMR institutions) which are exclusively research oriented without any hospital functions.

3.5 Age of Libraries

The number of medical and health science libraries was very small before independence in 1947. Thereafter their number has increased. This has been possible due to the increase in the number of medical institutions and the significant development of medical education in the country. The 1960s witnessed some landmarks in the context of national health planning, promotion of medical education and establishment of many medical institutions in the country. The guidelines were provided by many committees like the Mudliar Committee (1962), Chada Committee (1963), Mukerji Committee (1965) and Jungalwala Committee (1967). This may have

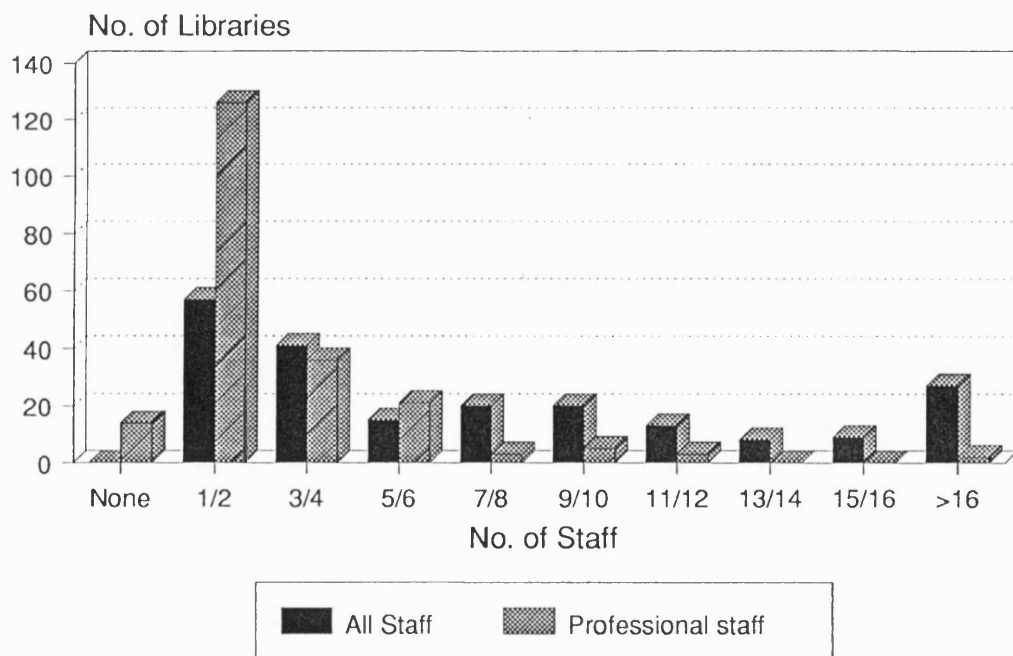
AGE Decade of Establishment



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.5

STAFF No. of Professional & Supportive Staff



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.6

given a filip to the establishment of more medical libraries in sixties. Most of these libraries are thus just 30 years old and one-fifth of them only a decade old (figure 3.5). Nine libraries did not indicate the year of their establishment.

3.6 Resources

Library resources here refers to four categories, namely, staff, collection, equipment and budget. The resources held by a library in various categories were measured against different sizes set for this purpose. A preliminary overview of the figures presented in the completed questionnaires was helpful to set the initial sizes for different categories of resources.

3.6.1 Staff

The number of library staff was ascertained in three broad groups: professional, supportive and subject specialists. Each group was defined in the questionnaire as follows:

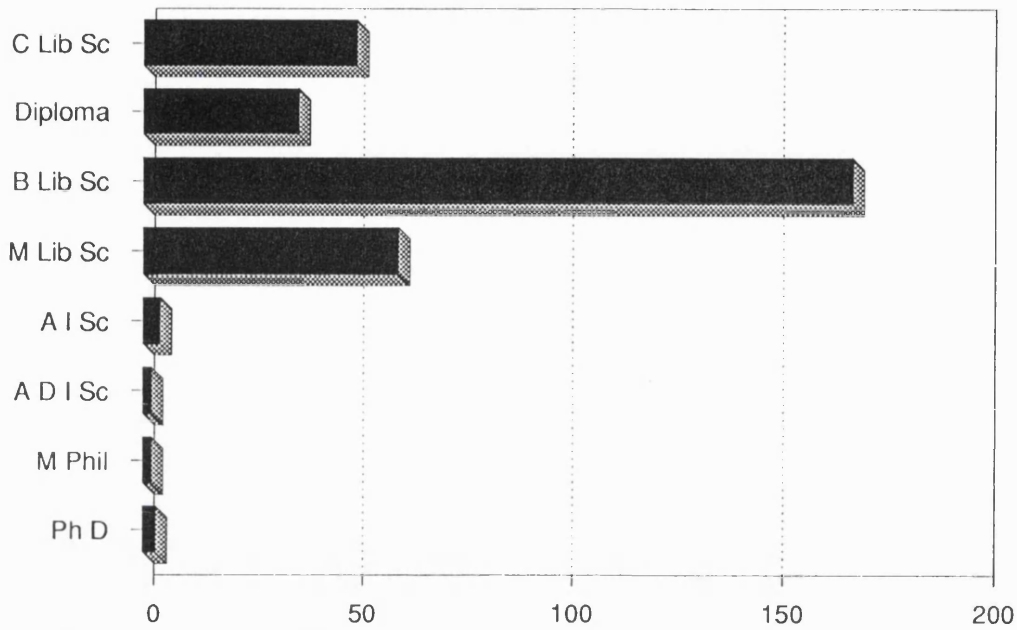
- 1 *Professional*: staff holding formal library and information science degrees. This will include Certificate, Diploma, Bachelors degree like BLibSc or BLIS; Masters degree like MLibSc or MLIS, Associateship in Documentation and Information Science like AISc or ADISc and MPhil/PhD.
- 2 *Subject Specialists*: this is defined specially as staff not holding formal library science degrees but having other scientific qualifications such as BSc; MSc, etc. in other subjects.
- 3 *Supportive*: staff having other or lower qualifications than the above

such as high school or two year higher secondary school diploma but having no library science training. This would include staff doing supportive jobs like accounts, office assistance, xeroxing, security, sanitary, etc.

The survey indicates that 14 libraries (7%) do not have any professionally qualified staff member. They do not even have any other staff of their own. These are most likely to be looked after by either a teacher in-charge or a member of secretarial staff. The majority of 126 libraries (60%) are managed by 1/2 full-time professional librarians (figure 3.6). Out of this about 68 libraries (38%) are managed by only one professional staff. Only two libraries have more than 16 professional staff whereas 27 libraries (13%) have more than 16 supportive staff. Not a single library has indicated the presence of a subject specialist amongst its staff. The people holding qualifications in other disciplines do not appear to be hired in medical and health science libraries unless they have a degree in librarianship as well.

The professional library staff working in medical and health science libraries in India mainly have a Bachelors or Masters degree in Library and Information Science (figure 3.7). Two of them have an MSLS degree from the United States and one an MA from the University of London. They mostly do not hold any special qualification in medical librarianship. Only one incumbent holds a MLA certificate from the Medical Library Association (U.S.A.). The 'Diploma' was the former equivalent of the current BLIS. This was awarded as a postgraduate degree in librarianship until the 1960s. Its nomenclature was later changed to BLibSc in most of the universities and now

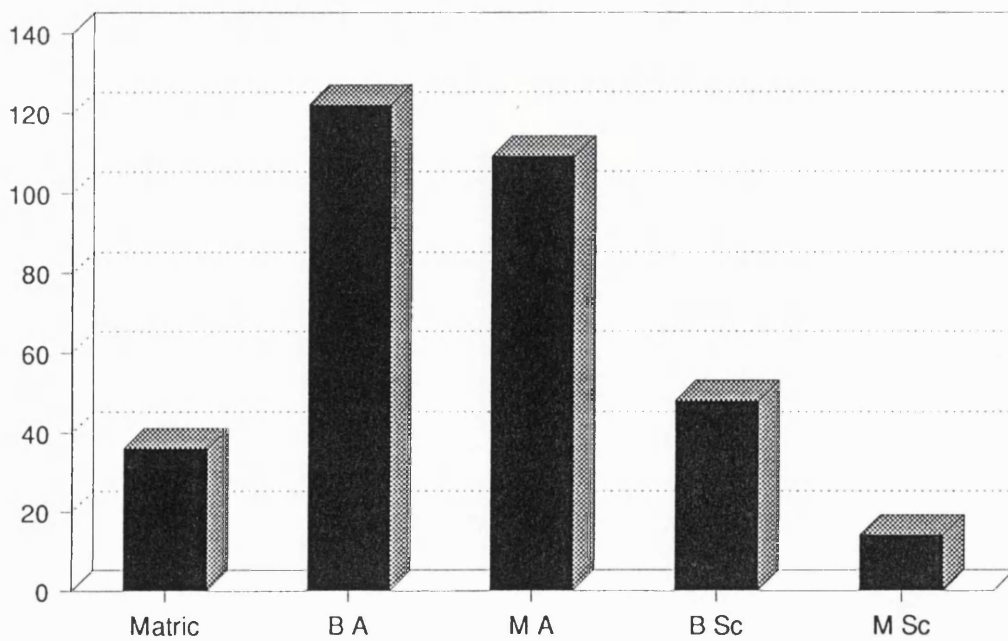
STAFF Professional Qualifications



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.7

PROFESSIONAL STAFF Academic Qualifications



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.8

many universities award it as BLIS. The certificate course is undertaken after 'Matriculation' (= O level), which is the first degree awarded by the Board of School/Secondary Education. However, some 15 professional staff hold a certificate in librarianship with a graduate degree. It is likely that such incumbents have improved their academic qualifications while in service. The two-year associateship courses in documentation and information science are undertaken in two non-university institutions, namely, the Indian National Scientific Documentation Centre (INSDOC), New Delhi and the Documentation Research and Training Centre (DRTC), Bangalore. These courses are somewhat technology oriented. They have been recognised by the University Grants Commission (UGC) as equivalent to MLibSc for academic purposes. The MPhil degree in Library and Information Sciences is awarded by the Universities of Delhi and Mysore. Both the responding librarians with MPhils have them in Library and Information Science. Out of the three respondent librarians holding a Doctorate, one has earned an MA and PhD in Hindi. The incumbent holds a Bachelors degree in Library and Information Science. The other two incumbents have earned their Doctorates in library related topics in other subjects. Most of the professional staff have their Bachelors and Masters degree in Arts (70%) as compared to the small number (19%) having a Bachelors or a Masters degree in sciences (figure 3.8). Seven librarians have a degree in Law (LLB) and four in Education (BEd/MEd) in addition to their library science qualifications.

A medical librarian is supposed to be acquainted with the various fields of medical and health sciences like haematology, pharmacology, genetics, cytology and even micro-topics like DNA and RNA. Preparing specialised bibliographies, abstracts and

rendering an information service for biomedical scientists is one of the jobs of a medical librarian. This survey shows a shortage of staff with these qualifications to give accurate and relevant information to medical professionals. It appears that no specialization is being sought for working in a medical and health science library, and even a first degree in sciences is not considered mandatory. The unfamiliarity of medical terminology usually poses difficult problems. As a matter of fact an understanding of the basic concepts of biological and medical sciences is essential for professional jobs in a medical library. At the moment it seems to be neglected. In such a case the librarian is likely to face many problems in the provision of effective library and information services. It may also be difficult to derive fully the benefits of automation and other advances in medical library and information work by the vast majority of library staff when they do not have a background in biological sciences and do not receive (or are not given) the basic training in medical librarianship. The BLibSc or BLIS offered by Indian universities is a general course imparting basic principles and skills of librarianship applicable to all types of libraries. The Masters course (MLibSc or MLIS) offers a more advanced training with emphasis on special librarianship and information work. The Associateship courses at the Documentation Research and Training Centre (DRTC), Bangalore; and the Indian National Scientific Documentation Centre (INSDOC), New Delhi offer options in health science librarianship. But this survey shows that only six librarians possess the Associateship degrees of these institutions; four have an AISC from INSDOC and two an ADISC from DRTC. Many librarians may prefer not to take up the associateship courses because they extend for two years as compared to the one year MLibSc offered by universities. Even though these courses have been recognised by the University

Grants Commission (UGC) as equivalent to MLibSc, they do not appear to find favour in the medical libraries. Only two universities in India (Mysore and Delhi) have introduced a special optional paper on medical librarianship. But the course was not operative until March 1988. The reasons for this may be the smaller number of students opting for this course and even the non-availability of suitably qualified faculty to teach the course. The Indian universities at the moment seem to be less inclined to initiate exclusive courses or any specialization in medical librarianship. Some effort was made by National Medical library (NML), New Delhi to bridge the gap when in 1981 it started a five-week training course for in-service librarians. During the period 1982-87, the NML conducted 11 training courses¹¹. The training programme was devised to cover subjects like medical terminology, medical indexing and abstracting services, computerised medical information, reprographic techniques, national and international information systems¹². So far no formal evaluation of the course is available. However, some of the librarians who have taken this course feel that it needs more thoughtful planning both in the coverage and its contents. Obviously NML would not have sufficient academic expertise and proficiency to conduct the course in a desired manner. There appears to be a need for the NML to cooperate with a library school to improvise and evolve such a training programme.

The Medical Library Association of India (MLAI) does not appear to be keenly involved in the training and educational programmes for medical and health science librarians in the country unlike its counter-parts in the U.S.A. or the U.K. In the United States, the Medical Library Association (MLA) is responsible to a great extent for the spread of education in medical librarianship. It conducts short training courses

(certificate) in medical librarianship. Such courses are open to new entrants and to those already working in medical libraries. One Indian medical librarian has undertaken the certificate course of MLA (U.S.A.). Similarly in the U.K., the Medical, Health and Welfare Librarians Group of the Library Association conducts short-term workshops/courses and arranges study visits to various medical and health science libraries. The courses may not be as extensive and regular as the ones established by MLA (U.S.A.), but still they cater to the needs of medical and health care librarians. Unlike medical librarianship in the U.K. or the U.S.A., medical librarianship in India lacks the professional leadership and a strong professional association which are the two important assets necessary to foster and maintain the spirit of cooperation and coordination in the resource sharing activities. The Medical Library Association of India thus needs to take a more active role for the promotion of medical library education in the country.

The possibility that a medical graduate will opt for librarianship is remote. The training of the existing staff is therefore very crucial for the expansion and improvement of services. While efforts to impart the necessary education, training and skills are required to be undertaken at the national level, cooperation amongst the available human resources in medical and health science libraries in documentation and information services and even for technical processing emerges as paramount.

3.6.2 Collections

Information about the library's holdings was gathered with regard to the following eight categories:

- 1 Books and monographs
- 2 Current journals
- 3 Bound journals
- 4 Theses and dissertations
- 5 Other printed material
- 6 Microforms
- 7 Audio-visual materials
- 8 Special collections

For each category the respondents were asked to provide the approximate total number of items held by their libraries.

3.6.2.1 Books and Monographs

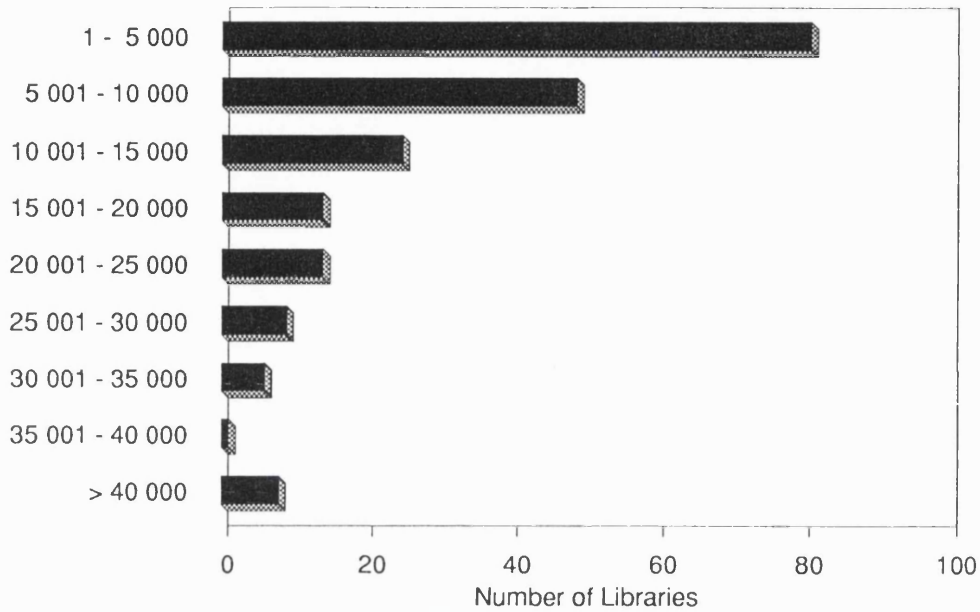
Books and monographs are the main sources of secondary information and should form an important part of any collection. It is true that a medical book is out of date almost as soon as it is published, but this does not invalidate its value as a digest of available knowledge in a physically compact form. Some sections of the medical and health science community such as medical undergraduates, student nurses and trainee technologists rely heavily on books for their information needs. In the same way a monograph (an advanced-level treatise on a single subject) is familiar to users for advanced-level work, where it also acts as an extended review article.

155 libraries (75%) have a books and monograph collection of less than 15,000. Out of this 81 libraries (39%) have a collection of only 5,000 (figure 3.9). So more than

BOOKS & MONOGRAPHS

Size of Books & Monograph Collections

Number of Books



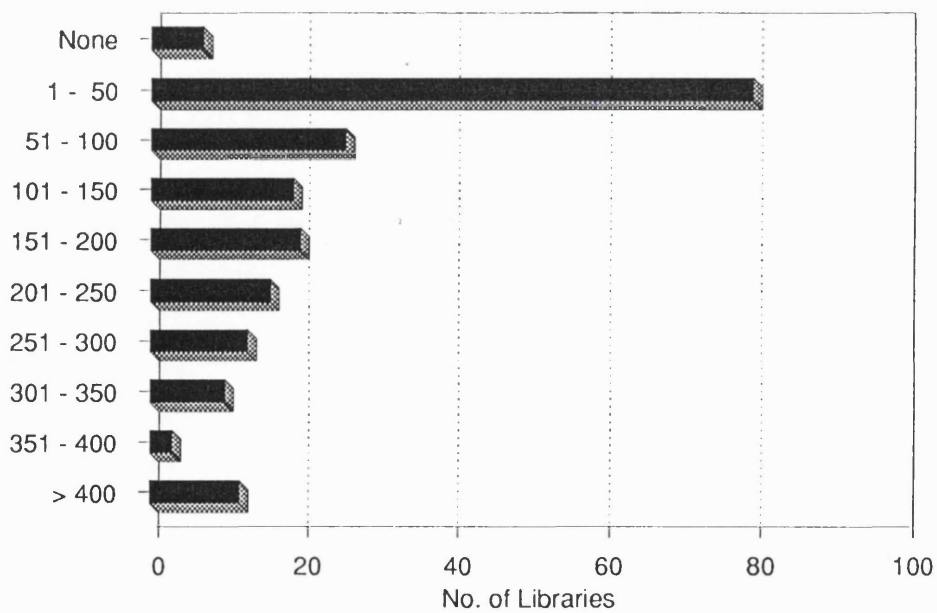
Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.9

JOURNALS

Number of Current Journals Subscribed to

No. of Journals



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.10

half of the libraries have a books and monograph collection of less than 10,000. This can be a good basic collection of core books but since the majority of the libraries (59%) are affiliated to educational institutions, they may find these collections inadequate. It is encouraging that about 12% of the libraries have book collections of more than 25,000 and hence have the potential to act as focal points for library services that might be developed on a 'regional' basis.

3.6.2.2 Current Journals

As sources of primary information, journals are of great importance in medicine. Seven libraries (3%) do not subscribe to any journal and 80 libraries (38%) subscribe to less than 50 journals (figure 3.10). More than half of the libraries acquire less than 100 journals.

Subscriptions to journals represent an open-ended commitment and take up a major part of a medical library's acquisition budget. As can be seen in figure 3.17 (budget), the medical libraries in India have to operate within very limited financial allocations. In addition to this, there is an annual price increase of at least 10% on journals and the library's budget is in no case increased to the same extent. This hampers the renewal of periodical subscriptions. In a survey of factors affecting the renewal of periodical subscriptions, 80% of libraries surveyed had been forced to modify their acquisition programme due to financial problems¹³. Libraries are therefore forced to make cancellations to keep the subscription of vital journals going. Enhancing budgets can be helpful, but is not the solution because the increase can scarcely provide for price increases. One solution might be to coordinate journals

subscriptions, avoid duplication and share journals resources. The survey shows that there are 12 libraries (6%) which acquire more than 400 journals and thus have the potential to back-up the journals resources in smaller libraries of their region.

3.6.2.3 Bound Journals

96 libraries (46%) have less than 5,000 bound volumes of journals (figure 3.11). The second largest group of 34 libraries (16%) do not hold any back-runs of journals. Out of this, the 7 libraries (3%) which do not subscribe to any journal (figure 3.10) are not expected to hold any back-volumes of journals. With regard to journal back volumes, three groups of libraries can thus be distinguished, namely:

- 1 Libraries having a very small number of journal back volumes or even without them (63%).
- 2 Libraries having a modest collection (32%).
- 3 Libraries having reasonably good collection (5%).

This would mean that more than half of the libraries either have a small number of journal back-volumes to support reference and research or do not have them at all.

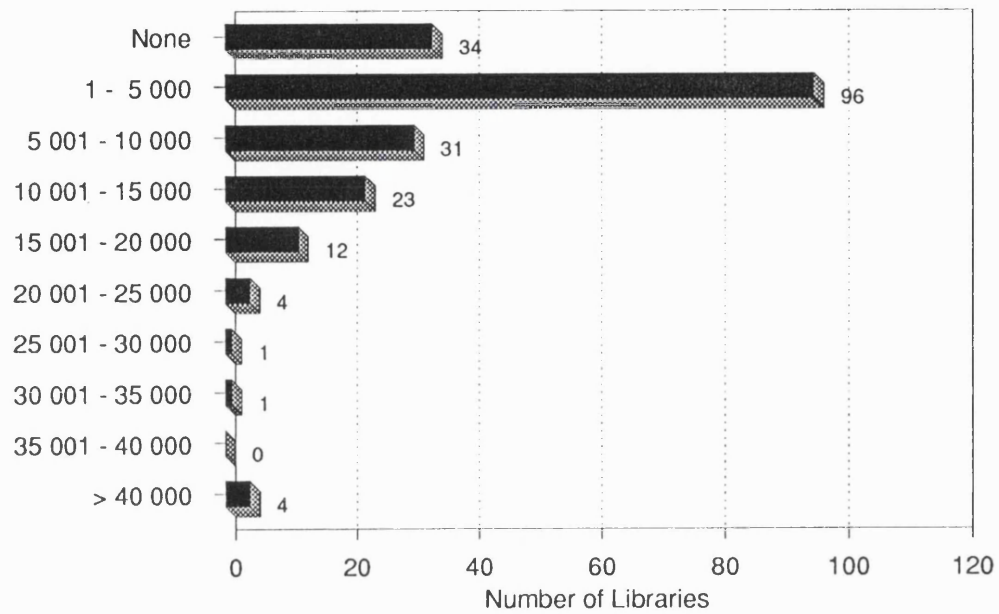
3.6.2.4 Theses/Dissertations

Half of the libraries do not have a thesis or dissertation collection (figure 3.12). The small and non-academic libraries are not expected to hold any theses. Realising that 81% of the libraries (figure 3.2) are academic/research oriented, it appears that all the librarians do not place emphasis on holding copies of the theses originating from their own institutions. In such cases the copies of the theses may be kept only with the

BOUND JOURNALS

Number of Bound Journals

Bound Journals



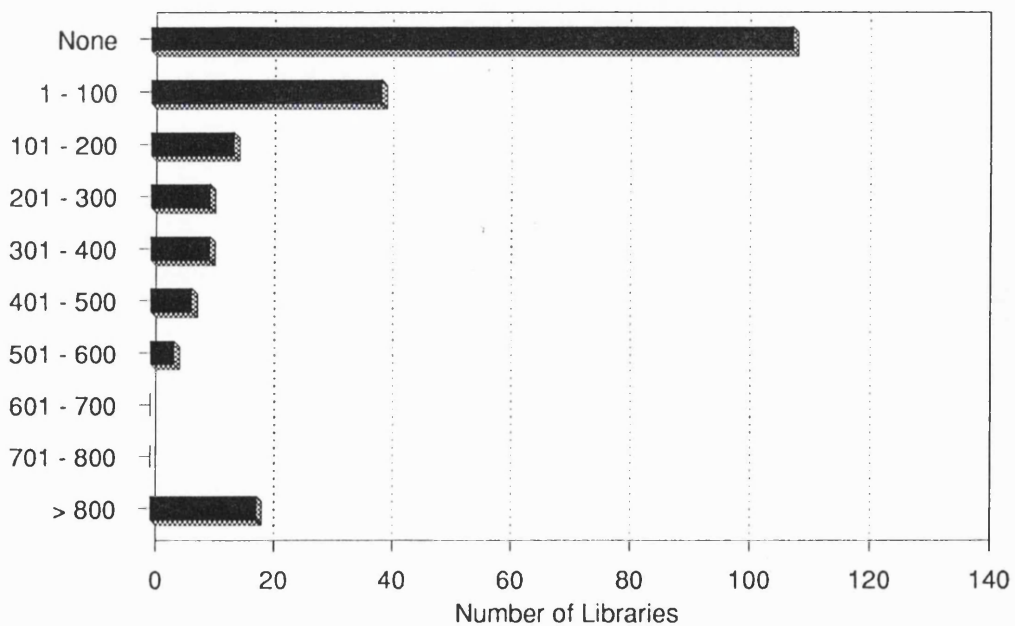
Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.11

THESES

Number of Theses/ Dissertations

Range



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.12

central library of the examining university. Theses form very valuable sources of primary information and all academic institutions are expected to ensure that the copies of the diploma and postgraduate theses originating from their own and other related institutions are made available and accessible for consultation in their own libraries or centrally. At the moment there is not a comprehensive indexing service for Indian medical theses. This is likely to make the already limited theses collection inaccessible. It is thus desirable that medical librarians should take measures to devise an appropriate policy to collect and index the theses originating from their own and other institutions and make them accessible for consultation irrespective of institutional affiliations.

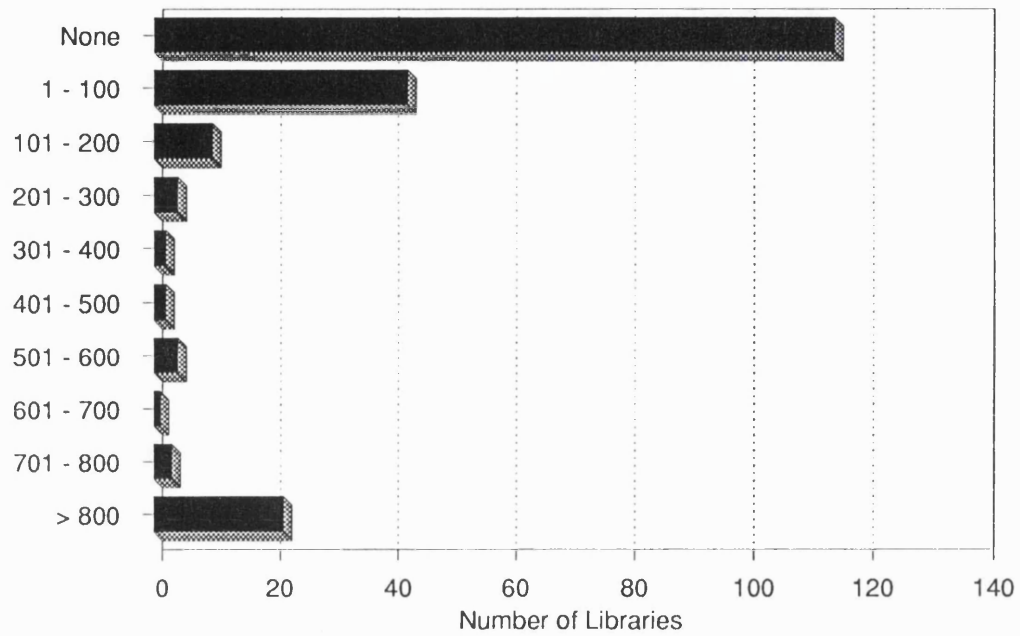
3.6.2.5 Other Printed Material

More than half of the libraries (55%) do not have other printed (non-book) material while others have a very small number (figure 3.13). Some librarians indicated that they do not keep a separate record for them but include them as part of books and monograph collection. The number of such libraries is small. It appears that the librarians by and large do not put very much emphasis on collecting reports, pamphlets, reprints and other forms of printed material as sources of information. Only 22 libraries (11%) have indicated having more than 800 such items.

3.6.2.6 Microforms

The absence of microform collections in more than 80% of the libraries (figure 3.14) shows a clear lack of preference for microforms in Indian medical and health science libraries. Microforms are a useful means of acquiring out-of-print serials to fill gaps,

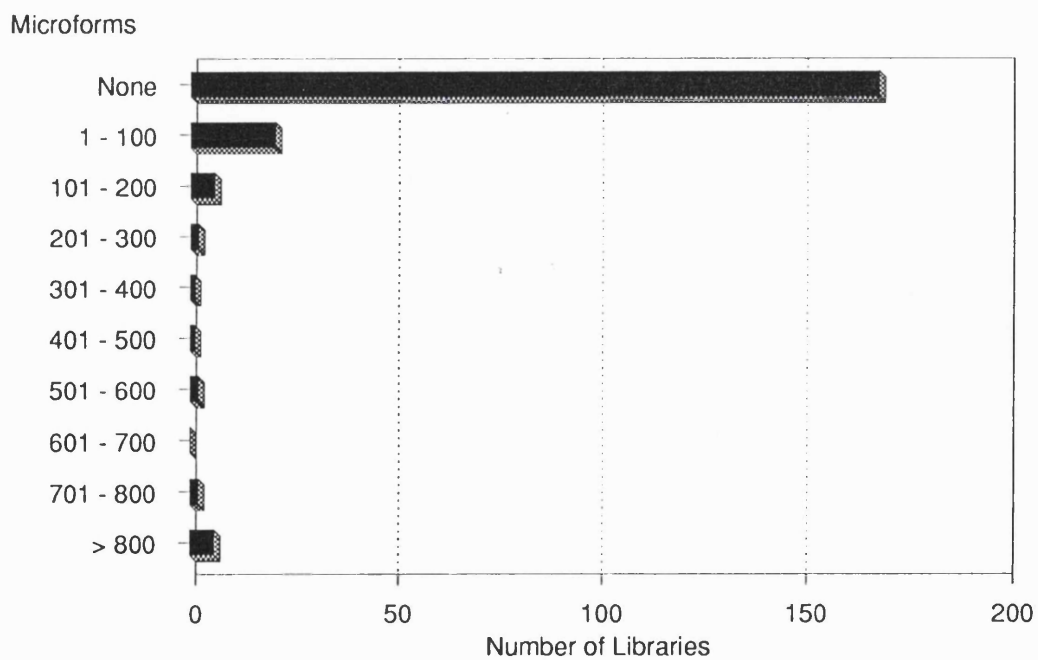
OTHER PRINTED MATERIAL



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.13

MICROFORMS Size of Micro-form Collection



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.14

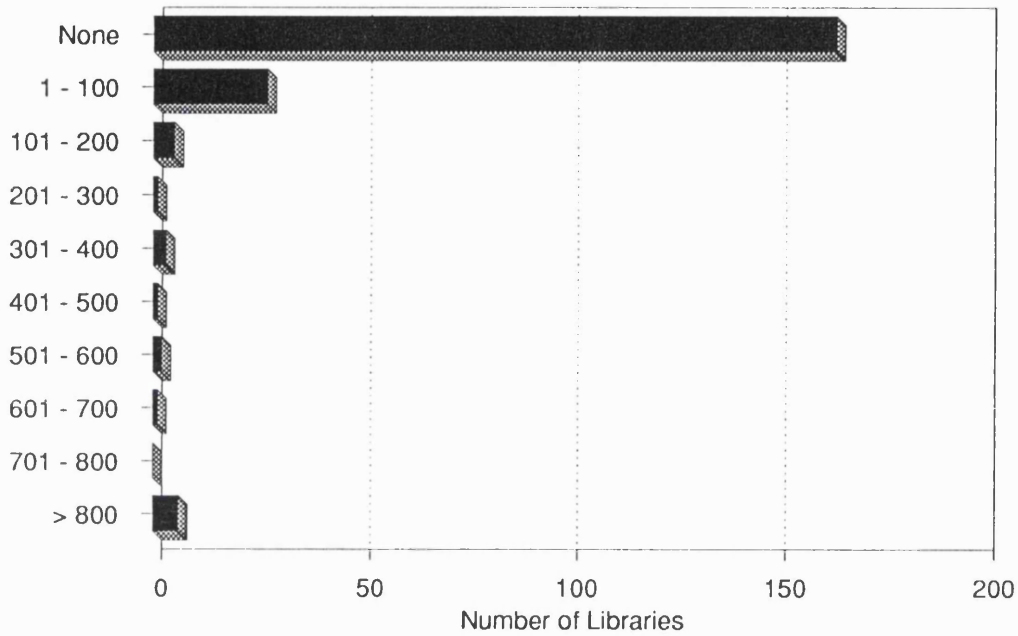
provide back runs of journals and as an alternative to discarding lesser used material. They can also save about 90%^{14,15} of the space required for hard copies, reduce loss and mutilation and avoid inconvenience caused by the removal of journals from the library for binding. Unfortunately the cost of producing the hard copy from a microform is more than the conventional photocopying. Again, journals in some subjects, like Pathology and Radiology, have many illustrations and their reproduction from microforms is usually poor. These factors usually create user resistance, and consequently librarians by and large will not feel encouraged to develop microform collections. The other inhibiting factor must be the lack of microform reader/printers. About three-quarters of the libraries do not possess a microform reader/printer (figure 3.16). This can discourage the development of microform collections even in subjects where it may be considered to have decided advantages. Five libraries (2%) have, however, shown their intention to install microform reader/printers (figure 3.16).

3.6.2.7 Audio-visual Material

Audio-visual programmes are available on media such as 16mm films, slides, photographs, audio-tapes, records, overhead transparencies, film strips, video tapes, video cassettes, etc. The principal function of the medical library's audio-visual stock and services is to be effective in showing what a health care professional should know, what he or she should be able to do, and to what standard of competence.

About 80% libraries do not have any sort of audio-visual collection. Only six libraries (3%) have an audio-visual collection exceeding 800 (figure 3.15). Most of these collections consists of slides. Audio-visuals have proved of great value in medical

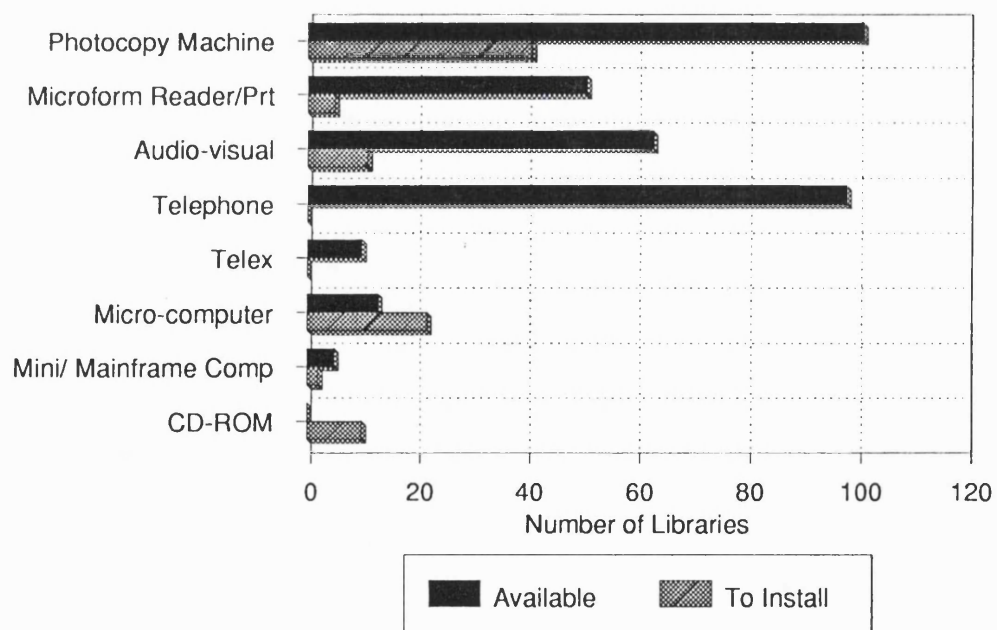
AUDIO-VISUAL Size of audio-visual Collection



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.15

EQUIPMENT Equipment Available & to be Installed



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.16

education elsewhere, but their minimal collections in Indian medical libraries are noticeable. It appears that the librarians have not given due importance to this medium. Perhaps they would have taken active interest to develop audio-visual collections if the medical community in their institutions had felt and expressed the need. However, sooner or later, the medical and health care professionals will appreciate the importance of supporting audio-visual collections in their own institutions as important teaching aids. When they do so, the medical librarian will feel hard pressed because the task of seeking out medical audiovisuals is laborious and time consuming. At present the All India Institute of Medical Sciences Library (AIIMS), New Delhi has the largest number of 130 video tapes. The video tapes in other libraries are limited and scattered. AIIMS, being a teaching institution of national importance, could thus serve as the Medical Audio-visual Centre, lending out audio-visuals to interested libraries and promoting their use. It could also pool the otherwise limited and scattered audio-visual resources in the country and cut the expenses on this account. However, this can work only if the interested libraries have audio-visual equipment. At present 145 libraries (70%) do not have any audio-visual equipment (figure 3.16). This can be a major reason that the libraries can neither develop their own audio-visual collection nor borrow them from the proposed Medical Audio-visual Centre. As we have seen, the majority of libraries are academic, and audio-visuals can be a great help in teaching medicine. So the librarians will have to make efforts in earnest to get the support of the faculty for audio-visuals. Eleven librarians (5%) will soon be installing audio-visual equipment which will take the number of libraries having audio-visual facilities to 74 (36%) (figure 3.16).

3.6.2.8 Special Collections

The librarians were asked to name special collections, if any, available in their libraries. About three-quarters of libraries (141) stated that they do not have any special collection while 50 libraries (26%) reportedly possessed special collections in their libraries. It is difficult to say to what extent these collections are really specialised but it fairly indicates that certain organizations emphasise teaching/research in certain areas and the libraries have aptly undertaken to support their organizational programmes in such areas. Some of the special collections reported are: AIDS, burns, Ciba Publications, diabetes, drug abuse, filaria, government publications on health (annual, technical, research and statistical reports), history of medicine, history of Unani medicine, history of Siddha medicine, history of Ayurvedic medicine, hepatitis, malaria, medical biographies, oral dehydration, respiratory diseases and yoga.

3.6.3 Equipment

To determine the technological resources available in Indian medical and health science libraries, a list of seven different kinds of equipment ranging from simple photocopy machines to mainframe computers and telex was presented to the respondents. The librarians were asked to indicate which of these existed in their respective libraries. Typewriters, whether manual or electric, were not on the list. Responses to this part of the questionnaire are given in figure 3.16. In the open section marked "others" two librarians stated they possessed Microfilm Cameras and three librarians Binding Equipment. In another question, the librarians were asked to name the equipment proposed to be purchased within about a year's time, if any. These responses too are shown in figure 3.16.

Photocopy machines are basic for document delivery and the transmission of information. It is surprising that 107 libraries (50%) do not have a photocopy machine. In such a situation it must be difficult for a medical and health care professional to spend prime time of the day consulting journals in the library at the expense of clinical work. Most of the libraries remain open for 6-8 hours a day, and even if it is desired to extend the opening hours of the libraries in view of the peculiar nature of medical education and practice, it may simply not be possible for want of staff and other facilities. This will in some cases make libraries loan out current journals, making other potential users wait. Lack of photocopying facilities, coupled with paucity of time due to work pressure, can at times annoy a student enough to mutilate journals, inflicting permanent damage to the small but costly journals collection. The lack of photocopying facilities can also make document delivery difficult and limit the scope for any cooperative resource sharing amongst these libraries. The librarians, therefore, need to persuade the authorities for the purchase and installation of photocopiers in their libraries. The intention of about 20% of the librarians to purchase and install photocopy machine is very desirable and welcome.

None of the librarians has stated an intention to install telephone or telex. Obviously the decision about telex and even telephone will mainly depend upon the policy of the parent organisation. Limitations imposed by the Department of Telecommunications sometimes causes the parent organisation to be very choosy regarding telephone connections or extensions.

The availability of micro-computers in only 13 libraries (6%) and CD-ROM in none

of the libraries is notable. However, the planning about the installation of micro-computers in 22 libraries (11%) and CD-ROM in 10 libraries (5%) is very encouraging, and suggests that medical librarians are now appreciating the current trends in the dissemination of medical information and the role of the latest technologies in this regard.

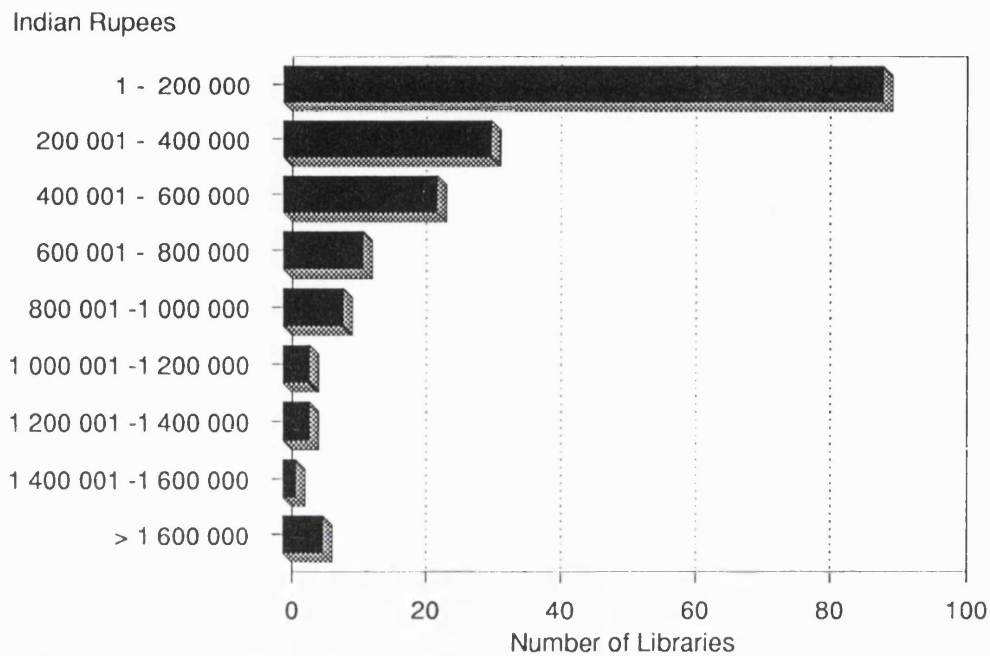
3.6.4 Budget

The budget for books and periodicals is one of the most important elements in the development of any library. It is encouraging to note that most of the medical and health science libraries in India have a separately earmarked budget for books and periodicals. Some 15 libraries did not respond to this question and it is estimated that about half of them did not have a separate and regular budget for books and periodicals. Their budget is included in the total budget of their parent institutions. In these libraries, money is allocated as the need arises to purchase reading materials or to pay for subscriptions.

Respondents were asked to state their total annual budget for books and periodicals for the financial year 1989-90. The responses are shown in figure 3.17. In all these cases the staff salaries, expenses for maintenance, furniture, etc., are part of parent institution budgets. Out of the 89 libraries (50%) having annual budgets up to Rs.200,000 (£4,000), 47 libraries (27%) are allotted less than Rs.50,000 (£1,000). The amount in sterling here is an approximate corresponding value at the conversion rate of 1£ = Rs.50.

BUDGET

Annual Budget for Books & Periodicals

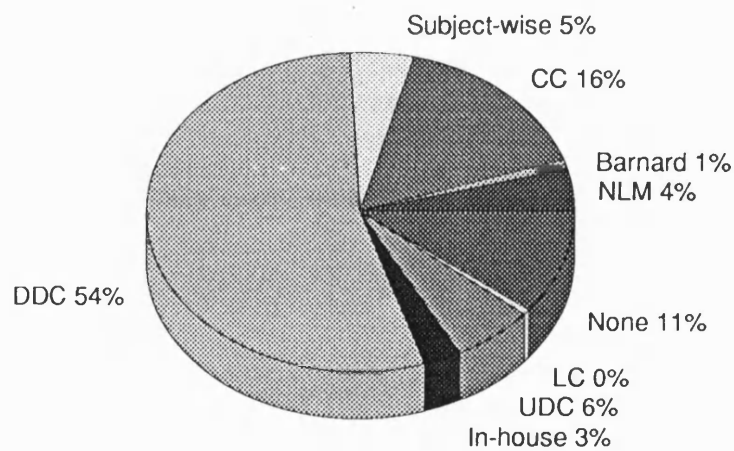


Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.17

CLASSIFICATION

Classification Schemes Used



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.18

Half of the libraries thus have an annual budget of less than £4,000 and another 54 libraries (30%) less than £11,200. This amount is inadequate to develop a good document collection in three-quarters of the libraries. This would mostly strain subscription to journals which are usually expensive and have an overall annual increase of 14 to 18% in subscription costs¹⁶. However in 12 libraries (7%) the budget exceeds £28,000 (Rs.1.4 million).

The survey shows that during 1989-90, a medical library on an average spent a sum of Rs.431,759.67 or £8,000. Out of this, at least 60% is usually spent on subscriptions to journals, leaving Rs.172,703.86 or £3,200 for the acquisition of new books. The National Medical Library (NML) has spent the largest amount (i.e., Rs.6.4 million or £128,000) and the Arvind Eye Hospital Library the least sum (i.e., Rs.1,000 or about £20). The British Library's Science, Technology and Industry division, which includes medicine, received about £26 million in 1989. The National Library of Medicine, U.S.A., receives about \$56 million (about £40 million) per year¹⁷. In the U.S.A., an average medical library spent a sum of \$233,448 (£140,000) during 1969-70¹⁸; whereas it spent during 1973-74 a sum of \$121 625 (£72,000)¹⁹. It is estimated that the average cost of a medical book was \$80.87 or about £46 (£ = \$1.75) in 1989²⁰. We can therefore assume here that out of the total average book budget of £3,200, a librarian may be able to purchase a total of about 70 books in a year. The figure seems to be very small compared to the total production of medical books and the recommended basic collection for a small or medium-sized hospital library. It is estimated that more than 30,000 serials and over 20,000 monographs are being published every year in medical and health sciences²¹. As seen earlier, about

81% of the medical and health science libraries are serving teaching institutions (figure 3.2). A medical college engaged in postgraduate education and research cannot do without the multi-volume sets like Handbook of Clinical Neurology, Handbook of Experimental Pharmacology, Handbook of Sensory Physiology, Advances in Enzymology, Progress in Brain Research, etc. A special provision for acquiring the new issues of these sets is always needed before acquiring other new books. The number of books actually imported can further fall down due to the devaluation of Indian Rupees and rise in the cost of book production. As per the recommendation of the University Grants Commission (UGC) and Standards for Health Science Libraries in India²², about 6% of a college or institution's budget should be spent on its library. The low budgetary figures in most of the libraries suggests that this guideline is mostly not adhered to. Considering the fact that the budget for books and periodicals does not increase proportionately to cover increase in the costs, a medical library in India is likely to import a lesser number of books over the years than estimated above.

The subscription cost of journals is increasing annually and research libraries all over the world face large cancellations of subscriptions to scientific journals because of leaping prices. During 1987, the prices of United States journals rose by 10%, French journals by 42%, Italian by 28%, and Japanese journals by 25%. The overall journal prices increased from 14 to 18%²³. The average annual increase in costs of Spanish medical journals was estimated to be 12.5% during 1980-85²⁴. A medical library has therefore to keep aside a minimum of 15% of its periodical budget to meet the supplementary invoices for increased subscription costs. It was estimated that in 1989

a medical journal cost on average \$101.92 or about £58 a year²⁵. This would allow subscription to about 82 journals for an average journals budget of £4,800; notwithstanding the annual increase in subscription costs, which was 19.7% in 1989. Brandon and Hill²⁶ recommended subscription to 141 core journals for a small or medium-sized hospital library or comparable facility.

Medical and health science libraries in India appear to have been given low priority in the matter of allocation of funds. Collectively, the respondent libraries have spent a sum of about ₹90.67 million or about £1.81 millions during 1989-90 for the purchase of books and journals. But a large number of libraries receive little money and only a small number of libraries receive reasonably good grants. Because of the inequity in the distribution of funds, most of the libraries have not been able to acquire sound collections of documents (figures 3.9 to 3.15), though the majority of them are postgraduate teaching institutions (figure 3.2). The University Grants Commission (UGC) of India, sometimes gives a grant to a medical college library for the purchase of books and periodicals. But this is irregular and small. On the other hand, it grants up to 75% of the total expenditure incurred for construction of library buildings and up to 50% for the purchase of reading material for academic non-medical or non-professional institutions. From 1991, UGC will bear 100% of the cost for library buildings expenditure and 75% of the cost of reading material in such institutions²⁷. This facility is not accorded to medical colleges since they are categorised as "professional institutions". In this regard academic medical libraries in India are at a very great disadvantage as compared with their counterparts in the U.K., which get financial support from the universities concerned in addition to the NHS.

Medical college administrators in India may need to strive more vigorously to convince the UGC and the Central Government about the usefulness of such grants to medical institutions as well. Being a political decision, its success may depend upon various factors beyond the control of a medical librarian. Moreover, it is well known that no individual library, even if its budget is in eight figures, can afford to add to its collection all that is published, even after careful selection. For example, the cost for subscribing to all the sections of Excerpta Medica is \$7,683.75 (£4,600), all the series of Bulletin Signaletique pertaining to medical sciences 6040 Francs (£600) and all the bibliographies in medical sciences \$15,000 (£8,900)²⁸. As seen earlier, on the whole about £1.81 million is spent on books and journals annually. Assuming that the other half of the non-respondent libraries have almost the same budgetary provisions for books and periodicals, then almost twice this sum (i.e., £3.62 million) is spent per annum. But in the absence of any coordination, this investment seems to have made little impact as indicated by smaller collections and rudimentary reader services. There is less possibility of substantial increases in every library's budget in the near future in spite of the recommendations of the professional bodies. So medical librarians need to work out through consensus how best they can consolidate their document resources, especially periodical files, and evolve a mechanism to make them accessible to a wider group of users. There appears to be thus a great need for formal cooperation and resource sharing.

3.7 Information Processing Methods

In this section information was sought about the methods adopted by the libraries to organise their document resources for retrieval and effective utilization. This could

provide information about the schemes of classification used, lists of subject headings, cataloguing rules, types of catalogue and forms of catalogue. The respondent librarians were provided with a list of commonly used schemes and asked to indicate the ones used in their libraries. They were also provided with open "others..." sections to state any other scheme in use if not listed. Data obtained could bring out the most commonly used information processing and document organisation methods and their prevalence and the ease with which they could be used for cooperatively processing and sharing the document resources.

3

3.7.1 Classification Schemes Used

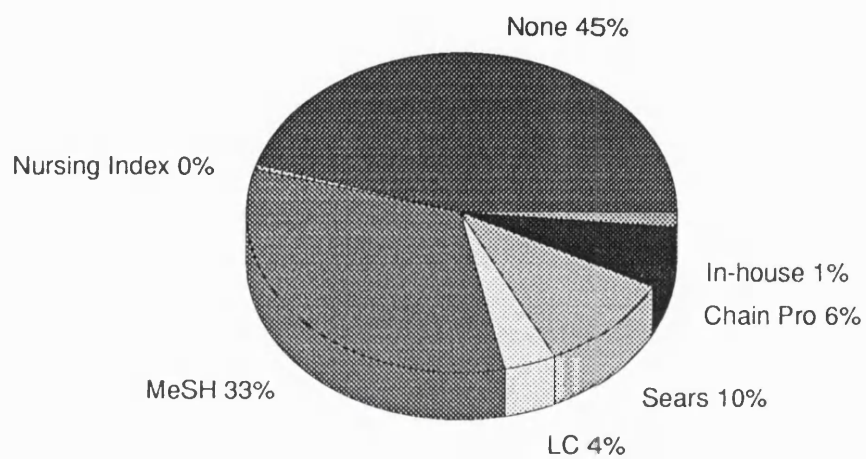
There is not a great variation amongst medical and health science libraries in the choice of classification schemes. Dewey Decimal Classification (DDC) is the predominantly used scheme of classification followed by Colon Classification (CC) (figure 3.18). Even though both of them are taught in all the library schools in India, the widespread usage of DDC as compared to CC may be because of DDC's simplicity, ease of use or the ready availability of DDC class numbers in Cataloguing in Print (CIP) entries. Contrary to the common belief, CC has been found in use in quite a number of libraries. General schemes like DDC (and for that matter even UDC and LC) may be suitable for a small library, but medical collections which are highly specialised require more detailed classification. The adoption of schemes of classification which are specially intended for medical sciences like the Barnard, Cunningham and National Library of Medicine (NLM) classification schemes can be helpful. Barnard faces problems for want of revision. It was in 1955 that it was last revised. In medical sciences, updating is of the utmost importance, otherwise it is

difficult to insert new topics with the existing notation. This would make Barnard (or Cunningham) almost unacceptable in any modern medical library. NLM is the only scheme intended for health and medical collections which has the benefit of regular review and updating. It has the additional advantage of fitting into the LC scheme of classification, which has schedules outside the field of medicine and its related subjects. This would make it ideal for a medical library holding reading material on other subjects as well for managerial and other supportive staff. The restricted use of NLM in Indian medical libraries is surprising. Being a specialist classification scheme for medical and health science libraries, its use in a comparatively small number of libraries may be because it is not among the schemes taught in library schools, making library staff unfamiliar with the scheme and therefore not encouraged to use it. The library schools therefore need to introduce NLM as one of the optional schemes of classification for students considering medical librarianship as a career, and for working medical librarians who take up a course to improve their qualifications.

3.7.2 Subject Headings

The subject catalogue is an essential part of any library since it brings together entries for books on related subjects which may be scattered on the shelves. The use of Medical Subject Headings (MeSH) in most of the Indian medical libraries (figure 3.19) is understandable because of its currency and relevance. MeSH is compiled by experts at the National Library of Medicine (U.S.A.), and hence is authoritative. The terms are compiled to index periodical articles, making it very comprehensive for any specialised medical library. The Library of Congress (LC) list of subject headings is most likely used for non-medical collections. The lack of subject indexing in about

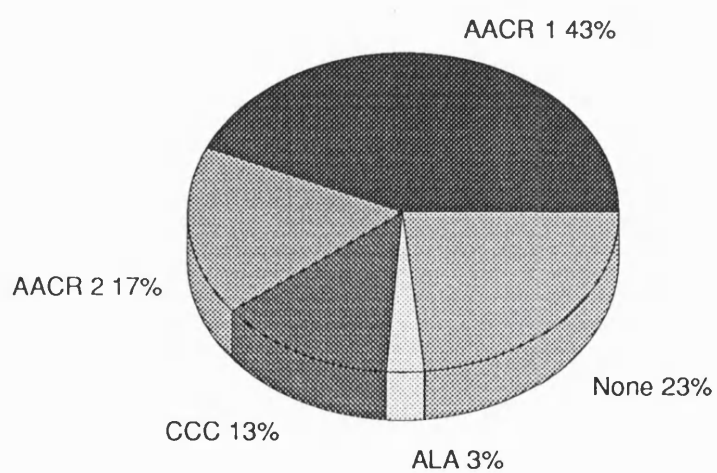
SUBJECT HEADINGS



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.19

CATALOGUING RULES



Survey of Indian Med Libs, 1990 :Gayas

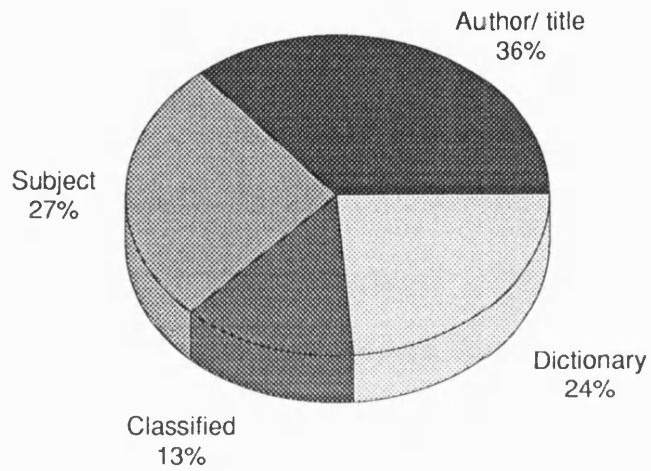
Fig. 3.20

half of the libraries (45%) is notable. In some libraries it may be due to the small size of books and monograph collections, where users prefer browsing the shelves rather than going through the subject index; or due to the absence of professional/subject specialist staff. In any case, the absence of subject indexing in such a large number of libraries is not conducive to the effective utilization of documents. It can be hoped that the use of MeSH might become more popular in Indian medical libraries which will contribute to uniformity and standardization in subject cataloguing and improve document retrieval. Since it is of American origin, some problems in spelling can be encountered as Indian librarians and medical professionals are used to the British dictionary. However, it can be overcome by anglicising the spellings e.g., "esophagus" to "oesophagus", "pediatrics" to "paediatrics", etc.

3.7.3 Cataloguing Rules

AACR 1 is most widely used (figure 3.20). The introduction of AACR 2, appears to be slow. A large group of 49 libraries (23%) do not use any cataloguing rules. This is most likely because some libraries do not have any professional library staff. Most of the others have only a single professional. In such cases the librarian may not like to spend a great deal of time on cataloguing but rather provide other services. Even though classification and cataloguing are considered complementary, the number of libraries which have stated that they do not use any cataloguing rules (23%) exceeds the number of libraries who do not use any classification scheme (11%). Perhaps many librarians find it easier to devise in-house classification schemes rather than devise cataloguing rules or they compile catalogues according to simple rules parallel

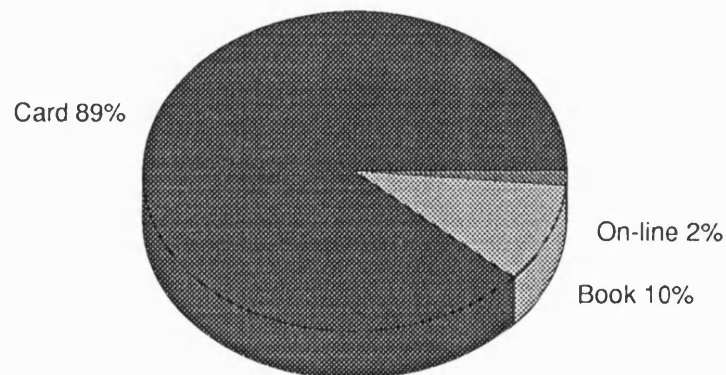
TYPES OF CATALOGUE



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.21

FORMS OF CATALOGUE



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.22

to AACR.

3.7.4 Types of Catalogue

The types of catalogue used are shown in figure 3.21. An author/title catalogue appears to be common. Even though subject indexing is very desirable in medicine, one cannot expect a greater number of libraries having a subject catalogue when 45% of the libraries do not make use of any subject heading list (figure 3.19).

3.7.5 Forms of Catalogue

The card catalogue is used very widely (figure 3.22). None of the libraries uses a fiche catalogue.

3.8 Services

Library services are designed to aid the users (faculty, students, researchers and other staff) to maximise use of library resources. These services take a variety of forms.

For the purposes of this study, information services to users were specified as follows:

- 1 Literature searches
- 2 Compiling bibliographies
- 3 Current awareness service (including SDI)
- 4 In-house abstracting
- 5 Translating material for users
- 6 MEDLINE services
- 7 Library publications

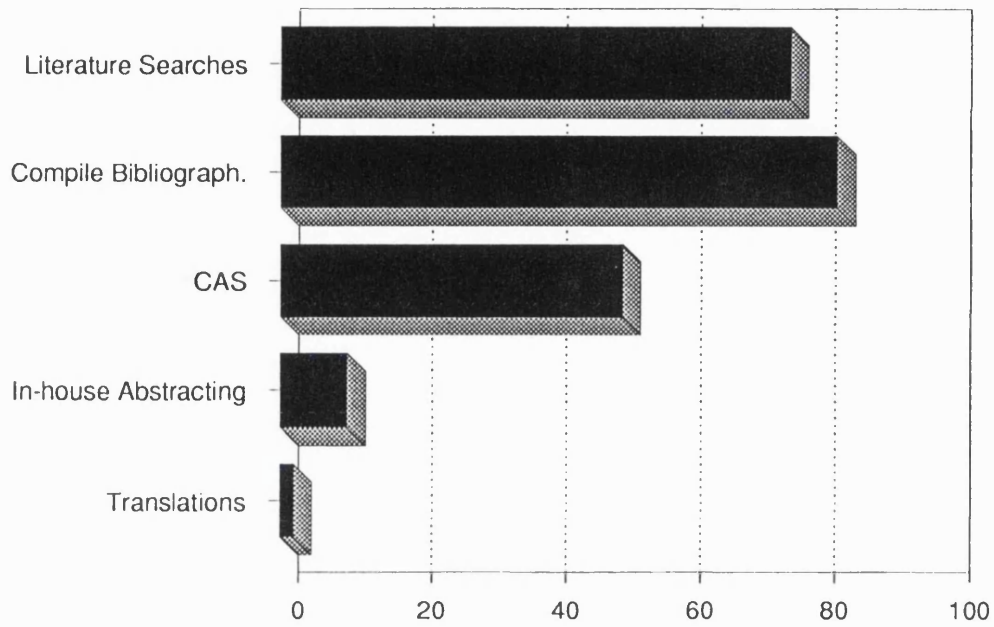
3.8.1 Literature Searches/Compiling Bibliographies

The results show that literature searches and the compilation of bibliographies are the most commonly practised services in all types of libraries. Whereas the former is provided by 76 libraries (37%), the latter is provided by 83 libraries (40%) (figure 3.23). Assistance in coping with the information explosion is one of the most valuable services that a medical librarian can offer to the medical community, through literature searches and compilation of bibliographies. A surgeon with a long waiting list of urgent cases has little time and incentive to visit the library regularly and search for important papers. Both literature and bibliographic services are offered manually at the moment, since the majority of the libraries do not have computers (figure 3.16). Fortunately there is a variety of indexing and abstracting journals available in medical sciences suitable for manual searching. For example, manual searches can be very rewarding with Index Medicus and Excerpta Medica. Both these cover a broad spectrum of biomedical journals.

3.8.2 Current Awareness Services (including SDI)

Researchers and practitioners are the two important potential users of medical libraries. The researchers (including some practising clinicians involved with research) need to keep abreast of current thinking to avoid duplication of effort and to maximise interaction. Such users need highly specific individualised services, where references are matched against a profile of the individual's or team's interests (Selective Dissemination of Information, SDI). The practitioners (including clinical, technical, scientific, administrative and supportive staff) need to narrow the gap between the discovery and application of new knowledge and techniques. Such users need more

SERVICES

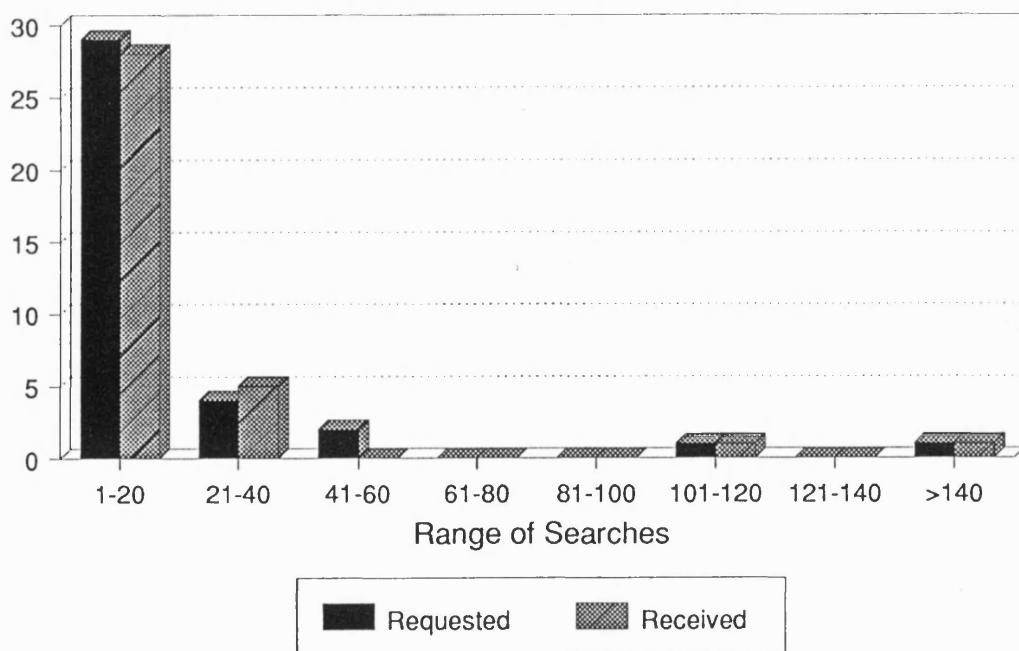


Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.23

MEDLINE SEARCHES

Medline Searches Requested & Received



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.24

general alerting services, like Bulletins, covering relatively broad subject fields. For an average practitioner, this service can be very useful to keep in touch with new developments amidst a maze of information sources.

Current Awareness Service (CAS) and SDI is provided by 48 medical libraries (23%). Some of the important bulletins published in India are DGHS Chronicle, ICMR Bulletin, National Institute of Nutrition Newsletter (Hyderabad), and CHETNA. More of such publications are needed to provide links with the end users. There are many general alerting bulletins available on the international level. Dalby²⁹ lists some 531 medical abstracts and indexes with current awareness functions. But the lack of sufficient financial resources in Indian medical libraries is likely to be an inhibiting factor for the utilization of the pre-existing SDI services. Moreover these may not very much suit the specific needs of Indian users. Also such services may not be of much use unless the user has adequate backup in the form of a good document delivery system. In such situations it may be worth while to create one's own CAS/SDI services.

3.8.3 Translating Material for Users

It is estimated that nearly 50% of the scientific and technical literature is in languages other than English³⁰, which means that about 50% is unintelligible to scientists who know only English. An analysis of information flow showed that immunology information is scattered in 900 scientific journals in 19 languages, and that 25% of immunology articles are published in languages other than English (Russian, German, French, etc.)³¹. The medical scientists in India are therefore in need of translations

of selected items to keep abreast of the important developments taking place in the non English-speaking countries. At the moment, the medical libraries do not provide translation services. Only one library has indicated providing this service. Since the staff employed in medical libraries are not proficient in languages other than English, translations from other languages cannot be undertaken in-house. Only one professional librarian has indicated having a Certificate in French. Medical libraries may not need to employ translators to take up this service because such a job does not arise very often. Whenever such a demand is made, they can make use of the services available at INSDOC, where facilities for translating from about 20 foreign languages are currently available. At present translation charges are Rs.50-75 (£1-1.50) depending upon the language per A4 size page typed in double space³².

The respondents were also provided with an open-ended 'others' section to indicate any other service provided. Some of the respondents made use of this provision and indicated their other services. The services indicated are photocopy service by nine libraries; Reference by fifteen libraries; Referral by three libraries; and Clinical Medical Information Service by one library.

3.8.4 MEDLINE Services

In order to introduce cuts in expenses, a librarian can adopt the application of various forms of technology like databases. This technique represents a relatively low cost means by which librarians can share cataloguing and bibliographic data rather than producing them themselves. This sharing of information processing, information storage and information transmission facilities among medical libraries became

technically feasible when in 1971 the National Library of Medicine (U.S.A.) initiated a new service known as MEDLINE. This service provides remote on-line bibliographic search capability for libraries at medical schools, hospitals and research institutions throughout the United States and elsewhere in the world. The database provides access to world-wide biomedical literature, including research, clinical practice, administration, policy issues and health care services. It contains references to articles from about 3500 journals published in the U.S.A. and about 70 other countries. Author abstracts are available for about 60% of the citations³³. The NLM produces about 28 more databases for online users, e.g., CATLINE (monograph cataloguing information produced by the NLM), and CANCERLINE (a specialist cancer database instituted with the cooperation of the National Cancer Institute).

The librarians were asked if they used the MEDLINE service, the source of obtaining MEDLINE searches and to indicate the number of MEDLINE searches requested and received in the last one year. The results show that only 39 libraries (20%) make use of MEDLINE services. Out of this only 3 libraries (8%) had their own arrangements to provide this service. The majority of libraries (65%) obtained them through the National Informatics Centre (ICMR-NIC Centre for Biomedical Information, CGO Complex, New Delhi). Another 11 libraries (28%) obtain them through the National Medical Library (NML), New Delhi.

The libraries which have obtained MEDLINE searches through NIC directly, show a response rate of 89%, while as the libraries who obtained them through NML have indicated a lower response rate of 70%. The NML, New Delhi does not have its own

arrangements to conduct MEDLINE searches. It is therefore surprising that the interested librarians route their MEDLINE requests through the NML rather than sending them to the NIC directly. Up to 1987-88, WHO was offering a limited search facility for doctors and researchers in India through the National Medical Library, New Delhi. Since April 1988, NIC has taken over the search service. It appears that some of the librarians are not aware that this service is now provided by NIC. Routing MEDLINE search requests through NML, New Delhi is unwarranted. It is therefore desirable that the services of NIC are publicised and made well known within the country.

The Indian Medlars Centre, National Informatics Centre (NIC) acts a nodal agency for Medlars services and for providing online access to MEDLINE at the NLM. In keeping with the increasing need for the biomedical information in India, NIC entered into an agreement with NLM, U.S.A. in November 1987 for accessing MEDLINE and POPLINE databases directly³⁴. The first stage of the project was initiated in April 1988 and since then it is providing search facilities to users in India. Search demands received from users all over the country are processed, searches carried out and information made available to users. NIC has established a data network link with NLM's system through NICNET (a satellite based communication network of NIC). This provides the facility to search the databases interactively using Medical Subject Headings (MeSH).

The MEDLINE services at NIC are primarily aimed at providing information to clinicians, researchers, medical teachers and students. Any doctor requiring

information can contact the Medlars Centre at New Delhi from NIC offices located in all the State capitals and from 350 District headquarters. If the query is sent directly to the Medlars Centre, then the information is transmitted to the concerned NIC office and from there the print-out can be collected. The Centre is in the process of creating databases of Indian publications in fields of particular interest to India like nutrition, tuberculosis, leprosy, etc.³⁵ In this endeavour, ICMR institutions, the National Institute of Health and Family Welfare, the Cancer Research Institute, etc. are collaborating with Medlars Centre in the collection of publications. Document supply facilities, however, do not exist at NIC.

To determine the extent to which MEDLINE searches are generated by the libraries, the respondents were asked to indicate the number of searches requested during the last year. The results are shown in figure 3.24, which suggests that the libraries generate requests for MEDLINE searches only in a very limited way. 78% libraries have requested less than 20 MEDLINE searches in a year. Only three libraries have asked for more than 140 searches.

To determine the extent to which MEDLINE search results are actually received and used by the medical community, the respondents were asked to indicate the number of MEDLINE searches received by them during the last one year. These results too are shown in figure 3.24. About 80% of libraries have acquired less than 20 searches in one year. Only three libraries got more than 140 searches. This suggests that there is not a great gap between the number of searches requested and received. The searches supplied usually tend to keep pace with the requests made. During one year

(1989-90) the respondent medical and health science libraries in India have cumulatively requested 927 MEDLINE searches. Out of this, the libraries have received back 780 MEDLINE searches, showing a response rate of 84%. This appears to be a fairly good response rate in view of the fact that the searches are conducted by NIC (library) staff and the interaction of the requesting doctor is not available, which could help in monitoring the search and its relevance. The libraries having their own arrangements for MEDLINE searches did not provide the number of searches performed in a year.

3

3.8.5 Library Publications

Various library publications or leaflets make a library's programmes and services known to its members and enhance its use and value. The respondent libraries were asked if they bring out some publications or leaflets. It was observed that only 44 libraries (24%) bring out publications to create awareness about their resources and services. These publications are brought out in the form of annual reports, accession lists/new arrivals, guides to the library, etc.

3.9 Cooperative Activities

As a prelude to exploring the nature and scope of cooperative activities, the policy of the libraries regarding the use of their resources by members of other institutions was ascertained. The respondents were asked whether they would allow the members of other institutions to use their libraries. It can presumably enhance the use of the collections without putting much strain on the resources. The majority of libraries (130 or 62%) have an open policy, and permit members of other institutions to use

their collections. The respondent librarians were also asked to indicate if they would allow the members of other institutions to borrow reading material and whether they adopted an open policy and allowed others to borrow, or followed a restricted procedure, allowing borrowing on merits by the permission of the librarian.

The responses show that borrowing was open to all in only one library. In fact this is a multi-campus library and the unrestricted borrowing is practically meant for members of the campus institutions. Half of the libraries which allowed the use of their libraries by others would permit borrowing on merits by permission of the librarian and in a few cases by the Dean. In the other half of the libraries borrowing is restricted to their own institutional members and they do not in any case permit others to borrow. Since some of the libraries have small collections, borrowing by others may not be affordable. In others the borrowing by "outsiders" may have administrative problems for receiving back the documents. In these situations borrowing through libraries can be a secure method which can open the doors of sharing and in this way encourage other libraries to make their policies more open.

In order to ascertain various areas of cooperation and the extent of their use, respondent librarians were asked if they were involved in any cooperative activity with other libraries. The majority of librarians 133 or 65% stated that they are not engaged in any sort of cooperative activity with any other library. However, 71 librarians (35%) indicated their involvement in cooperative activities. A list of the following six commonly practised cooperative activities was then presented to respondents:

- 1 Cooperative acquisitions

- 2 Cooperative cataloguing
- 3 Interlibrary loans
- 4 Information service for specialists of other institutions
- 5 Gifts and exchange, and
- 6 Photocopying on cooperative basis

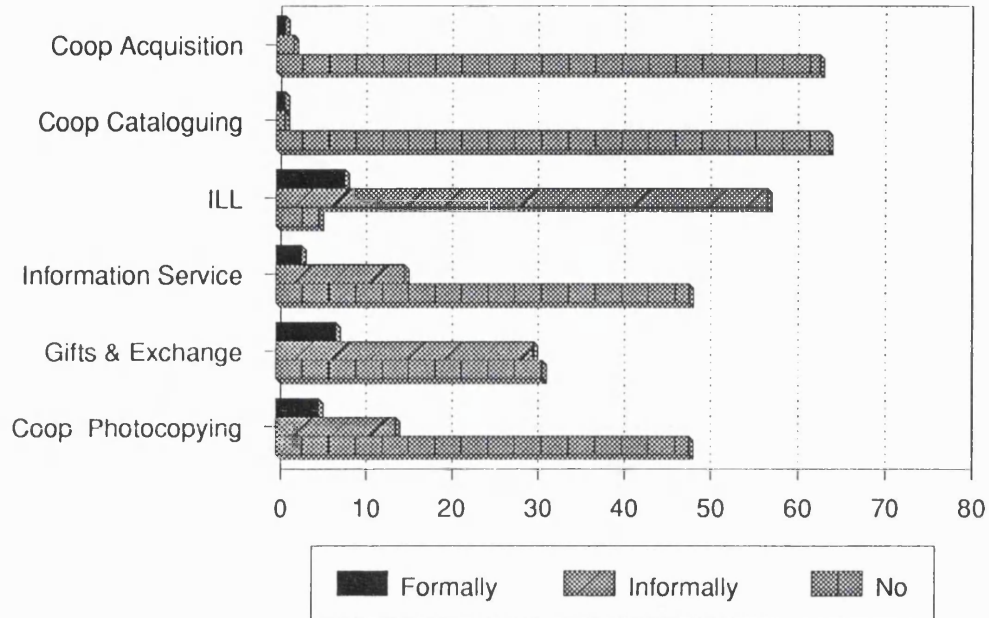
Respondents were also asked to indicate whether the activities in which they take part with other libraries are maintained by formal agreements or informally.

3

3.9.1 Cooperative Acquisitions

Cooperative arrangements rather than individual acquisition of reading material can be a beneficial aspect of cooperative activity. By planned cooperative acquisitions, participating libraries can avoid undesirable duplication of material, avoid omissions of acquisition and extend the range of documents available. The survey shows (figure 3.25) that cooperative acquisition is being undertaken by formal agreements in only one library and informally in 2 libraries. The inadequate financial resources in Indian medical libraries (figure 3.17) without significant increases in budgets and the constant increase in the cost of publications are bound to force medical libraries to reduce subscriptions to periodicals and purchase of less used documents. If the cancellations and even subscriptions are made in consultation and cooperation with other librarians, the libraries will have adequate coverage of periodicals, and may also save some money for procuring equipment. Generally two methods have been developed to accomplish this³⁶. One is subject specialization. In the other, participating libraries come to some agreement concerning the purchase of expensive items of less demand.

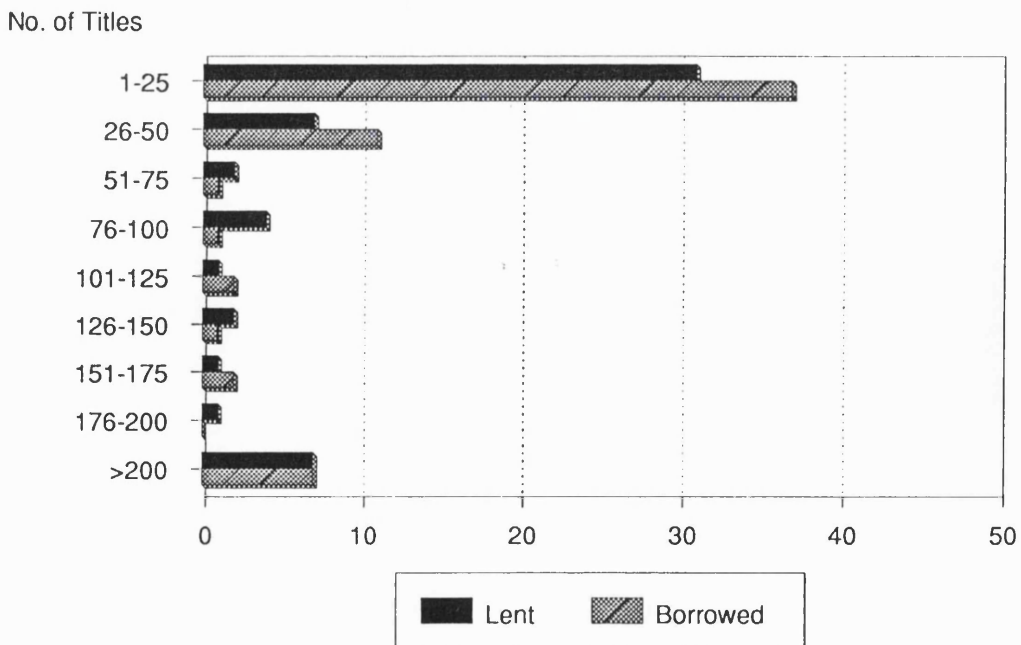
COOPERATIVE ACTIVITIES



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.25

INTERLIBRARY LOANS



Survey of Indian Med Libs, 1990 :Gayas

Fig. 3.26

Cooperative acquisition among the libraries in the same area has proved more useful. Certain 'core' periodicals are, however, housed in every library of the area/region. But others for which there is a limited demand are housed in one library within the group, region or area, possibly in the one specialising in the specific subject of the journal. More than half of the libraries (55%) subscribe to fewer than 100 journals (figure 3.10). Out of this, 42% libraries acquire less than 50 journals. So individually most of the libraries do not have an adequate number of journals to provide support to education and research. But cumulatively the libraries undertake 35,358 subscriptions. This can form a very comprehensive collection, if the journal files are coordinated for subscription and an appropriate document delivery system is developed. Presuming that one-fifth of the journals like Science, Nature, New England Journal of Medicine, Lancet and other general science/medicine journals are basic for every institutional library, 28,286 journals are still available for consolidation.

3.9.2 Cooperative Cataloguing

Cooperative cataloguing is undertaken only in one library each by formal agreements and informally (figure 3.25). This is a negligibly small number, and even this is observed to be in vogue in a multi-campus library belonging to the same parent organisation. According to this survey, the medical librarians in India have shown no inclination until now for cooperation in cataloguing (or even in classification). They have equally ignored the impact of new technology on these techniques. These techniques have proved of great benefit to librarians in the U.K. and U.S.A. in saving time and producing cataloguing information of a uniformly high standard. But these

techniques can be better considered with some involvement or awareness in shared systems. Up to this time it might not have been possible for medical libraries in India to go for shared cataloguing, since most of them work in isolation. However, time and cost will preclude them from developing independent systems. When a medical library chooses to be a part of a large regional system or a university library system as in the U.K., it will be possible and productive to participate in a shared cataloguing scheme. If participating libraries adopt the same classification and cataloguing schemes, sets of cards can be exchanged with one another and a lot of savings can be affected without waiting to become computerised. The Indian libraries can easily do it as they predominantly use DDC and AACR. One of the advantages of the rise and development of regional medical library systems in the U.K. has been the chance to involve the small library units in cooperative schemes. Wessex Regional Library and Information System (WRLIS) was the first to set up cataloguing as a central service for libraries in the region³⁷. Initially it was on 5x3" cards. A tape was used to produce the sets of cards, each library in the regional system cataloguing the acquisitions if it was the first to generate an order within WRLIS. In South West Thames Regional Library System the (manual) cooperative cataloguing started in 1980 and its computerization was started only in 1987. There are about 20,000 records, of which about 4,000 are computerised³⁸.

3.9.3 Interlibrary Loans

Interlibrary Loans (ILL) is by far the most common cooperative activity (figure 3.26). On the whole 65 libraries (32%) take part in this activity. Eight libraries (4%) are doing it by formal agreements and 53 libraries (28%) informally.

In order to determine the extent to which ILL's occur, the respondents were asked to provide approximate numbers of titles sent and received on ILL in the last one year. The responses reveal that 31 libraries (15%) have sent fewer than 25 books on ILL (figure 3.26). Only seven libraries have lent more than 200 documents in a year. In the similar way, 37 libraries (18%) borrowed fewer than 25 books in one year (figure 3.26). Only seven libraries borrowed more than 200 documents in a year. These figures suggest that the extent of ILL transactions is very small.

It is impossible for any library to be comprehensive in all special subjects. It is beyond the capacity of even a large library to keep pace with the growing literature and, other than the reading material required in connection with specific courses, it is seldom possible to predict precisely what material will be useful and for how long. Of all literature the medical literature is the costliest. Even the grants in well-to-do libraries cannot suffice to purchase the required number of journals for each and every specialty. Hence sharing document resources through ILL becomes necessary. It is particularly beneficial to those who are geographically close to each other. A library certainly need not buy the most specialised reading material if its user can have access to them at another library in the region. It is also not justifiable to purchase a document for a single user when a document can be borrowed from another library. ILL, which appeared to be the most prominent cooperative activity in the medical libraries, still needs to be encouraged and formalised.

3.9.4 Information Services

Providing information service for medical/para-medical specialists of other institutions

is the parallel of cooperative acquisition of the library material. This service appears not to be popular with Indian medical libraries. Three libraries (2%) provide it by formal agreement and another 15 libraries (8%) do so informally. The function of providing information services has assumed importance in medical libraries due to the increased complexities and technicalities of medicine and allied subjects. Specialised medical information appears scattered in periodicals, pamphlets, research reports and in non-print formats. Since each library cannot be expected to contain all the necessary literature and the (library) professional expertise to explore it, the supplementation of each others information service will be of mutual advantage to the participating libraries.

3.9.5 Gifts and Exchanges

Gifts and exchanges are taking place in a number of libraries. Seven libraries (3%) have a formal agreement to do it whereas 30 libraries (15%) undertake it informally. This service is of great value especially for the exchange of duplicate journal issues. The number of journal issues missing due to postal discrepancies is sometimes very exorbitant and distressing and exchanges can be of immense help. Besides, the scientific and other publications of the parent institution, research reports, old and out-of-print material (not required by the library) can also be exchanged for other needed material possessed elsewhere. The survey shows that not all the libraries participate in exchange programmes. The service therefore needs to be promoted and strengthened at all levels.

None of the libraries indicated any other activity undertaken by them on a cooperative

basis in the open ended section "others".

3.10 Conclusions

The medical and health science libraries in India are mainly affiliated to teaching institutions and diversified both in allopathic and Indian systems of medicine. Most of them are just 30 years old. They do not have uniform and sufficient budgetary provisions. The libraries thus do not have adequate document collections to provide an effective backup support to education and research on an individual basis. The provision of modern information technology, like microcomputers, mini or mainframe computers or CD-ROMs is scanty. For online access to MEDLINE, the National Informatics Centre at New Delhi serves as the only nodal agency in the country, and at present a small number of libraries arrange MEDLINE search services. There are no uniform bibliographic organisation methods, although DDC, MeSH, AACR 1, author/title and card catalogues are widely used. Most of the professional staff have a graduate degree in Arts/Humanities as compared to a small number having degrees in sciences. The survey reveals that to-date no coordination or resource sharing activity exists in these libraries except limited ILL cooperation based on the personal and informal efforts of some librarians. There appears to be a wide gap between the existing provision and the actual needs or demands for such activities. In order to minimise the gap, there is a need to rationalise and supplement the existing infra-structural resources into a network on a nationwide basis to make best possible use of the limited resources.

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CHAPTER 4

MEDICAL EDUCATION AND HEALTH CARE SYSTEMS IN BRITAIN

4.1 Britain: the Geography

Britain is 244,755 sq km in area with a population of 55,780,000¹. This means it is approximately the same size as the Indian State of Andhra Pradesh (area 275,068 sq km; population 53,549,673), which occupies just 8.4% of the total area and comprises 7.8% of the total population of India². England is the largest country in the U.K. (area 130,357; population 46,229,955), followed by Scotland (area 78,762; population 5,130,753), Wales (area 20,761; population 2,791,851) and Northern Ireland (area 14,120; population 1,481,959)³. This study uses the term "Britain" as synonymous with U.K. to mean England, Scotland, Wales and Northern Ireland.

4.2 Medical Education

Academic qualifications necessary for the practice of medicine are awarded by 31 medical schools which form the Medical Faculties of 45 British universities⁴. Of these, the University of London included 12, and 13 are in England and Wales; 5 are in Scotland and one is in Northern Ireland. Some of the medical schools in the University of London were merged, resulting in 8 medical schools. Approximately one-third of all medical students are trained in London and a total of 1,350 doctors

qualify each year from the capital's 8 medical schools. There are many opportunities to obtain further training within the medical schools and in the various postgraduate institutions of the University of London. Most of these are grouped within the British Postgraduate Medical Federation, with the exception of the Royal Postgraduate Medical School and the London School of Hygiene and Tropical Medicine. The medical schools currently spent £200 million and the institutes £98 million per annum, and these funds are derived from the University Funding Council (UFC). In addition, the Service Increments For Teaching and Research (SIFTR) given to London Health Authorities with teaching hospitals by the Department of Health is approximately £130 million per year in addition to their District Health Authority allocations. The Special Health Authorities do not receive SIFTR, but are instead directly financed by the Department of Health at approximately £300 million a year⁵. The medical and health care provisions in London are presently in the process of reorganisation and about fifteen of its fifty teaching, postgraduate and general hospitals would go if the proposals from the King's Fund report⁶ are fulfilled. The report published on 23 June 1992, envisages that some of the London's best known hospitals will soon undergo cataclysmic changes. The teaching hospitals under threat are: Guy's, St. Bartholomew's, Mount Vernon, Central Middlesex, Charing Cross, Westminster and UCH/Middlesex^{7,8}.

Universities in Britain are constitutionally not part of a State system but individual organisations, and university staff are thus not legally considered to be Civil Servants. Universities receive block grants on a five-year basis both for current expenditure and for capital developments through the UFC. Medical education is largely free; fees paid

by the individual students are partly financed by the Government through local Councils where students normally reside. Local Councils receive money from the Government as part of public expenditure programme.

In 1988, there were 19,865 students in medical faculties of which about 18,000 were undergraduates and the rest postgraduates for higher degrees and diplomas in medicine. The teaching staff consists of about 6,000 full-time members of whom some 700 hold university positions in various departments⁹. The overall total number of admissions in the medical schools is determined by the Government in consultation with the UFC. All candidates apply to enter a medical school through a central bureau and may specify five such schools, indicating any order of preference¹⁰. It is entirely at the discretion of each medical school to decide which applicants it will choose from those who have attained more than the minimum requirements in the three prescribed subjects at "A" level. There are, however, a fixed number of places available each year. About 15,000 students compete annually for about 4,000 places. During 1986-87, a total number of 4,137 students got placements in various medical schools^{11,12}.

The potential medical student receives education in school until he/she is about 18 years old. He/she studies a fairly wide range of subjects until the age of 16 and takes an examination in them at "O" (Ordinary) level, and then specialises in about three subjects during the next two years. Generally a student specialises in Chemistry, Physics and Biology. A high enough level in these subjects in an examination at "A" (Advanced) level at the age of 17-18 will ensure exemption from the first year of a

university course. The course of medical studies lasts for five years and consists of two parts. The first two years are of pre-clinical studies involving basic sciences such as anatomy, physiology, biochemistry, pharmacology, etc., and the three years of clinical studies in approved disciplines. In Scotland, where the system of school education and examinations is somewhat different, most students enter a medical school's first year and spend a total of 6 years in a medical school¹³. A student can therefore be expected to obtain the basic academic medical qualification at 23 years of age. It is however necessary for each medical student to complete a so-called pre-registration year in an approved hospital on a six-monthly rotation basis in internal medicine and surgery or obstetrics. It is only after the university has issued a certificate of satisfactory completion that the new graduate will obtain full registration by the General Medical Council (GMC).

It is very well understood that with the enormous growth of medical research, it is impossible for a student to obtain all the knowledge necessary for effective medical practice during the six undergraduate years. Therefore these are only designed to provide the scientific basis and the fundamental skills of young doctors on which their specialised vocational training can be built. The complete study of medicine is conceived to be a continuum consisting of these 6 years of basic medical education to be followed by a further period of vocational or postgraduate studies. Several stages of postgraduate studies can be distinguished:

- 1 To become an independently practising General Practitioner in the National Health Service (NHS), the young doctor will usually complete a three year training programme. Two years have to be spent in a hospital on rotating

assignments and a year as a trainee with a qualified General Practitioner in the National Health Service. The minimum age at entering general practice therefore is 27 years.

2 If the young doctor wishes to become a specialist in a branch of medicine, he/she has to undergo postgraduate training in two stages:

2.1 General Professional Training for three years as a junior member on the staff of a clinical consultant. At the end of that period, he would normally be expected to pass an examination for higher diploma set by one of the specialised Royal Colleges, which are some of the oldest and most prestigious medical institutions in Britain. These diplomas are: MRCP (Member, Royal College of Physicians) for most branches of internal medicine, FRCS (Fellow, Royal College of Surgeons), MRCOG (Member, Royal College of Obstetricians and Gynaecologists), MRCPATH (Member, Royal College of Pathologists), and MRCPsych (Member, Royal College of Psychiatrists).

2.2 A higher professional training as a Senior Registrar, normally for four years, when he/she can apply for a "Certificate of Specialised Training" and his/her name will be entered by the General Medical Council on an appropriate list established in Britain conforming to agreed standards.

It is only if the candidate has completed both these stages, that he/she can apply for a post as Consultant, i.e., as an independent specialised head of a clinical department in a NHS hospital. The minimum age for this post is 31 years. The organisation of

postgraduate medical education has been considerably formalised and strengthened. A "Central Council for Postgraduate Medical Education", set up in 1972, works through Regional Councils closely linked with their local university through a "Postgraduate Medical Dean". The latter in turn appoints consultants working in major hospitals in the region as "Postgraduate Medical Tutors" who can carry out their educational functions in a Postgraduate Medical Centre.

The curriculum for the undergraduate study of medicine can be developed by each university but has to be approved in principle by the General Medical Council (GMC). The need for change and for variety has been authorised in principle by the Royal Commission on Medical Education. Various suggestions were made about the undergraduate curriculum, but it was emphasised that they were only suggestions and each medical school should experiment in its own way¹⁴. This provides scope for curriculum innovation and experimentation.

Educational and professional standards for medicine are supervised by the General Medical Council for Education and Registration (GMC). This body which is established by an Act of Parliament, is independent of the Government and is responsible for keeping a register of properly trained qualified medical practitioners. The GMC recognises the training in approved medical schools as being of an appropriate standard. It also recognises certain examinations as being of requisite standards to allow those who pass to be placed on the register.

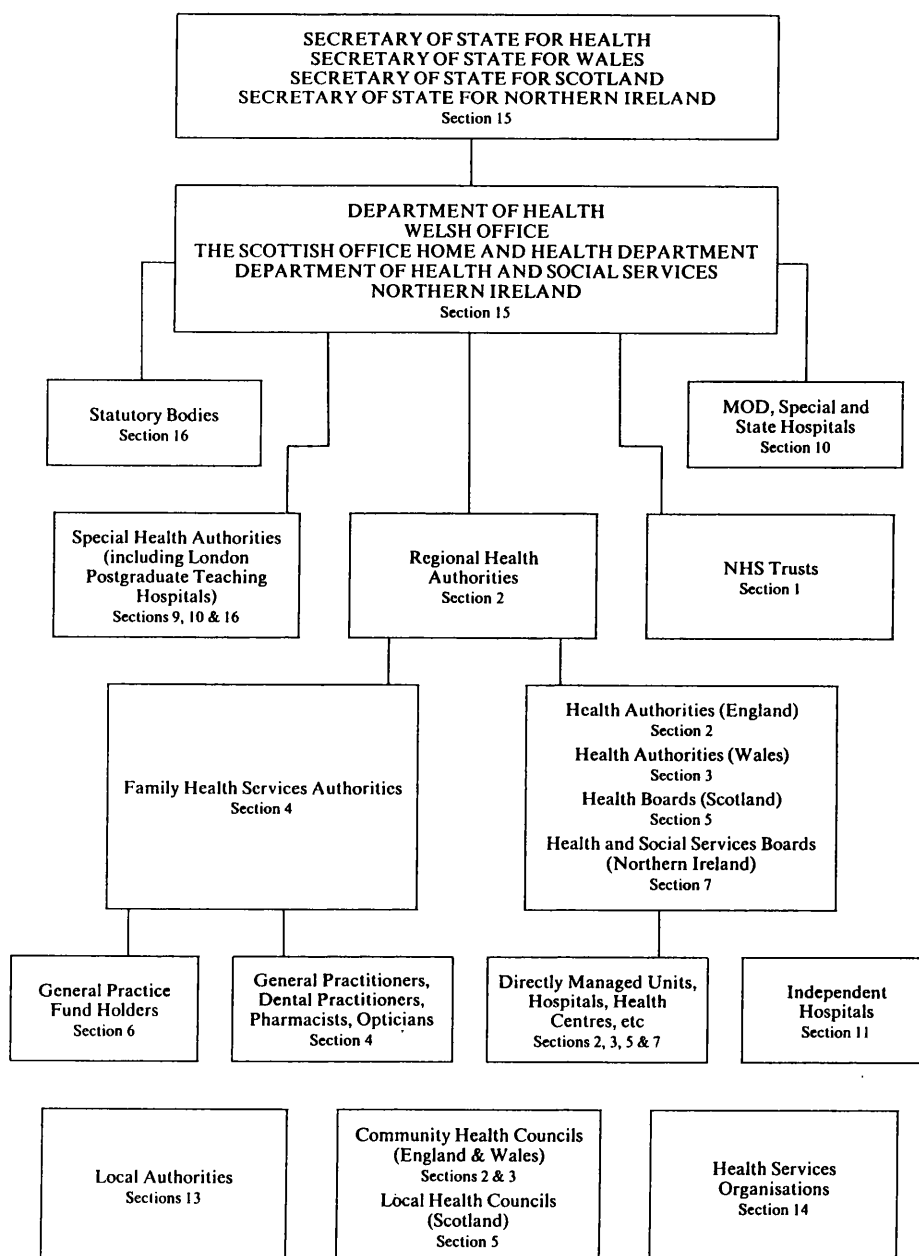
4.3 Health Care

Clinical care of the vast majority of sick people in Britain, both in and out of hospitals, is undertaken by the National Health Service (NHS). The NHS was established by an Act of Parliament on 5 July 1948, with the aim of providing comprehensive health services to make medical treatment and care 'available to rich and poor alike in accordance with medical need alone and no other criteria'. This was the most remarkable social phenomenon in Britain based on the general and wide spread acceptance in 1948 that health services should be free and comprehensive for the entire population¹⁵. At present the NHS is the largest employer in Europe providing access to health care which is comprehensive and free of charge for the majority of the society¹⁶. The main staff groups employed by the NHS are Nursing and Midwifery (50%); Professional and Technical (10%); Medical and Dental (5%); Administrative and Clerical (14%); Ambulance (2%); Maintenance (2%); Works (1%); and Ancillary staff (16%)¹⁷. There are over 48,000 doctors and dentists, including 17,000 consultants, and 514,000 nursing and midwifery staff¹⁸. The organisation of the NHS has undergone several changes since its inception with significant reorganisations occurring in 1974 and 1982¹⁹. At present it is again in the process of undergoing through a phase of critical transformations to make it "more responsive to the needs of the people"²⁰. The latest changes envisaged in the Government White Paper, Working for patients propose major conceptual transformations in its agenda by making selected hospitals self-governing with considerable autonomy and doctors and hospitals more accountable about their expenditures. So far these proposals have had a mixed reaction of appreciation and alarm and are delineated separately in section 4.4, and their implications for library and information services in section 6.4.2.

The organisational pattern of the NHS is basically hierarchical at each level involving individuals and bodies connected with health and medicine (figure 4.1). The overall responsibility for health services falls on the Secretary of State for Health who is answerable to Parliament. In England, the NHS is organised in three tiers. In Scotland, Wales and Northern Ireland there are only two tiers, the middle or the regional tier being considered unnecessary because of their small size and population. At the top are the Secretary of State for Health (for England) and the Secretaries of State for Wales, Scotland and Northern Ireland. Each of these is assisted by Ministers and supported by a substantial number of civil servants. In England the civil servants comprise the Department of Health (DH). The other central departments are the Health and Social Works Department of the Welsh Office, the Scottish Home and Health Department and the Department of Health and Social Services, Northern Ireland. There are also Health Service Commissioners for England and Wales to whom the public may refer any matter about which they are aggrieved (other than the ones about which they have a legal right to appeal).

The second tier, in England only, is the Regional Health Authorities (RHAs), which interpret the policies of the DH to District Health Authorities, monitor and approve their plans and allocate funds, so as to bring about agreed changes and achieve given objectives. The RHA have traditionally been providing a range of operational and managerial services. These include distribution centres, ambulance services, blood transfusion services, legal information and management services to districts themselves. They also include library and information services to the districts in the region. Following the introduction of general management and reorganisation of

Organisational Structure of Health Service Provision in the U. K.



Source: The hospitals and health services yearbook 1992. London: the Institute of Health Services Management, 1992.

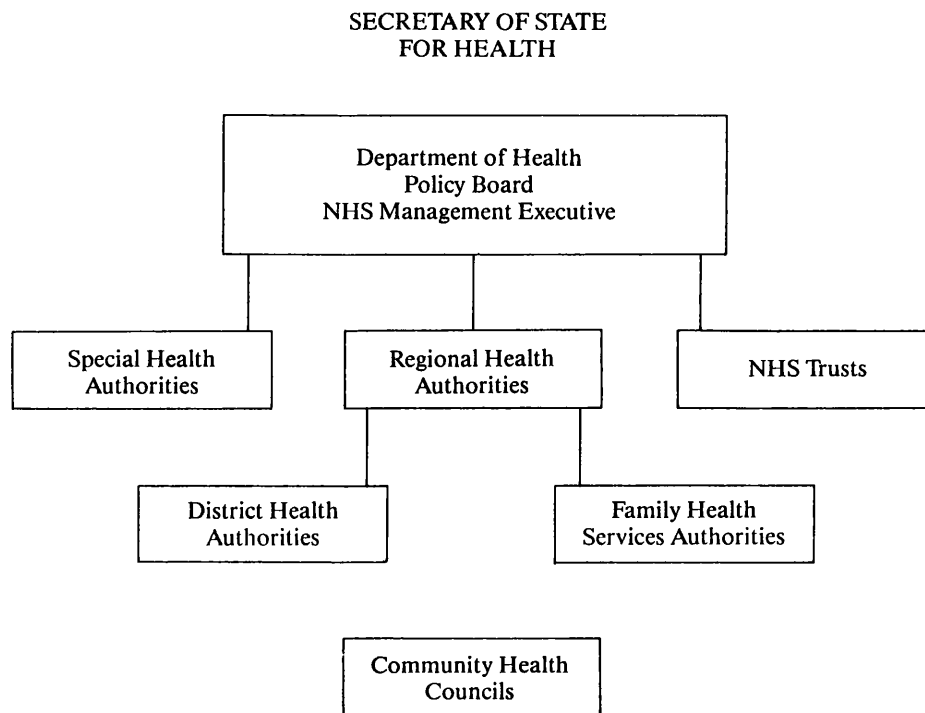
Figure 4.1

regional headquarters, many RHA's have reviewed the provisions of these services. As a result some services have been delegated to districts or contracted to the private sector²¹. There are 14 RHAs in England, each composed of members from local Government, universities, health profession and other related bodies. The composition of the NHS Authorities is given in figure 4.2. In addition there are nine Special Health Authorities (SHA's) which administer postgraduate teaching hospitals²². They are answerable directly to DH and not through RHA.

The third tier consists of District Health Authorities (DHAs) in England (192) and Wales (9) and Health Boards (HBs) in Scotland (15) and Northern Ireland (4)²³. The District Health Authority is composed of local Government representatives and those appointed by the Region including doctors and at least one nurse or midwife. They determine the pattern of the service best suited in the district. The health districts are the focus of day-to-day running of the system. Each district has a Family Practitioner Committee (now called Family Health Services Authority) to administer the contracts of family doctors, dentists, opticians, and pharmacists. There are 90 Family Health Services Authorities serving England²⁴.

The key position in this network is held by the general medical practitioner (GP) as he/she is mostly the first person to be contacted in the event of illness. There are more than 30,000 family doctors in England, Wales and Scotland, one for about 2,200 people. In England there were 24,460 GPs in 1987 - one for an average of 2,042 people²⁵. The number of people per dentist ranged from 2,400 in North West Thames to 5,050 in the Northern Region²⁶. About one third of these work in

The Organization of the NHS in England



The Composition of the NHS Authorities

	FAMILY HEALTH SERVICES AUTHORITY	REGIONAL HEALTH AUTHORITY	DISTRICT HEALTH AUTHORITY	NHS TRUST
<i>Chairman appointed by</i>	Secretary of State	Secretary of State	Secretary of State	Secretary of State
<i>Non-executive members on the authority</i>	Five lay members are appointed by the Regional Health Authority; four professional members are appointed by the Regional Health Authority.	Five are appointed by the Secretary of State including a Family Health Services Authority chairman and a member from a university with a medical or dental school.	Five are appointed by the Regional Health Authority. Teaching districts have to include a member from a university with a medical or dental school.	Up to five including at least two are appointed from the local community by the Regional Health Authority. The rest are appointed by the Secretary of State including a member from the relevant medical school where a trust has teaching responsibilities.
<i>Executives on the authority</i>	Chief executive	Up to five including chief executive and finance director.	Up to five including chief executive and finance director.	Up to five including chief executive, finance director, medical director, senior nurse.

Source Connah, Barbara and Pearson Ruth, eds. NHS handbook. London: MacMillan, 1991.

Figure 4.2

cooperation and group practice in the health centres of the NHS. More than 850 such centres exist where these groups of family doctors work along with district nurses, health visitors, dentists, chiropodists and others to provide different medical services under a single organisation. About one-fifth of doctors in England, Wales and Scotland follow this practice and about two-fifths in Northern Ireland work in this way.

An amount of £26 billion was projected to be spent on the NHS during 1989-90²⁷. About 98% of the total cost of running the NHS comes from public funds, officially known as Exchequer Funds. Out of this some 10% is an earmarked allocation from the National Insurance Fund and the balance 88% is raised by general taxation. About 2% or so of the total cost of services is collected by the NHS from patients²⁸. The patients receive their hospital care free of charge but make a contribution towards the cost of drugs and other requirements. General Practitioners are also paid by the health services on a capitation basis. At present an average expenditure of £35 per week is made by the NHS on an average family of four members²⁹. Although the NHS is much the largest sector of health care in the U.K., there has been a steady growth in private health activity. By the end of 1987 the private sector activity was accounting for as much as 10% of the total national spending on health³⁰.

4.4 The NHS Reforms

In 1989, the British Government published a White Paper called Working for patients which was later incorporated into the 1990 NHS and Community Care Act. The White Paper introduced radical changes in the way the National Health Service is

financed and run. These changes will affect all who work in the service and all those who use it. The aim of the changes is to raise the performance of all hospitals and GP practices. The consideration behind this is that the quality and cost of service offered to patients vary substantially from one hospital or community unit to another. It was considered very difficult to bring about improvements in its services that are consistent across the country. The White Paper proposed a new way of motivating the service to improve itself by introducing the principle of competition in an internal market. One aim is to ensure that the health service units compete with one another for funds, thus providing stimulus to improve the efficiency and effectiveness of the service. The works of Teasdale³¹, Connah and Pearson³², Appley³³, Maxwell³⁴, Culyer, Maynard and Posnett³⁵ provide the basis for our overall understanding of the recent reforms in the NHS. The new principle of competition is being introduced through five important changes in the way the Health Service is funded and organised:

- 1 Money will follow the patient.
- 2 An internal market of purchasers and providers will be created.
- 3 The market will be regulated by written contracts between purchasers and providers, which will state the quantity, quality and the cost of the health services to be provided.
- 4 Providers will have greater freedom over the way they run their units in order to win and fulfil their contracts.
- 5 New arrangements will be introduced to audit quality of service and value for money.

1 Money will follow the patient

In the past, considerable amounts of public funds were given to large hospitals making the Health Service funding 'buildings-led'. It is argued that this system took no account of 'population movements.' For example, inner-city areas were heavily populated in the nineteenth century, when many of the larger hospitals were built. In this century, much of the population has moved out to suburbs, but the funds to provide health services for these people have continued to be allocated to inner-city hospitals. The reforms will accelerate the process of reallocation of funds to districts by introducing a funding system depending upon the size of the local population and not on the size of its hospitals. Census figures will be used to monitor population movements, which will be adjusted or "weighed" to allow for age and disease factors. However, the money does not necessarily have to remain there. It all depends where the patient goes for treatment. If this happens, the money for a patient's treatment should go from the district of origin to the hospital which actually has the contract to treat the patient. Therefore any hospital that can attract a larger number of patients than before, may gain an increase in its income. This is where the motivating factor of competition comes into play.

2 An internal market of purchasers and providers will be created

In order to create competition, all parts of the Health Service have been reorganised into *purchaser* and *provider* roles. The purchasers have the responsibility for using public money to buy health services on behalf of patients, and will be allocated funds in proportion to the size, health and age distribution of the local population. This means that they will have to assess the health care needs of their local population and

specify in advance the type, quality, quantity and cost of the services they wish to purchase. The main purchasers in the internal market are the District Health Authorities and GP Fund-holders. The providers are the units which actually give treatment and care to patients. They may be hospital or community units, and may offer any type of service which meets health care needs. The three main types of providers in the internal market are Directly Managed Units, NHS trusts, and the private health sector.

3 The market will be regulated by written contracts

Patients will not 'buy' NHS care directly for themselves, but purchasers will agree contracts on their behalf. These non-legal contracts or service agreements will be signed by purchasers and providers for all services, which will determine how much money providers will receive to run their hospitals and community units.

4 Providers will have greater freedom over the way they run their units

It is argued that all the NHS provider units will need a great freedom to respond to the competitive pressures of the new market, because they will be held directly accountable for the services they provide. The aim is that the purchasers can control the end product - a service of a specific quantity, quality and cost. However, purchasers can no longer exercise detailed day-to-day control over how a unit organises itself to provide that end product.

5 New arrangements for audit

Medical audit is the professional review of the quality of medical care undertaken by

doctors for doctors. It is a form of peer review, whereby groups of doctors agree to pool data about their clinical decisions for discussion about what constitutes good practice. It includes elements of the research process as well. In both the hospital and primary health care services, Medical Audit Advisory Groups have been organised to take the lead in encouraging good practice.

Since the publication of White Paper, the Government published 11 working papers on the following aspects of its proposals in so far as they relate to England: 1) self-governing hospitals³⁶; 2) funding and contracts for hospital services³⁷; 3) practice budgets for general medical practitioners³⁸; 4) indicative prescribing budgets for general medical practitioners³⁹; 5) capital charges⁴⁰; 6) medical audit⁴¹; 7) NHS consultants⁴²; 8) implications for family practitioners committees⁴³; 9) capital charges - funding issues⁴⁴; 10) education and training⁴⁵; and 11) framework for information systems⁴⁶. The NHS Management Executive has established a series of projects, each of which considers a different aspect of the review proposals to interpret its implications for health promotion and to prepare for White Paper implementation^{47,48}.

The White Paper and the series of ensuing working papers stimulated an extensive public debate and a number of individuals and organisations expressed contrary views in newspapers, journal articles, conferences, seminars and workshops. In November 1991, Francome⁴⁹ surveyed 186 Directors of Public Health Medicine in England to find out the perceived effects of the NHS reforms on the basic principles on which the NHS is founded. The majority of Directors felt the reforms had changed the basic

principles and, with one exception, the principles were described as having been weakened rather than strengthened by the reforms.

The Royal College of Physicians recognised the need to make the NHS more cost-effective and endorsed a number of proposals including: medical audit; more local control of budgets; more choice for patients, etc. However, it expressed concern about its impact on teaching and training in trust hospitals; parity in salary structures; research; clinical care of patients, etc.⁵⁰

The advocates of the reforms have emphasised the benefits of greater consumer choice: for example, freedom to choose a GP remains with the patients. However, it is not clear how much scope for individual choice will be left if health authorities and GPs are required to make fixed term contracts for special services from particular providers⁵¹. Maynard⁵² concludes that the White Paper is an ambitious and risky strategy. Some of the proposals, like better information and the intention to enforce contracts vigorously, are welcome and long overdue. However, it is argued that some of the proposals are ill-conceived and likely to undermine a health care system based on the principle of need. In doing so, there is a possibility that the Government will create market pressures which will lead to increased expenditure with all too little effect on the volume and quality of care provided to patients. These problems are all too familiar to the policy makers in the U.S.A. who like their counter-parts in the U.K. are seeking greater efficiency by evaluation and monitoring.

The BMA⁵³ supported some of the proposals set out in the White Paper but

considered that some proposals would cause damage to NHS patient care leading to fragmented service and destroy the comprehensive nature of the existing service. A special BMA conference in March 1992 voted against all the main changes, including GP fund-holdings, trust hospitals and the concept of the purchaser-provider split between health districts and hospitals. However, the BMA formally dropped its opposition to the Government's health changes in its annual meeting in Nottingham on 6 July 1992 by debating numerous proposal concluding that the BMA "considers that it should now concentrate on developing the NHS changes for the benefit of patients."⁵⁴ This seems to be primarily the consequence of the Conservative Party victory in the General Election in May 1992; the Party is committed to implementing the changes in letter and spirit.

In July 1992, the Government issued another White Paper The health of the nation: a strategy for health in England⁵⁵, which shows a commitment to the pursuit of "health" in its widest sense. The reforms of the NHS made this strategic approach possible. According to this White Paper, national health targets will be translated into regional and local action in the NHS. At the regional level, the NHS Management Executive will require RHAs to develop regional strategies within the defined key areas of the national strategy and those identified locally.

4.5 National Health Service and Medical Education: the Interface

The education of a medical student is bound to include a considerable period of practical work so that he/she learns to apply his/her scientific knowledge in clinical situations, whether the student eventually wants to work as a General Practitioner (GP)

or as a Clinical Specialist (Consultant). The founders of the NHS equally appreciated that the standards of health care which it can provide is very much dependent upon the quality of medical education and training. A close partnership has thus been conceived to prevail between the system of medical education and the health care in the interest of all. The NHS Act provides that the hospitals have to offer all necessary facilities to the Medical Schools of their associated universities.

4.6 Integration of Medical Education and Health Service: the Mechanism

Efforts have been made to develop medical education and health care as a unified whole within their distinct roles by creating an overall integration in them on the following levels:

4.6.1 Administrative Integration

4.6.1.1 National

For medical education, the Department of Science and Education is the central organisation which is advised by the UFC with regard to its relations with universities. The UFC has its own Medical Sub-committee to be in touch with medical schools. The universities have their national representation in the Committee of Vice-chancellors and Principals, on which medical schools are also represented in a special medical sub-committee. All these bodies are in touch with DH which has the administrative responsibility for the NHS through its Central Health Services Advisory Committee, which includes many medical educationists and Presidents of the Royal Colleges. The Royal Colleges have also formed a Joint Committee for Higher Training which supervises the final stages of specialist training and have thus

strengthened their educational role. In London the medical schools, the NHS, and the Royal Colleges are fully represented on the Council for Postgraduate Education in London.

4.6.1.2 Regional

The NHS rules provide for university representation on RHA, which is the highest governing body of a Region. Medical Professors are normally represented on various Regional Medical Advisory Committees. Besides this, the University Liaison Committee provides a forum for integrating the regional health policy with teaching needs of the University Medical Schools. The university also plays a great role in the working of the Regional Postgraduate Medical Education Committee, the chief executive of which is normally the Postgraduate Dean of a Medical School.

4.6.1.3 Operational

The District, which is in direct control of individual hospitals, is important for medical schools as it controls the District General Hospital which is normally the centre of undergraduate education. The undergraduate Dean of the University normally attends the meetings of the District Management Team. There is also university representation on its various Planning and Advisory Committees. The University is usually represented on the Appointments Committee for senior medical staff in the NHS hospitals which take part in medical education. On the other hand the NHS hospitals usually send observers to Appointments Committees of the universities for senior academic posts in the medical faculty who usually take clinical work in NHS hospitals.

4.6.2 Financial Integration

It basically works on the norms that the universities pay for the academic training of the medical students whereas the NHS is responsible for their professional postgraduate training. The acceptance of this broad principle has led to the following sharing of responsibilities:

4.6.2.1 Financing by the Universities

The universities completely finance the salaries of the full-time academic staff of their Medical Faculties. To avoid friction arising from salary difference between academic staff and the NHS staff when working in the same hospital, the salaries of university staff at clinical level have been equated to hospital consultants. On the other hand pre-clinical staff of the medical schools are on the university salary scales, which is considerably lower. The capital expenditure for medical school buildings which are physically usually separated from the hospitals is fully funded by the universities under grants provided through the UFC. The university medical schools usually also have physical facilities and laboratories in the NHS hospital buildings. These costs are as far as identifiable, borne by the universities. The recurring expenditure arising from this accommodation in hospitals, i.e., for heating, lighting, and for various non-teaching staff have in the past been borne by the Health Authorities.

4.6.2.2 Financing by the NHS

Since 1975, as recommended by a Committee, a Service Increment For Teaching (SIFT) has been introduced for hospitals which accept clinical undergraduate students. This allowance is usually up to 75% of the average excess costs of hospitals providing

teaching as compared to those of non-teaching hospitals. It is worked-out in relation to the number of undergraduate students undergoing clinical training from the third to fifth year. The salaries of junior Medical Staff under training are paid by the NHS. This includes "pre-registration" training period between completion of undergraduate studies and the start of their vocational training. At present about 22,000 trainees are working in the NHS hospitals, about 4,000 as House Officers in pre-registration years and 3,000 as Senior Registrars engaged in higher training. All expenditure for buildings and maintenance of hospitals, necessary equipments are paid by the DH through the Regional Health Authorities.

4.7 Summary and Conclusions

As regards medical education two types of institutions can be distinguished; 1) medical schools becoming fully integrated with the university system, and 2) medical education separated from the universities in specialist institutions controlled by the respective Ministries of Health. Britain is an example of a country where medical education is provided in the closest association which can be achieved between universities and health services. In the university context medical schools are given financial protection whereas the students are taught in the clinical facilities of the NHS. These two publicly funded services have many separate objectives. A university usually has an obligation to the future and aims at highest standards in teaching and research. On the other hand a health authority primarily responds to the pressing current needs. But since both have a stake in education and research in medicine, they present a very symbiotic interface in spite of numerous complexities and intricacies. The medical schools thus seem justifiably sandwiched between the

parent university on one hand and DHA of the NHS on the other hand. The only medical schools which seem to have exceedingly loose connections with the parent university are those in the University of London, most of which have a longer history than the University itself. The universities cannot, however, own and administer their own teaching hospitals as happens in part of the U.S.A. and Europe. In this way they resemble their counter-parts in India. The British National Health Service is unique both within and outside the country. Within Britain it is the only service which is comprehensive in the sense of looking after the entire population. Internationally it is unique as the only national health care system centrally financed and directed. The monolithic organisation of health care in the British model resembles the old communist societies, but they of course differ in that their political system is also monolithic. But its capacity for successful adaptations to changing circumstances has been remarkable, as evidenced by the recent NHS reforms which has thrown up its own challenges for library and information services as well.

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CHAPTER - 5

MEDICAL LIBRARY AND INFORMATION SYSTEMS IN BRITAIN

5.1 The Concept

Medical library and information systems in the U.K. can be understood within the context of the British Library and the network of health care libraries operating within the National Health Service (NHS)¹. The British Library (BL) is a large and diverse organisation. Dale² and SCONUL³ have reviewed the range of the services it offers to the medical libraries. It has the largest medical collection in the U.K., and its Science Reference and Information Service division holds more medical periodicals available for public access than any other medical library in the U.K. BL provides the principle reference and lending library services on a national scale and about one-third of the demand from its Document Supply Centre (BLDSC) is for life sciences material. The lending and reference services provided by the BL for medical and health care libraries are complemented by a range of libraries in the Royal Colleges, medical societies, pharmaceutical companies and university medical schools. Supplementing these major libraries is a large network of small medical and nursing libraries distributed throughout the NHS in all parts of Britain. In this way, Britain has a two-tier resource sharing network. The network consists of the Regional Library Service Systems at the local level and the British Library (Document Supply Centre)

at the national level. The BL, as the national medical library of the U.K., has the same order of number of medical periodicals, reports and grey literature as those of the U.S. National Library of Medicine⁴. The difference is one of access to the material. The BLDSC at Boston Spa is organised as a resource library rather than a reference library, so access has to be through other libraries or information centres.

The range of medical and health science libraries in Britain can be categorised in four distinct groups⁵ (figure 5.1). A recent report by Holdsworth⁶ provides a "broad-brush" picture of the patterns of library and related information provisions in the U.K. health care sector across the NHS. The *first group* is funded by the Government, usually through the NHS and includes hospitals and other health service establishments, research institutions and administrative departments. The library services are mainly available to NHS staff. The *second group* consists of private libraries attached to medical societies and other organisations mainly of an academic nature. These libraries are usually funded from members' subscriptions and from the income raised from sales of their publications. Library services are usually restricted to the members of the organisation. The *third group* is those attached to commercial organisations, such as pharmaceutical firms. Some of these are available only to the members of the commercial organisation. The *fourth group* is the university and medical school libraries which serve academic medical staff, students, researchers and often local general practitioners and other NHS staff.

5.2 Government Libraries

The major Government department concerned with health matters is the Department

Medical Library and Information Systems in Britain

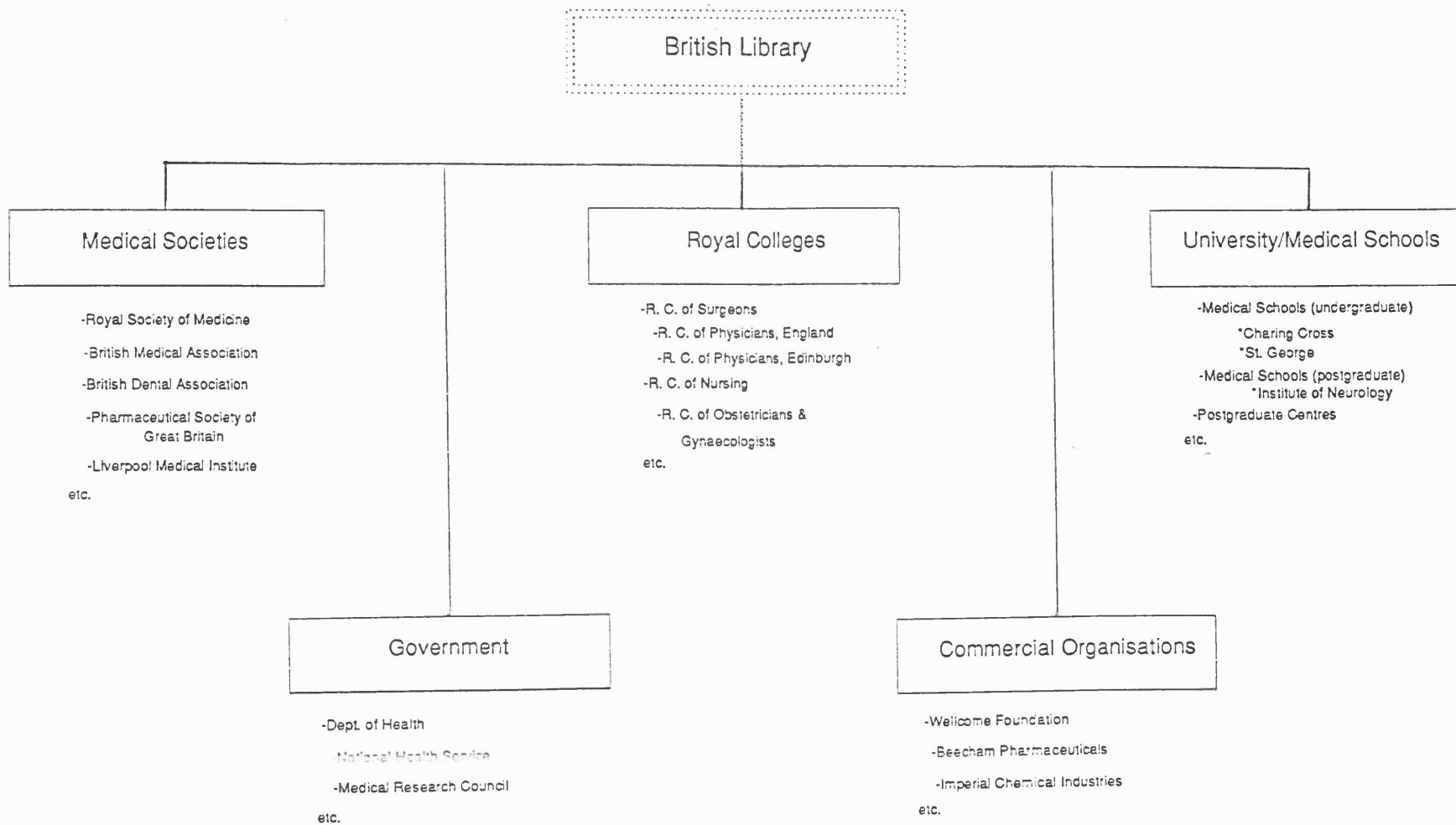


Figure 5.1

of Health (DH) and its principal role is the management of the National Health Service. Internationally it has responsibility for liaison with the European Community, the World Health Organisation and other international bodies on health matters. The Department employs doctors, nurses, dentists, pharmacists, architects, engineers, surveyors, clerical, administrative, professional and other technical staff. The departmental activities are supported by a vast network of library and information services. The main library is at its headquarters in London. It is the largest Government library (about 200,000 volumes and 2,000 subscriptions) and covers a wide range of medical and health material, including nursing, social services, administration and health policy planning. It serves as a depository library for WHO publications and receives most of the publications about the United States public health services⁷. The library is mainly for DH staff but postgraduate students and research workers are allowed consultations. It lends to other libraries through BLDSC.

The library has created its own database, DHSS-DATA, which concerns all the health and social administration issues with which the Department is concerned. The core areas in the database include social policy in general, personal social services, social problems, nursing, health services administration and planning. The subject coverage of the database reflects the interests of department's four branch libraries as well. Online information is available on the design and construction of health science buildings, social security and occupational pensions, the safety and efficacy of medicines and medical equipment and supplies. Other subjects of peripheral interest include sociology, education, economics, general management, law, technology, computers and psychology. DHSS-DATA contains about 50,000 records of books,

pamphlets, journal articles, departmental publications and circulars, standards, conference proceedings, research documents and annual reports⁸. Several current awareness bulletins produced are: Social Service Abstracts, Occupational Diseases Abstracts, Health Services Abstracts, Health Buildings Library Bulletin, Social Security Library Bulletin, Current Literature on Occupational Pensions and Medicines Library Bulletin.

The need to provide a controlled vocabulary for use with the databases, has led the library to a devise a thesaurus which has now developed into a separate indexing tool for processing documents and other information on social and health policy. The thesaurus was initially compiled on 6x4 index cards and was later converted into machine readable form in order to be able to interface with information retrieval software⁹. The first edition of the thesaurus was issued in 1985 and is available in conventional printed form, online or on magnetic tape¹⁰.

5.2.1 Research Libraries

For medical research, Government funds are channelled through the Medical Research Council, the health departments and the University Funding Council for relevant universities. However, significant contributions towards the study of chronic diseases, health hazards and other basic problems is made by Medical Research Council (MRC). MRC is one of five research councils in the U.K. and receives a grant-in-aid from Parliament via the Department of Education and Science (DES). The function of MRC is to promote the balanced development of medical and related biological research in the U.K.¹¹ It employs its own research staff in institutes and units,

provides grants to other institutions and individuals, and complements the research resources of some universities and hospitals. The MRC advises Government on matters relating to medical research and cooperates with similar organisations in the U.K. and overseas. It is responsible to the Secretary of State for Education and Science and is mainly composed of members appointed on the basis of their qualifications in science for planning and implementation. The Council receives assistance from four advisory boards and cover the following broad subject areas: Neurology and Mental Health, Cell Biology and Disorders, Physiological System and Disorders, and Tropical Medicine¹². The headquarters office in London provides the central management function. The research undertaken covers the whole range of medicine from basic biological research to clinical and epidemiological studies more applicable to patient care.

The MRC carries out its own research at the National Institute for Medical Research (NIMR), the Clinical Research Centre and in about 56 research units located in hospitals, medical schools and universities¹³. The organisation of the Council's library and information services reflects its overall structure. The two major libraries are at National Institute for Medical Research and Clinical Research Centre with an emphasis on basic sciences and clinical sciences respectively. The many smaller units have working collections of books and journals, supervised non-professionally, but their wider needs are met by arrangements with the host university medical school libraries. The librarians of the four MRC libraries mentioned above play an advisory role for the small units in given geographical areas. There are some library cooperative schemes, such as union lists of journals and books, and the MRC Library

Bulletin in operation.

NIMR Library provides information service to more than 500 staff of the Institute including students, training fellowship holders, and attached workers from other countries. Although the Council's units located in various universities and hospitals have access to the host establishments, there is a great dependence on NIMR Library (about 70,000 volumes and 700 subscriptions) and the Clinical Research Centre Library (about 36,000 volumes and 700 subscriptions)¹⁴. The library serves informally as the coordinator of all unit libraries. It organises annual meetings and training facilities for library staff. Other cooperative activities include the indexing of papers published by MRC staff, the preparation of annual Publications from MRC Establishments and companion MRC Handbook which includes information on research projects, together with a staff index.

5.2.2 NHS Libraries

There are 1,114 libraries in Britain serving NHS staff as revealed by the last census undertaken by the NHS Librarians Group in 1985¹⁵. Of these 367 have been classified as postgraduate medical centre libraries, 380 school of nursing libraries, 175 multidisciplinary hospital libraries, 45 administrative serving RHA/DHA, 56 other NHS libraries and 91 non-NHS. Most of these libraries derive their origin from the postgraduate medical education movement of 1961 in recognition of the need for providing a continuing education programme for general practitioners. Consequent on this "medical centres" were established throughout the NHS usually in a District General Hospital. These medical centres were created to act as a focus for all

postgraduate medical education activity¹⁶. In each centre there is a library which was originally started by donations from local hospital doctors. As the libraries grew in size and use, professionally qualified librarians began to be appointed and as postgraduate medical education developed, other groups of staff developed their own continuing education programmes. Nurses and other para-medical staff, too, organised courses and training sessions. All this created greater awareness of the need for library services. By now the Sheffield Region had recognised that some sort of coordination was necessary and in 1963 its Hospital Board set up a Working Party¹⁷ to examine the question of the provision of medical library facilities in its regional hospitals. The Working Party recommended the establishment of "a regional medical library service, each unit of which should be as self-sufficient as possible for all ordinary needs." The regional library structure was proposed to comprise a Regional Library, Area Libraries and Hospital Libraries. It further recommended the appointment of a Regional Librarian who would advise the Hospital Board on library policy and assist in planning the new libraries. He would also be responsible for encouraging liaison between medical libraries and libraries of local authorities, universities, and other organisations¹⁸. However, Sheffield did not go ahead to implement the recommendations. In 1967, the Wessex Regional Hospital Board appointed the first Regional Librarian in NHS. This marked the beginning of regionally organised library services to NHS staff¹⁹. An increasing number of the NHS library services are now being managed on a district-wide basis. This trend has been encouraged by the agreement and publication of Providing a district library service²⁰ which is based on a series of workshops for each of the main professional groups.

5.3 Medical Society Libraries

The next group of libraries are the libraries belonging to the Royal Colleges and other academic bodies and societies. The Royal Colleges are degree-awarding institutions and membership is highly prized as a postgraduate qualification²¹. There are also libraries in the Royal Society of Medicine and the British Medical Association, which do not award any educational qualification, but promote research and study of medicine. The British Medical Association also acts as a professional trade union and negotiates with the DH on doctors' terms and conditions of service. Most of these are located in London and include the libraries of the Royal Society of Medicine (RSM), Royal College of Nursing (RCN), and the Royal Colleges. These last are the special subject libraries, e.g., Royal College of Surgeons, Royal College of Obstetricians and Gynaecologists and services are generally restricted to the members except where they offer back-up services to BLDSC.

5.3.1 Royal Society of Medicine

Probably of the greatest importance is the Royal Society of Medicine library, which has a large medical collection (about 400,000 volumes and 2,200 subscriptions). Use of the library is restricted to the members of the society but reference facilities are available to others on application through a member and to other libraries through BLDSC²². The Society's library serve as a back-up to BLDSC, an arrangement which has enabled the RSM to provide loan and photocopy service on a wider base than before to non-members²³.

5.3.2 British Medical Association

The British Medical Association (BMA) is the representative body of the medical profession in Britain. In 1986 the role of its library (formed in 1887) was redefined to serve the needs for current material on clinical medicine²⁴. The library's collection (about 30,000 volumes and 1,100 subscriptions) is biased towards clinical medicine with the aim of filling the needs of BMA members world-wide.

The library mainly serves its members but supplies photocopies to any other person or library, particularly to smaller NHS hospital libraries. Members unable to visit library may borrow books, request photocopies and literature searches by post. Urgent requests are undertaken on telephone and by telex/telefax²⁵. The installation of such telecommunication technology enables the library to send photocopies, BMA reports, literature searches any where in the world²⁶. The library has access to a wide range of a computer databases, including MEDLINE and TOXLINE through BLAISE and DATA-STAR. Under its Institutional Membership Scheme, the library enables member libraries to augment their (limited) stock by calling on the BMA library as a back-up library. Over 200 libraries reportedly make use of it on regular basis to obtain photocopies, including some libraries overseas.

5.3.3 British Dental Association

The British Dental Association Library is the major dental library in the U.K. It lends only to its members, but provides photocopies to other libraries.

5.3.4 Pharmaceutical Society of Great Britain

The Pharmaceutical Society of Great Britain is very important for providing pharmaceutical information (about 65,000 volumes and 500 subscriptions). Situated in London with a branch in Edinburgh, it serves as a back-up library to BLDSC. It provides computer literature searches to members and is available for consultation to non-members as well.

5.3.5 Liverpool Medical Institute

The library was founded in 1773 and is rich in historical material as well as in current medicine and surgery. It has close links with the University of Liverpool and has about 32,000 volumes and takes about 400 journals. It is also the regional headquarters of NHS Mersey region.

5.4 Royal College Libraries

All the Royal Colleges have their own libraries. These include the Royal College of Surgeons, the Royal College of Physicians, the Royal College of Obstetricians and Gynaecologists, the Royal College of Pathologists, the Royal College of General Practitioners, the Royal College of Psychiatrists, the Royal College of Nursing, the Royal College of Midwives. Their services are of special subject nature and are restricted to members except where they offer a back-up service to BLDSC.

5.4.1 The Royal College of Surgeons

The Royal College of Surgeons of England library is rich in historical material (founded in 1800). It has a large collection of manuscripts. Besides surgery, the

library has large holdings in related fields, such as anaesthesia, anatomy and pathology (about 50,000 volumes and 600 subscriptions). It is a reference library but lends some type of material to other libraries and provides photocopies.

5.4.2 The Royal College of Physicians, England

The Royal College of Physicians specialises in the history of medicine (founded in 1518). It has about 50,000 books and pamphlets, 200 sets of journals related to 18th and 19th century medicine, 5,000 autograph letters, 12,000 engraved portraits and photographs and a slides collection²⁷. It also houses the Bedford Library of Cardiology, and the collections of the British Association of Dermatologists and Heberden Society covering rheumatism and gout.

5.4.3 The Royal College of Physicians, Edinburgh

The Royal College of Physicians of Edinburgh library (founded in 1681) has about 600 volumes of manuscripts, incunabula, and other historical material. It has about 250,000 books and bound journals and takes nearly 2,000 current periodicals. The library lends only under special circumstances²⁸. These are current medical libraries with a strong historical collection.

5.4.4 The Royal College of Nursing

The main aim of the Royal College of Nursing (founded in 1916) is "to promote the science and art of nursing and better education of nurses and their efficiency in the profession of nursing"²⁹. Nurses whose names are on the Register of nurses maintained by the U.K. Central Council are eligible for membership, while student

nurses are eligible for student membership.

The library of the RCN came into being in 1921 from a small contribution from the Carnegie U.K. Trust with the condition that the library should become a back-up library of the National Central Library (NCL). The College Library has maintained close links with the British Library since early days. The RCN has been a pioneer in post-registration of nurses (now undertaken by the Institute of Advanced Nursing Education). The library has the largest collection in nursing literature not only in the U.K. but Europe (about 40,000 volumes and 200 subscriptions)³⁰. The most intensive use of the library is naturally made by the students attending the post-registration courses run by the college. RCN members are also use the library, borrow and use the photocopy facility. The library acts as an official back-up library for the British Library and as such satisfies requests from other libraries for nursing literature. An informal system of loans to other libraries also exists.

5.5 Commercial Libraries

The largest group of libraries run by a commercial organisation are the libraries owned by Imperial Chemical Industries Limited (ICI). ICI manufactures the whole range of chemical products, e.g., insecticides, plant fertilizer, paints, pharmaceutical products, etc. It is the Pharmaceutical Division Library at Macclesfield in Cheshire which is most familiar to medical librarians in the U.K. (about 10,000 volumes and 1,300 subscriptions). This library is for the use of company staff only but lends books and journals to other libraries.

5.5.1 Wellcome Foundation

The Wellcome Foundation is a large pharmaceutical manufacturer, owned by the Wellcome Trust - a registered charity. Besides libraries attached to various research institutes, it owns the Wellcome Institute for the History of Medicine which represents the research functions of the Wellcome Historical Medical Museum and Library. The library (started in 1897) has the largest and most comprehensive European collection for the history of medicine. It contains over 400,000 printed books dating from 15th to 20th centuries³¹. The Institute has one of the major collections of oriental material in the U.K. with over 11,000 manuscripts and some 3,000 books printed in oriental type, and there is a rich Indian and Tibetan collection. The collection of Sanskrit manuscripts numbers some 6,000 and the Hindi manuscript collection is one of the largest outside India. The Modern Medicine Collection contains about 60,000 monograph titles, text books, pharmacopoeias, etc. and about 400 subscriptions. The library is mainly for reference and research. Readers may be supplied with photographic copies from the library within copyright laws. However, xeroxes are not permitted from early printed books or manuscripts or from any item which can be damaged by copying.

5.5.2 Beecham Pharmaceutical

The Beecham Pharmaceuticals have a number of establishments in the country, some of which have libraries. For example, their Research Division at Worthing Sussex has 45,000 books, 1,200 bound journals, and 200 current journals. They lend books and journals to other libraries, but allow only company staff to use the library services.

5.6 University and Medical School Libraries

The universities and medical schools have important collections to support medical education and research. There is at least one such library in each NHS health region which is usually the largest in the region. There are four in Scotland and one each in Wales and Northern Ireland. There are important medical school libraries in London, Bristol, Leeds, Birmingham, Newcastle, Cardiff and Belfast. Many medical schools encompass a much wider role and provide library services to a variety of groups employed by the NHS involved in clinical practice and patient care. The university and medical school libraries usually also serve as Regional Centres for the smaller hospitals and postgraduate institutes in their locality. In many cases a university medical school has become the focus for some major professional library activities in a region. For example, in Northern Ireland, the Queens University Medical School has incorporated the library of the Northern Ireland Health and Social Services Library. It now provides a region-wide library services throughout the province similar in function to the NHS regional library services in England. Southampton University houses the Wessex Medical Library (University Branch), the Wessex Regional Library and Information Service, the Regional Audio-Visual Library and the Help for Health Information Service. The Wessex Medical Library (about 33,000 books, 42,000 bound journals and 1,200 subscriptions) is available to both university staff and NHS staff in the region. The University branch holds mainly pre-clinical material, whilst the branch at Southampton General Hospital holds the clinical material. Similarly the Erskine Medical Library at Edinburgh University (about 23,000 books; 50,000 bound volumes; and 900 subscriptions) serves the medical school and is the central library for 3 hospital libraries in the city. It serves the NHS

staff in the region with the full range of services including photocopying and computer information retrieval³².

5.7 Summary and Conclusions

The great majority of small NHS libraries are the first point of access to the world's medical and health care literature for a majority of the health and medical professionals in the U.K. As the resources of such libraries are limited, they depend on cooperative resource sharing networks for interlibrary transactions. The other larger medical libraries, like the ones in university hospitals, medical schools and some larger NHS districts, act as resource libraries for this vast majority of the small but focal NHS libraries. In this pattern, larger and more specialised libraries of the British Medical Association, the Royal Society of Medicine, the Royal College of Medicine, etc. serve as quasi-national libraries and back-up the smaller and other less specialised libraries. They also serve as resource libraries for the BLDSC. In some NHS regions, the regional library services are operating. The ultimate support is provided by BLDSC which provides for about half of the ILL requirements of the medical and health science libraries.

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CHAPTER 6

MEMBER LIBRARY PERCEPTIONS OF THE REGIONAL MEDICAL LIBRARY AND INFORMATION SYSTEMS IN THE U.K.

6.1 The Regional Library Systems

6.1.1 The General Concept

Libraries have been organised into systems in different ways. The loosest organisational scheme is the cooperative system, which allows the individual member library the greatest autonomy. The tightest organisational scheme is the consolidated system, which unifies individual libraries or units under a single administrative authority. The consolidation is administrative and not physical. Between these two extremes is the federated system, under which the member libraries retain their ultimate autonomy, yet give some of their authority to a system administrator. It follows, therefore, that: 1) in a **consolidated** system two or more libraries relinquish their autonomy to form a single library unit under one management committee; 2) in a **federated** system the member libraries maintain their autonomy and contract for services from a designated headquarters library, and a federated system may operate under an appointed system board responsible for policy and coordinating service developments; 3) a **cooperative** system is structured on the concept of building on the strength of the autonomous member libraries or their units, in collaboration with

system staff responsible for planning and administering services for the benefit of all member libraries.

6.1.2 The Background

Morton¹ defines a regional medical library system as a scheme which provides "a coordinated library service for the medical and other health care personnel within a region". The evolution of regional medical library systems can be attributed both to the evolving NHS and medical education activities. At the beginning of the NHS, medical education was centred in the teaching hospitals about half of which were in London and the remainder in other large cities. In 1961, the Nuffield Provincial Hospitals Trust organised a conference on medical education in Oxford. This conference expressed concern about the lack of facilities for further medical education after qualification. It was accepted that it must be made easy and attractive for doctors working in hospitals or out of them, to keep in touch with the most of recent advances. This led to the development of postgraduate medical centres. The rapid proliferation of these centres over a short period, led to the proposals that some kind of regional coordination of their libraries, and adequate provision of library services for other health care personnel must be forthcoming². Some regions soon initiated coordinated library support to postgraduate medical education³. According to Diana Edmonds⁴ the services of the regional systems, together with those of the BLDSC and its back-up libraries, now offer the user an efficient document supply service. She has, however, recommended that in spite of their multifarious and generally successful activities research should be undertaken on the structure, activities and potential of the regional library systems⁵.

6.2 Objectives of the Survey

The basic objective of this part of the study is to determine the extent to which regional medical library systems have improved, or could improve, library services to the medical community. The evaluation will seek to provide answers to the following questions:

- 1 What services are best provided at the systems level?
- 2 What are the perceptions of medical librarians on the past impact of the Regional Library Unit?
- 3 What are the perceptions of medical librarians on the past impact of the Regional Medical Library Systems.
- 4 To what extent are the Regional Services used and valued?
- 5 What are the perceptions of medical librarians on the possible impact of a potential regional library unit?
- 6 What are the perceptions of medical librarians on the possible impact of a potential regional medical library system?
- 7 What is the nature of relationship between the member libraries and the Regional Library Unit?
- 8 What is the nature of communications and resources flow amongst the librarians in the NHS regions?
- 9 What changes should/could be instituted by the Regional Library Unit with regard to the direct support services to the member libraries.
- 10 What is the future potential of the Regional Medical Library Systems?

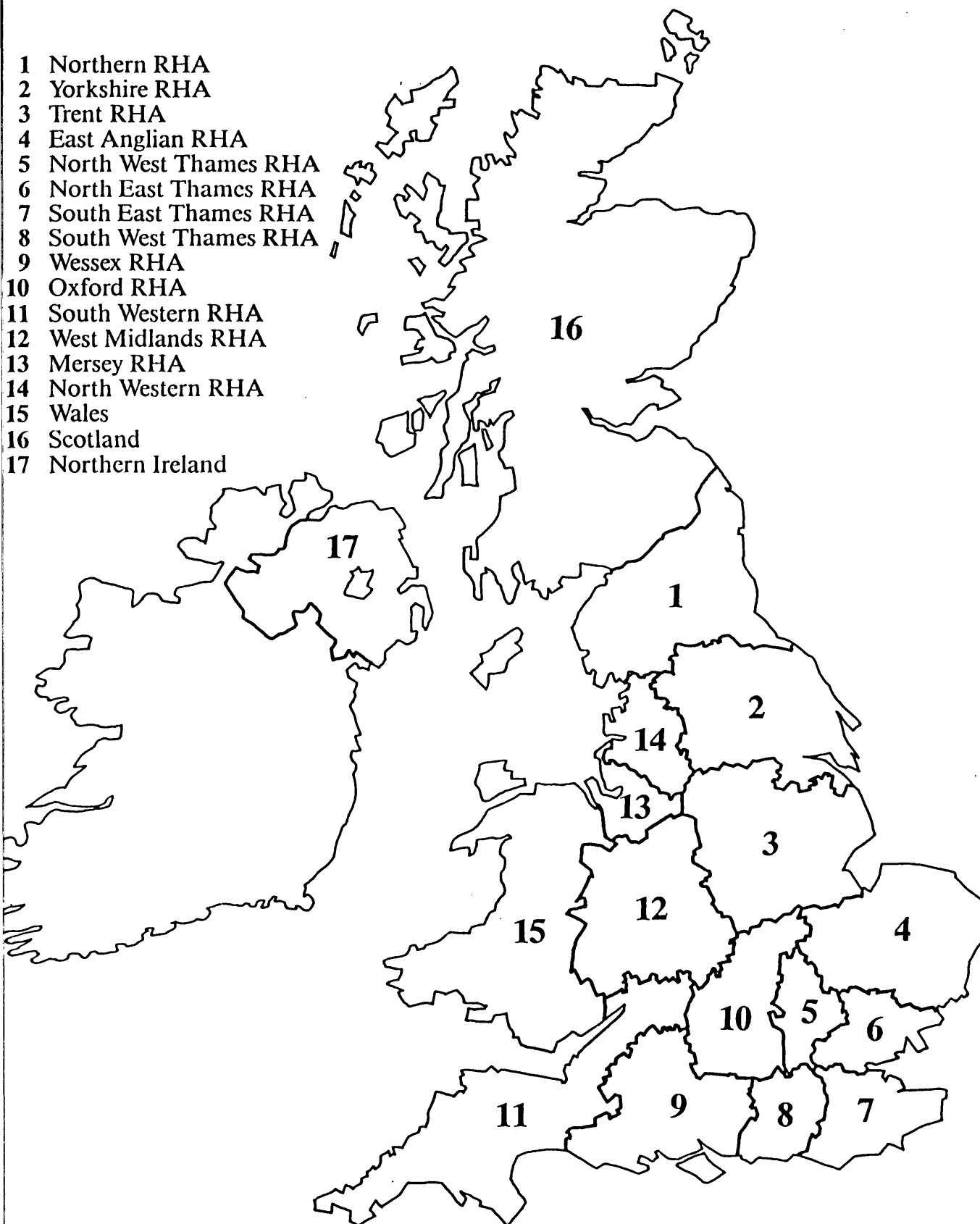
6.3 Methodology

In order to accomplish the above objectives it is necessary to analyse and compare the medical library systems in some typical regions. There are 17 NHS regions⁶ comprising 14 English Regions and one each in Northern Ireland, Scotland and Wales (figure 6.1). All these 17 regions have some form of networking, but there are wide variations in the character and extent of regional coordination. In seven regions, Regional Librarians have been appointed with the formal responsibility for advising the Regional Health Authority (RHA) on library provision. These are the four Thames regions, Wessex, Oxford and Northern Ireland. In two of these, namely, Wessex and Oxford, medical school libraries and regional services come under a single management. In a further four regions (Northern, East Anglia, West Midlands and Wales) the medical school library provides services and professional support, but there is no formal responsibility for advising the RHA. In the remaining six regions there is a semblance of regional networks maintained by grassroots associations of the librarians⁷.

For the purposes of this study, it was decided to choose four different regions, two having a structured regional medical library system and two without any structured regional medical library system. In view of the great variation and diversity, it was difficult to make a choice of the regions for the purposes of this study, since regions are at different stages of development. The approach to systems from region to region varies considerably and finding typical regions is problematic. Moreover, the choice of any region depends on the consent and cooperation of the medical and health science librarians in the region. Contact with various medical librarians and

National Health Service Regions

- 1 Northern RHA
- 2 Yorkshire RHA
- 3 Trent RHA
- 4 East Anglian RHA
- 5 North West Thames RHA
- 6 North East Thames RHA
- 7 South East Thames RHA
- 8 South West Thames RHA
- 9 Wessex RHA
- 10 Oxford RHA
- 11 South Western RHA
- 12 West Midlands RHA
- 13 Mersey RHA
- 14 North Western RHA
- 15 Wales
- 16 Scotland
- 17 Northern Ireland



Source: Connah, Barbara, and Susan Lancaster, eds. NHS handbook. London: the National Association of Health Authorities, 1989.

Figure 6.1

consultations with some Regional Librarians was thus undertaken, to seek their cooperation in the pursuit of this study. After thorough discussions, Oxford and South West Thames regions were chosen for this study as examples of regions having a structured regional library system; and Trent and North Western as regions without any formally structured regional library systems.

The descriptions of the configuration and current provision of library services in these regions were to be supported by existing literature in order to identify a suitable basis for the analysis and comparison of the regional medical library system's impact on the libraries (as perceived by local librarians). Access to literature was sought through manual and CD-ROM searches of LISA. The literature coverage was found to be scanty and out-dated, yielding very little description of regions' medical and health care library systems that was timely enough to be considered a reliable picture of current status. Moreover, the very content of the subject, medical and health care library systems, frustrates comparison to some extent. The description that follows, then, is limited as the result of (1) the lack of equivalencies, region to region, and (2) the paucity of up-to-date literature. Factors such as system structure, background conducive to system formation, rationale for system development will be considered, where possible. The role of the Regional Librarian/Regional Library Unit will be considered with regard to the support it provides to the member libraries. The other aspects of Regional Librarians's work of planning and developing services, negotiating policies and budgets at regional and local level, etc., is excluded from this study.

It was assumed at the beginning of this survey that a system of medical and health

care libraries was established in the NHS regions in order to achieve benefits of some kind, and that the potential benefits of regionally based systems could be divided into three areas:

- 1 **Services:** improvement in service delivery to the medical and para-medical community in such areas as reference and information back-up, improved access to materials, reciprocal borrowing or increased library programme activity.
- 2 **Operations:** performing existing internal tasks with greater efficiency, e.g., cooperating in selection/acquisition or processing of library materials; introducing more effective operations such as centralised cataloguing, unified circulation system between member libraries.
- 3 **Administration:** cooperation in such activities as staff training and continuing education, fund raising, budgetary activity, etc.

It was assumed that although the regional services and systems are constitutionally federated, their mode of operation is cooperative. Their productivity will be influenced by the nature of relationship prevailing between the regional library unit and the member libraries. The primary indicators used were relationship patterns, resources flow and communications structure. It is presumed that an empirically based understanding of these relationship perceptions may be a helpful guide to improve the network effectiveness in regional medical library systems.

With this in view, a questionnaire was devised to undertake a postal survey in the four regions of Oxford, South West Thames, North Western and Trent. The questionnaire

was pretested by about 20 librarians and suitably modified for each region to reflect the structural characteristics of the library services therein while retaining maximum consistency. The data collected through questionnaires was analyzed by the SPSS Statistical Package.

In the analysis we are seeking an understanding of the selected regional medical library systems. The focus will be on factors that appear to have formed or could form the basis for particular successes (or failures) in the operation and administration of direct support services to member libraries and the nature of relationships between the regional library unit and the member libraries.

6.4 THE REGIONAL MEDICAL LIBRARY SYSTEMS

6.4.1 Regionalisation of Library Services

The National Health Service Act (1946) laid the foundation of the health service in the U.K. as it is known today. For the next twenty years, however, the libraries of the Royal Colleges and the medical schools remained the focus for the provision of biomedical literature and it was not until the 1960s that libraries in the NHS began to have a significant role. A conference on postgraduate medical education at Christ Church, Oxford in 1961 stimulated interest in continuing medical education and led to the establishment of postgraduate medical centres. The number of centres throughout the U.K. rose rapidly. At first the libraries in the postgraduate medical centres were in the care of secretary librarians. With the increase in the range of library services, separate librarian posts were established.

During the 1960s important developments were also taking place in medical library organisation in the United States. The Medical Library Assistance Act (1965)⁸ sought to relieve pressure on the National Library of Medicine (NLM) by setting up cooperative networks of libraries, hierarchical in structure. The base units were the hospital libraries, with a second level of "resource libraries", usually in the medical schools and teaching hospitals, backed up by the Regional Medical Libraries (usually university based). The NLM acted as the ultimate information source and also provided finance for the Regional Medical Libraries and for new and improved hospital libraries. By 1970 there were 11 regional groupings in the U.S.A., later reduced to seven and now being reconfigured to eight⁹.

In the U.K. the first moves towards regional cooperation in Britain came in Yorkshire. In 1965 the Sheffield Regional Hospital Board's Working Party on Medical Libraries issued its final report. Its proposals, although not acted upon in Sheffield, were taken up by the Wessex Region, which in November 1967 appointed Mr Roy Tabor as the first NHS Regional Librarian. The Wessex Regional Library and Information Service thus came into being. Several other regions soon initiated coordinated library support to postgraduate (PG) medical education based on their teaching hospitals, notably Oxford, Northern and West Midlands. In the four Thames regions (then metropolitan), two library advisors were appointed in 1973. By 1980, these two posts were replaced by four Regional Librarians. A crucial part was played by the British Postgraduate Medical Federation of the University of London, in ensuring that all the four Thames regions have Regional Librarians. Oxford had a designated post "Regional Services Librarian". By 1980 regional library services had been set up by 6 of the 14 English

health authorities and Northern Ireland. Cooperative university based schemes were developing in most of the other regions. An increasing number of NHS libraries are now being managed on a district-wide basis with regional coordination, following a joint report by the NHS-RLG and DHSS Working Party¹⁰. One of the most important factors which contributed to these developments since 1967 has been the effectiveness of the NHS Regional Librarians Group.

6.4.2 Implications of the NHS Reforms on Library Services

As discussed in section 4.4, pivotal to recent NHS reforms is the separation of purchaser and provider role, and the assignment of charges downward to local levels and greater accountability upwards. In order to serve the health needs of designated areas, the Purchasers of services (DHAs, GP fund-holders, etc.) will be responsible for determining what they wish to buy, how much, at what standard and where. Providers of services will concentrate upon issues of efficiency and business-like competence of service delivery.

There is no specific mention of library services in the White Paper¹¹ or in the consequent Working Papers, especially in the one on Education and training¹². The White Paper will no doubt have its implications for library services in the NHS once the proposals are implemented fully. Padden¹³, for example, examined the opportunities medical audit presents for libraries. Many senior medical librarians have drawn attention to the possible impact of the various proposals presented in the White Paper on NHS library services, but in the absence of any clear directive or indication in the policy documents, it has not been possible to make definitive comments. The

first official indication about libraries was contained in an executive letter on postgraduate medical education (PME) and continuing medical (CME) and dental education¹⁴. The letter revealed that the funding of PME and CME were to come under the care of Regional Postgraduate Deans, and that in future all PME and the infrastructure of CME, including library services, would be centrally funded and protected, with Regional Postgraduate Dean as budget holder. The full impact of the White Paper on library services will take some time to evaluate. There is, however, general optimism and most of the senior librarians agree that the likely changes presented an opportunity rather than a threat. Libraries will usually be in the position of Providers though one library may purchase from another and a regional library unit may act as a purchaser on behalf of the region.

Tabor¹⁵ raises a very fundamental question concerning the purpose and role of library information services within the field of health, and the nature of library and information services which are to be provided in the forthcoming climate of "contract for services". In the context of the reformed NHS, library information services have a role in education and training of medical and health staff, information services for management, patients and public health. There is scope for setting up contractual services with Health Authorities and to consider developing consortia to mature these services. NHS regional networks, including current district style services, are one solution.

Leggate¹⁶ pleads that libraries must be placed in a broader context of information provisions to respond to more varied and complex information activity in the health

sector. The provision of library services to NHS professional staff needs to take care of a variety of changes in a number of areas, including NHS management involving problems of devolution. He notes that the current trend in the NHS is towards devolution to the unit level, which is contrary to the direction in which all library services and library information plans (LIPs) wish to move (i.e., the idea of networks), but "this problem should not be regarded as insurmountable as it has been accepted in many Regions and Districts that networking is essential for effective library provision." He maintains that library services for professional staff should be organised at District level and coordinated at the Regional level by a full-time senior librarian to maintain networks, monitor services, and to train, advise and appoint staff.

Carmel¹⁷ points out that there are two elements in the White Paper, namely: 1) medical and clinical audit, and 2) professional education and training, which are closely linked to library services. So far, medical libraries have mainly served the needs of providers; serving the needs of purchasers will be a demand for the future. As purchasers, Carmel argues, "regions will remain the guardians of quality, and regional librarians will be concerned to ensure that all health staff have access to a high standard of service.... The principle purchasers of library services will therefore be the regions and the colleges of nursing, although there may well be others, including private sector organisations." The potential providers of library services to the NHS will include: medical schools, NHS trusts, colleges of nursing, public libraries, universities, and health authorities.

It is generally understood that the library service in the NHS will have to respond to

the latest reforms by providing services to NHS staff in support of these changes and adapting its own management methods to the new circumstances. The most important management issue for libraries will be to establish and monitor the contracting process both at regional and district levels. For this, the library services will require good quality management information concerning: 1) the use of services; 2) the extent of use by many different user groups; 3) costing and charging; 4) accountability; 5) audit; and 6) monitoring of service¹⁸.

Willis¹⁹ has expressed concern that the emphasis on maximum delegation to individual hospitals and the prospects that many may become self-governing may make planned district-wide library services more difficult to achieve and maintain. In this context, DHAs and RHAs will have to move from direct provision of services to a planning and monitoring role. However, Holdsworth²⁰ is of the view that Providing a district library service²¹ has indicated that libraries are more cost-effective when organised into functional units of a certain size.

The full impact of the White Paper on library services will take some time to evaluate. My impression is that the contracting process offers potential for a library contract to be established on a district or region-wide basis with one hospital selling services to another or district selling services to individual hospitals. There is also potential for the contracting of library services across regional boundaries with increased possibility of choice of contractors, i.e., universities, DHAs, self-governing hospitals, public libraries, etc. The repercussions of the White Paper on library services will, however, take some time to appraise adequately.

6.4.3 NHS Regional Librarians' Group

The coordination and cooperation of the libraries in NHS is mainly controlled by the National Health Services Regional Librarians Group (RLG), formed in 1975²² as an independent body. RLG also establishes liaison with health authorities and national library bodies. Its membership, as in 1990 includes representatives from 14 English regions and from Scotland, Wales and Northern Ireland. Membership by invitation is extended to holders of the designated posts of Regional Librarians. Regions where no such posts exist are represented either by the Librarian of a major library with a regional contact to provide library services or by a representative of a voluntary regional library cooperative or association with RHA support. It is noticeable that even today the Group retains essentially the structure and functions formulated as a result of the informal contacts instigated by its pioneering members²³ Leslie Morton, John Mills and Roy Tabor in 1975²⁴. Nevertheless the RLG is at present reconsidering its structure and its methods of working²⁵.

Regional systems of medical and health science libraries then evolved in the U.K. in a variety of configurations and with various degrees of impact. However, their purpose in being is consistent: "to ensure that there are effective library services for postgraduate and continuing medical education (PME and CME)..."²⁶. Like other types of libraries, medical and health care libraries too get a great deal of back-up from BLDSC. There is, however, a tendency to call upon the distributed strengths of several libraries in the regions, rather than to call upon the strengths of only a regional library or BLDSC. Thus the type of regional medical library systems that is the subject of this work seems best described as 'federated/cooperative'.

6.4.4 Nature of Relationships

The cooperative efforts and the administrative support by the RHA's helped the emergence of the regional library service systems in some health regions. At present they provide vehicles for offering a range of otherwise unavailable services. Member libraries and a regional library unit forms the basic unit of a Regional Library System. The Regional Postgraduate Deans are responsible for libraries²⁷. The regional systems are, however, more loosely organised than the libraries. Much of their productive work will hence depend upon the relationships among participants. Regional medical library cooperation has been a focus for active discussion since 1965 but the presence of relationships therein has not been highlighted although their presence is increasingly noted²⁸. Townley^{29,30} was the first to recognise that the library networking systems are loosely organised and represent a new type of "organisation". In a series of case studies, he concluded that perceptions do exist in library networking systems which have some influence on the strengths of relationships within the networking systems and on their effectiveness. Little research exists today to indicate how librarians and the regional library unit personnel in a medical library setting perceive their relationships with each other. This section later investigates the perceptual components of relationships between the librarians and the regional library personnel in two multi-type regional medical library systems- Oxford and South West Thames.

According to Mitchell, a relationship between two organisations is made up of three inter-related components: 1) communications structure; 2) resources flow; and 3) perceptions³¹. The communication structure is composed of the means of

communication and the agreements made between participating organisations for the conduct of the relationship. The professional meetings, seminars, etc., can be used to communicate ideas, desires or concerns. The presence of significant communication is considered an important sign of the organisations' vitality and its positive relationship pattern. Resources flow refers to the resources, i.e., money, materials, services and staff, technology or expertise. Perceptions are described as the expectations the participants have of each other. Each component is related to the others. Mitchell's scheme describes the characteristics of relationships in components which are familiar to librarians.

Marret³² developed five perceptual variables to assess the full range of perceptions in inter-organisational relationships. *Goal compatibility*, or the extent to which the goals of the organisations are mutually supportive, is predicted to be strong in highly interactive and symmetrical relationships. *Importance*, the extent to which the relationship is necessary for the successful operation of the organisation, is also predicted to be strong in highly interactive and symmetrical relationships. The same can be said of *influence*, the power to affect decisions on issues of mutual concern. On the variable of *agreement*, or similarity of views on issues of mutual concern, however, the responses are more positive in symmetrical relationships regardless of the amount of activity. Finally, perceived *performance*, quality of work, is strong in symmetrical and high interaction relationships.

The NHS regional library systems are constitutionally federated but their mode of operation is cooperative in essence. Mitchell's three-component scheme can be

considered to describe its relationship patterns. The perceptions of the librarians in selected regions can be identified using the four perceptual variables developed by Marret. The fifth variable, *performance*, was not used because during the pre-test of the questionnaire most of the librarians felt difficulty in responding to performance related question. Instead *cooperation*, was considered relevant for use in this study. An understanding of these relationship variables can provide a general knowledge base to understand relationships in a cooperatively based federated regional medical library system.

6.5 OXFORD REGIONAL MEDICAL LIBRARY AND INFORMATION SYSTEM

A report by a joint working party in 1968³³ and a report of Oxford Regional Library and Information Services in 1989³⁴ provide the basis for our understanding of the Regional Medical Library System in Oxford.

6.5.1 The Configuration

The Oxford Region comprises 8 Districts (figure 6.2) with the following numbers of libraries :

<u>Library "type"</u>	<u>No. of Libraries</u>
-Postgraduate medical/combined education centre	12
-Psychiatric/Mental Handicap Hospital	6
-Nursing/Midwifery	8
-RHA/DHA headquarters (management)	3
-Teaching Hospital	2
	<hr/>
	31

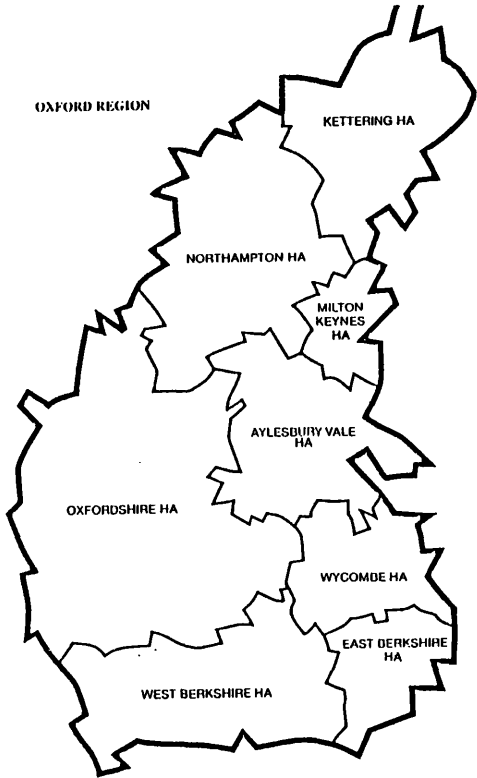


Figure 6.2

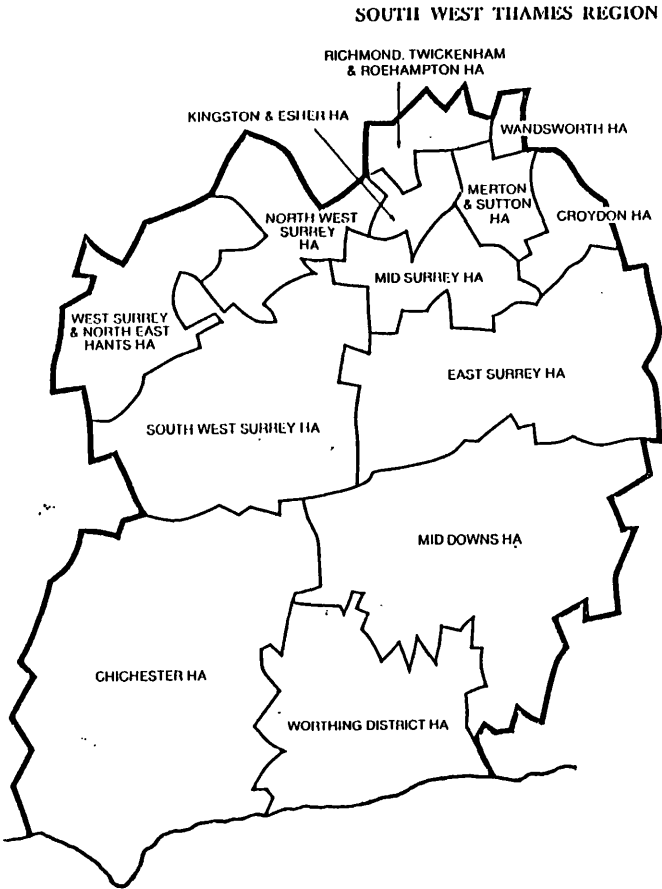


Figure 6.3

Source: Connah, Barbara, and Susan Lancaster, eds. NHS handbook. London: the National Association of Health Authorities, 1989.

Several non-NHS libraries are also included in the regional photocopy and lending network and in-service training activities. These include a private psychiatric hospital, a school of occupational therapy and an RAF hospital. The number of libraries in the non-teaching districts varies from one (Milton Keynes) to seven (West Berkshire). The role and clientele of each type of library may vary from district to district. The PG medical or education centre library is usually the major library in the district. The Regional Librarian is designated as "Librarian/Coordinator". The post is jointly funded by the University of Oxford and the Oxford RHA, but the Librarian is employed by the University. In this way the post is responsible both for the multi-disciplinary teaching hospital library (the Cairns) and the Regional Network. It also has management responsibility for the RHA library. The Regional Librarian is supported by the Cairns Librarian and the Regional Services Librarian. The Librarian/Coordinator is accountable to the Oxford Medical Library Committee, which is a sub-committee of the Clinical Medicine Board. The Library Committee includes representative members from the University, Oxford RHA and the Oxfordshire District Health Authority.

6.5.2 Roles

The main objective of establishing the regional medical library services was the perceived need of the region to have a professionally planned and effective library service to support postgraduate and continuing medical education for all grades of staff and managers³⁵. The role of a Regional Librarian is to maintain and develop the NHS regional network³⁶. In Oxford, the responsibilities include the management of the teaching hospital (the Cairns) library as well. The regional library services

fulfil several purposes, namely, 1) to provide advice to health authorities on policy, priorities and the planning of library and information services; 2) to provide co-ordination, support, and education and training facilities for library staff; 3) to undertake research and innovatory activities, and 4) resource sharing³⁷. These functions are not considered one-sided services but cooperative activities for which the regional library staff provides a focus but to which all the librarians contribute. Though it is intended that the Librarian/Coordinator should manage all libraries in the region in his capacity as the Regional Librarian, his actual role is usually a mixture of coordination and management in varying proportions. The main elements of regional coordination to support the objectives are:

- 1 In-service training, professional support and guidance; and in-service development and use of information technology.
- 2 All aspects of senior staff appointments including job descriptions, advertising, selection of interviewees, advice on grading, etc.
- 3 A regional photocopy and loan service
- 4 A regionally organised online service. The Librarian/Coordinator is responsible for signing contracts with suppliers, distributing passwords, organising training and payment of bills and also offers a focus of expertise in the Cairns (teaching hospital) Library.

6.5.3 System Perception by the Librarians

The purpose here is to describe the Oxford Regional Medical Library System as viewed by the participants in the system and to make projections as to what it could be in the future. This was accomplished through a questionnaire survey in which the

librarians as system participants were asked to rate the assistance that their Regional Library Unit and the Regional Library System had provided within the last 1-5 years in the areas of administration and user services. They were also asked to rate the nature of relationships and interactions with the regional library unit and the regional library system on specified variables.

6.5.3.1 Description of the Population

The population of this survey consisted of the librarians of the medical, nursing and related libraries in the region as listed in the Directory of Libraries in the Oxford Region³⁸. The directory lists 46 libraries in the region. Drug information pharmacists, statisticians, health education officers and some persons in charge of small library units were excluded for this survey. There are, however, libraries in 5 institutions which are not managed by RHA or DHA. Three of such libraries having comparatively good collection and large readership were included in this survey. A total number of 28 libraries were finally selected for this survey in consultation with the Regional Services Librarian. The questionnaires (Appendix D) were mailed on 9 April 1990 and the respondents were requested to fill and return the questionnaires by 24 April 1990. All the questionnaires were received back, but three of the questionnaires were incomplete and could not be used for analysis. The number of usable questionnaires thus was 25 and the usable response rate 89%. The following is the break-down of the respondents by the type of libraries. Three libraries identified their libraries as more than one type.

Type	No. of Libs.	%
Postgraduate Medical Centre	6	21
Hospital Staff	4	14
District/Regional Health Auth.	3	11
Medical/Dental School	1	4
School or College of Nursing	3	11
Multidisciplinary	11	39
	28	100

6.5.3.2 Membership of other Library Cooperatives/Networks

In Part 1 of the questionnaire, the respondents were asked to indicate if they were a member of any formal library network in addition to Oxford Regional Library and Information Service. The responses reveal that 11 libraries (44%) are not members of any other formal library network. The remaining 14 libraries (56%) have affiliations to one or more library networks. The networks/cooperatives specified are:

- 1 PLCS -Psychiatric Library Cooperative Scheme (7).
- 2 Wessex/Oxford Libraries Scheme (2)
- 3 Berkshire Library and Information Plan (1)
- 4 Orthopaedic Librarians Group (1)
- 5 BMA (1)
- 6 Ministry of Defence Medical Libraries Scheme (1)
- 7 Bucks Information Exchange (1)
- 8 Oxford University (1)

The respondents were further asked to indicate if they were members of any coordinating committee of any formal library network. Fourteen librarians (56%)

stated they are were not members of any coordination committee of any library network. Eleven librarians (44%) indicated that they were members of the coordination committee of a formal library cooperative. The networks/cooperatives specified are:

- 1 ORLIS - Oxford Regional Library and Information Services (3)
- 2 PLCS - Psychiatric Libraries Cooperative Scheme (3)
- 3 BLIP - Berkshire Library Information Plan (1)
- 4 MODMLS - Ministry of Defence Medical Library Scheme (1)
- 5 Oxford University Libraries Board (1)
- 6 NHS Management Libraries Group (1)
- 7 Health Services Technical Libraries Group (1)

There appears to have been some misunderstanding regarding the membership of the librarians in the regional co-ordination committee of Oxford regional Library Services System. On further enquiries it became known that all the librarians of ORLIS are the members of the regional coordination committee - although that is not what it is called. It is known as the "Regional Staff Meeting".

6.5.3.3 The Impact of the Regional Library Unit: Responses of the Librarians as System Participants

In Part 2A of the questionnaire the respondent librarians were asked to rate on a scale of 0-4 the assistance that their Regional Library Unit had provided in the past 1-5 years in the areas of administration. The respondents had the option to ignore the question or part thereof which was not relevant to their particular situations by writing "not applicable or n/a" against it. The response frequencies, their means and the

number of respondents for each question, are displayed in table P-1 (see Appendix P for all the tables in P-series). N indicates the number of useable responses to various items in the question. It may be noted that each item was perceived by one or more respondents to have been a point of contribution, and hence system activity, for the past 1-5 years. In viewing the mean responses, natural breaks in progression occur which can be used to distinguish greater system strengths from lesser system strengths.

The cluster of items for which the respondents saw the greatest past contribution of the Regional Library Unit, or system strengths, in terms of *administrative functions* are as follows. They are listed in descending order of perceived contribution on a scale of 1-4.

<u>Function</u>	<u>Mean score</u>
-Union List of Serials	3.96
-Staff training	3.24
-Coordination of activities with other libraries	2.66
-Advisory and consultant services	2.36
-Professional standards	2.08
-Document delivery services	2.00

6.5.3.4 The Impact of Regional Library System: the Responses of the Librarians as System Participants

In Part 3A of the questionnaire the respondents were asked to rate the assistance that their regional library system provided in improving the user services. The Regional Library System here was defined as the cooperative network of various medical and

related (paramedical) libraries in the region. The response frequencies, their mean and number of respondents for each question are displayed in table P-2.

The cluster of items for which the respondents saw the greatest past contributions of the regional library system, or system strengths, in the areas of *user services*, were as follows. They are listed in descending order of perceived contribution:

<u>Function</u>	<u>Mean score</u>
-Interlibrary Loans Received	3.00
-Availability of Journals	2.96
-Interlibrary Loans Sent	2.88
-Reciprocal Borrowing	2.87

Additional Advantages

The following additional advantages were mentioned:

- Provides peer support and decreases professional isolation particularly in "one person library".
- Contact with peers, support, problem sharing & solving.
- Gives sense of belonging.
- Gives added prestige & power [sic].
- Keeps informed of the wider issues that might influence us or the profession in general.
- Gives insight & knowledge of library & information services in other NHS libraries.
- Regional libraries can become involved in managerial matters and may

contribute in the provision of services under "new management structures".

- Representation at the national level.
- Moral support.
- Channel of communication within Regional Library Services.
- Exchange of views when I meet other librarians in the region.
- On the whole the support and cooperation given by the Oxford Regional Library & Information Service is excellent. The advantages far outweigh the disadvantages. Service developments have been made possible for funding new technologies. The benefits to users have been enormous access to information which would not have been possible otherwise. Some rationalisation of journal holdings has been possible thereby reducing unnecessary duplication & increasing range of journals available.

Disadvantages

The following disadvantages were mentioned:

- Opportunities for the regional staff to become autocratic, but this has not happened yet.
- Union catalogue would put unbearable demands on services, when staff is minimum. May be the advantages reaped would be great.
- Heavy demands are often made on our services, but I find this acceptable and outweighed by advantages.
- With many libraries to be helped, requests sometimes take too long to be answered.
- Nursing interest isn't always represented.

- Main libraries get nearly all the money.
- Demands on our limited stock and staff sometimes causes difficulties.
- Virtually all involvement from the regional library is at a District Library level leaving librarians in the other smaller libraries unaware of the planning processes.
- Small libraries tend to be low rated & have to fight for budgeting. Benefits accrue when your profile is "up" otherwise it is something of a "non-event".
- Use of our journal collection for photocopying by ORLIS et al. is far greater than the use we make of theirs (a librarian who is not part of ORLIS).

6.5.3.5 Relationship Patterns

The question addressed here tries to explore how the librarians perceive their relationship with: 1) the Oxford Regional Library Unit, and 2) other librarians in the Oxford Regional Medical Library System.

The analysis of responses regarding the relationship with the Regional Library Unit is presented in table P-3. The data indicate that the mean score on all the four variables presented, namely compatibility of aims with the Regional Library Unit (RLU), agreement on issues of mutual concern, importance of RLU to other libraries, importance of the other libraries to the RLU, is above the middle point of the scale, 0 to 4. One can conclude that the librarians are very positive about their relationship with the Regional Library Unit. It is, however, interesting to note that the importance of the Regional Library Unit has been perceived higher as compared to the importance of other libraries in the Oxford region. The explanation is that the librarians consider

that the Regional Library Unit provides them with a framework which facilitates communications and resources flow which is so important for networking and resource sharing with other libraries in the region.

The analysis of responses regarding the relationships with other librarians in the Oxford region (system relationships) is presented in table P-4. The data indicate that with the exception of one variable, influence of the librarians on decision on issues of mutual concern, the score on all the other variables is above the middle point of the scale. It appears that some librarians believe that they do not have any substantial influence on devising any policy programmes or on reaching decisions of mutual interest. It is difficult to suggest that the view point of member librarians is ignored. Maybe they are not fully involved and sometimes unaware of the developments. In a separate question about being a member of a coordination committee of any cooperative network, only three librarians indicated they were members of the coordination committee of Oxford Regional Library and Information Services System. It suggests that more efforts need to be made by the regional library unit to keep the librarians in the region informed of and involved in the activities in the region.

It may be seen that the Oxford regional medical library *system* is perceived to be more important than the member libraries to the regional library system. Normally one would expect that librarians would consider their libraries more important for the regional library system than the regional system for their libraries. It appears that the librarians are underplaying their role, contributions and importance in the overall success of the regional library networking system.

6.5.3.6 Resources Flow

The professional visits are generally considered to be channels for the transfer of expertise which may be valuable for the development of staff and improvement or enhancement of library services. The number of visits made for professional consultation or advice have been used as a parameter in this study to indicate the extent of resources flow. The following directions for the transfer of expertise were recognised:

- 1 Advisory visits by the Oxford Regional Library Unit personnel to a library.
- 2 Advisory visits by other librarians in the Oxford region to a library.
- 3 Visits by a librarian/library staff to Oxford Regional Library Unit for professional advice.
- 4 Visits by a librarian/library staff to other libraries in Oxford region for professional advice.

The respondent librarians were asked to indicate the approximate number of visits they or their staff made with regard to various categories of visits presented above in a typical year. The idea was to get an approximate number of total visits made in each category. The data is presented in tables P-5 to P-8. It can be inferred that the advisory visits made by the regional library personnel to various libraries is the main, but not the only, source of professional expertise for the medical and health care librarians in the Oxford region. On an average a library receives more than four expert or advisory visits from the Regional Library Unit (table P-5). At the same time the Regional Library Unit is visited by more than three librarians or library staff (table P-7). The interaction between Regional Library Unit and a member library in the

Oxford region by way of professional visits thus adds to more than seven in a typical year. This suggests that a personal contact for professional advice takes place once in less than two months. This represents, to my understanding, a high degree of interaction keeping in view that it is supplemented by telephone and written communication.

The librarians in the region seem to seek active support from other librarians in the region too. The other librarians in the region make professional visits to a library nearly three times a year on an average (table P-6). In the same way a librarian visits other libraries to share their professional expertise more than three times a year on an average in a typical year (table P-8). This represents very good interaction amongst the librarians in the region.

6.5.3.8 Communications Structure

Professional meetings, seminars, workshops, conferences, etc., aim, amongst other things, to communicate ideas, desires or concerns, about the profession or professional services. Communication by phone or writing letters are the other two common ways for the exchange or transfer of professional expertise or general concerns. The following channels were considered as the main components of communication structure in Oxford regional medical library system for the purposes of this study:

- 1 Attendances at workshops, etc., organised by the Oxford Regional Library Unit.
- 2 Attendances at other library related workshops, etc., (not organised by ORLU).
- 3 Communication with Oxford Regional Librarian or his staff by phone.

- 4 Communication with Oxford Regional Librarian or his staff by writing letters.
- 5 Communication with other librarians in Oxford region by phone.
- 6 Communication with other librarians in Oxford region by writing letters.

In Part 4 of the questionnaire, respondents were asked to indicate the approximate number of attendances at the workshops organised by the Oxford Regional Library Unit and at the other library related workshops (not organised by the Oxford regional library unit) in a typical year. The respondents were also asked to indicate how often they would communicate with the regional librarian (or his staff) and other librarians in the region by phone or by writing letters.

The data is presented in tables P-9 to P-14. It can be inferred that the regional library unit organised more professional workshops, etc., by far than other bodies. The librarians in the region attended such workshops, etc., in greater numbers than the ones organised by other bodies. The average attendances at the workshops, etc., organised by the Regional Library Unit is about 6 in a year. The librarians, however, actively participate in library related workshops, etc., organised by other library related bodies. The average attendances at such workshops, etc., is about 5 in a year.

The communication with the Regional Librarian or his staff appears reasonably active on the phone and by correspondence. Written communication is more frequent (mean score 3.60) than by phone (mean score 3.30). However, together they seem to be supportive of each other in an even way. The communication with other libraries in the region is comparatively less frequent. However, here also written

communication is more frequent (mean score 2.42) than on the phone (mean score 2.04).

On the whole the communication structure in the Oxford Regional Library System appears to be active but the pattern is more in favour of the interaction with the Regional Library Unit than with the other librarians in the region.

6.5.4 Summary Observations

The survey indicates that ORLIS, backed by the Cairns Library, has been a reasonable success with regard to supportive services to member libraries. The Regional Library Unit has substantially assisted the member libraries in raising the professional standards, coordination of various programmes and services, staff training, consultancy, document delivery services and compilation of a union list of serials. The resource sharing has been the most valued and effective area of the system activity. A very supportive relationship prevails between a librarian and the regional library unit, and amongst the fellow librarians in the region.

6.6 SOUTH WEST THAMES REGIONAL LIBRARY AND INFORMATION SYSTEM

A report of the South West Thames Regional Library Service³⁹ provides the basis for our understanding of the Regional Medical Library System of the South West Thames region.

6.6.1 The Configuration

The South West Thames region consists of 13 District Health Authorities and extends

from South West London to the South Coast (figure 6.3). There are about 120 hospitals for in-patient or out-patients and approximate 150⁴⁰ health centres for primary care services. The 1989, Directory of Libraries⁴¹ lists 53 libraries in the region. Most of the libraries are staffed by full-time or part-time professionally qualified librarians. The St. George Hospital Medical School Library is the major library in the region. The library serves NHS staff also and takes part in all the cooperative activities in the region. The Regional Librarian was appointed in 1976, on the initiative of the British Postgraduate Medical Federation (a school of the University of London, with the responsibility of postgraduate and continuing medical education). The main responsibility of the Regional Librarian is to act as an advisor, planner and coordinator in the development of overall library services. The regional programmes are coordinated by the Regional Library Unit headed by the Regional Librarian, who is based at the Education Centre of the Royal Surrey County Hospital at Guilford, Surrey.

6.6.2 Roles

The main objective of establishing the regional medical library services was the perceived need of the region to have a professionally planned and effective library service to support postgraduate and continuing medical education (PME and CME), for all grades of staff and managers. The regional library service fulfils several purposes, namely, 1) to provide advice to health authorities on policy, priorities and the planning of library and information services; 2) to provide co-ordination, support, and education and training facilities for library staff; 3) to undertake research and innovatory activities, e.g., the introduction of computerised literature searches and the

development of audio-visual services; and 4) resource sharing⁴². These functions are not considered one-sided services but co-operative activities for which the regional library staff provides a focus but to which all the librarians contribute. The mission statement of South West Thames Regional Library Service is⁴³:

- A To ensure access to reliable, up-to-date information on all aspects of health care and best current practice for all health staff in South West Thames.
- B To promote effective use of information by NHS personnel.

The Regional Library Unit has the following four main functions to support its objectives:

- 1 to encourage the development and improvement of library services.
- 2 to advise health authorities, managers and users on library matters.
- 3 to coordinate local library services.
- 4 to provide central support.

These functions are implemented in seven main areas of work:

- 1 *Advice and consultancy*: includes help to health authorities in the development of library strategies; advice on the staffing of libraries and assistance in recruitment; help in implementation of information technology in libraries; advice on funding; service on local library policy committee.
- 2 *Technical innovation*: includes regionally managed on-line searching service; electronic mail services, assistance in introducing computerised catalogues, etc.
- 3 *Education and training*: includes induction days for all new staff; an annual basic library skills course; an annual study day for all library staff; ad hoc specialist training; liaison with other providers of training like LA, etc.

- 4 *Coordination of professional practice and procedures*: includes meetings of professional staff, staff exchanges; printed stationery, etc.
- 5 *Direct support to interlibrary cooperation*: includes the directory of libraries; the union list of serials, the regional cataloguing service through a regional documents database.
- 6 *Library services promotion*: through talks to user groups, displays, seminars, workshops, etc.
- 7 *Quality assurance and performance appraisal*: through collection and analysis of statistics and by formal regional visits to libraries.

6.6.3 System Perception by the Librarians

The purpose of this section is to describe the South West Thames Regional Medical Library System as viewed by the participants in the system and to make projections about what it could be in the future as seen by the system participants. This was accomplished through a questionnaire survey as in the Oxford region.

6.6.3.1 Description of the Population

The population for this survey consisted of the librarians of the medical, nursing and related libraries in the region as listed in the Directory of Libraries⁴⁴. The directory lists 53 libraries in the region. It was, however, observed that some libraries are the branches or units of the same library and hence headed by the same librarian. Some libraries were looked after by a part-time librarian or a person in-charge and had very small collections. Such libraries were not included in this survey. Certain information staff such as drug information pharmacists, statisticians and health education officers

were also excluded for the purposes of this survey. There are five libraries which do not actually belong to the South West Thames health region, but are only collaborating with the regional network for reciprocal borrowing/interlibrary loan purposes. One of these libraries has a relatively good collection and large readership, and has been included in this survey. A total number of 43 libraries were finally selected for this survey in consultation with the Regional Librarian. The questionnaires (Appendix E) were mailed on 7 April 1990 and the respondent librarians were requested to fill and return the questionnaire by 20 April 1990. Twenty seven questionnaires were received back. On 15 June 1990 a follow-up letter (Appendix F) and another copy of questionnaire were mailed to 16 librarians (37%) who had not yet responded. Out of these 7 more questionnaires were received back. In this way a total of 34 questionnaires were received. Some of the questionnaires were observed not to have been filled in but simply returned for want of a qualified librarian to fill in the questionnaire or to avoid duplication, where the librarian was in charge of two libraries/units. The number of useable questionnaires was 30. The overall percentage of useable responses was 70. The following is a breakdown of the respondents by the type of libraries; two librarians identified their libraries as more than one type.

Type	No. of Libs.	%
Postgraduate Medical Centre	8	25
Hospital Staff	2	6
School or College of Nursing	7	22
Patients	1	3
Multidisciplinary	14	44
	32	100

6.6.3.2 Membership of other Library Cooperatives/Networks

In Part 1 of the questionnaire, the respondents were asked to indicate if they were members of any formal library networks in addition to South West Thames Regional Library and Information Services. Out of 27 useable responses, 20 libraries (74%) are not members of any other formal library network. The remaining 7 libraries (26%) have an affiliation to one or more types of library network. The networks/cooperatives specified are:

- 1 SASLIC - Surrey and Sussex Libraries in Cooperation (2)
- 2 British Library/BLDSC (2)
- 3 PLCS - Psychiatric Libraries Cooperative Scheme (1)
- 4 Salisbury Health Authority (1)
- 5 BMA (1)

The respondents were further asked to indicate if they were members of any coordinating committee of any formal library network. Out of 28 useable responses, 24 (86%) stated they were not member of any coordination committee of any library network. Four librarians (14%) indicated that they were members of the coordination committee of a formal library cooperative. The networks/cooperatives specified are:

- 1 South West Thames Regional Library and Information Service (2)
- 2 Croydon Health Information Providers (2)

There appears to have been some misunderstanding regarding the membership of the librarians on regional co-ordination committee of the South West Thames regional library services system. On further enquiries it became known that all the librarians

of SWTRLS are the members of the regional coordination committee - although that is not what it is called. It is known as "Regional Staff Meeting".

6.6.3.3 The Impact of the Regional Library Unit: Responses of the Librarians as System Participants

In Part 2 of the questionnaire the respondent librarians were asked to rate the assistance that their Regional Library Unit had provided in the past 1-5 years in the areas of administration. The respondents had the option to ignore the question or part thereof which was not related to their particular situations by writing "not applicable or n/a" against it. The response frequencies, their means and the number of respondents for each question are displayed in table P-15. N indicates the number of useable responses to various items in the question. It may be noted that each item was perceived by one or more respondents to have been a point of contribution, and hence system activity, for the past 1-5 years. In viewing the mean responses, natural breaks in progression occur which can be used to distinguish greater system strengths from lesser system strengths.

The cluster of items for which the respondents saw the greatest past contribution of the Regional Library Unit, or system strengths, in terms of *administrative functions* are as follows. They are listed in descending order of perceived contribution.

<u>Function</u>	<u>Mean score</u>
-Union List of Serials	3.96
-Coordination of activities with other libraries	2.86
-Staff training	2.86
-Printing	2.86

-Cataloguing of library material	2.83
-Document delivery services	2.26
-Advisory and consultant services	2.30
-Professional standards	2.16

6.6.3.4 The Impact of Regional Library System: the Responses of the Librarians as System Participants

In Part 3 of the questionnaire the respondents were asked to rate the assistance that their regional library system provided in improving the user services. Regional Library System here was defined as the cooperative network of various medical and related (paramedical) libraries in the region. The response frequencies, their mean and number of respondents for each question are displayed in table P-16.

The cluster of items for which the respondents saw the greatest past contributions of regional library system, or system strengths, in the areas of *user services*, are as follows. They are listed in descending order of perceived contribution :

<u>Function</u>	<u>Mean score</u>
-Interlibrary Loans Sent	3.23
-Interlibrary Loans Received	3.20
-Reciprocal Borrowing Facilities	3.00
-Availability of Journals	2.89
-Online/Medline Searches	2.82
-Availability of Books	2.72

Additional Advantages

The following additional advantages were mentioned:

- Helps to overcome the feelings of isolation when working in a small library.
- Chances to meet other librarians and develop professional contacts.
- Professional support and guidance: a listening ear.
- Immediate feedback when considering professional & other matters.
- Keeping up with overall professional developments.
- Savings in time by providing resources to check before developing an idea that it has not been done elsewhere.
- General support.
- Pooling of experience in information technology.

Disadvantages

The following disadvantages were mentioned:

- Too much paper across my desk.
- Conflict between aims of Nursing Colleges and aims of Regional Library.
- Occasionally books on loan, said to be returned in post, fail to arrive.
- I have to be circumspect with my involvement with RLS as my clinical tutor does not appreciate "interference" from outside his empire.

6.6.3.5 Relationship Patterns

The question addressed here tries to explore how the librarians perceive their relationship with the South West Thames Regional Library Unit, and other librarians in the South West Thames Regional Medical Library System.

The analysis of responses regarding the relationship with the Regional Library Unit is presented in table P-17. The data indicates that the mean score on all the four variables presented, namely, compatibility of aims with the Regional Library Unit (RLU), agreement on issues of mutual concern, importance of RLU to other libraries and importance of the other libraries to the RLU is above the middle point of the scale, 0 to 4. One can conclude that the librarians are very positive about their relationship with the Regional Library Unit. As in the Oxford region, the importance of the Regional Library Unit has been perceived higher as compared to the importance of other libraries. The librarians consider that the Regional Library Unit provides them with a framework which facilitates communications and resources flow which is so important for networking and resource sharing with other libraries in the region.

The analysis of responses regarding the relationships with other librarians in the South West Thames region (system relationships) is presented in table P-18. The data indicate that the mean score on all the variables presented is above the middle point of the scale. In contrast to the Oxford region, the rating on the variable *influence* on issues of mutual concern is above the mid point. It indicates that the majority of the librarians believe that they do have substantial involvement on devising a policy programme or on reaching a decision of mutual interest. In a separate question about being a member of a coordination committee of any cooperative network, only two librarians have indicated being members of the coordination committee of South West Thames regional library and information services system but it seems that a better spirit of informal consultations is prevailing in the system. As in the Oxford region, the importance of South West Thames regional medical library system is perceived

higher as compared to the importance of the member libraries to the regional library system.

6.6.3.6 Resources Flow

The professional visits are generally considered to be channels for the transfer of expertise which may be valuable for the development of staff and improvement or enhancement of library services. As in Oxford region, the number of visits made for professional consultation or advice have been used here as a parameter to indicate the extent of resources flow. The following directions for the transfer of expertise were recognised:

- 1 Advisory visits by the South West Thames Regional Library Unit personnel to a library.
- 2 Advisory visits by other librarians in the South West Thames region to a library.
- 3 Visits by a librarian/library staff to the South West Thames Regional Library Unit for professional advice.
- 4 Visits by a librarian/library staff to other libraries in South West Thames region for professional advice.

The respondent librarians were asked to indicate the approximate number of visits they or their staff made with regard to various categories of visits presented above in a typical year. The idea was to get an approximate number of total visits made in each category. The data are presented in tables P-19 to P-22. On an average a library receives about three expert or advisory visits from the Regional Library Unit (table

P-19). At the same time the Regional Library Unit is visited about three times by a librarian (table P-20). The interaction between the Regional Library Unit and a member library in the South West Thames region by way of professional visits thus adds to about six in a typical year. This represents a very good interaction, especially when supplemented by telephone and written communication. But it is less frequent than in the Oxford region.

The librarians in the region seem to seek active support from other librarians in the region. The other librarians in the region make professional visits to a library about three times in a year on an average (table P-20). In the same way a librarian visits other libraries in the region to share his professional expertise about four times in a year on an average (table P-22). This represents very good interaction amongst the librarians in the region.

6.6.3.7 Communications Structure

Professional meetings, seminars, workshops, conferences, etc., are aimed, amongst other things, to communicate ideas, desires or concerns, about the profession or professional services. Communication by phone or correspondence are the other two common ways for the exchange or transfer of professional expertise or general concerns. The following channels were considered as the main components of communication structure in South West Thames regional medical library system for the purposes of this study:

- 1 Attendances at workshops, etc., organised by the South West Thames Regional Library Unit (SWTRLU).

- 2 Attendances at other library related workshops, etc., (not organised by SWTRLU).
- 3 Communication with South West Thames Regional Librarian or his staff by phone.
- 4 Communication with South West Thames Regional Librarian or his staff by writing letters.
- 5 Communication with other librarians in South West Thames region by phone.
- 6 Communication with other librarians in South West Thames region by writing letters.

In Part 4 of the questionnaire, respondents were asked to indicate the approximate number of attendances at the workshops organised by the South West Thames Regional Library Unit and at the other library related workshops (not organised by the South West Thames regional library unit) in a year. The respondents were also asked to indicate how often they communicate with the regional librarian (or his staff) and other librarians in the region by phone or by writing letters.

The data are presented in tables P-23 to P-28. It can be inferred that the regional library unit organised more professional workshops, etc., by far than other bodies. The librarians in the region attend such workshops, etc., in greater numbers than the ones organised by other bodies. The average attendances at the workshops, etc., organised by the Regional Library Unit is about six in a year. The librarians, however, actively participate in library related workshops, etc., organised by other library related bodies. The average attendances at such workshops, etc., is about four

in a year.

The communication with the Regional Librarian or his staff appears reasonably active by phone and by writing letters. Correspondence is more frequent (mean score 2.72) than by phone (mean score 2.53). However, together they seem to be supportive of each other in an even way. The communication with other libraries in the region is comparatively less frequent. However, here also written communication is more frequent (mean score 2.20) than on the phone (mean score 2.13).

On the whole the communication structure in the South West Thames Regional Library System appears to be active but the pattern is more in favour of the interaction with the Regional Library Unit in comparison to the other librarians in the region.

6.6.4 Summary Observations

The survey indicates that the South West Thames Regional Library and Information Service has been a reasonable success. The Regional Library Unit has substantially assisted the member libraries by compiling union list of serials, coordinating programmes and services, staff training and development, document delivery services, advisory and consultancy services and overall help to raise professional standards. The two other functions which have been highly valued, unlike Oxford region, are printing of stationery for standard procedures and the regional cataloguing service through regional document database. Resource sharing through interlibrary loans is the most valued area of the system activity. The support extended by the regional library unit is believed to have been instrumental in increasing substantially the availability

of journals and books in the region.

6.7 Oxford and South West Thames - the Systems Compared

Both Oxford and South West Thames Regional Library and Information Systems are federated/cooperative in nature. They are intended to serve libraries, rather than users directly. The systems are meant to overcome geographical barriers, provide end-user access to more resources and increase the sharing of resources among libraries. Both the systems built on the existing strengths of the major libraries in the region. The major system development effort has been the establishment of a region-wide Union List of Serials, which is highly valued. The services provided by the two regional systems vary in details. But the major services that are offered by both include: consultancy, coordination including staff development, resource sharing and its tools. The systems are free to determine goals, procedures and policies. The examination of the two regional systems displays many similarities but also different approaches that can work. Clearly any other NHS region can adopt an approach or frame a structure that is deemed to serve the region and its local needs best. One of the needs that these two have chosen to serve is the need for continued local autonomy. Some of the member libraries in this survey have expressed their apprehensions about loss of local autonomy. The most interesting observation in the review of the documentation issued by the two regional library services is the absence of a conception and definition of the Regional Medical Library and Information *system*. The documentation prefers to use the term *services* instead. The hand-outs stress the need for cooperation, coordination, development of library services, exclusive of any mention of the development of Regional Medical Library *Systems* as an instrument for

achieving those goals. The absence, in the policy documents, of a definitive concept of system as an alternative library organisational form is a marked omission.

6.8 NORTH WESTERN REGIONAL MEDICAL LIBRARY AND INFORMATION SERVICES

6.8.1 Present Status

North Western health region comprises of 19 Districts (figure 6.4). There are about 49 medical, health and welfare libraries in the region, and most of them are staffed by full-time or part-time professionally qualified library staff. The librarians have formed the North West Health Services Librarians Association, which endeavours to promote the cause of health science library and information work in the region. The region does not have a structured regional medical library and information services system at present.

6.8.2 System Perception by the Librarians

The purpose of this section is to ascertain whether a cooperative regional medical library system with a Regional Library or a Regional Library Unit would be able to contribute to a library's operation and effectiveness and result in expansion or improvement of library services in the North Western region. This was accomplished through a questionnaire survey in which the librarians in the region were asked to rate the assistance they think a *regional library* or *regional library unit* might give to their library's *management or operation* and *user services*.

NORTH WESTERN REGION

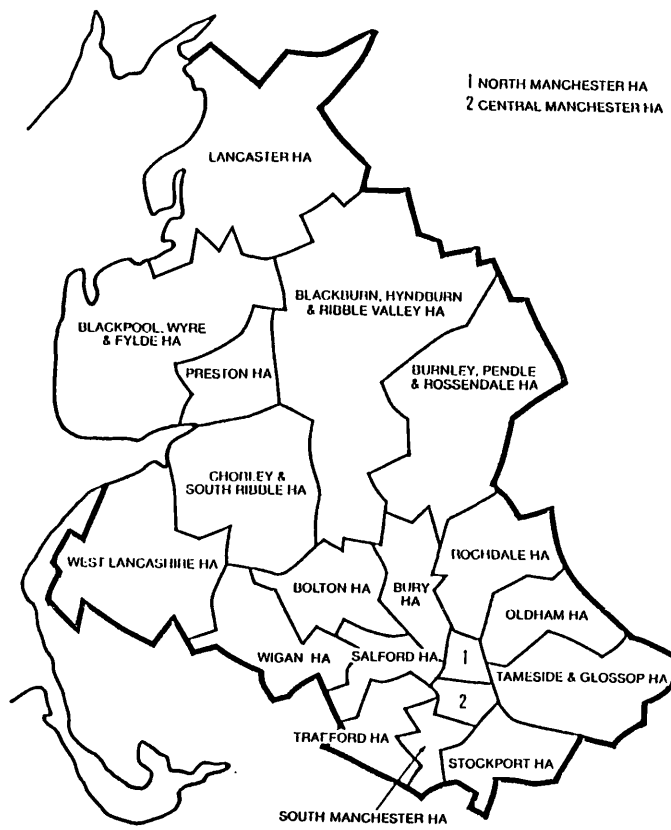


Figure 6.4

TRENT REGION



Figure 6.5

Source: Connah, Barbara, and Susan Lancaster, eds. NHS handbook. London: the National Association of Health Authorities, 1989.

6.8.2.1 Description of the Population

The population for this survey consisted of the librarians of the medical, nursing and related libraries in the region as listed in Directory of Libraries⁴⁵. The directory lists 49 libraries in the North Western Regional Health Authority. All these libraries, which form the North West Health Services Librarians Association (NWHSLA), were selected for this survey. The questionnaires (Appendix G) were mailed on 7 April 1990 and the librarians were requested to fill in and return the questionnaire by 24 April 1990. Twenty nine questionnaires were received back. On 15 June 1990 a follow-up letter (Appendix H) was mailed to 19 librarians (39%) who had not yet responded. A duplicate copy of the questionnaire was then sent where necessary. Eight more questionnaires were received back. In this way a total number of 37 questionnaires were received. Four questionnaires were observed not to have been completed. The total number of useable questionnaires thus was 33, a response rate of 67%. The following is the break down of respondent by the type of library:

Type	No. of Libs.	%
Postgraduate Medical Centre	13	39.4
Hospital Staff	4	12.1
District/Regional Health Auth.	1	3
School/College of Nursing	9	27.3
Multidisciplinary	6	18.2
	33	100.00

6.8.2.2 Membership of Library Cooperatives/Networks

In Part 1 of the questionnaire the respondents were asked to indicate if they were members of any formal library networks. The responses (32) reveal that 8 libraries

(25%) are not members of any formal library network. The remaining 24 libraries (75%) have affiliation to one or more types of a library cooperative or network. The networks/cooperatives specified are:

- 1 North West Health Services Librarian's Association (19)
- 2 BLDSC (5)
- 3 North Western Regional Library System (3)
- 4 Psychiatric Libraries Cooperative Scheme (2)
- 5 North West Nursing Librarians Group (3)
- 6 Salford District Medical Library Service (1)
- 7 NHS Management Librarians Group (1)

The respondent librarians were further asked to indicate if they were members of any coordinating committee of any formal library network. Out of 31 useable responses, 25 respondents (81%) were not members of any coordination committee. Six librarians (19%) indicated that they were members of coordination committee of the North West Health Services Librarians Association.

6.8.2.3 Professional Association - a Substitute for Regional Library Services

In Part 2 of the questionnaire, the respondents were asked if they considered the existing professional association of medical and health science librarians in the region as an adequate substitute for a Regional Library Service. Out of the 31 useable responses, seven respondents (21%) considered the North West Health Services Librarians Association in the region was a substitute for a Regional Library Service. However, the majority of 24 respondents (73%) did not view the Association as an

adequate substitute for a Regional Library Service.

The respondents were also asked if they had ever worked in another NHS region which has a Regional Library or Regional Library Unit. The idea was to assess how such an experience might influence a librarian's perception in considering the regional library association as a substitute for regional library services. Since only one librarian indicated to have worked before in such a region, it was not possible to draw any inference in this regard. The majority of the 31 librarians (97%) had never worked in any NHS region which has a structured regional medical library service.

6.8.2.4 The Possible Impact of the Regional Library Unit: the Response of the Librarians as Potential System Participants

The medical and health science librarians who at present do not have a structured regional medical library system and therefore operate without such a system were asked two questions that parallel the questions asked of the respondents in the Oxford and South West Thames regions. They were asked to project the likely impact of a cooperative regional medical library system with a regional library or regional library unit on their own library's administrative functions and user services. Part 2 of the questionnaire attempted to explore the degree of assistance they think a *regional library* or *regional library unit* might give to their library's management or operation. They could rate the extent of possible assistance on a scale of 0 (none) to 4 (a great deal). The response frequencies, their mean scores and the number of respondents for each question are displayed in table P-29. Some items in the question received the maximum response ("a great deal") from respondents, indicating greatest likelihood of utility of a cooperative system. At the same time, some items received the minimal

response ("none") from some respondents, indicating no likely utility of a cooperative system. The responses range from a mean of 1.12 to 3.48. The top ranking cluster of administrative items, in descending order is:

<u>Function</u>	<u>Mean score</u>
-Union list of serials	3.48
-Coordination of activities with other libraries	2.97
-Staff training	2.90
-Advisory & consultant services	2.81
-Introduction of new technologies	2.78
-Professional standards	2.63
-Improvement of relations with university/medical school authorities	2.34
-Document delivery services	2.30
-Financial support by RHA	2.03
-Evaluation/performance appraisal	2.15
-Improvement of relations with health authorities	2.09

It is important to note that none of the financial items appear among the system contributions rated highest by the librarians belonging to regional systems. On the other hand, financial support by RHA is rated amongst the top ten utilities in the case of the North Western region.

6.8.2.5 The Possible Impact of Regional Library System: the Responses of the Librarians as Potential System Participants

In Part 3 of the questionnaire the respondents were asked to indicate the possible

degree of assistance a cooperative regional medical library system might provide in improving the library's user services. Regional Library System here was defined as the cooperative network of various medical and related (paramedical) libraries in the region. The response frequencies, their mean and number of respondents for each question are displayed in table P-30.

Far above the others, Availability of Journals (Mean = 3.39) is viewed as the highest potential benefit of a system. The cluster of items for which the respondents perceived the greatest possible contributions of regional library system, or system strengths, in the areas of *user services*, were as follows. They are listed in the descending order of perceived contribution:

<u>Function</u>	<u>Mean score</u>
-Availability of journals	3.39
-Reference & information service	3.03
-Interlibrary loans received	2.87
-Reciprocal borrowing facilities	2.83
-Availability of books	2.75
-Interlibrary loans sent	2.74
-Availability of material-other media	2.66
-Online/Medline searches	2.50
-New areas of service	2.48

Additional Advantages

The following additional advantages were suggested:

- We are a small library with a small budget and therefore a regional library system would increase the resources available to our users.
- The regional librarian would be a recognised spokesperson for members' interests to outside world.
- Would be a fireman for professional meetings, education and innovation.
- Would generally help to raise the profile of librarians in the region.
- Support for raising professional standards.
- Professional support to counteract isolation.
- Existence of a formal network may lead to more career prospects.
- Moral support for peer review.
- Support and advice for library staff.
- Meetings with other professionals for moral support and exchange of ideas.
- Can keep-up with new technologies- computer services, audiovisuals, etc.
- Promotions.
- Better salary structure.
- Exchange of ideas on new developments, etc.
- We will be part of a big cooperative system.

Disadvantages

The following possible disadvantages were suggested:

- I would not like to see any control by a regional library over stock purchases as I feel the needs of all libraries vary.
- Relinquishing autonomy may make library less able to respond to the needs of its particular group of readers.

- Slight loss of autonomy.
- If many of the books and/or journals are held regionally, then the smaller district libraries may experience budget cuts to offset this cost.
- Possibility of over-use of some libraries.
- Time taken to maintain union catalogue.
- Books not available to own staff if on loan in the region.
- Large libraries become net lenders making their stock less available for their own users.
- Possibility of losing local flexibility.
- Less freedom to individual services.
- We will have to wait for improvements to our libraries and we depend too much on a central library or other large libraries. Now all our libraries improve with interest [sic] or try to improve with interest and want to serve readers and try to be self-sufficient as far as possible. If things need extra help we always have big university libraries, BLDSC and Royal Colleges of Medicine and Surgery.
- The incoming requests would generate work which present staff could not cope up with easily.
- Main problem which seems to be insurmountable- District finance availability.

6.8.2.6 Resources Flow

In the absence of a regional library unit and regional library system in the North Western region, it was not intended to study the nature of relationships according to the scheme of Mitchell⁴⁶ applying the variables devised by Marret⁴⁷. The study of

'relationship pattern' was not relevant. The parameters of 'resources flow' and 'communication structure' were to be limited. It was, however, considered useful to ascertain if there was any interaction at all amongst the librarians in the region in the absence of a regional library unit/regional library system. The interaction was to be limited to professional visits amongst librarians in the region (resources flow), attendances at library related workshops, and communication with other librarians in the region on the phone or by writing letters (communication). The following channels were recognised with regard to resources flow:

- 1 Visits to a library for professional advice by other librarians in North Western region.
- 2 Visits by a librarian for professional advice to other libraries in North Western region.

The respondent librarians were asked to indicate the approximate number of visits they or their staff made with regard to categories of visits presented above in a typical year. The idea was to get an approximate number of total visits made in each category (number of staff x number of visits made). The data are presented in tables P-31 and P-32. On average a library receives about four visits from the other librarians in the region (table P-31). In the same way a librarian visits other libraries about twice in a year to share professional expertise (table P-32). The personal interaction amongst librarians thus adds up to six in a year. This represents a good interaction amongst librarians in the region especially when supplemented by telephone and written communication. This means that a librarian in the region seeks active support from other librarians in the region. This obviously is not sufficient as they have expressed

their unambiguous desire for the professional support of a regional library unit.

6.8.2.7 Communications

The following channels were considered as the main indicators of communication in North Western region:

- 1 Attendances at library workshops.
- 2 Communication with other Librarians in the region by phone.
- 3 Communication with other Librarians in the region by writing letters.

In Part 4 of the questionnaire, respondents were asked to indicate the approximate number of attendances at the library related workshops in a typical year. The respondents were also asked to indicate how often they would communicate with other librarians in the region by phone or by writing letters.

The data are presented in tables P-33 to P-35. The average attendances at the library related workshops, etc., is about seven in a year. It can be inferred that librarians actively participate in library related workshops, etc., organised by library related bodies. The communication with other librarians appears reasonably active by phone and by writing letters. On an average they communicate three times each on phone and by writing letters in a year. Together they seem to be supportive of each other in an even way.

6.8.3 Summary Observations

The survey indicates that the formation of a Regional Library Unit under a Regional

Librarian in the North Western Region is perceived by the librarians in the region to make a substantial contribution to the libraries in the region in the compilation of union list of serials, coordination activities, advisory and consultancy services, staff training, technological innovations, raising professional standards, improvement of relations with university, medical school and health authorities, financial support by RHA and evaluation/performance appraisal procedures. In the areas of user services all the nine areas presented have been highly rated which indicates that the librarians have great expectations from a cooperative Regional Medical Library System if and when formed.

6.9 TRENT REGIONAL MEDICAL LIBRARY AND INFORMATION SERVICES

6.9.1 Present Status

The Trent health region comprises of 12 Districts (figure 6.5). There are about 76 medical, nursing and health related libraries or information units in the region, including about 40 relatively resourceful libraries. Most of the libraries are staffed by full-time or part-time staff. The region does not have a structured regional medical library and information services system. Most of the librarians are, however, members of the Trent Regional Association of Health Care Librarians and Information Specialists.

6.9.2 System Perception by the Librarians

The purpose of this section is to ascertain whether a cooperative regional medical

library system with a Regional Library or a Regional Library Unit would be able to contribute to a library's operation and effectiveness and result in expansion or improvement of library services in the Trent Region. This was accomplished through a questionnaire survey as in the North Western region.

6.9.2.1 Description of the Population

The population for this survey consisted of the librarians of the medical, nursing and related libraries in the region forming the Trent Regional Association of Health Care Librarians and Information Specialists as recorded in its membership list. The membership list was obtained from the Medical Librarian of the Queen's Medical Centre, Nottingham. The Medical Centre is jointly managed by the University of Nottingham and Nottingham Health Authority. The list⁴⁸ has 76 entries, out of which, 40 libraries were selected for this survey in consultation with the Medical Librarian, Queens Medical Centre. The remaining information units, including pharmacists, information officers/assistants, planning officers, etc., were excluded for the purposes of this survey. The questionnaires (Appendix G) were mailed on 7 April 1990 and the respondent librarians were requested to fill and return the questionnaire by 24 April 1990. Twenty six questionnaires were received back. On 15 June 1990 a follow-up letter (Appendix H) was mailed to 14 librarians (approximate 35%) who had not yet responded. A duplicate copy of the questionnaire was then sent where necessary. Four librarians expressed their inability to complete the questionnaire for different reasons. However, 6 more questionnaires were received back. In this way a total number of 32 questionnaires were received. Four questionnaires were observed not to have been completed. The total number of useable questionnaires thus was 28

(70%). The following is the break-down of respondent librarians by the type of their libraries. Four Librarians identified their libraries as more than one type.

Type	No. of Libs.	%
Postgraduate Medical Centre	4	12
Hospital Staff	4	12
Dist/Regional Health Authority	3	9
School/College of Nursing	5	16
Patients	5	16
Multidisciplinary	11	35
	32	100

6.9.2.2 Membership of Library Cooperatives/Networks

In Part 1 of the questionnaire, the respondents were asked to indicate if they were members of any formal library networks. The responses reveal that 9 libraries (32%) are not members of any formal library network. The remaining 19 libraries (68%) have affiliations to one or more types of library network. The networks/cooperatives specified are:

- 1 Trent Regional Association of Health Care Librarians and Information Specialists - TRAHCLIS (7)
- 2 SINTO - Sheffield Interchange Organisation (4)
- 3 Yorkshire Joint Health Care Libraries Service (2)
- 4 Notts County Council Library Services (2)
- 5 BLDSC (2)
- 6 Librarians in Physiotherapy and Occupational Therapy Schools (1)
- 7 MHWLG (1)

- 8 East Midlands Regional Library Services (1)
- 9 Psychiatric Libraries Cooperative Scheme (1)
- 10 Leicestershire Health Care Libraries Association (1)
- 11 Lincolnshire Library Service (1)

The respondents were further asked to indicate if they were members of any coordinating committee of any formal library network. Out of 26 useable responses, 24 (92%) stated that they were not members of any such committee. Two librarians (8%) indicated that they were members of such committees. The networks specified are: SINTO and TRAHCLIS.

6.9.2.3 Professional Association - a Substitute for Regional Library Services

In Part 2 of the questionnaire, the respondents were asked if they considered the existing professional association of medical and health science librarians in the region as an adequate substitute for a Regional Library Service. Out of the 27 useable responses, three respondents (11%) considered the Trent Regional Association of Health Care Librarians and Information Specialists as an adequate substitute for a Regional Library Services. However, the majority of 24 respondents (89%) did not view the Regional Association as an adequate substitute for a Regional Library Service.

The respondents were also asked if they had ever worked in another NHS region which has a Regional Library or Regional Library Unit. As in the North Western region, the idea was to assess how such an experience might affect a librarian's

perception in considering the regional medical library association as a substitute for regional library services. Since only two librarians indicated they have worked before in such a region, it was not possible to make any inferences. The majority of the 25 Librarians (93%) had never worked in any NHS region which has a structured Regional Medical Library Service.

6.9.2.4 The Possible Impact of a Regional Library Unit: the Response of the Librarians as Potential System Participants

As in the case of North Western region, the medical and health science librarians in the Trent region were asked to project the likely impact of a cooperative regional medical library system with a regional library or regional library unit on their own library's administrative functions and user services. At present there is not a structured regional medical library system in Trent region and the libraries have to operate without such a system.

The respondent librarians were asked (Part 2, Appendix G) to indicate what degree of assistance they thought a *regional library* or *regional library unit* might give to their library's *management or operation*. They could rate the extent of possible assistance on a scale of 0 (none) to 4 (a great deal). The response frequencies, their means and the number of respondents for each question are displayed in table P-36. Some items in the question received the maximum response ("a great deal") from respondents, indicating greatest likelihood of utility of a cooperative system. At the same time, some items received the minimal response ("none") from some respondents, indicating no likely utility of a cooperative system. The responses range from a mean of 1.11 to 3.32. The top ranking cluster of administrative items, in descending order is:

<u>Function</u>	<u>Mean score</u>
-Coordination of activities with other libraries	3.32
-Staff training	3.14
-Union list of serials	3.07
-Advisory and consultant services	2.85
-Introduction of new technologies	2.64
-Document delivery services	2.57
-Professional standards	2.33
-Financial support by RHA	2.22
-Financial support by DHA	2.22
-Evaluation/Performance appraisal	2.21
-Improvement of relations with health authorities	2.10

It is important to note that the financial items appear among the system contributions rated highest by the librarians not belonging to a system. On the other hand financial support is not rated amongst the top utilities in the case of regions with structured regional library system. This may be because they (system librarians) either do not fully appreciate or take for granted the contribution of the RLU in getting them their budgets to start with.

6.9.2.5 The Possible Impact of Regional Library System: the Responses of the Librarians as Potential System Participants

As in the North Western region, the librarians in Trent region were asked to indicate the possible degree of assistance a cooperative regional medical library system might provide in improving the library's user services (Part 3, Appendix G). The response

frequencies, their mean and number of respondents for each question are displayed in table P-37.

As in the North Western region, Availability of Journals (Mean = 3.25) is viewed as the highest potential benefit of a system, far and above the others. Below that the cluster of items for which the respondents perceived the greatest possible contributions of regional library system, or system strengths, in the areas of *user services*, were as follows. They are listed in the descending order of perceived contribution.

<u>Function</u>	<u>Mean score</u>
-Availability of journals	3.25
-Availability of books	2.85
-Availability of material in other media	2.85
-Reciprocal borrowing facilities	2.82
-Reference and information service	2.75
-Interlibrary loans received	2.42
-New areas of service	2.39
-Online/Medline searches	2.25
-Interlibrary loans sent	2.03

Additional Advantages

The following additional advantages were suggested:

- Professional and non-professional staff access to localised training.
- Development of regional standards, inputs, performance indicators.
- Updates on NHS review and how it affects libraries.

- Solidarity of policies with other libraries.
- As a means of attracting recurrent financial support for services provided e.g., interlibrary loans sent out.
- This would improve its status as a service.
- Continuity of service provision.
- Enhanced professional profile within the NHS.
- Better career prospects for NHS librarians.
- Reduction in professional isolation.
- More cooperation.
- Professional support.
- Increased information exchange.
- Generally support and advice.

Disadvantages

The following possible disadvantages were mentioned:

- Some compromise over freedom of individual services but worth it unless overcome by administrative innovations.
- There might perhaps be too many training courses and meetings to attend.
- More meetings! (therefore dissipation of staff time very difficult for 'one-hand libraries').
- Problem of time involved in yet more meetings having to be attended.
- Being used by inadequate libraries in an attempt to cover-up their lack of resources.
- The possibility that additional demands might not be fully resourced.

- Possible loss of autonomy
- Possible reduction of flexibility to tailor services directly to users' immediate needs.
- Uniformity of systems might remove flexibility of adaptance to a smaller units' particular needs.

6.9.2.6 Resources Flow

In the absence of a regional library unit and regional medical library system in Trent region it was not intended to study the nature of relationships according to the scheme of Mitchell⁴⁹ applying the variables devised by Marret⁵⁰ as in the Oxford and South West Thames regions. The study of 'relationship pattern' was not relevant. The parameters of 'resources flow' and 'communication structure' were to be limited. It was, however, considered useful to ascertain if there is any interaction at all amongst the librarians in the Trent region in the absence of a regional library unit/regional library system. As in the North Western region, the interaction was to be limited to professional visits amongst librarians in the region (resources flow), attendances at library related workshops, and communication with other librarians in the region on phone or by writing letters (communication structure). The following channels were recognised with regard to resources flow:

- 1 Visits to a library for professional advice by other librarians in Trent region.
- 2 Visits by a librarian for professional advice to other libraries in Trent region.

The respondent librarians were asked to indicate the approximate number of visits they or their staff made with regard to categories of visits presented above in a typical

year. The idea was to get an approximate number of total visits made in each category. The data are presented in tables P-38 and P-39. On average a library receives about two visits from the other librarians in the region (table P-38). In the same way a librarian visits other libraries about three times in a year to share professional expertise (table P-39). The personal interaction amongst librarians thus adds to five in a year. This represents a good interaction amongst librarians in the region especially when supplemented by telephone and written communication. This suggested that librarians seek active support from other librarians in the region. This alone is not sufficient as they have expressed their unambiguous desire for the professional support of a regional library unit.

6.9.2.7 Communications

The following channels were considered as the main indicators of communication in Trent region:

- 1 Attendances at library workshops.
- 2 Communication with other Librarians in the region on phone.
- 3 Communication with other Librarians in the region by writing letters.

In Part 4 of the questionnaire (Appendix G), respondents were asked to indicate the approximate number of attendances at the library related workshops in a typical year. The respondents were also asked to indicate how often they would communicate with other librarians in the region on phone or by writing letters. The data are presented in tables P-40 to P-42. The average attendances at the library related workshops, etc., is about seven in a year. It can be inferred that librarians actively participate in

library related workshops, etc., organised by library related bodies. The communication with other librarians appears reasonably active by phone and by writing letters. On an average they communicate four times each on the phone and by writing letters in a year. Together they seem to be supportive of each other in an even way.

6.9.3 Summary Observations

The medical and health care librarians in the Trent region perceive that the formation of a Regional Medical Library System with a regional library or regional library unit will contribute a great deal in coordination activities, staff training, compilation of union list of serials, advisory and consultant services, introduction of new technologies, document delivery services, raising professional standards, financial support from RHA and DHA, performance appraisal and improvement of relations with health authorities. In the areas of user services they expect a great deal of contribution in all the areas presented. They believe that a regional medical library system in Trent health region will enhance the availability of journals, books and material in other media; improve interlibrary loans; make reciprocal borrowing easier; help to explore new areas of services and make the provision of online services more meaningful.

6.10 North Western and Trent - the Systems Compared

There appears to be stronger support for the idea of the Regional Medical Library System than against it. The following table displays the number of items in the questionnaire that were rated above the midpoint (i.e., 2) on the scale of likely

assistance of the system, 0 (none) to 4 (a great deal):

North Western Region		No. of Mean Score	
	Above mid-point (2)	Below mid-point (2)	
Administrative items	11	11	
User service items	9	0	
Trent Region			
Administrative items	11	11	
User service items	9	0	

The evidence of the survey of the system non-participants indicates that, generally, a cooperative Regional Medical Library System is seen as more likely than not to be of assistance in library affairs. This is especially in the provision of or improvement of direct service to users. The librarians in the two regions did not present any substantial perceptual differences in functional priorities in the areas of administration and user services. 'Resources flow' is comparatively less frequent in Trent than in the North Western region. The majority of librarians in both the regions did not consider their regional library associations as adequate substitutes of regional library services.

6.11 System Impact on Libraries: a Comparison of System and Non-system Regions

The functions in a cooperative regional library system may vary considerably from region to region. One can assume that by system formation certain levels or kinds of service improvements may be achieved through improvements in library operations and administration. The survey responses reflect, overall, a positive assessment of the assistance that the regional systems have or could provide in administrative/operational

and user service areas. In some of the areas, the need for additional assistance can be foreseen in years to come.

The responses of the librarians working in structured regional systems indicate that assistance has been received by most of the librarians for every service that was listed under administrative and service areas. The mean level of assistance for various services, on a scale of 0 to 4, ranges from a low of 0.12 to a high of 3.96 which might be verbalised as "very little assistance" to "substantial assistance". The areas where substantial contributions have been received have been identified. The responses from librarians without regional systems indicate that they expect assistance in all the areas in future at varying levels. The mean scores of expected assistance for various services range from a low of 1.21 to a high of 3.48. They would also like to see substantial assistance in some of the areas - the preferred functions. It is noticeable that the priorities the two groups of librarians assign to various services does not differ substantially. But by and large various functions have been rated comparatively higher by the librarians in the regions without a regional system. This suggests that overall the expectations from a prospective regional library unit and system are greater than the perceived assistance from the existing regional systems. This may also suggest that the assistance provided by the RLU is taken for granted or the member librarians are not conscious of it.

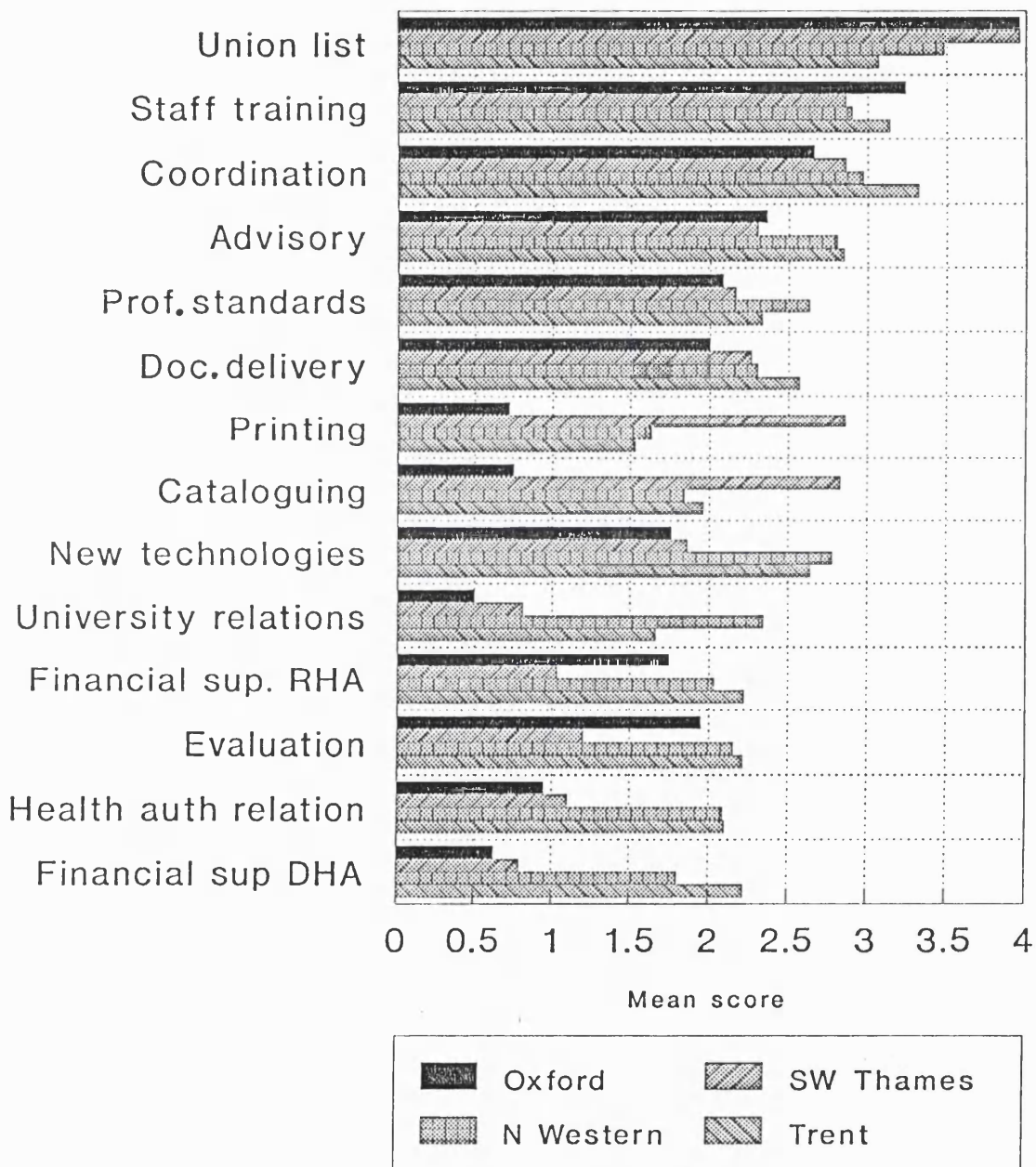
Examination of the mean score of the preferred administrative and service functions between system and non-system libraries does not indicate wide, sharply delineated perceptual differences in their actual contribution or expectations. In the areas of

financial support the non-system librarians have high expectations. The system librarians do not perceive financial support amongst the highly valued supportive function of the Regional Library Unit. However, in the absence of financial data in the two categories of regions it is not possible to say that the system libraries have done comparatively better in terms of finances. The indication that the librarians working in regions having the regional systems (system librarians) do not score as well (above mid point) as non-system librarian's expectations in areas such as introduction to new technologies, evaluation/ performance appraisal, improvement of relations with university/medical school and health authorities and financial support by health authorities (figure 6.6) are important findings stimulating the need for attention by the Regional Library Units/Regional Librarians of the two regional systems. It may be noted that a basic objective in system development was to expand and strengthen access. There are some libraries which are small and less developed. The development of regional medical library systems has brought greater opportunities for improving library services and for increasing professionalisation. Pooling of resources through union lists and catalogues, standardisation and rationalisation of procedures, and centralisation of some supporting services have been eased by the regional structure.

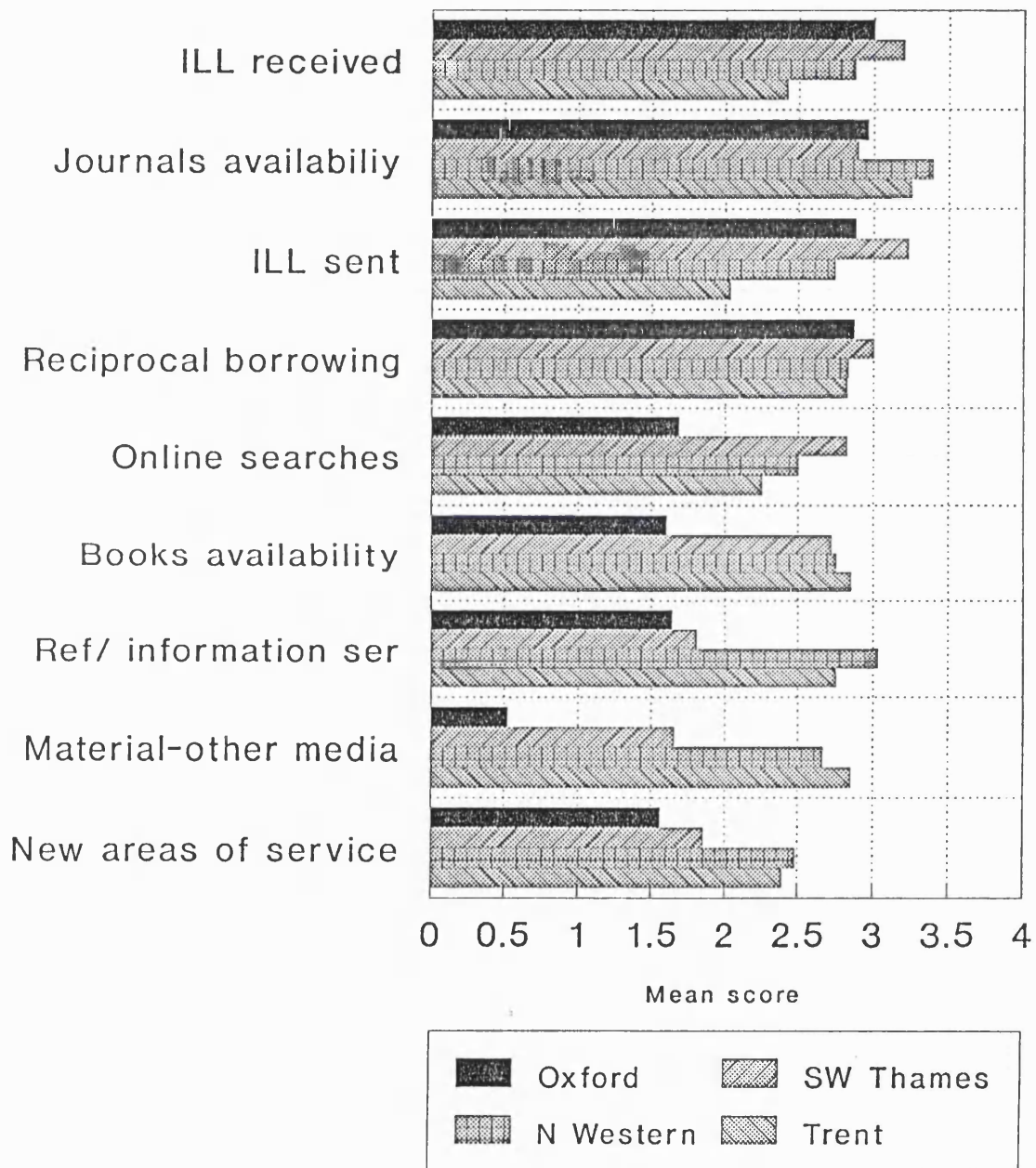
6.12 Conclusions

Documentation provided by the regional units suggests that there are not uniform patterns of system functions in the NHS regions having structured Regional Library Systems. By and large, the combination of functions that a particular regional system chooses are unique to that region and the Regional Library System. The survey data

REGIONAL LIBRARY UNITS: Impact/ Possible Impact - Administrative Areas



REGIONAL MED LIBRARY SYSTEMS:
Impact/ Possible Impact - User Services



indicate that the regional systems fill a variety of functions for the member libraries and their clientele. The system non-participants have clearly expressed their desire to benefit by a structured regional library system. The functions where greater assistance is looked for are mostly similar. But the non-system librarians have identified some more functions where they would expect substantial assistance from a prospective regional library unit and regional library system.

The results of this survey show that the librarians of both system and non-system regions exhibit relatively consistent perceptions of administrative functions and user services of a Regional Library Unit and Regional Library System when viewed from overall perspective. However, what we further observe is that at the operational level there is somewhat less uniformity of perceptions amongst the two groups of librarians. One distinction between the two categories of regions is that, other than the preferred functions rated above the mid point, the remaining functions have been rated comparatively higher by the librarians in the regions without a regional system (figures 6.6 and 6.7). This suggests that the librarians in regions without regional system have very great overall expectations from a prospective Regional Library Unit and System as compared to the actual level of assistance perceived by the librarians working in the existing Regional Library Systems. This may also suggest that the latter (system librarians) take the assistance of the RLU in a way for granted, which is aspired greatly by the former (non-system librarians).

These differences in perceptions do exist between respondents but they are not noticeable in the overall perspective. The explanation is that the perceptions of a

librarian are shaped by his or her experiences with the presently operating regional system or lack of it. The participants in the regional system view a regional library unit and Regional Library System from the perspective of benefits received. Likewise, the views of non-participating librarians reflect their needs or difficulties at the moment in absence of a structured regional system.

The differences in perceptions between the two groups of librarians is not very significant but may be of some interest. The significance of this study lies not in the minor differences present but in the high ratings given by non-participants. At the conceptual level a similar, if not concordant, view seems to prevail. A major implication lies not in resetting the priorities in administrative functions and the roles but placing greater emphasis on the areas that have been shown to be more visibly important by the librarians in both the categories of regions.

Generally, the evidence suggests that the relationships between a system headquarters and its members are varied but healthy. This varies, of course, with the perceived effectiveness of the given system by the member libraries. There are only a few instances of alienation of a member from an "ineffective" system headquarters and some instances of large libraries feeling that the small libraries in the system are net borrowers. Nonetheless, the survey data reveals a truly cooperative spirit between system headquarters and the great majority of their members. Currently, the relationship between a system headquarters and a member library is one that does not appear to have been negotiated on the basis of the particular needs of that regional system and the capabilities of that library. This is not to suggest that this has

resulted in any sort of ineffectiveness on either the part of the system headquarters or a member library. Nor is it to say that the relationship between the two, even in the currently most ideal situation, is ideal. While the Regional Librarian is required to plan and promote the library services in the region, the true administrative and planning authority was lacking to some extent till recently. The regional librarian is now assuming fuller responsibility with the introduction of the new regionally-funded systems. From 1992 all funding will be regional. This could also help in developing a region-wide consensus. Consequently, the achievements of the system headquarters (with regard to relationships with their member libraries) can be monitored better.

The data compiled during this survey were not intended to provide definitive answers to the question of which particular regional system administrative mechanism works best or what is the most effective organisational structure for libraries in the regional system. One can identify less structured and more structured regional medical library systems in the health regions. However, the small differences in impact and expectations, given the evidence at this point, is due to the variations in the perceptions rather than the administrative structures.

The latest reorganisation of NHS on business-like lines is likely to create increasingly competitive relationships. The wider thrust of the White Paper⁵¹ is on localism and local resources. Cooke⁵² calls it "local proactivity" and suggests that this will lead to greater spatial differentiation in the availability of funds for health care. The planning seems to be a health care system in which geographical variations will become evident. This will equally affect funding for library resources and services.

Leggate⁵³ advocates that the information and library services to the NHS staff should consider the current trends in the NHS management "towards devolution to the unit level" which is not in conformity with the idea of networking in various library and information plans, but observes that, "this problem should not be regarded as insurmountable as it has been accepted in many Regions and Districts that networking is essential for effective library provisions." Davies⁵⁴ suggests that the future role of health authorities is likely to be a "coordinative, entrepreneurial one", seeking to pull together various sources of finance and care. In this context the coordinative role of the Regional Librarian has been well established (with information and library services organised at the District level). The issue here is that whether it will generate the supposed benefits and whether these supposed benefits outweigh the costs. This study points out that the efforts to maximise the effectiveness of library resources and services at the local/organisational level need to be augmented by certain 'preferred services' at the regional level. The regional support and services plus the local initiative will thus be a useful combination in the provisions of library and information services for the time being.

The question regarding the changes that should be instituted in the Regional Medical Library Systems for the future development of library services, provides the basis for one overall conclusion resulting from this study. Recognising that Regional Medical Library Systems have developed over the years with support from RHAs and that some non-system libraries have also increased their services, it is the general conclusion of this study that the Regional Medical Library Systems have increased library effectiveness and access to resources. Generally, they have broadened the

support base for library services at local/organisational level. They are valued and viewed as an asset (in non-system regions as potential assets) by the majority of the librarians. The library community working in regions without structured regional systems have given an unambiguous opinion that the regionally organised Medical Library Systems could lead to improvements in the regions currently without systems.

6.13 Recommendations

- 1 Consideration should be given to distinction between Regional Medical Library Associations and the Regional Medical Library Systems. The issue here is whether regional medical library associations should permanently take responsibility for "coordinating" the activities of the libraries as is now the case in some regions. The recommendation is that steps for the establishment of Regional Medical Library Systems are initiated and the coordinating responsibility be assigned to the system headquarters headed by a Regional Librarian. The Regional Medical Library Association should be viewed as a service extension arm of the Regional Library System.
- 2 The Regional Library Unit may identify service needs for individual libraries in addition to the prescribed needs of the region as a whole.
- 3 A massive effort to bring Regional Medical Library Systems into being in the regions without them is neither easy nor recommended. An alternative to regionally organised systems might, for example, may be to contract for the support of a regional library unit with an existing library preferably inside a given region.
- 4 Consideration may be given by NHS-RLG to persuade policy planners in the

NHS to devise some policies to create a mechanism whereby libraries in a health region may qualify for certain additional financial aid if they contribute more actively towards region-wide library services. This could be continued for a specific period while guarding against any reduction in resources of other libraries.

- 5 There seems no need to control, for the time being, the varied approaches the Regional Medical Library and Information Systems have taken to the organisational relationships between system headquarters and member libraries. However, it is recommended that the NHS or NHS-RLG may institute a research programme to monitor system services to member libraries and the comparative costs in regions without regional library systems.
- 6 The NHS-RLG and other library advisory and consultative bodies in the country should emphasise and persuade the policy planners of the need to proceed with: 1) fully recognising in policy terms the existence and benefits of library systems and need for the establishment of Regional Medical Library Systems in all other health regions, and 2) providing the guidance and means for strengthening systems' operations for further improvements in the changing NHS strategies.
- 7 Further strengthening of the relationships among the librarians of member libraries and the Regional Librarians' Unit through consultations and involvement emphasising a region-wide perspective and the value of a cooperative and administratively unified effort.
- 8 The regional Coordination Committees formed should be broad-based with the active involvement of many librarians. Ideally, its members could see

themselves as promoters of the regional medical library services rather than seeing themselves only as protectors of a particular type of library and its clientele.

- 9 To the extent that the Regional Medical Library Systems are seen to be effective vehicles for the improvement of library services in the health regions - and there is evidence that this is the case - it may strengthen the impact of existing or future regional library systems to overcome the dispersion that local autonomy poses to increased cooperative effort through a more unified regional system. By laying guidelines, standards and most important through his/her definitive and discrete role in funding programmes, the Regional Librarian will be in a position to influence libraries to adopt a new perspective on the "local autonomy" issue. Although such an objective must be seen as a very long-term one, the leadership position of the Regional Librarian makes the likelihood of eventual success very high.

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CHAPTER 7

REGIONAL MEDICAL LIBRARY PROGRAMMES AND SERVICES IN THE U.S.A.

7.1 Introduction

The medical library and information systems in the U.S.A. are extensively documented in literature¹. The aim of this part of the study is: 1) to give a first-hand impression of my U.S. visit to medical and health science libraries known to have specific excellence in my field of interest to observe new concepts; and 2) to give an overview of the regional medical library programmes and services.

7.2 Objectives of the Visit

The objectives of my visit to the U.S.A. were:

- 1 To see medical and health science libraries which have no comparable counterpart in the U.K.
- 2 To observe systems which are operating in the United States and which could be adopted, at least in part, by medical and health science libraries in India.
- 3 To meet and exchange ideas with various medical and health science librarians working in diverse backgrounds in different states.
- 4 To visit the (American) Medical Library Association.

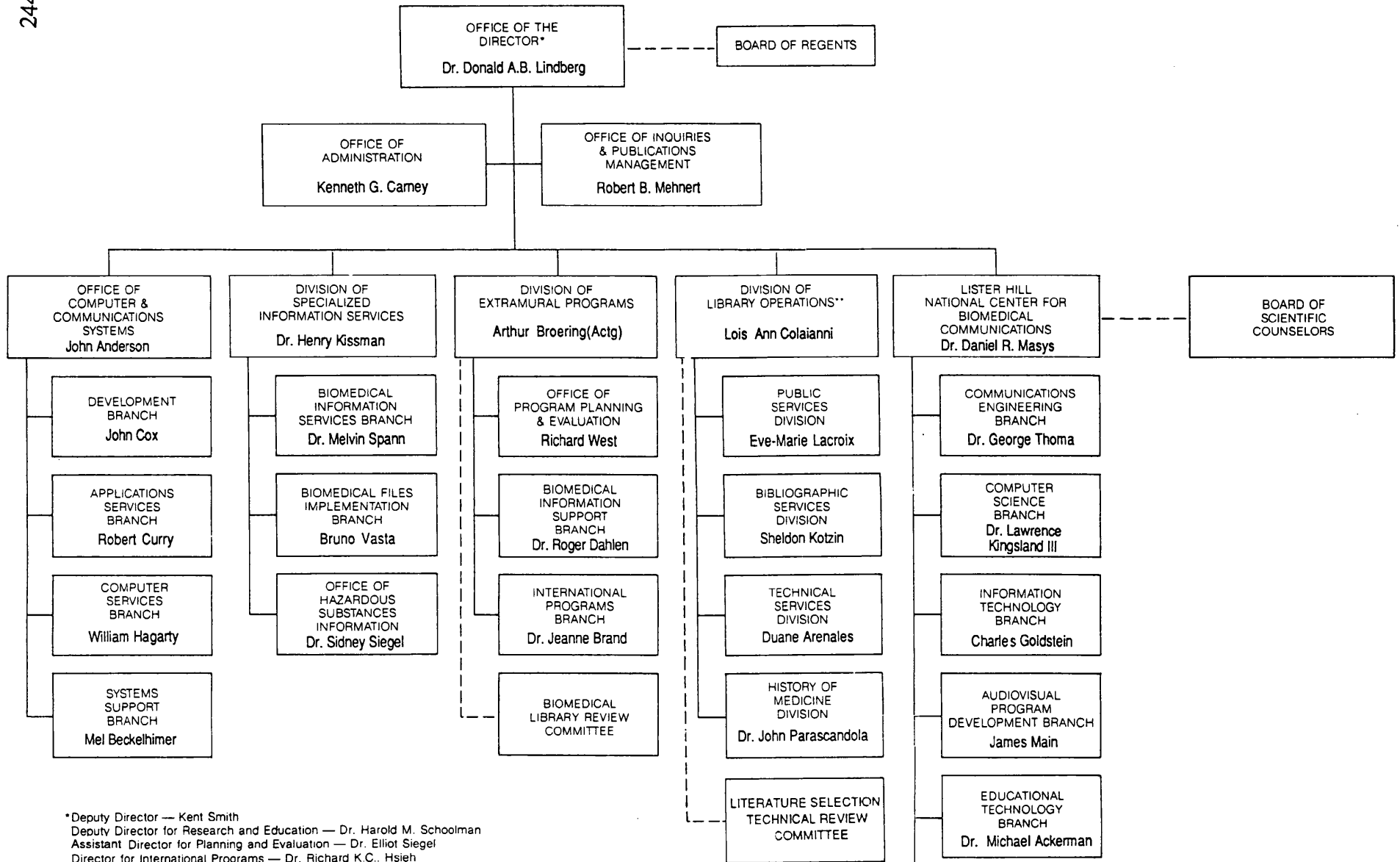
In order to fulfil the first objective, I visited the National Library of Medicine (NLM) in Bethesda, Maryland, which is the world's largest medical and health science literature resource. The second objective led me to focus on Southeastern Atlantic Regional Medical Library Services (SEA RMLS). The choice of SEA RMLS was made because of its close proximity to NLM. The third objective led me to attend the Regional Council Meeting of the Greater Midwest Regional Medical Library Network held in the University of Illinois at Chicago. Chicago is also the site/headquarters of the Medical Library Association (MLA). The tour was undertaken from 6 to 23 November 1990.

7.3 The National Library of Medicine

NLM is the central resource for medical and health sciences in the United States and has no parallel in the U.K. The work of the library is spread over several Divisions (figure 7.1). The complete range of its operations is too wide ranging to comprehend in a single visit and too great to describe in any detail here. I did take a tour of the library (Appendix I) and met many people in various Divisions. The meetings with Dr Richard K.C. Hsieh (Director for International Programmes), and Carolyn B. Tilley (Head, Medlars Management Section) were, however, of particular interest to me. Both these meetings were fixed on the occasion of 6th International Conference on Medical Librarianship held in New Delhi in September 1990.

First established in 1836, the NLM started as a few shelves of books housed in an office near the White House and was known at its inception as the Library of the Army Surgeon General. In 1956, an Act of Congress transferred the collection from

Organization Chart National Library of Medicine



*Deputy Director — Kent Smith
 Deputy Director for Research and Education — Dr. Harold M. Schoolman
 Assistant Director for Planning and Evaluation — Dr. Elliot Siegel
 Director for International Programs — Dr. Richard K.C. Hsieh

NATIONAL CENTER FOR

the Department of Defence to the Department of Health, Education and Welfare and renamed the institution the National Library of Medicine. In 1962, the library moved to its current quarters in Bethesda. A second building, the Lister Hill Centre, was later constructed in 1980.

The NLM is one of the National Institutes of Health. It has more than 500 employees and an internal budget of about \$62 million. Over and above that, NLM also finances external development projects located at universities and other organisations for more than \$14 million a year. Both these figures indicate the enormous significance that NLM has for medical information, for today and future, for the U.S.A. and the rest of the world. The NLM is the world's largest medical research library. Its holdings include more than 3.5 million books, journals, technical reports, theses, pamphlets, photographs and audiovisual materials covering more than 40 biomedical areas and related subjects from chemistry to psychology, botany to zoology and veterinary medicine. The library also houses one of the finest historical collections of rare medical texts and manuscripts dating as far back as 11th century. With materials in 70 languages and information exchange capabilities internationally, the library is a world-wide resource for all health professionals. More than 4 million journal articles, books, and computerised information were provided by the NLM in 1989. Materials may be consulted at the library, borrowed through interlibrary loan, or searched by means of the library's computerised online databases. Medline has a total of about 6 million references to journal articles accumulated since 1965 and is growing at a rate of about 300,000 a year. It is accessible at more than 3,500 institutions, including universities, medical schools, hospitals, government agencies and commercial

organisations. Recently growing number of individual health professionals have been joining the network. NLM has some two dozen databases, including information on cancer research, population and reproduction, bioethics, bio-planning, audiovisual materials and other specialised areas of health and disease.

The library has a programme of grant assistance to improve U.S. medical libraries, support training and research in medical library and information science, and support various categories of publications. In 1980's, the library has emphasised grants to investigate computer applications in medicine and to develop large-scale integrated information systems in academic health science centres. Grants are given to health science institutions, individual researchers, academicians, librarians and computer scientists with the aim of expanding the biomedical information base and developing systems for efficient dissemination of that information.

One of the functions of the Bibliographic Services Division is to handle the ever more complicated questions about licence contracts, which is illustrated by the fact that Medline is now distributed every month to 16 foreign centres (not all of them receive tapes; some of the centres use NLM's computer), 5 commercial host organisations within the U.S.A., 14 CD-ROM manufactures and more that 45 subset tape centres in the U.S.A. (i.e., the libraries that have Medline, or part of it that corresponds to their own holdings, available on their own computer to users within their own university or hospital). Medline usage is constantly on the increase; at present the NLM computer is used for 1,200 connect hours per day.

The Indexing Section comprises about 40 people who index the selected 3,300 journals currently covered by Medline. 20% indexing is carried out at NLM, and 8% at foreign centres (U.K., Sweden, France, South Africa, China and PAHO). The remainder is carried out by 40 contracted indexers through 3 different businesses in the U.S.A. The MeSH Section is composed of 4 persons who work on adapting the MeSH vocabulary to contemporary scientific and technical requirements. Most suggestions for changes come from indexers, who recognise where a new term is needed.

NLM's Lister Hill National Centre for Biomedical Communications was established to expand the use of computer and communications technology in the health care profession and to improve systems for collecting biomedical data and distributing it to those who need it. The centre is investigating ways to use the most modern technology in medical education, artificial intelligence, and to keep health care professionals abreast of the latest developments in medicine. It has developed one of the fascinating projects, "computer patient" complete with a variety of symptoms and a full life history. Based on micro-computer, videodisc, and voice recognition technology, the system allows the patient to be "seen" and to describe his own symptoms. With the student's voice command, the patient's medical history can be delved into and medical tests ordered and the results displayed. Afterwards, the computer evaluates the student's performance. For example, were the right tests ordered? Did the students draw the correct conclusions and make a valid diagnosis? What treatment was ordered? Did the patient survive? In the future, medical students will have seen, diagnosed and treated a wide array of patients before they ever

actually see a real one.

Comments

The general impression one gets from the NLM can be summarised as high levels of activity and production, fully occupied, well used personal computers in every corner and enlightened staff. The public areas are spacious and right near the entry to the library there are about a dozen computers on which borrowers can search the catalogue, Medline, etc. free of charge. There can be little doubt that the effects of the library are far reaching and widely felt. The library is certainly the world leader in biomedical information communication and research.

7.4 Southeastern Atlantic Regional Medical Library Services

The choice of this region was made in view of its proximity to the National Library of Medicine in Maryland. I was pleased to be able to have discussions with the Executive Director of SEA RMLS, Faith Meakin, Coordinator, Jean Shipman, and Acting Director of the University of Maryland Health Science Library, Baltimore. The itinerary (Appendix J) included a tour of the Regional Library as well.

The SEA RMLS (Region 2) is one of the eight regional programmes established by the National Library of Medicine to link the biomedical resources in the country. The network links the collections of hundreds of health science libraries in 10 States, the District of Columbia and the NLM. The states serviced are: Alabama, Florida, Georgia, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia, and the Virgin Islands. The headquarters is at the Health Science

Library of the University of Maryland, which has been designated as the Regional Medical Library. This is a decentralised region with each of the 30 Resource Libraries participating in providing interlibrary loan services to the libraries and institutions in its geographic areas. The goals of the SEA RMLS are:

- 1 To provide health care practitioners with timely access to health information resources.
- 2 To support the development of health science libraries and librarians.
- 3 To encourage the development of networks of cooperating libraries for sharing resources and expertise.
- 4 To test, evaluate and implement improved methods of transferring biomedical information through innovative use of technology.
- 5 To publicise the services and products available to all professionals from the National Library of Medicine.

Some of the most salient **regional services** include:

- 1 *Interlibrary Loan:* The SEA RMLS coordinates a region-wide interlibrary lending network which provides access to the collections of 30 major health science libraries and the NLM. The SEA RMLS publishes a Union list of serials which lists the journals holdings of more than 500 biomedical and hospital libraries in the region.
- 2 *Reference Referrals:* The SEA RMLS will refer health professionals needing information to the nearest library which offers the desired service. It will also provide information and online searching services through the University of Maryland Health Science Library's reference staff directly to health

professionals who do not have access to a library.

- 3 *Network Development:* The SEA RMLS encourages the formation of consortia and other state networks by offering guidance and advice towards their development.
- 4 *Training:* Workshops are offered throughout the region in a variety of areas such as basic library management, consortia formation, consulting, online searching and grant funding. Training manuals are developed in conjunction with various workshops and made available from the SEA RMLS office.
- 5 *Publications:* The SEA RMLS publishes SEA Currents, a bimonthly newsletter, to keep network members informed of current developments, policy changes and workshop offerings (in addition to workshop manuals), the Union list of serials, fact sheets and guides on specialised topics.
- 6 *Consultation:* Consultation services are available from the SEA RMLS to aid library managers, hospital administrators and others to establish or improve library services. The SEA RMLS maintains a Consultants registry which lists qualified consultants located throughout the region.

One of the noteworthy features of the **Health Sciences Library**, (which also serves as the Regional Library of SEA RMLS), was its user education programme. The Library offers "Information Management Seminars" and "Class Integrated Library Education Courses" in regular sessions to meet individual departmental needs. The Information Management Seminars are open to all faculty, staff and students. The goals of the seminars are to explore alternative avenues, understandably electronic, for information retrieval. These seminars, usually of two-hour duration, are held regularly

throughout the year in the Health Sciences Library (HSL) for a minimum enrolment of 8 people. Special sessions of these seminars are also offered for departments and groups. From August 1990 to May 1991, HSL organised 32 Information Management Education Seminars on various aspects, including:

- 1 *CoSy in Moderation*: CoSy, which stands for CONferencing SYstem, is a computer-based system for exchanging messages between groups of people with similar interests on the University of Maryland campus. CoSy is a free service of Health Sciences Library and Information Resources Management Division.
- 2 *Effective Search Strategies*: To assist in analysing information needs and formulating strategies for locating online information.
- 3 *Medline for Health Professionals*: Six-hour course developed by the NLM for health professionals to search Medline.
- 4 *Online Searching*: An introductory seminar for database searching.
- 5 *Reprint File Management*: Two-hour introduction to reprint file management, both manual and automated.
- 6 *HSL Databases*: An introduction to searching the HSL's own databases, MaryMED and HSL Current Contents.
- 7 *Term Paper Clinic*: To provide a lead on topic selection and use of varied information sources to focus the scope of a paper and includes style manuals and writing guides.
- 8 *MICROMEDEX*: To use the full-text database providing information on drugs and environmental hazards.
- 9 *GRATEFUL MED*: A microcomputer software package which provides user

friendly access to many of the NLM databases.

- 10 *Practical Library Use*: How to locate HSL information and use the Library's services.
- 11 *PSYCLIT on CD/Nursing and Allied Health on CD*: An introduction to computer searching of psychological or nursing and allied health literature on CD-ROM.

The Health Sciences Library's programme of Class Integrated Library Education is designed to introduce students to the information resources and library search strategies needed for a particular course. The Information Specialist determines the subject matter for the class to meet course objectives and may include: Demonstration of the online catalogue; Use of specialised indexes; HSL services; Hands-on exercises; Computerised literature search demonstrations, and; Tours. Classes for 25-30 people are held within the HSL. The Library aims to "improve the quality of students' course work and increase their independence in learning" through these user education programmes.

Comments

This was my first opportunity to gain an impression of such an extent. In the Southeastern Atlantic region health care is delivered in large medical complexes in urban areas and in rural counties with few hospital beds. Whether in a small hospital or a large university health science centre, the regional library network programme has enhanced access to the information resources of the SEA RMLS for health care professionals from Maryland to Mississippi to Florida. This is in sharp contrast to the

situation in India, where a health professional working in rural background or in a non-teaching hospital has no access to the information resources mostly localised in major teaching hospitals.

With regard to the interlibrary loan system, the participating Resource Libraries have consented to comply with the uniform agreed price set. This deters libraries from shopping around for the lowest charges or the best service but ensures equitable access in all areas. The document delivery policies, however, prescribe that an ILL request is routed through pre-determined channels, which makes it somewhat bureaucratic. In the U.K., the medical library community does not have to concern itself with the intricate organisation of interlibrary loans (at least till recently). The British Library Document Supply Centre does not pose as many procedural complexities to provide the information/document as does the NLM. The Regional Librarians in the U.K. are therefore able to focus on other areas of professional support without getting too much entangled in ILL modalities, although about 50% of the ILL loans are handled within the regional medical library systems.

So far as other regional programmes and services are concerned, the regional medical library systems in the U.S.A. and U.K. seem to have evolved with the same type of emphasis. They mainly contrast in dimension, like so many other things in the U.S.A. which are big. However, the central funding for the regional systems remains the greatest encouraging factor in case of U.S. medical libraries, which is missing in the U.K. situations. The health science libraries and the regional systems in the U.K. are well and alive but they could be superb if some sort of central funding and support

was forthcoming in all the regions and there were greater incentives for librarians to train in health science librarianship. It is here that the absence of a National Library of Medicine as a source of central funding and support as such is felt.

I was especially impressed by the fact that the Health Sciences Library has really tackled the whole picture of the information requirements of its parent organisation (University of Maryland). I understand that at several other universities the electronic-message/conference systems were run just by the health science libraries, and it is the library staff who train researchers and students not only in literature searches but also in using various computer programs, such as database management systems, reference editing, tele-conferencing, etc. Some libraries even buy modems to rent out to their borrowers.

7.5 Greater Midwest Regional Medical Library Network: Regional Council Meeting

Greater Midwest Regional Medical Library Network (GM RMLN; Region 3) serves the States of Iowa, Illinois, Indiana, Kentucky, Michigan, Minnesota, North Dakota, Ohio, South Dakota, and Wisconsin. The region has 27 resource libraries and a total of 1941 health science libraries. This is a decentralised region with each of the resource libraries participating in providing interlibrary loan services to the libraries and institutions in its geographic areas. The headquarters is at the Library of the Health Sciences of the University of Illinois at Chicago, which is also the designated Regional Medical Library for GM RMLN.

My visit to Chicago aimed: 1) to attend the Regional Council Meeting of the Greater

Midwest Regional Medical Library Network; and 2) to visit the Medical Library Association. The Regional Director, Frieda Weise had most kindly agreed my attending the meeting and extended all the hospitality. My intended visit to MLA had to be abandoned because of some unscheduled social programmes. The Regional Council Meeting was held on 16 November 1990 at the University Village, University of Illinois at Chicago. The meeting was sponsored by the University of Illinois at Chicago (UIC) and the Library of Health Sciences as the Regional Medical Library for the Greater Midwest Regional Medical Library Network. The meeting provided a valuable opportunity to meet at one place and talk to many medical and health science librarians, who had travelled from different states of the Greater Midwest region, besides a brief discussion with the Associate Director, S. May. I was very impressed to see the most professional conduct of the meeting and active involvement of the participating librarians in the regional affairs. Some of the main items deliberated in the meeting included: grant activity within the region; GM RMLN serials database; collection development updates (Appendix K). There was also a presentation on OCLC Group Access Capability and its Implications for the Region by P. Cappuzzello of OCLC and R. May, Associate Director of GM RMLN. During the "medical informatics program" of the meeting, two outstanding talks were given on: 1) Model Curricula in Health Information Management and Information Science by Susan Miller, Head and Assistant Professor of Health Information Management in the University of Illinois, Chicago, and 2) The UMLS Knowledge Sources: Tools for Building Better Health Care Information Systems by Betsy L. Humphreys, Deputy Associate Director for Library Operations, National Library of Medicine.

OCLC Group Access Capability and Implication for the Region

The focus of the discussions was whether the GM RMLN should join the OCLC's Group Database or not. In his talk P. Cappuzzello of OCLC, explained the resource sharing opportunities of OCLC's Group Resource Sharing Options, and R. May of the GM GMRLN initiated the discussion to ascertain the opinion of the participating librarians. The proposal to join the Group Database aroused different views and there could be no consensus. The matter was ultimately decided by a vote in favour of joining the Group Resource Sharing Option of the database.

Through the Group Database Capability, OCLC creates and maintains databases on a large scale at the State or regional level, or on a smaller scale at the city or county level. OCLC can also create special interest databases, including bibliographic records, locations and summary holdings information related to specific types of materials or libraries. Once the database is created as part of the Online Union Catalogue, all group participants, both OCLC members and non-members, may access it. The first step in creating group database is adding the records, both current and retrospective, of all groups' members to the Online Union Catalogue. As an OCLC member, the records are added to the group database automatically. The main benefits of OCLC's Group Database and Group Access capabilities are summarised as:

- 1 Provide a low-risk, low-cost method for establishing a Group Database that can be used both by OCLC members and non-members.
- 2 Offers access to the OCLC ILL Network of more than 4,000 libraries.
- 3 Increases the efficiency of ILL and improves resource sharing among group members while providing libraries that are not OCLC members access to the

resources of the full OCLC ILL Network.

- 4 Allows to use equipment currently used for database searching

7.6 Concluding Comments

It is difficult to summarise all the impressions and memories of the visit. The observations made in the preceding sections are only a glimpse of the medical and health library scene in the United States, and I have focussed only on aspects of particular personal appeal and interest in health science librarianship.

The most noticeable aspect of the health care in the United States is the absence of a National Health Service. Each hospital is administratively separate and in each case library development negotiations have to be separately conducted. The major analogy as far as the U.K. is concerned is the existence of NHS in the U.K. which provides a management infrastructure on which the regional medical library systems have developed. The existing regional and district management is, in my opinion, decidedly beneficial to facilitate the development of district and regional library services in the U.K. This is not so marked a difference in this context as might be thought since the equivalent libraries in the U.K. lie largely outside the NHS and, as in U.S.A., within the university medical schools. A significant contribution in both the U.K. and the U.S.A. is also made by society and private institution libraries; a feature conspicuously missing in Indian situations.

There was a great appreciation for the British National Health Service, which was so much in the news due to impending "privatisation". A number of persons expressed

their admiration for the British health system and their astonishment about the "so-called reforms for privatisation." In comparison, some of the persons expressed anxieties about their own health care system essentially based on private enterprise. The Regional Medical Library Systems in the U.S.A. are very loose federations. The participating librarians seem more conscious of their separate identities and are very much knowledgeable and active in cooperative endeavour at local levels with libraries of different types as with other resource libraries in the region. There is a tendency in the health science libraries to look ahead rather than to operate on an improvised basis, permitting only a struggle for survival so characteristic of libraries in India. There is obviously scope for development in library information work in all the three countries of the continents, but in the United States a high level of organisation and the enabling financial support is visible despite diminishing grants. Funds appropriated for the training of medical librarians are increasing the flow of graduates and the support and funds given to biomedical libraries are opening up more positions for them. These funds are relatively large and constitute a striking contrast to the British situation. I have, however, realised that even if huge funds are made available for medical and health library development in India, the desired results could not be achieved immediately. Senior professionals have to strive to create a culture for change and innovations and the Central and State Governments have to induce and accelerate growth and development.

As we move to 21st century, we see that the quantity of information is growing exponentially. Finding the needed information and then knowing how to use and manage it can be an enormous task. In this context, the library instruction

programmes of the HSL, University of Maryland are very instructive. The library seemed to have excellent resources available and appeared to be several years ahead of its U.K. (even European) counterparts in so far as investments in computer power is concerned. The library staff was satisfied that the Class Integrated Library Education programmes and the Information Management Education seminars are helping academic staff and students to gather and manage information more efficiently. Other than the need for developing documentary resources in Indian medical libraries and organising them into a network throughout the country, I have increasingly felt that the need for adequately trained and motivated staff is preeminent if good resources and organised network are to have an impact. The continuing education and training of in-service personnel in India is therefore paramount and will have to be streamlined and undertaken in the right earnest both for the in-service and new entrants in the library schools, if a resource sharing system of medical libraries is to make progress and succeed.

7.7 Regional Medical Library Programmes and Services: an Overview

In the period following World War II, the provision of biomedical information in the U.S.A. was adversely affected by the unsatisfactory condition of the health science libraries². The role of health science libraries in the dissemination of information was not specified until 1962, when the findings of the Surgeon General's Conference on Health Communications were published. The conference made many recommendations, including: 1) funding for recruiting and training librarians; 2) establishment of a coordinated network for biomedical information processing; and 3) a plan for their future role as communication centres rather than repositories of

books³. A report by the National Research Council issued in 1963, stressed the need for biomedical library networks and for strengthening biomedical libraries so that they could assume a strategic role in providing information to scientists from both local and national resources⁴. Several federal agencies and advisory groups, including National Advisory Health Council and the National Library of Medicine (NLM), became concerned with the condition of health science libraries. The NLM appointed Harold Bloomquist to conduct a study on the condition of medical school libraries in the U.S.A. A report by Bloomquist⁵ in 1963 documented the poor condition of medical school libraries and their inability to provide even the most basic of services. Bloomquist recommended that: 1) federal funds be made available to improve health science libraries; 2) a system of regional "reservoir" libraries be established to save smaller libraries the costly duplication of materials, encouraged and supported by the NLM; and 3) a programme of recruitment, education and training of medical librarians be undertaken with federal funding.

The concept of regional medical libraries and other recommendations for improving the dissemination of information generated a great deal of interest, but it was not until the report of the President's Commission on Heart Disease, Cancer and Stroke⁶ was issued that enabling legislation for implementing them was passed. The commission recommended "... that the National Library of Medicine be authorised and adequately supported to serve its logical and necessary function as the primary source for strengthening the nation's medical library system"⁷. The report, recognising the need to upgrade the health science libraries, recommended extramural support for training, research and the development of a national medical library system. The Medical

Library Assistance Act (MLAA) passed in 1965⁸ authorised NLM to develop a national medical library system and provide grants for: 1) medical library construction; 2) training of medical librarians; 3) assistance to special scientific projects; 4) research in medical library science; 5) improvement and expansion of basic resources of medical libraries and related facilities; 6) preparation of biomedical scientific publications; and 7) development of a national system of regional medical libraries.

7.8 Establishment of the Network

By the late 1960s health science libraries began to benefit from the improved support for medical education as well as from recognition that delivery of information to health care personnel is an important component of improved health care (as evidenced by MLAA). Between 1960 and 1980 the number of medical schools in the U.S.A. increased from 86 to 126 (46%)⁹. Expenditure for medical schools also rose substantially between 1960 and 1975, mainly due to availability of both federal and State funding. By the late 1970's, however, federal funding was beginning to decrease. There was a corresponding increasing in support for medical school libraries. Their budgets increased by 100% every five years between 1960 and 1975 and by 53% in the five-year period, 1975-80¹⁰. Library collections also grew in this period. The number of community hospitals also increased. Concurrently the number of hospital libraries grew by 13% and their collections also rose by approximately the same percentage¹¹. NLM continued to provide leadership in efforts to improve bibliographic control of the biomedical literature and its distribution. MEDLARS (Medical Literature Analysis and Retrieval System) became operational in 1963, and in 1964 it began to establish search stations across the country to provide

bibliographic search services to local users.

Once funding for the Regional Medical Library Plan (RMLP) was assured, NLM undertook to define in more detail the structure and function of the network. Many important issues needed to be addressed, e.g., 1) Would the Regional Medical Libraries (RMLs) be newly established libraries? 2) How many regions, composed of which States, would be established? 3) What would be the NLM's role in the design and operation of the network? An initial concept of RML network presented by Dr Cummings in 1965 stated that:

the NLM believes that any national system should build upon existing resources, utilising new techniques and equipment wherever possible to improve the flow of information throughout the network¹².

Cummings described three major components of the system: 1) centralised coordination of the network; 2) geographical dissemination of information; and 3) mission-oriented dissemination of information. NLM would be responsible for centralised coordination including planning, selection of RMLs and network coordination. The RMLs would receive federal support to assume the responsibility for geographic dissemination of published information. Dissemination included: 1) conduct of the literature searches by computers; 2) computer based current-awareness listings; 3) the provision of copies of documents; 4) the provision of reference services; 5) the conduct of training and orientation programmes for medical library staff; and 6) support for specialised information centres. In order to serve mission-oriented special interest groups in health sciences, bibliographic information would be repackaged for their use¹³.

In 1966 the National Science Foundation (NSF) instituted Herner and Company to study the future biomedical library needs. The network as proposed by the Herner report¹⁴ called for four types of library units. The "central units" would participate in the network and provide for the information needs of their primary clientele. "Special Units" were described as libraries containing extensive collection in narrow subject fields. "Inter-library units" would serve as depositories for older or little-used materials from the local units. This proposed network called for the construction of a fair number of library facilities and was considered expensive. Another key recommendation was that planning and administration of the network be handled by the committee on scientific and technical information or the office of the Surgeon General and that it should not involve NLM¹⁵. The report was not received well by NLM or the medical library community. NSF desired further work on a report but its final version was never published.

In the meanwhile, the NLM asked Wilson, Douglass and Kefauver to prepare a draft resolutions for implementing all the programmes authorised by MLAA. The draft regulation, which covered the establishment of RMLs as well, were approved by NLM (Board of Regents) in 1966¹⁶. NLM encouraged interested individuals and groups to "...determine the natural and feasible configuration of their 'region' or area"¹⁷. After determining the geographical composition of a region, each applicant was required to undertake an extensive analysis of the information needs and resources of the area and propose cooperative arrangements which built on existing relationships. Further policy statements by NLM formally announced the purpose and responsibilities of the RML's, provided guidelines for applicants and defined NLM's

role in the operation of the network. The regional planning meetings recommended by NLM were held throughout the country to determine the appropriate geographical boundaries for each region and to select the library which would apply for the RML grants. Between 1966 and 1970 the boundaries for the original eleven regions were determined and the applicant institution designated. The original RMLP network thus consisted of eleven Regional Medical Libraries (RMLs). Each RML was responsible for ensuring complete and easy access to health care information for health professionals throughout its region. Two types of organisational structures developed among the eleven RML areas. In *centralised* regions, regional services and management were primarily provided by staff located at the RML with cooperation and assistance from other libraries in the region¹⁸. In *decentralised* regions, larger libraries, mainly medical school libraries, were more directly involved with the provision of regional services. Such libraries were eventually called "resource libraries"¹⁹. Centralised organisation was usually chosen in regions where one library was able and willing to assume complete responsibility for providing all RMLP services. Decentralised organisation prevailed in regions where several libraries of similar size and strength chose to work together to provide RMLP services²⁰.

The overall structure of the medical and health care library system is hierarchical. NLM provides back-up resource and services to all the U.S. libraries; RMLs serve defined geographical areas; "resource libraries" are mostly medical school libraries and; "basic units" are community hospitals and other local health science libraries that provide local information needs²¹. Each RML was responsible for the provision of a subsidised ILL service, Medlars search formulation service, back-up reference

service, orientation and training of hospital library personnel, continuing assessment of the information needs of the region, announcements of new acquisitions, initiations of new services, and support for continuing education programmes for health professionals²².

7.9 Reconfiguration of the Network

The RMLs and their regions remained almost the same until 1982. But the RMLP faced serious difficulties due to lack of adequate funding, as MLAA authorization remained relatively unchanged since 1982. The realities of static funding and less money for direct services led the NLM in 1981 to examine the RML programme including the configuration of the network. In 1982, the NLM reorganised the RMLP network by forming seven regions from the original eleven²³. In contrast to the original plan, where the geographical composition of each region was largely determined by the librarians and the health professionals in the region, the reconfigured regions were determined by NLM^{24,25}. This was the first major reorganisation of the RML network. The number of regions is now being increased to eight by dividing Region 1 into Regions 1 and 8 (figure 7.2). Region 1 will now comprise of Delawar, New Jersey, New York, Pennsylvania, and Puerto Rica. Region 8 will comprise of the States of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Islands and Vermont. There was some modification in the programmes as well.

7.10 Regional Medical Library Services

Three basic goals for the RML programmes were defined²⁶:

NATIONAL LIBRARY OF MEDICINE REGIONAL MEDICAL LIBRARY NETWORK Resource Libraries & Other Health Science Libraries

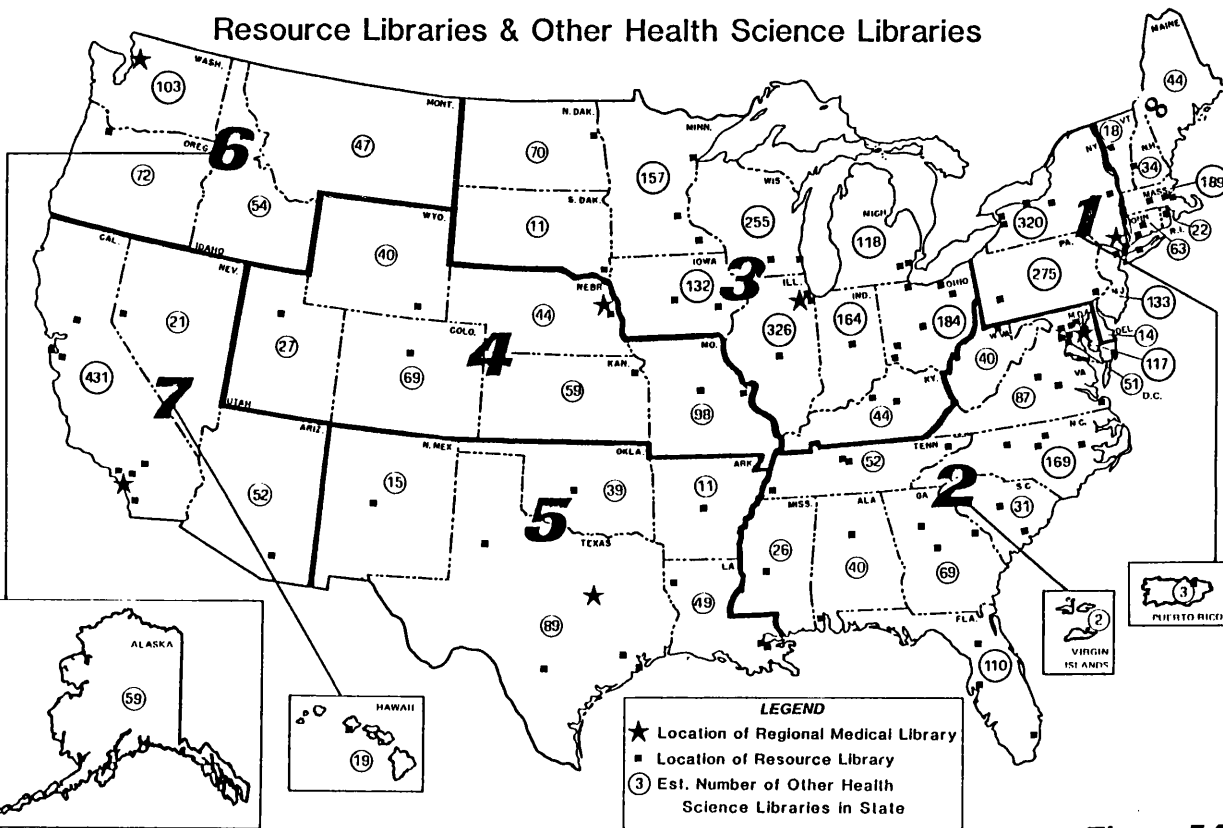


Figure 7.2

- ★ Location of Regional Medical Library
- ① Estimated Number of Other Health Science Libraries in the State

This brochure was prepared by the South Central Regional Medical Library Program under contract no. N01-LM-6-3505, National Library of Medicine, National Institutes of Health, Department of Health and Human Services.

- 1 To improve access to and delivery of information to health professionals.
- 2 To develop and maintain an effective and efficient network of health science libraries.
- 3 To develop and maintain linkages between the network and other libraries and information networks or health professional organisations to share resources.

The overall management and financial responsibility for RML programmes rests with the Regional Directors, who are assisted by Assistant Directors for day-to-day operations. Each region is required to have an advisory committee which generally includes "...representatives from the field of professional practice, health science librarianship, health communications and other fields related to health"²⁷. The NLM works at the national level to coordinate services and each RML does the same for its respective region²⁸. The following programmes and services are undertaken:

7.10.1 Interlibrary Loans

The most visible and popular service provided by the RML network in the earlier years of operation was free or subsidised interlibrary loans. NLM would provide interlibrary loan services only after the regional resources were exhausted. Libraries which could submit requests to NLM included the RMLs, the resources libraries (RLs) and a few "designated" libraries, mainly libraries which had major collections but were not participating in the RML network as RLs. Requests for subsidised loans were not supposed to go to the RML unless the requested material was not available locally.

Basic Health Science Libraries (BHSLs) were expected to use the resources of other BHSLs and their local regional library (RL) before contacting RML. If a RML could not fill an interlibrary loan request, the request would be referred to other RML or NLM.

There was significant growth in interlibrary loans funded by the RML contract fund by NLM from the beginning of the RML network until 1982. But the provision of subsidised interlibrary loans was likely to consume most of the RML funds leaving little for other essential programmes and services. The initial control came in the form of quotas on the amount of this subsidised service and "restricted title lists". In 1972, NLM proposed "net lender" concept in an effort to control costs.

Each level of hierarchy will have to assume fiscal responsibility for the major support of its own constituency. NLM will provide support for the network operation and management and will underwrite the difference (net lender) between levels of service given to a lower level and received from a higher level in the hierarchy.²⁹

Although the net lender concept was much discussed, it was never adopted as a policy. The efforts to consider cost-sharing measures continued for several years, as the interlibrary loans increased disproportionately to the available funds. After extensive debate NLM and RML Directors developed two models of a cost-sharing document delivery plan. Each region had the option of selecting one. The models had two elements in common: a national maximum user fee based on an interlibrary loan cost study, and an understanding that contract funds would cover interlibrary loan network management costs. The two models were³⁰:

- 1 The cost of loans filled within a defined geographical boundary (State or Health Service Area) would be the responsibility of the borrowing library;

loans filled by out-of-State libraries would qualify for contract funding.

- 2 The cost of loans filled within the region would be the responsibility of the borrowing library; contract funds would cover the cost of processing referrals.

All the new contracts issued in 1982 and 1983 required RMLs to provide an interlibrary loan service, specifying that the charge per filled request should not exceed the national maximum (\$7.00 in 1990). The intention was to phase out the cost of the delivery of documents from the contract funding, restricting its use to support the management of the system. In 1983, NLM began to accept requests directly from any library for periodical articles unavailable within a region^{31,32}. Interlibrary loan network management responsibilities included the implementation of DOCLINE as it became operational in the regions in 1985.

7.10.2 Union Lists

To identify the extent of holdings of each network library, the creation of a single union list of serials was considered an essential first step for interlibrary loan purposes. In 1973, NLM developed SERLINE (Serials Online) as a national serials holdings database. NLM preferred not to favour "the funding of multiple incompatible union lists containing detailed information on the serials holdings for limited geographical areas"³³. SERLINE initially included information on serials owned by NLM but was eventually expanded to include the holdings information of all RMLs and most of the RLs. Union list efforts continued on the submission of serials holdings data from as many network libraries as possible to SERHOLD (Serials Holdings), formerly known as the National Biomedical Serials Holdings Database.

The primary objective of SERHOLD was to support the automated routing of interlibrary loan requests on DOCLINE. When a request was entered into DOCLINE, the computer would check SERHOLD and automatically route the requests to a library which owned the serial title. SERHOLD data could also be manipulated to produce regional union lists in print or micro format. NLM also investigated the feasibility of developing an online holdings database for monographs and audiovisuals but concluded that the small number of such loans processed by network libraries did not justify the cost of developing such a database. On an average only 10-15% of the total interlibrary loans consisted of books³⁴.

7.10.3 MEDLARS/MEDLINE Services

The first online version of Medlars was tested in 1970 and Medline officially became available in 1971. In 1974 the RML-NLM Working Committee on Online Network Management outlined the responsibilities of the NLM and RMLs in the management of the online network. NLM was responsible for maintenance and development of the database, providing technical information and initial training; national coordination of publicity and continuing education. The RMLs were primarily responsible for coordinating and monitoring the online network within their regions including publicity, continuing education and back-up Medline service.

As the online network continued to grow, NLM proposed a national maximum fee (of \$25 in 1990) for a basic Medline search provided by RMLs or NLM. With a national maximum charge fixed, NLM was willing to make referrals for online searches to institutions which agreed to its stated guidelines. The increasing availability of

microcomputers created great interest among health professionals in conducting their own online searches. Institutions and individuals also became interested in mounting portions of the various NLM databases on in-house computers for local searching without incurring online connect charges. To meet such demands, NLM developed a Domestic Medlars Subset Policy. Its objective was to make it possible to distribute subsets of Medlars databases on tape and to mount these subsets of Medlars on personal or institutional computers.

7.10.4 Reference services

A back-up references was provided in all the regions but its nature varied among the regions. The service included answering queries referred by BHSLs, locating translations of foreign language journal articles, compiling bibliographies on topics not suitable for searching on Medlars. There was no effort to set up a national referral system between the RMLs and NLM for difficult reference questions. However, RMLs were encouraged to submit difficult questions to NLM, which would try to locate answers or an appropriate referral.

7.10.5 Resources Sharing

The RMLs initiated many programmes to coordinate the development of regional collections and to share the information resources. Most of them promoted the exchange of duplicate serial issues on informal basis but some pursued formal and coordinated exchange of duplicate serials³⁵. Some developed a serials rationalisation programme, e.g., South Central Regional Medical Library Network (TALON). The libraries in the region agreed to maintain subscriptions to certain serials thus ensuring

that a core set of serial titles was available within the region³⁶. The regional network also operated a cooperative acquisitions programme for monographs. The Resource Libraries in the region would purchase all the books published in appropriate subject fields by an assigned publisher^{37,38}.

The role of the regional networks in promoting cooperative programmes was discussed in an RML-NLM Working Committee on Cooperative Acquisitions and Cataloguing, Serials Rationalisation, Resource Sharing and Cooperative Storage. It recommended that each region may develop and maintain book, journal and audiovisual resources adequate to meet most of its immediate needs and it was cost-effective to do so on a cooperative basis. Later on, RML contracts made provision for funding cooperative acquisition of most types of library materials. Several cooperative acquisition programmes were developed by the RMLs. For instance, Region 1 developed a Cooperative Acquisitions Program (CAP) which identified subject area and serial title gaps through examination of ILL requests. Resource Libraries (RL) were funded to purchase the needed materials, thus making them available to Region 1 libraries via interlibrary loan³⁹. In Region 3, the funds were allocated to RLs and BHSLs in each of 10 States in the region, for purchasing material on subjects not widely held in the region. Region 5 applied its funding to its own cooperative acquisition programmes for monographs⁴⁰.

7.10.6 Consultation and Training

The extent of consulting and training services varied considerably among regions, partly due to the fact that in some regions such services were not funded by the RML

contract. The courses offered ranged from basics to teach the principles of organising a small library and providing basic services to provision of specialised services on topics such as consortia formation, audio-visual management and management techniques. It was felt that there may have been overlap of educational programmes amongst RML, NLM and MLA (Medical Library Association). The responsibilities were thus broadly delineated in 1978. NLM would be responsible for training Medline searchers, and regional audio-visuals consultants; RMLs would concentrate on untrained librarians and MLA would serve as primary provider for educational activities at the "professional" level⁴¹. The provision of training programmes continued in the RML contracts with a view to train the librarians to provide better information services and make use of network services but on a cost-recovery basis. In the first year, RMLs were required to recover 25% and in the third year 75% of the cost of providing consultations and presenting workshops⁴². Eventually they were phased out as an RML service in the RML contracts.

7.10.7 Audiovisual Services

Initially the RMLs coordinated the provision of audiovisual loans from the National Medical Audiovisual Centre (NMAC), Atlanta. NLM provided each region with a "satellite collection" of about 300 video-cassettes from NMAC's collection. NLM's own video cassette collection was also available for loan. Training was imparted to at least two persons from each region at NMAC as audiovisual consultants further to the recommendations of the Ad Hoc RML Committee on Requirements for a Training Program for RML Media Consultants in 1973. They developed and taught workshops on establishing audiovisual collections and services. The role of a regional

audiovisual consultant as a formal part of the RML programme was, however, abandoned in the subsequent contracts of 1983.

7.11 Summary and Conclusions

The medical library systems in the U.S.A. and the U.K. represent two major national networking systems and provide some interesting historical contrasts. The principal initiative in the U.S.A. has come from the National Library of Medicine under its federally sponsored Regional Medical Library Programme. The whole country is divided in eight regions. Each region has a regional medical library which provides leadership and services under a contract with the regional medical library programme. The individual institutional libraries are assisted with advice, staff training and funds to play a variety of roles in network operations in each regions. In the U.K., almost all health care is publicly financed through the National Health Service. The NHS is a loosely knit structure of Regional Health Authorities. The whole range of services is planned by these 14 RHAs in England and by the respective Government departments in Wales, Scotland and Northern Ireland. It is at this 'regional' level that most activity in the coordination of medical and health library services has been concentrated with very little central initiative or guidance. National activities may be seen in the coordination of NHS-RLG, which is an independent body formed at the instigation of the regions/regional librarians themselves.

There is another noticeable contrast between the U.S. and the U.K. models. This lies in the role of the "regional library". In the U.S. all the regional networks are strongly led by regional libraries based in major teaching institutions. In the U.K. it seems that

the situation is reversed as in most of the regions there is no "regional library", although a cooperating university medical school usually acts as a bibliographic resource centre under some form of a contract with the regional health authority. In a few regions the university medical library (in a teaching hospital) has certain regional coordinating responsibilities. But in general the health authorities administer and plan their services through their own library staff.

The Regional Medical Library Programme played a key role in the creation of a viable, effective national health sciences library network in the U.S.A. The programme provides assistance to many health science libraries enabling them to develop to a stage where they could participate in a network activities. The RML's recognised that in order to accomplish network objectives successfully, each region needed a cadre of well developed health science libraries. There could be considerable delays in the delivery of information without local access to good and well organised library resources. An extensive growth and development of medical and health science libraries was thus undertaken between the 1969 and 1984. A study of the hospital library development in one region of the RML network showed this among hospital libraries in the areas of staffing, collection size and services⁴³. It was because of regional medical library programmes that the library resources and services were stimulated and made substantial improvements. As hospital libraries across the country developed, they organised sub-regional networks, or consortia, to promote cooperation and resource sharing on a local level.

One of the great successes of the Regional Medical Library Programme (RMLP) has

been to encourage the professional growth of health science librarians. By imparting training to health science librarians, a mechanism was created to tap the vast resources of the medical literature. With trained librarians, the health science libraries could more visibly demonstrate their effectiveness and broaden their user population. As funding would decrease, librarians learned to develop new avenues and cooperate and rely on one another to satisfy the needs of their increased member group.

The cooperation of health science libraries was present before the development of the RML network but such cooperation was limited in area and scope. The RML network successfully coordinated the activities of over 3,000 libraries towards the accomplishment of a common goal. The network development has been evolutionary in nature which has been constantly responding to financial constraints, technological innovations, environmental influences and the changing information needs of health professionals. The common mission, guiding principles, programme areas and goals remained largely constant. Objectives are, however, open to creative processes and may vary. This creates a stimulus for the biological evolution of the network programmes and services. The innovations, however, do not override national network uniformity. Some other conclusions may be summarised as follows:

- 1 The RML services were to supplement and not substitute the existing services.
- 2 The development of programmes and services has all along been responsive to the local needs to accomplish national objectives. This remains one of the strongest features of the RML network.
- 3 The involvement of NLM as one of the Regional Libraries proved only a short-term measure. It had initially served as one of the RMLs but with-drew

from its role as an RML to concentrate on network administration and management.

- 4 Cooperative serials acquisition programmes, which receive highest priority on regional basis, paved the way for their coordination into a national resource.
- 5 The development of formal hospital/health science library consortia to promote the sharing of resources was encouraged by the RMLs and NLM. Such cooperative arrangements frequently resulted in increased self-sufficiency without extensive financial drain on individual institutions.
- 6 The national network policies strive to provide a uniformity in the delivery of health care information without jeopardising the necessary regional variations.
- 7 The network model allows for a distribution of services consistent with the level of need and the characteristics of the individual region.
- 8 The model provides for testing different marketing models for RML network products and services so that if one fails the entire network does not fail and if one succeeds it can be transferred to another region.

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CHAPTER 8

INFORMATION NETWORKS AND SYSTEMS IN INDIA: A REVIEW

8.1 Background

Information networks are sets of interconnected information systems which operate through formal or informal agreements between participating institutions¹ and their purpose is to access and utilise the data and information resources of the institutions. In addition, such networks enable access to other databases within the country and abroad just as libraries in Europe and America make use of data networks for interactive or online searching of databases². Information networks presuppose appropriate communications technology for information transfer and networks are based on well-equipped information centres having compatible interconnecting links³.

There have been many attempts in India during the last two decades to computerise library activities. However, it is only during the last 4-5 years that libraries have become concerned to computerise their operations and there are now about 50 libraries known to be automating their activities. Some of the major organisations engaged in computerised information handling are:

- 1 Indian National Scientific Documentation Centre (INSDOC), New Delhi

- 2 Documentation Research and Training Centre (DRTC), Bangalore
- 3 Indian Institute of Science (IISc), Bangalore
- 4 Indian Institute of Technology (IIT), Madras
- 5 Indian Institute of Technology (IIT), Kanpur
- 6 National Informatics Centre (NIC), New Delhi
- 7 Bhabha Atomic Research Centre (BARC), Bombay
- 8 Tata Institute of Fundamental Research (TIFR), Bombay
- 9 Physical Research Laboratory (PRL), Ahmedabad
- 10 Indira Gandhi Centre for Atomic Research, Kalpakam, Madras
- 11 Defence Scientific Information and Documentation Centre (DESIDOC),
Delhi
- 12 NISSAT Sectoral Centres: NICDAP, Lucknow; NICLAI, Madras;
NICFOS, Mysore; NICMAP, Bangalore; NICRYS, Madras.
- 13 ICAR Agricultural Research Information Centre (ARIC) provides
computerized information services from AGRIS

Information Centres in R & D units of industrial undertakings such as BHEL, Hyderabad; HMT, Bangalore; IDL, Hyderabad; EIL, New Delhi; and MECON, Ranchi have also developed the capability for computer based library and information activities. Other notable institutions engaged in computerization are the Central Secretariat Library, New Delhi; Bureau of Indian Standards, New Delhi; Institute of Armament Technology, Pune; National Aeronautical Laboratory, Bangalore; National Council of Applied Economic Research, New Delhi; NISTADS (CSIR), New Delhi; PID (CSIR), New Delhi, NITIE, Bombay; and VSSC, Trivandrum. In the University

system the Tamil University at Thanjavur has taken a lead in initiating computer based activities. About thirteen other university libraries are reported to be using computer for one or more library functions.

Some of the libraries making use of on-line are:

- 1 Bharat Heavy Electricals Ltd. (BHEL), Hyderabad
- 2 The International Crop Research Institute for Semi-Arid Tropics (ICRISAT), Hyderabad
- 3 National Aeronautical Laboratory (NAL), Bangalore
- 4 Steel Authority of India Limited (SAIL), Ranchi
- 5 Reactor Research Centre (RRC), Kalpakhan
- 6 National Informatics Centre/Indian Council of Medical Research, Centre for Biomedical Information (NIC-ICMR), New Delhi

There were in 1984 more than 3,000 computers working in the country, out of which 1,750 are mainframes and the rest mini or microcomputers⁴. Since then their number increased greatly, especially microcomputers which became more affordable with decrease in their costs. India is developing computer technology under the Electronics Commission. Computers are being utilised for applications such as image processing, training simulations, photo-composition, language laboratory, design management applications, online production, planning and control, and in various spheres of information and communication technology⁵.

Telecommunication facilities are undergoing a revolution in India. Endlaw⁶ reported

that in 1948, India had about 80,000 working telephones served from a total of 320 exchanges and about 3,300 telegraph offices. There was not even a single telex exchange. Since then the telecommunication network has grown manifold. There are now about 4 million telephone connections served from about 12,500 exchanges; about 250 telex exchanges serving more than 40,000 connections; and more than 40,000 telegraph offices. Planning has been made and programmes have been undertaken to develop and enhance communication facilities like data, video, and voice services through a combination of microwave links, fibre optic cables in high capacity range, coaxial cables, VHF/UHF radio comprehensive communication networks throughout the country. Hi-tech communication technology has encouraged information technology and long range programmes have been undertaken by the Government of India and other organisations to promote and develop information networks as well as enhance existing capabilities. In 1984 the Centre for Development of Telematics (C-DOT) was launched to design a family of Digital Switching Systems for various applications such as, PABX, RAX, MAX, TAX⁷. Besides C-DOT there are several other organisations involved in the overall telecommunication related activities. Some of them are⁸:

- 1 Department of Telecommunications (DOT); responsible for overall telecommunications services in the country
- 2 Department of Electronics (DOE); for promotion and development of Electronics
- 3 Indian Telephone Industry (ITI); for producing all major telecommunications equipment
- 4 Telecommunications Consultants India Limited (TCIL); for the export

of products and services worldwide with focus on the Gulf and African countries

- 5 Bharat Electronic Limited (BEL); a large electronic manufacturing plant
- 6 National Information Centre (NIC); for providing national computer network, interconnecting over 430 Districts all over the country with online computer facility based on dedicated satellite links to four regional headquarters and the national headquarters in Delhi.

Information networks are operational in India at different levels and are at various phases of development⁹. Some are described below.

8.2 NISSAT

The Government of India in 1971 made a request to Unesco for a short-term appointment of a consultant to advise the Government about the establishment of an information network in science and technology in the country. Dr. Peter Lazar, who worked as a consultant, submitted a report on NISSAT (National Information System for Science and Technology) in 1972. At the Government level, the proposal for establishing NISSAT under the Department of Science and Technology (DST) was duly recommended by the panel group for the information sector of the high-powered apex body called the National Committee on Science and Technology (NCST) for the Five Year Plan 1974-79, and its implementation was finally authorized in early 1977¹⁰. With the reorganization of the Government of India in 1985, NISSAT was put under the charge of the Department of Scientific and Industrial Research (DSIR)

in the Ministry of Science and Technology. NISSAT, which is rather a programme than an information system as such, was formally launched in September 1977. It is being implemented as a decentralized network involving standardized and mutually compatible systems for collection, storage and dissemination of information. The NISSAT headquarters at present functions as the national focal point in the field of scientific and technical information¹¹.

Objectives

The overall objectives of NISSAT are to interlink and coordinate a large number of systems, sources and services into an effective information network under a coordinating agency. Gaps in information sources and services are to be identified and filled up accordingly. Internationally compatible national standards and guidelines for information handling techniques are to be evolved and applied to facilitate interchange of information at national and international levels¹².

NISSAT Network

The NISSAT Network is comprised of the following:

- 1 Sectoral Information Centres (SIC)
- 2 Regional Information Centres (RIS)
- 3 Other specialized services

One of the guiding principles of NISSAT has been to make maximum use of the existing resources and facilities, particularly in view of the usual financial constraints for the programme. The system has already taken steps to integrate and coordinate the existing sources and facilities and to fill up the gaps rather than to duplicate them

or to build up new ones. Some of the existing information centres and services were upgraded whenever required by providing additional inputs from NISSAT so that services at the national level could be offered by these centres.

Role of the Sectoral Information Centres

The SICs are expected to meet the information needs concerning a particular discipline, mission or product. A SIC coordinates its activities with the other relevant information centres called Local Information Units (LIUS) in that particular field. A SIC therefore is to be part of a national level research laboratory engaged in research and development work in that particular discipline, mission or product so that services of subject specialists would also be available for various jobs such as abstracting, information analysis, etc. This would also help in a better utilization of the information facilities and products created by the Centre. The main functions of these SICs include all those areas concerned with the planning, coordination and cooperation of their activities as well as acquisition, organization and dissemination of information to their clientele. The following seven Sectoral Centres have been established until now, the first four in 1977, the fifth one in 1981 and the sixth and seventh in 1988:

- 1 National Information Centre for Leather and Applied Industries (NICLAI) at the Central Leather Research Institute, Madras.
- 2 National Information Centre for Food Science (NICFOS) at the Central Food Technological Research Institute, Mysore.
- 3 National Information Centre for Machine Tools and Production Engineering (NICMAP) at the Central Machine Tools Institute, Bangalore.

- 4 National Information Centre for Drugs and Pharmaceutical (NICDAP) at the Central Drug Research Institute, Lucknow.
- 5 National Information Centre for Crystallography (NICRYS) at the Department of Biophysics and Crystallography, University of Madras, Madras.
- 6 National Information Centre for Textiles and Allied Subjects (NICTAS) at the Textile Industry's Research Association, Ahmedabad.
- 7 National Information Centre for Chemistry and Chemical Technology (NICHEM) at the National Chemical Laboratory, Pune.

The local information units (LIUs) as envisaged in the original plan for each SIC would be identified in future and supported so as to help in developing a national network of information services in that particular field.

Development of Infrastructure and Services in the SICs

During the past ten years, the SICs have been provided financial support by NISSAT so as to augment their equipment facilities, information resources and publication activities. Each of these centres has consequently built up large document collections, acquired a wide range of equipment, such as plain-paper copier, microfiche reader-printer and processing system, off-set printing system, etc. In addition some of them have acquired their own computer system (e.g., NICFOS and NICDAP) or use the computer facilities of their parent organization (e.g., NICMAP) or make use of the one available in some other institutions locally (e.g., NICLAI uses the facility at the Indian Institute of Technology, Madras). Each of these SICs provides a wide range of

information services such as current awareness service (CAS), selective dissemination of information (SDI), translation, reprographic and micrographic services. It prepares state-of-the-art reports, subject bibliographies, directory of the on-going projects, and does repackaging of information on a regular basis to meet the varied interests and demands of the clientele. In addition, these centres organize seminars, lectures, etc., on the basis of their interest and activity.

8.3 HELLIS

HELLIS is the acronym for Health Literature Library and Information Services network covering the countries of WHO South East Asia region, namely, Bangladesh, Bhutan, Burma, DPR Korea, India, Indonesia, Maldives, Nepal, Sri Lanka and Thailand.

In 1976, the Regional Advisory Committee for Medical Research in Southeast Asia Region of WHO, recognizing the need for scientific information by research workers recommended that a mechanism be developed whereby all research workers in the region will have access to the health literature they require. The Southeast Asia Regional Committee of WHO at its meeting in 1978 followed this up and recommended that a network of health science libraries be set up to provide health literature and information services in the countries of the region¹³.

The basic concept behind HELLIS is that of resource-sharing. In 1979, the Southeast Asia Regional Organisation (SEARO) organized an inter-country consultation meeting of senior librarians, administrators and users of libraries to discuss the feasibility of

establishing a resource sharing network of libraries in the region. The objectives of the HELLIS Network is to make better use of the existing resources in other countries of the region, and the information resources in other regions¹⁴.

In each country, there will be a national HELLIS Network with a focal point; and the Regional HELLIS Network is conceive to be formed by the linking of the national focal points designated in seven countries of the Southeast Asia region. The National Medical Library at New Delhi has been designated as the national focal point for India. Since the first consultative meeting in 1979, HELLIS has made important progress and several inter-country cooperative activities have taken place for the development of the services. Some of them are¹⁵:

- 1 Regional workshops on health science library network management (10-21 August 1981 and 10-21 August 1982).
- 2 Workshop on MeSH indexing of health literature (3-14 August 1982).
- 3 Index Medicus for WHO Southeast Asia Region, compiled and issued since 1983.
- 4 Consultations provided by SEARO to assist in the development of the network.
- 5 Retrospective bibliographies are being published (e.g., An annotated bibliography of medical literature in Burma 1886-1980 compiled by Khin Thet Htar.
- 6 Free MEDLINE searches and photocopies (e.g., WHO Regional Office in Delhi was offering free limited search facilities for doctors and allied health professionals in India until 1987-88).

- 7 The HELLIS Newsletter disseminates relevant information of HELLIS activities.
- 8 The Regional HELLIS Committee has been constituted to advise on the development of the regional network.

Steps are also being taken to consider the linkage of Health Service Research (HSR) to Health Literature, Library and Information Services (HELLIS). A consultative meeting on standardization of procedures in the HSR Information System was held from 11-14 January 1983 at the WHO Regional Office for Southeast Asia in New Delhi.

The particular significance of the project is that it is the first information system in the framework of the WHO Health Literature Service Programme that aims at a better control and dissemination of fugitive literature, that is, documents that are not available through commercial channels. This bibliographic category comprises notably technical and research reports, working papers, proceedings of meetings, official and semi-official documents, theses and various other relevant mimeographed publications. Very few efforts have been made to collect such fugitive literature and consequently their dissemination has remained very restricted and their contents largely unknown.

8.4 INFLIBNET

The University Grants Commission (UGC) constituted a committee on National Network System in 1988 to suggest measures for networking libraries in the country so as to share documentary resources towards optimum utilisation and to avoid

duplication in holdings to the extent possible. The report Development of an Information and Library Network (INFLEBNET) was submitted in December 1988¹⁶. The INFLIBNET is expected to cover more than 170 universities, more than 5500 colleges, a good number of R & D institutes and other research institutions.

INFLIBNET is envisaged as a national academic library and information network to improve the capability for information transfer and access to resources located all over the country. It is a multiple function and service network based on library services, database services, document supply services, resources sharing and communication based services. The national centre will operate through: 1) four regional centres; 2) UGC information centres covering major subject areas; and 3) sectoral centres (national level centres on specific disciplines, subjects or projects) of the National Information System for Science and Technology (NISSAT). Most of the network nodes at universities, sectoral information centres, selected R & D centres and specialized institutions will be connected via satellite. The terminals in university departments and colleges will be connected in Local Area Networks (LANs) through dedicated leased or dial-up lines or through VHF radio links depending upon the situation. The network foresees electronic mail and interlibrary loan and will provide document delivery either by post or through facsimile (FAX). There will also be arrangement for video, audio and computer conferencing in broadcast mode.

8.5 VIDYANET

Recognising the need for a dedicated information and communications network between the leading laboratories and research institutions in the country, VIDYANET

has been planned as a networking system to enhance computer capabilities and to provide communication channels for data exchange, electronic mail and dialogue amongst the scientists¹⁷. Tata Institute of Fundamental Research (TIFR) staff are working on this project which aims to provide fast communication links by interconnecting various computer systems located at different laboratories and research institutes in India. In the first phase, institutions like, the Indian Institute of Technology, the National Physical Laboratory, Indian Statistical Institute, Tata Institute of Fundamental Research, Bhabha Atomic Research Institute, Indian Institute of Geomagnetism, Indian Agricultural Research Institute, All India Institute of Medical Sciences will be interconnected through the network. The focal node of the network will be interconnected with a gateway to similar networks, like the European Academic Research Network (EARN).

In the second phase, leading research institutions at Ahmedabad, Bangalore, Bhopal, Calcutta and Madras will be linked. It is visualised that within a period of about three years, ten major cities in the country will be interconnected. VIDYANET is planned to link computers via programs, documents, etc.; receiving and sending electronic mail; exchanging real-time messages; sharing computer resources, accessing databases and the like¹⁸.

8.6 NICNET

National Informatics Centre Network (NICNET) is an information network providing management information system for Central and State Government users. It is meant for both bibliographic and non-bibliographic information, part of which is of a

sensitive nature and not available to the public. The network was commissioned in 1987¹⁹.

The National Informatics Centre (NIC), under the Electronics Commission, Government of India, is responsible for the development of computerized information systems for the user government departments, ministries, and autonomous organizations²⁰. To achieve this, at the initial stage, NIC has built up an intra-city network connecting computers and terminals with a CYBER 170/173 system. In the second phase, NIC installed one dual processor computer (NECS-1000 Model 20D) at New Delhi and three very large computers (NECS-1000 Model 10) for 3 regional centres, one each in Bhubaneswar, Pune and Hyderabad. Mini-computers are being installed in State capitals at 26 locations and 386 based IBM PC compatible computer systems have been installed in about 350 district headquarters. NICNET consists of two components; a master earth station in New Delhi and a number of micro earth stations and controllers installed in all the states and district centres which transmit to the satellite.

NICNET is a distributed data processing network working at various levels. At the local level District Informatics Centres are responsible for collecting, generating and storing information. The State Informatics Centres are supporting and coordinating the District Informatics Centres. The Regional network is coordinating the State Centres and is interconnected with the National Centre. Such an information network is considered of prime importance for short-term, medium-term and long-term national planning in various areas.

NIC has developed and implemented information systems to assist Central Government administration in taking appropriate and timely decisions. It is providing services to all the Central Government departments and has established many information systems in various areas. It has also developed some computer applications to facilitate interaction with various databases.

8.7 ERNET

To serve the growing information needs of the academic and research community, the Educational and Research Network (ERNET) has been planned. The Indian Institutes of Technology, Indian Institute of Science, Department of Electronics, Government of India are the basic partners in this network. ERNET²¹ aims to reach hundreds of academic and research institutions all over the country in the areas of science, technology, engineering and the like. Campus-wide Local Area Networks (LANs) are being built up which will be interconnected by satellite-based Wide Area Networks (WANs). This network is in implementation stage with support from UNDP.

8.8 CALIBNET

NISSAT has envisioned a Metropolitan Area Network (MAN) in large cities of the country in different regions. These networks will be part of the Educational and Research Network (ERNET), a project of the Department of Electronics, Government of India. The networks will interconnect primary educational institutions in various metropolitan areas which will act as primary units for network support. Each metropolitan area network is designated as LIBNET and the particular network is named for the metropolitan area connected, for example, in Calcutta it is known as

CALIBNET, in Delhi as DELNET, and so on.

The main objectives of the LIBNETS are the efficient management of the limited resources, resource sharing and free flow of information throughout the country. These networks deal only with scientific and technological information resources and their better utilization through resource sharing, cooperation and coordination. They will also ease the functional load of information centre management, create awareness regarding technological advancement and motivate utilization of communication processes.

The survey on CALIBNET began in 1988. In the first phase, it will interconnect 38 computerized science libraries in the Calcutta metropolitan area. The network will carry out both housekeeping as well as information storage and retrieval tasks. It will also provide current awareness services, SDI, union catalogues, and partial databases as well as access to national and international databases. It will also handle information transfer and document transfer.

The network configuration is based on a localized database approach. Each library will hold online bibliographic database records. And each library will be provided with system software, communication software, bibliographic database software and application software. A host computer will contain the complete bibliographic database with the necessary authority files. This will be interconnected with individual library units as well as with other LIBNETs through national communication networks. Each LIBNET will have access to national and international

databases. The applications to be supported are electronic mail, file transfer, remote log-on and database access along with document exchange.

8.9 INDONET

INDONET is the first commercial computer network being developed by Computer Maintenance Corporation Limited (CMC). It was set up with the approval of the Electronics Commission, Government of India in 1982. It provides integrated national data communication facilities designed in phases. At the first phase computer centres have been set up in Calcutta, Bombay, Madras (with IBM4361 computers) New Delhi (with a PDP 11/44 computer) and at Hyderabad (with a ROB 1055 computer). The computer centre at Hyderabad has access points at Bangalore, Ahmedabad and Pune. The network has adopted IBM's Systems Network Architecture using dedicated lines for intra-city communication and data transmission²².

The number of INDONET centres increased to about 100 by the year 1990. The system design has been planned as a STAR network with the central node in New Delhi which will be provided with roof top earth stations and packet switch technology for data transmission. The Bombay node of INDONET has been connected to the international gateway of Videsh Sanchar Nigam for access to Public Data Networks of foreign countries. In the second phase the INDONET computer systems will be linked via India's multipurpose satellite INSAT-IC for fast and reliable communications.

For communication between INDONET centres and intra-city communication

VHF/UHF radio links using multiple access digital packet radio scheme will be provided. For international gateway facilities INDONET will be connected with SPRINTNET (formerly called TELENET) and TYMNET networks in the U.S.A. in the first stage and other countries gradually. It is also envisaged to provide data security by customer controlled barrier to protect the secrecy and integrity of data for individual user.

INDONET will provide medium to large sized computer systems each with one MIPS (million instructions per second), main storage of 2-4 Megabytes, printers, floppy readers, intelligent terminals and other peripherals. The network is expected to meet the requirements of a wide range of users in various fields of scientific, technological, industrial, agricultural, commercial, rural development and other areas with local, remote and distributed data processing facilities. Since the organizations are spread over a vast geographical area, distributed data processing will be a major advantage of the network.

8.10 VIKRAM

The Department of Telecommunications, Government of India, has planned a packet switched public data network to develop a communication system known as VIKRAM. The network will consist of eight switching nodes and twelve remote access points with a Network Management Centre at New Delhi. At present the network is in the experimental stage. The National Centre for Software Technology at Bombay is making a feasibility study to set up a computer network for exchange of information among 40 laboratories of CSIR²³.

8.11 Conclusions

In India the full impact of the role of information technology has been recognised very recently and the information systems are developing and expanding gradually. The development of computer communication networks has undoubtedly been an important technological advance in India. The research and development activities in India by CMC to assimilate and indigenise expertise in the field of computer networking is a major initiative. At present, the information networks in India are in three stages of development. Some networks are at the operational stage, some are in the implementation stage, and some are in the planning stage. So far as subjects and disciplines are concerned, medical and health science does not appear to be in the forefront. A very encouraging trend is that the situation is changing rapidly due to the realisation of the need for cooperation at the local, regional and national levels. The networks are, however, being planned and implemented in many areas of the country by different agencies without any collaboration. While this may be the consequence of some local initiatives and needs, it poses the possible danger of their hasty development which will later make their combined search difficult because after establishing physical links in the data networks, one faces the more difficult problem of protocol and the need for some form of self-explanatory front end which could make interrogation of various databases less complex. Various databases may use different search softwares and varying methods by which a record is constructed within an individual database, but the need for some form of common and self-explanatory front-end to minimise the complications of interrogating various databases through diversified protocols is immense and this problem should be addressed at the developmental stage through accord and united action.

There is no network for bibliographic online information retrieval in India at present, but efforts are being made to develop online networks which can be used to access medical and health care information as well. The best example of these efforts is NICNET (National Informatics Centre Network). In 1987, NIC (National Informatics Centre) was identified as the Centre for MEDLARS operation in India and collaborated with ICMR (Indian Council of Medical Research) to offer services on MEDLARS. An agreement was then signed between the NIC and the National Library of Medicine (U.S.A.) and ICMR-NIC was set up for implementation of the MEDLARS database programmes in India.

Now let us see why medical library planners should be concerned about networks and how the proposed system, MEDLIS, hopes to benefit when data networks are fully available in India. In the library world institutions form networks primarily to achieve better sharing of resources (bibliographic information and collection) and better services to users. The focus in the present context is on online networks, those using computers and linking member libraries to the computer resources by means of telecommunications connections. Networks have significant future implications for expanding and sharing the resource base and reference base because it is not possible to increase the resources in all the medical and health science libraries to the extent that the demands of the medical and health care professionals are fully met by their local libraries. The size of the country leaves huge distances between institutions and it is important to distribute the money and material in such a way that we can still have speedy access even if we do not own the document/information. Data networking thus becomes increasingly significant as the need for cooperation and

exchange increases. The online networks would ultimately make this feasible for MEDLIS and permit instant access to union catalogues, instant transmission of interlibrary loan requests, inter-active message transfer, instant telefaxing of documents including graphics. When online networking is finally available for bibliographic information transfer, it will offer many exciting possibilities for MEDLIS too. Initially it could be databases of holdings in major medical libraries in various regions of the country. Connected to a network, one can visualise users in libraries in these regions being able to query and view online catalogues. One can foresee institutional libraries being able to down-load bibliographies from a database in a major regional library. Acquisition requests originating from member libraries can be conveyed online for central review and electronic processing of orders should become possible through the major regional libraries. As things develop, electronic mail facilities could be possible with the cost becoming more affordable when the data networks are finally available/operational in the country for bibliographic information transfer.

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CHAPTER 9

A PROPOSED MEDICAL LIBRARY AND INFORMATION SYSTEM FOR INDIA

9.1 Library and Information System to be Designed (MEDLIS)

The overall design can be based on an evaluation of the present situation of India's medical library and information provisions (chapter 3); an appreciation of the environmental factors (author's personal experience); keeping in view the patterns of medical education and health care systems in India (chapter 2); the review of non-bibliographic information networks and systems developing in India (chapter 8); regional organisation of the library and information service systems in the U.K. and U.S.A. (chapters 6,7); and direct regional support services (chapters 6,7). The proposed system, MEDLIS, stands for Medical Library and Information System for India.

9.2 Identification of the Objectives

The design stages of the systems planning demand that the major objectives for the new information system and the sub-objectives for its operation must be identified to develop a unified set of goals and facts obtained about the available services and

resources, including data processing equipment for the new information system and recognition of human constraints in its implementation¹. The overall objective of the new information system may be simply a general statement of the aims and goals that it seeks to achieve. It is obvious that the policies of the Central Government for the development of education, information and library services in particular and economy, science, technology, etc. in general, will greatly influence the development of the networking system under Indian circumstances. The system will therefore be assigned both long-term and short-term objectives which will take into account: national policies; the perceived need of users; and the performance and resourcefulness of individual nodes in attempting to satisfy the objectives. It is certain that all the objectives cannot be quantified or expressly identified since some of them fall into social, behavioural, psychological and political categories. Their determination here is based on the personal knowledge, analysis of the present situation of the medical library and information provisions, the common objectives of library and information systems in India, overall consideration of the standards (where they exist), and the context of the system to be designed (chapter 1).

The proposed system for India (MEDLIS) endeavours to establish a national networking system of libraries in medical and dental colleges, schools of nursing, departments of pharmaceutical sciences, research institutes, Ayurvedic and Unani degree colleges, homeopathic medical colleges, and other institutions conducting diploma and postgraduate courses. It will also provide a framework for the existing and planned efforts in networking for medical and health science libraries which have been the most neglected ones so far. The overall aim is:

to enable the medical and health care professionals all over the country (irrespective of location and distance), to have access to information regarding relevant books/monographs, serials, non-book and audio-visual materials by locating the sources where available by use of a union catalogue of documents and to obtain them through their institutional libraries and by the use of the facilities of new communication technologies and document delivery methods.

Based on this, the author identifies the following as the overall objectives for the system being designed:

- 1 To evolve a national networking system of various types of medical and health science libraries in the country and to improve capability in information handling and services.
- 2 To provide access to the document collections of major medical and health science libraries by creating an online union catalogue of monographs, serials, non-book and audio-visual materials in various libraries in India.
- 3 To provide better access to Indian Medical Literature (such as periodical articles, conference papers, monographs, etc.) through locally created databases of Indian medical literature and by establishing gateways for online accessing of international medical databases.
- 4 To provide document delivery services by establishing zonal/regional libraries in the institutions having richer document collections and better budgetary resources.

- 5 To optimise the use of bibliographic information sources through shared cataloguing, interlibrary loans, catalogue production, collection development, and avoiding duplication wherever possible.
- 6 To implement automation of operations and services in the major medical and health science libraries in the country following a uniform pattern/standard.
- 7 To encourage cooperation among medical and health science libraries in the country, so that the resources can be pooled and can also benefit the weaker resource libraries by the stronger ones.
- 8 To develop suitably qualified personnel to establish, manage and sustain MEDLIS.
- 9 To evolve standards and uniform guidelines in library techniques, methods, procedures, computer hardware and software, etc.
- 10 To promote the practice of standards and uniform guidelines by the member libraries in order to facilitate pooling, sharing and exchange of resources and facilities towards optimisation.
- 11 To ensure that the proposed medical library and information system conforms to the overall library and information plans of the Central and State Governments.

Apart from the overall objectives, there will be sub-objectives for different types, levels of nodes and individual nodes which should comply with the overall system objectives and its functions. They will, of course, vary among the levels and types of nodes to reflect their own orientations in functions, services and responsibilities.

Once the overall network objectives have been identified and agreed by the participating members, every member will be required to work towards the objectives.

The identification and evaluation of the resources (physical, personnel, financial, and others) that are potentially available to meet the objectives are vital in the design of networking systems. The assessment was done through a survey, and the results discussed in chapter 3.

9.3 Determination of the System Structure

The organisation of the existing medical library and information provisions and facilities which would evolve into a national system is perhaps one of the most crucial aspects in the development process. Whether networking systems are computerised or not, they can be configured in a number of traditional ways for resource-sharing activities. A brief description of the most common configurations, namely, 1) star or centralised 2) hierarchical or tree 3) loop or ring and 4) distributed or decentralised, is given in Appendix L. In the circumstance, one needs to consider: 1) the type of information system to be envisaged; 2) the options in the Indian context; 3) the appraisal of any social, political, and geographical factors that must be relevant. It is pertinent to discuss some operational considerations in order to provide the proper setting on which a suitable framework can be established.

With respect to the types of information systems at least one of the three can be adopted, namely, a centralised system, a decentralised system and a combination of centralised and decentralised system. Each has advantages and disadvantages. In a

centralised system, a central or national body is the outcome, and to it all the library and information centres are subordinated. A system such as this ensures that there is no duplication of resources by libraries/information centres which are situated close to one another. This implies that central acquisitions are the rule rather than the exception; exchanges between the information centres are very practicable; and compatibility of systems, especially in bibliographic organisations, is assured. However, a centralised system works well in small-to medium-sized countries but remains rather unsuitable for a country the size of India.

A decentralised system on the basis of the constituent States of the Republic is another possible option. Each State may evolve a system (perhaps distinct from each another) and remain responsible for its policies, decisions and above all funding. This system is likely to ensure a comprehensive coverage of materials within a State. But the drawback here is that some of the States are small and in many ways deficient in library infrastructure and information provisions (table 9.1). Besides, the experience shows that States usually have scarce funding and are hesitant to finance such developmental projects. At the same time it is disadvantageous in a country as large as India because efforts are doomed to become fragmented and uncoordinated, and if not harnessed by a central coordinating body, they are bound to lead to duplication.

One more option here is a combined system of centralised-cum-decentralised scheme. This envisages the creation of decentralised systems (or sub-systems) based on zones/regions whose activities are coordinated by a central or supra-system. This supra-system will have such functions as making policies, funding the sub-systems,

TABLE 9.1
Medical and Allied Health Science Colleges in India: State-wide Distribution

State	Uni	Med	Den	Nur	Pha	Ayu	Una	Hom	Dip	To
Andhra	06	10	01	04	09	04	02	04	01	35
Assam	02	03	01	01	01	01	00	04	00	11
Bihar	07	09	01	00	02	01	00	11	00	24
Chandigarh*	02	01	00	01	01	00	00	00	00	03
Delhi*	02	05	01	02	02	00	00	01	01	12
Goa	01	01	01	00	01	00	00	00	00	03
Gujarat	05	06	01	01	04	09	00	05	06	32
Haryana	01	01	01	00	00	04	00	00	00	06
Himachal	01	01	00	00	00	01	00	00	00	02
J & K	03	03	01	02	01	00	00	00	00	07
Karnataka	06	24	05	01	25	08	01	05	05	74
Kerala	04	06	02	03	02	04	00	05	00	22
M. P.	07	06	01	02	02	07	01	07	00	26
Maharashtra	08	16	05	03	11	19	03	15	05	77
Manipur	01	01	00	00	00	00	00	00	00	01
Orrisa	03	03	01	01	01	04	00	06	00	16
Pondicherry*	01	01	00	00	00	00	00	00	01	02
Punjab	03	05	02	01	01	03	00	03	02	17
Rajasthan	02	05	01	01	01	05	00	03	00	16
Tamil Nadu	05	13	02	03	05	04	01	02	09	39
U. P.	09	09	02	00	01	18	03	10	11	54
West Bengal	04	07	01	01	01	02	00	12	00	24
Total	83	136	30	27	71	94	11	93	41	503

Source: Figures have been compiled from Association of Indian Universities. *Handbook of medical education, 1987*. New Delhi: AIU, 1987. The figures for 6 other States (Arunachal, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura) and 3 Union Territories (Andaman & Nicobar, Dadra & Nagar Haveli, and Lakshadweep) are not available.

Abbreviations

Uni = University affiliations
Med = Medical Colleges
Den = Dental Colleges
Nur = Nursing Schools

Una = Unani Colleges
Hom = Homeopathic College
Dip = Diploma & PG Centres
* = Union Territories

Ayu = Ayurvedic Colleges
Pha = Pharmacy Colleges
To = Total No. of Colleges
(Excludes universities)

staff training and advancement, research development, and most importantly, liaison with the Central Government. This system also ensures that the sub-systems remain semi-autonomous and are accountable to the supra-system or the central coordinating body. It is this system that is very likely to be acceptable to Indian conditions.

The examination of the existing patterns of cooperative activities in Indian medical and health science libraries reveals the lack of a unified structure since any such existing activities amongst libraries are informal and on a voluntary basis (figures 3.25 and 3.26). These libraries are, however, more likely to cooperate with other medical libraries in the adjacent States forming a geographic region. The regional organisation of States as administrative units forms a base for many developmental schemes in India and has been found convenient. The medical and health science libraries/librarians in such regions have greater affinity and by and large similar characteristics such as language groups, culture, geographical terrain, and requirements and it is more convenient to visit one another on account of their relative proximity. For example, the States in South India have a "Dravidian culture"² which differs from that of the Hindi or Aryan race/culture in North India.

The present political alignment in India also makes it much more likely that the organisational structure of India's medical library and information systems should be more or less hierarchical, but not rigidly so. The technology available and employed will affect the structure of the network. Decentralised networks generally use low-level communications technology; hierarchical structured networks use the telephone system with people interacting at each level; while centralised systems tend to use a

high-level of technology such as large computers³. However, the application of microcomputers tends to favour a decentralised structure. It may be kept in mind that many library and information networks (whether computerised or non-computerised) tend to have a variety of configurations in one system. They may be centralised in one aspect and decentralised, hierarchical, or mixed in others. The configurations for the particular functions to match alternative programmes (manual, computerised or semi-computerised) can be determined differently. If we take ILL function as an example, we find that ILL systems can be configured in different ways. Whether hierarchical, centralised, or distributed configuration suits better to manual, computerised or semi-computerised, should take consideration of: 1) present situation; 2) cost-effectiveness; and 3) possible modes in which the ILL system can be run.

9.4 Configuration of the System

In the suggested hierarchical plan, the proposed system will be composed of four types of library modules: a *Central Unit*, *Zonal Units*, *Special Units* and *Basic/Resource Units*. The number and location of these modules is based on the distribution of the population of medical and health care professionals; and teaching and research facilities and activities in the country. The basic intention is to equalize the probable availability of documentary resources/information among the major segments of medical and health care community. The proposed system and implementation particulars are so set as to permit ready augmentation or alteration by changing the number of modules, increasing or changing the functions performed by the modules, or both, depending on operating experience and future needs and circumstances.

9.4.1 Description of the System Modules

The relationships of the four types of modules with one another is shown in figure 9.1. *The Central Unit* serves as coordinator, system consultant and broker for the whole system. It is not to be affiliated with a particular educational or research institution and is staffed primarily by library and information professionals rather than by subject specialists. *The Zonal Units* serve as area/regional consultants and brokers and are primarily located in medical schools or institutions and staffed by library and information personnel. They serve their own institutions as well as libraries and individuals in other institutions of their State and assigned neighbouring States in the regional services system. *The Special Units* are located in institutions or centres of research with which they are concerned. These centres generally have significant collections in their fields of specialisation and their main users are researchers and specialists. *Basic/Resource Units* act as focal points for the library and information services in medical education and health care institutions. They acquire and lend current material of a basic nature, and also arrange interlibrary loans of those materials for which acquisition by the individual Basic/Resource Unit is not justified or possible. They also perform selected reference and bibliographical functions and are staffed by library and information personnel.

9.4.2 Determination of the System Functions

The functions of the four units given below are based on the general nature of the units, for example, the function of the Central Unit as "broker". They also relate to the economic need to concentrate on breadth in the national/central unit rather than depth in its collections and processing policies, as in the case of Special Units.

Relationship of the System Modules in MEDLIS

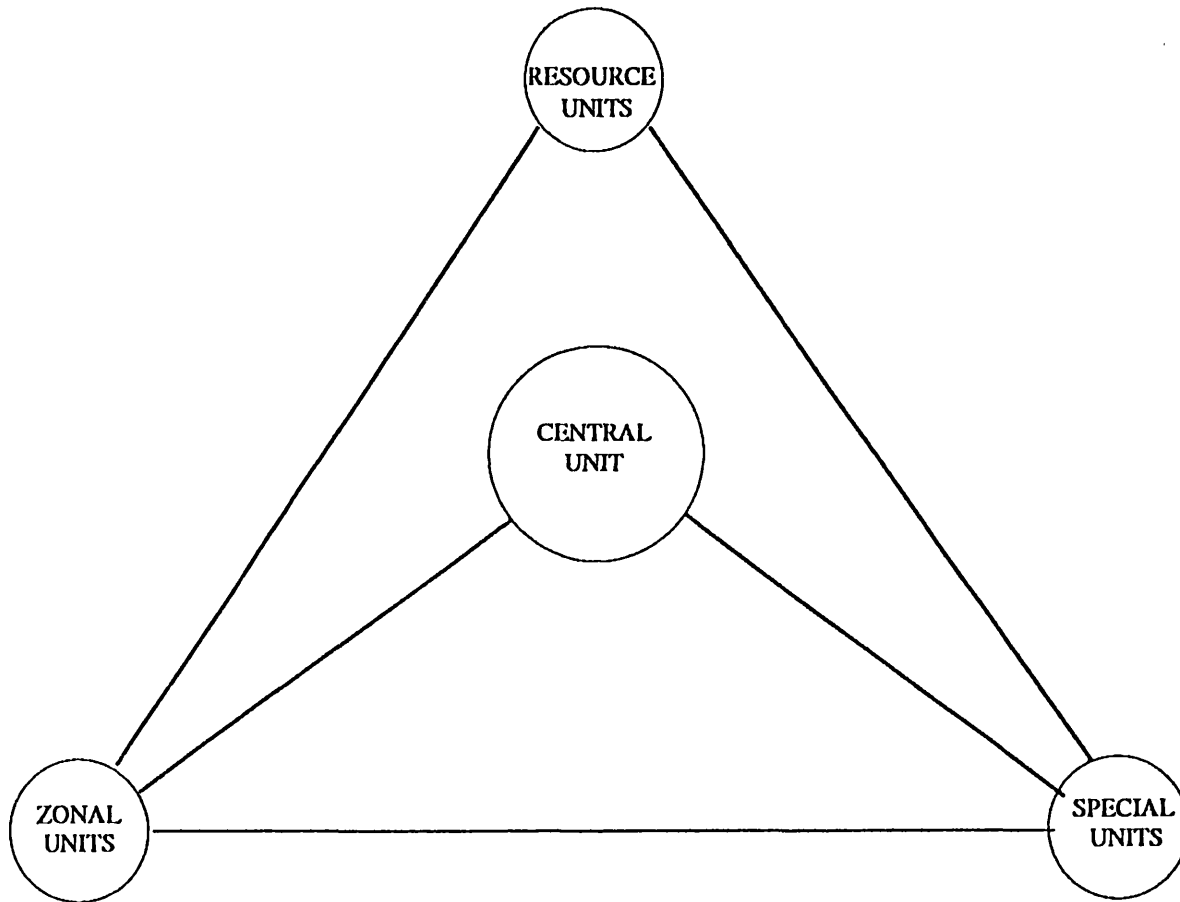


Figure 9.1

Finally they relate to the impracticability of attempting to assemble a body of subject experts at one place at the national/central unit who can accurately and representatively reflect the needs and views of active and specialist workers in all fields comprising pre-clinical and clinical medicine, and related subjects. However, these functions could be subject to future changes via feedback, advice, and indexing examples from subject specialists in Special Units.

9.4.2.1 Central Unit

The *Central Unit* serves as a national centre and to exert its best influence in a national networking system, it serves an important back-up for zonal/regional centres and performs the following functions:

- 1 Acquires foreign and domestic medical literature, including all bibliographies prepared within the networking system, systematically and comprehensively.
- 2 Retains all publications in its collections on an archival basis.
- 3 Performs relatively general indexing and cataloguing of all the material it collects.
- 4 Processes, reproduces, updates and disseminates computer tapes of its indexes and catalogue files to the Zonal and Special Units.
- 5 Disseminates printed indexes of the periodicals it collects and printed catalogues of its books, pamphlets, and reports to the Zonal Units, Special Units and to other interested libraries.
- 6 Disseminates contents pages of core periodicals on monthly basis to Zonal and Special Units in multiple copies for distribution to member libraries and other individuals.

- 7 Maintains the national union catalogue of medical publications.
- 8 Maintains and disseminates a union list of medical serials, a roster/file of sources of medical and related information inside and outside the network, and a list of current medical research projects to the Zonal and Special Units and other interested libraries on annual basis.
- 9 Performs source referral services for the Zonal and Special Units and for other libraries.
- 10 Collects and disseminates lists of new bibliographies, state-of-the-art reviews, and translations prepared within the networking system to the Zonal Units, Special Units and other interested libraries.
- 11 Furnishes interlibrary loans to the Zonal Units and Special Units when Resource Units are unable to provide them.
- 12 Collaborates in the development and dissemination of basic computer program and system designs to the Zonal and Special Units.
- 13 Serves as consultant to the Zonal Units and Special Units in the solution of computer and system problems.
- 14 Coordinates and supports continuing education and training programmes and curricula for medical library and information work.
- 15 Conducts, supports, and monitors research programmes in medical library and information processes.
- 16 Maintains and disseminates the information of current status and developmental research about the networking system.
- 17 Coordinates, maintains, and disseminates bibliographic, procedural, system, and personnel standards for the network.

- 18 Maintains and updates records of overall library transactions and finances for the entire networking system.
- 19 Prepares annual budgetary allocations and other requests for the networking system.
- 20 Acts as liaison with other information agencies and library networks in India and abroad.
- 21 Initiate exchange of experiences programmes nation-wide and gradually extend them to other countries.
- 22 Coordinates and defines the need for (new) Special Units, in consultation with the institutions involved with the various (macro and micro) subjects.
- 23 Strives to extend and modernise its services and fully benefit from new technology to develop a representative medical library practice to be emulated by other medical institutions in the country.

9.4.2.2 Zonal Units

The *Zonal Units* are strong candidates for the coordination and organisation of cooperative activities in the networking system and perform the following functions:

- 1 Collect domestic and foreign literature primarily pertinent to the activities of their own institutional members with multiple subscriptions to core journals which are in greater demand.
- 2 Collect and retain literature of particular importance to the regional needs, pay special attention to the local demands and try to establish collection and document services with local characteristics to satisfy most of the information needs within the zone as warranted by active demand and use.

- 3 Catalogue and process books, pamphlets, and reports within the subject sphere, utilizing printed catalogues from the Central Unit where possible, and providing the central unit machine-readable listings of all its additions.
- 4 Acquire, catalogue, and process publications for small libraries in regions, notifying the Central Unit of these additions.
- 5 Organise and build local medical databases based on the local information resources and supplement the national databases in the computerised information retrieval system.
- 6 Disseminate lists of its accessions to member libraries and Special Units.
- 7 Disseminate files of contents pages of core periodicals to member libraries and interested individuals on a monthly basis.
- 8 Perform requested literature searches and answer reference questions for member libraries and individuals, forwarding copies of all bibliographies prepared to the Central Unit.
- 9 Perform source referral services.
- 10 Provide interlibrary loans to member libraries, other Zonal Units and the Central Unit; and borrow items from the nearest Zonal Units and Special Units in the network as may be required.
- 11 Arrange requested translations for library and individual members forwarding copies to the Central Unit.
- 12 Lend requested publications to individual borrowers within its own institution.
- 13 Cooperate with Central Unit in the initial formulation and future changes in networking standards.

- 14 Serve as consultants to member libraries by mutually arranged regular visits of continuing education specialists within assigned territories.
- 15 Carry out information investigation and SDI services to support research projects in the region.
- 16 Conduct training programmes and participate in developing training curricula for medical librarians and information specialists within the Zones.
- 17 Conduct medical library and information research programmes financed by the Central Unit and other sources.
- 18 Maintain, update, and print out records of its own interlibrary transactions and financial records, as well as those of small local member libraries, forwarding machine-readable copies to Central Unit.

9.4.2.3 Special Units

To improve the effectiveness of their services and to exert the best influence in the national system, the *Special Units* perform the following functions:

- 1 Collect primarily literature on or related to the subject of specialization of the parent institution, including books, journals, non-book material and audio-visual material and furnishing the Central Unit with machine-readable listings of all other additions.
- 2 Retain collected literature as warranted by demand and use.
- 3 Catalogue and process publications within subject spheres, utilizing printed catalogues from the Central Unit where applicable.
- 4 Disseminate new accession lists to Zonal Units, individual members and interested libraries.

- 5 Disseminate files of contents pages of core periodicals to concerned individuals and interested libraries on a monthly basis.
- 6 Perform detailed indexing of selected articles, reports, and pamphlets, forwarding full indexing and descriptive catalogue information in machine-readable form to the Central Unit.
- 7 Prepare and disseminate regularly (or publish) bibliographies within the special subject, forwarding copies to the Central Unit.
- 8 Perform requested literature searches and answer reference questions for Central Unit, Zonal Units, and other libraries, individual researchers and specialists.
- 9 Prepare and publish state-of-the-art reviews initiated via requests or estimates of predicted need or interest, forwarding copies to the Central Unit
- 10 Perform source referral services.
- 11 Furnish interlibrary loans to Zonal Units, Central Unit, other Special Units libraries; and borrow items from them as required.
- 12 Arrange requested translations for library and individual members forwarding copies to the Central Unit.
- 13 Lend requested publications to members of its own institution.
- 14 Cooperate with the Central Unit in the initial formulation of network standards and recommendation of any changes.
- 15 Serve as information consultants to individuals and institutions working within the field of specialization and arrange regular visits by Continuing Education Specialists within assigned territories.

- 16 Conduct training programmes for librarians, information specialists, and subject specialists.
- 17 Conduct medical library and information research programmes financed by the Central Unit and other sources.
- 18 Maintain, update, and print out records of library and financial transactions, forwarding machine-readable copies to the Central Unit.

9.5 Identification of the System Modules/Implementation of the Proposed System

In order to serve as the basis for the proposed system, the existing medical library mechanism in the country would require drastic augmentation. The required expansion would be on the following levels:

- 1 If the National Medical Library (New Delhi) were to serve as the Central Unit, as logic dictates that it inevitably would and should, significant changes would have to be made in its decentralization and dissemination plans and how these are administered. These have been delineated elsewhere in the chapter.
- 2 Those libraries other than the National Medical Library (New Delhi) that are at an optimal (or near optimal) level of document collection, budgetary resources, physical facilities and personnel, would have to be aided in each of these categories in order to enable them to perform the services required of the Zonal Units.
- 3 Those libraries that are at sub-marginal level would have to be aided and brought up to an optimal level, and then augmented to enable them to perform as Resource Units.

- 4 Those institutions or research centres that do not have adequate library facilities to serve as Basic Units would require to be provided with library resources and services.
- 5 Those geographic regions or zones that are lacking in library facilities upon which Zonal Units could be based, would require proper provision and establishment of new libraries.
- 6 A method and rationale would have to be developed for selecting, implementing, and coordinating specialized library and information centres as Special Units so as to ensure that they are an integral part of the networking system.

9.5.1 National Medical Library as the Central Unit

The National Medical Library is already performing or planning to perform the bulk of the functions that it would be performing as the Central Unit⁴. Its main alteration in function would be one of degree rather than kind, although certain information and administrative functions would have to be added.

The following functions would be **added** to the National Medical Library if it were to serve as the Central Unit:

- 1 Overall network coordination and administration.
- 2 Network standards.
- 3 Budgetary allocations.
- 4 Maintenance of records of library transactions and finances.

- 5 National union catalogue of medical publications (this would be based only on current acquisitions).
- 6 Monthly files of contents pages of current periodicals.
- 7 Interim source referral services (probably would build up and then shift to Zonal and Special Units as they develop).
- 8 Roster of current medical library and information research in the country.
- 9 Consultations in library planning and building constructions.
- 10 Coordination of need for (new) Special Units.
- 11 Development, collection, and dissemination of basic computer programmes and system designs in conjunction with other specialist agencies. (Probably heavy during first few years and lighter there after.)
- 12 Processing, reproduction, updating and disseminating computer tapes.
- 13 Consultations in computer and system problems (probably heavy during first few years and lighter there after).
- 14 Conduct, support, and monitoring of relevant research programmes.

The following existing National Medical Library functions would be **improved**:

- 1 Union list of medical periodicals (the last edition of the Union Catalogue of Medical Periodicals in Medical Libraries in India was brought out in 1962).

- 2 List of periodical holdings of the NML (the last edition of Holdings of Periodicals in the National Medical Library was compiled and distributed in 1983).
- 3 Collection and dissemination of new bibliographies, reviews, and translations (some bibliographies were previously compiled on topic of National Health Programmes).
- 4 Roster of current medical and health services research in the country (the last Directory of Health Services Research in India was brought out in 1984).
- 5 Conduct and support of training and continuing education programmes for medical library personnel.

The following National Medical Library functions would be **affected**:

- 1 Collection and retention.
- 2 Indexing and cataloguing.
- 3 Dissemination of printed indexes and catalogues. (There would be an increase in the distribution of printed catalogues, and a decrease in the production of specialized indexes or recurring bibliographies, which would be handled by the Special Units).
- 4 Updating and dissemination of system vocabulary and classification.
- 5 Coordination with other information agencies.

The following National Medical Library functions would be **decreased**:

- 1 Interlibrary loans (about 150,000 pages of photocopies are supplied annually).
- 2 Bibliographic searching and reference services.

The National Medical Library in spite of changes resulting from the addition, deletion, increase, and diminution of functions, would not have to alter its present work force materially in order to serve as the Central Unit in the proposed system. There would be a shift in the types of professional personnel required, with a greater emphasis on systems, data processing, statistical, library and general administrative, and training categories, and a smaller emphasis on bibliographic and reference categories.

9.5.2 National Medical Library as a Zonal Unit

The National Medical Library (which was a departmental library of the Directorate General of Health Services until 1962) has for many years performed most of the functions of a departmental or institutional library and then as a sort of Zonal Library on behalf of the libraries and individuals in the Metropolitan city of Delhi. At present no data is available that could differentiate its user services in its geographic locale and the rest of the country, but it is generally understood that the best of the benefits of its resources go to the medical professional in the metropolitan city of Delhi and its libraries. This 'local' service is a logical outgrowth due to the natural tendency of institutions and individuals seeking documentary information to turn to the most resourceful library in their city because that is the library with the highest probability of having what they want. However, with the growth of medical activity in the area and with the development of other libraries mostly in the teaching institutions in the

city, it is becoming less necessary for the National Medical Library to serve as a departmental library or a sort of local library for metropolitan city of Delhi.

With the National Medical Library serving as the focal point of a national network of medical libraries, its services as a local library for Delhi becomes not only less necessary but less feasible. It would serve to deflect it from its basic and main mission, which is to serve as the national repository of medical literature and the coordinator of the nation-wide medical library system. There is no reason why the other libraries in Delhi, like the All India Institute of Medical Sciences, Maulana Azad Medical College, Lady Harding Medical College and the University College of Medical Sciences, with proper resources and facility augmentation, cannot serve their own institutions to a greater extent. Nor is there any significant reason why the libraries of these medical schools could not serve as Resource Units for the community of medical practitioners and small medical libraries, like G. B. Pant Hospital, Kasturba Hospital, etc. in the metropolitan city of Delhi. Bringing these libraries up to the level required for Resource Units would serve the dual purpose of making better information facilities available to their institutional members and removing pressure from the National Medical Library so as to facilitate the performance of its mission as the Central Unit for the networking system in the country.

9.5.3 Establishment of Zonal Units

From the survey of the medical and health science libraries in the U.K., we have seen how regional organisation of medical library services with the support of a Regional

Library/Unit has assisted the member libraries and successfully contributed both in administrative functions and user services (chapter 6). So in the interest of optimal services to the medical community in India as a whole and the constituent States in particular, Zonal Units will be called upon to serve libraries and individual members in other institutions of the region in addition to their members. This would mean, for example, that the library of PGI Chandigarh, as a Basic/Resource Unit might serve the PGI members only, but if it were to be a zonal unit, it would not only serve its present institutional members, but reach a greater audience and respond to the needs of other medical libraries and their members in the whole of the Northern Zone. It would also mean that a library and its members would be additionally served and supported by a designated Zonal Unit which will be relatively more resourceful library. Table 9.1 gives the State-wide distribution of medical colleges, dental colleges, nursing schools, pharmaceutical departments, Unani colleges, homoeopathic colleges and other diploma/postgraduate centres in India. A further analysis of the health care facilities available in these States, the number of doctors working therein, and their sizes leads us to configure the States into four zones/regions (figure 9.2). This will be in harmony with the rationale of the division of the Republic into four administrative zones, namely, Northern Zone, Southern Zone, Eastern Zone, and Western Zone. The configuration of these zones/regions for the purposes of MEDLIS is, however, based on the cumulative:

- 1 population of medical and health care professionals;
- 2 teaching and research facilities;
- 3 geographic area covered;

Constituent States in the Designated Regions in MEDLIS

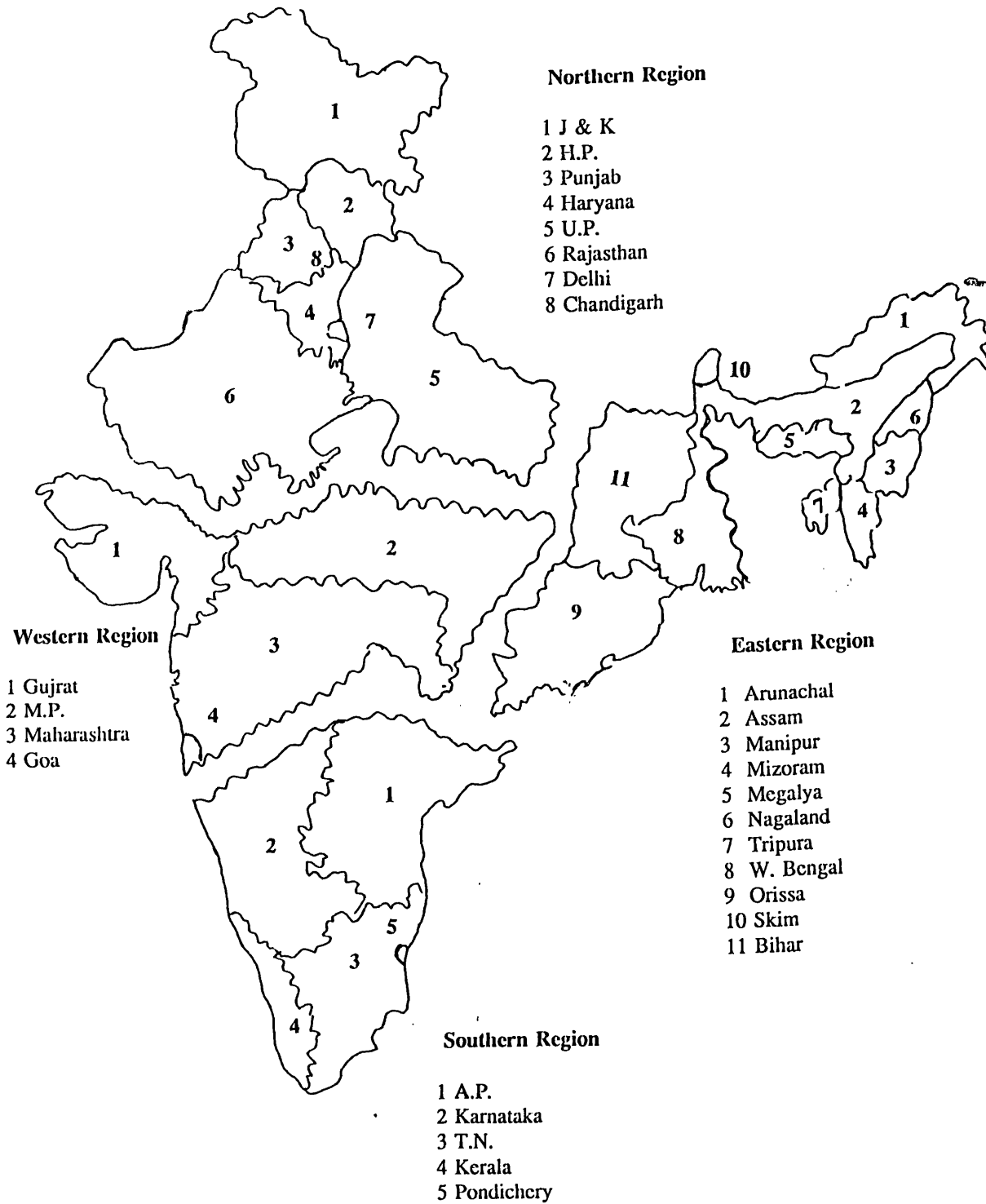


Figure 9.2

- 4 hospital and health care facilities in these designated zones/regions (figure 9.3).

The logic is to equalise the probable availability of documentary resources among the major groups of medical community in relatively equal geographic zones/regions. The number of institutions/colleges and their libraries that would form the membership of the proposed regional library service systems is shown in figure 9.4.

The Zonal/Regional Units will be established in existing libraries, which will hence require to be identified. Such libraries will have to be suitable to perform the functions of a Zonal/Regional Unit. In order to assure effective *Zonal Units* it is proposed that the such units be preferably established at institutions presently: 1) getting relatively better funding for books and periodicals; 2) having a library school in their affiliate/parent university; 3) conduct medical teaching and research programmes; and 4) are supported by better institutional facilities. Table 9.2 indicates the medical school libraries that are at or above the annual budget for books and periodicals of Rs.1 million as worked out from the survey data, discussed in Budgets (section 3.6.4). The amount of Rs.1 million here should not be viewed as an absolute criterion or index but merely as a convenient basis for comparison. The real impact of a library budget can only be determined from what the library does with its documentary resources and the number and expertise of its staff.

There are at present approximately 11 institutions which have a library school in their parent/affiliate university. PGI, Chandigarh and AIIMS, New Delhi are declared institutions of national importance by an Act of Parliament and empowered to award

DEMOGRAPHICS OF THE PROPOSED REGIONS IN MEDLIS

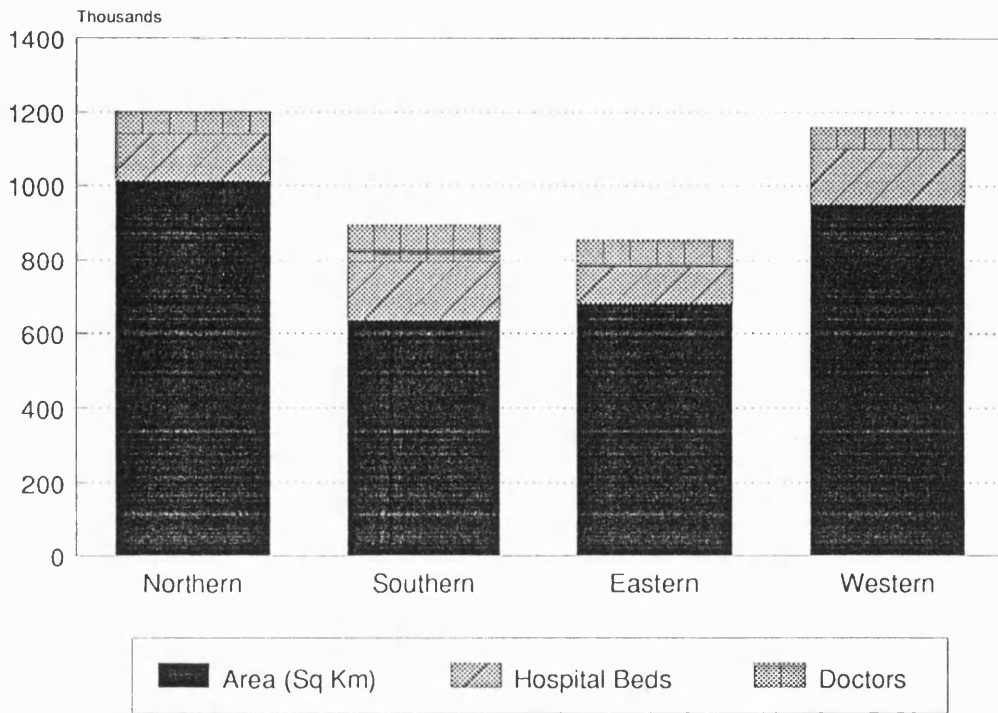


Figure 9.3

Institutional Membership of the Proposed Regions in MEDLIS

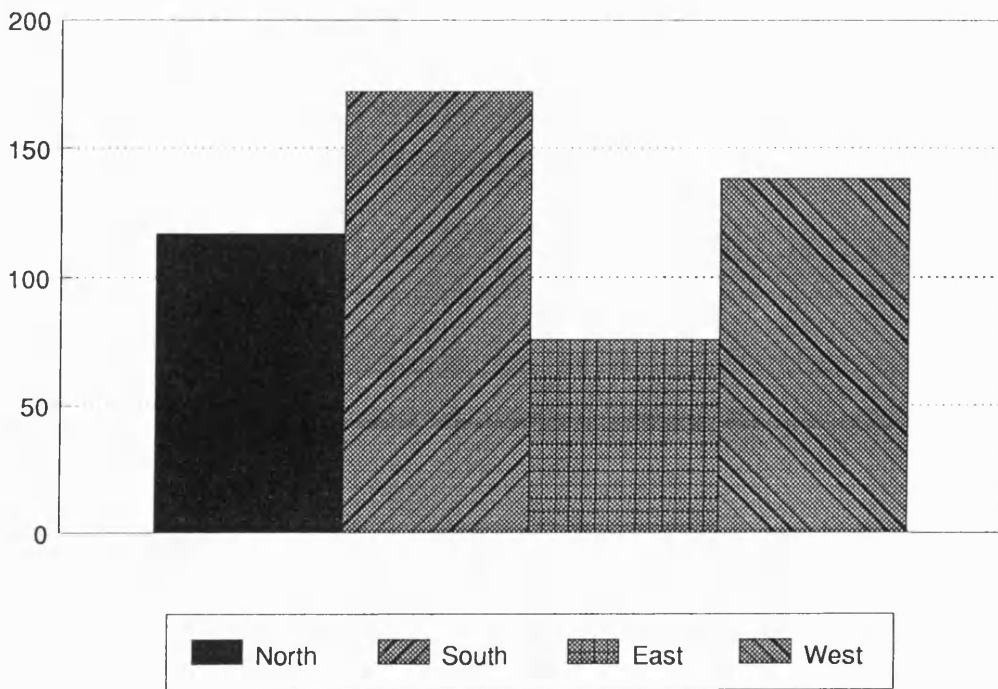


Figure 9.4

Primary data for Figure 9.3 compiled from A social and economic atlas of India. Delhi: Oxford University Press, 1987.

TABLE 9.2
Selected Affluent Medical School Libraries in the Proposed Regions & their Resources

Institution - Region	Budget*	Jr.**	Books
<u>NORTHERN REGION</u>			
National Medical Library, New Delhi#	64	2,050	107,580
Postgraduate Institute of Medical Education & Research; Chandigarh	17	630	20,000
Medical College, Rohtak; Haryana	16.5	510	45,000
Maulana Azad Medical College, New Delhi	14	328	49,000
All India Institute of Medical Sciences, New Delhi	13	450	55,000
National Institute of Health & Family Welfare, National Documentation Centre; New Delhi	12	428	30,000
SK Institute of Medical Sciences, Srinagar; J & K	11	340	15,000
<u>SOUTHERN</u>			
Madras Medical College, Madras; T.N.	15	630	45,000
Christian Medical College, Vellore; T.N.	5.75	721	42,069
National Institute of Mental Health, Bangalore; Karnataka	15	321	21,500
St. Johns Medical College & Hospital, Bangalore, Karnataka	14.82	310	16,839
K.L.E. J.L.N. Medical College Belgaun; Karnataka	10.50	228	17,493
<u>EASTERN REGION</u>			
Medical College, Calcutta; West Bengal	16	520	47,600
College of Dental Surgery; Manipal	14	481	31,613
Jawaharlal Institute of PG Medical Education & Research; Pondich.	9	350	25,146
Silchar Medical college; Assam	3	221	12,251
<u>WESTERN REGION</u>			
B J Medical College, Pune; Maharashtra	15	510	41,450
Swami Man Singh Medical College, Jaipur; Rajasthan	12	570	40,222
Govt. Medical College, Nagpur; Maharashtra	10	250	23,956
Topiwala National Medical College, Bombay; Maharashtra	9.50	290	34,100
S. M. Teerth Rural Medical College, Ambajogai; Maharashtra	7	230	13,000
Armed Forces Medical College, Pune; Maharashtra	7	260	12,750

* Indian Rupces in lacs; figures pertain to the year 1989-90

** Number of journal titles subscribed

Not affiliated to any Medical School

degrees: hence these do not have any formal relationship with a university. The PGI and Punjab University are adjoining each other in Chandigarh and their relationships, even though informal, have generally remained very cordial and collaborative. This was amply demonstrated when PGI library burnt in a fire in 1984 and the staff and students of the library science department of the Punjab University extended all the support in processing and building the new collection. It is hoped that the requirements for the Zonal Units to have an active coordination with the library school of its affiliate university will help create demand and give impetus to organise a full curriculum in medical librarianship in future. This will also make coordination between the library school and Zonal Unit more feasible and will help narrow the gap between theory and practice, which is widely discernable in Indian situations. If the need arises, the specialized courses on medical library practice can be taught in library schools by working librarians. In addition to their contributions in educational curricula, steps would be taken by the Zonal Units as they come into being, to initiate and implement a continuing education/internship programme for three types of medical library personnel: recent or past graduates of conventional library schools; postgraduates (MLIS) who may wish to specialise in medical librarianship and undertake the proposed new curriculum on medical library systems; and subject specialists. The continuing education/internship programmes would be a further help in recruiting better trained persons into medical library practice to help provide staff for the network units. In conducting and participating in library school curricula and continuing education/internship programmes, the Zonal Units (and the Special Units) would not only be creating staff to fill their own needs, but would also be providing personnel for Basic/Resource Units. Out of these 11 institutions which meet these

criteria, the following four institutions are better resourced and operate in well established nationally renowned institutions and have, thus, been chosen to be designated and developed as Zonal/Regional Libraries: 1) Postgraduate Institute of Medical Education & Research (PGI) Chandigarh (North); 2) Madras Medical College, Madras (South); 3) Medical College, Calcutta (East); and 4) BJ Medical College, Pune (West); In addition, two libraries, namely, 1) National Homeopathic Medical College, Lucknow; U.P. (homeopathic) and 2) R.A.Podar Ayurved Medical College, Worli, Bombay; Maharashtra (Ayurvedic) have been chosen and designated Zonal/Regional Libraries for homeopathic and Indian systems of medicine on the basis of concentration of most of such colleges in neighbouring cities/States (table 9.1) and better documentary and budgetary resources (tables 9.3 and 9.4). The location of these Zonal/Regional Units and the National Medical Library is shown in figure 9.5. The number of the Resource Libraries affiliated to these 6 zonal/regional libraries and their State-wise location is indicated in figure 9.6.

In order to serve as *Zonal Units*, these libraries would have to add or provide by internal arrangement at least one Continuing Education Specialist; one Senior Programmer/Systems Designer; and one Junior Programmer/Computer Operator. Assuming a doubling in interlibrary loan, circulation, and bibliographic and reference services as a result of improved resources and facilities and the activities of the Continuing Education Specialists, there would also have to be about 50% increase over the existing professional and non-professional staffs in a phased manner. Provision would also have to be made for computer and auxiliary equipment, as well as for heavy duty photocopying machines. In addition, there would be an increased

TABLE 9.3
Selected Affluent Ayurvedic College
Libraries & their Resources

Institution - Region	Budget*	Jr.**	Books
RA Podar Ayurved Medical College, Worli, Bombay; Maharashtra	30	29	17,000
State Ayurvedic College, Lucknow; UP	24	19	12,400
Govt. Ashtang Ayurvedic College & Hospital, Indore; Maharashtra	22	22	14,225
Govt. Dhanwantri Ayurvedic College, Ujjan; M.P.	13	19	2,935
Shri Ayurvedic Mahavidyalaya, Nagpur, Maharashtra	13	10	18000
Ayurvedic Mahavidhyalaya, Varanasi; UP	15	-	1771

TABLE 9.4
Selected Affluent Homeopathic Medical
College Libraries & their Resources

Institution - Region	Budget*	Jr.**	Books
National Homoeopathic Medical College, Lucknow; U.P.	21	26	13,300
Bombay Homeopathic College, Maharashtra	19	15	13,380
D. S. Homeopathic Medical College	18	20	10,402
Homeopathic Medical College & Hospital, Polson; Gujarat	17	7	N. A.
D. N. D. Homeopathic Medical College & Hospital, Calcutta; W. Bengal	15	10	19,000
Shri Bhagwan Homeopathic Biochemic Medical College, Aurangabad; U.P.	12	6	64,00

* Indian Rupces in thousands; figures pertain to the year 1989-90

**Number of journal titles subscribed

**National Medical Library and the Designated
Regional Medical Libraries in MEDLIS**

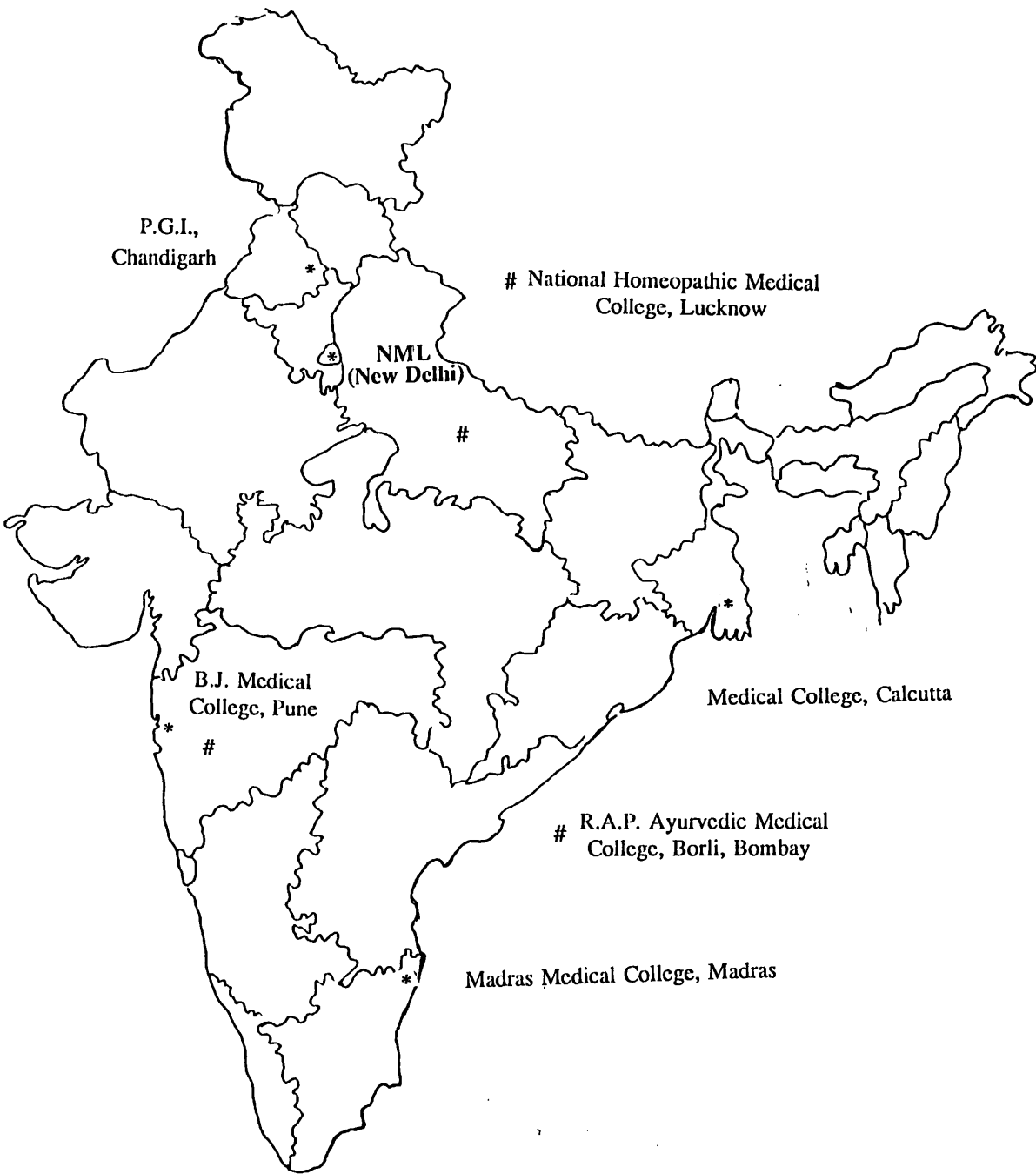


Figure 9.5

Designated 6 Regional Medical Libraries in MEDLIS and their Resource Libraries

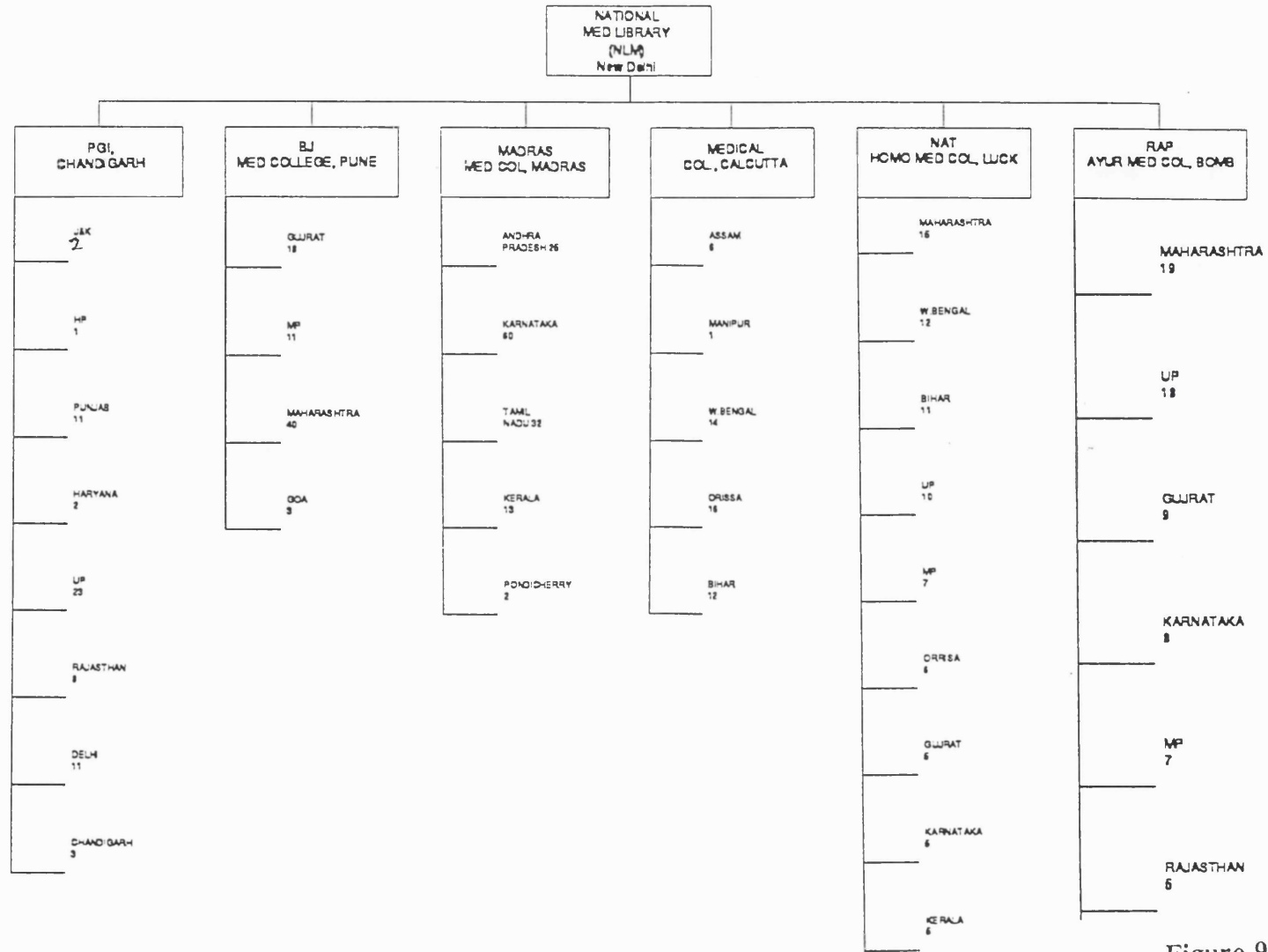


Figure 9.6

need for audio-visual materials and equipment and provision would have to be made for them in these libraries.

9.5.4 Basic/Resource Units

There are approximately 64 medical school libraries (and perhaps an equal number of medical school libraries which did not respond to the survey) which may be considered sub-marginal (books & periodicals budget less than Rs.800,000 per year) at present and could be augmented to serve as Resource Units. Because of the higher demand on the recent medical literature, it is recommended that expansion of the resources of these sub-marginal libraries be limited to an increase in current periodical subscriptions and in new book and monograph acquisitions, with greater reliance on Zonal and the Special Units for less used unavailable materials, until the collection become self-supporting to a greater extent. This will also have the effect of diminishing the long-term space requirements of the sub-marginal libraries. There would, of course, still have to be space allocations for the expanded book and periodical acquisitions as well as additional staff, readers, furniture, and equipment. In order to reach a suitable level to serve as Resource Units, the budget of some of the sub-marginal libraries would have to be raised to provide a minimum of 100 periodical subscriptions and additions of 100 books/monographs per year^{5,6}.

9.5.5 Special Units

As previously stated, the Special Units would be established on a subject rather than regional basis. In view of this orientation, there is no basis upon which the number and location of Special Units can be finalised. In addition, the nature, mode and

extent of services of Special Units are likely to vary from subject to subject. Thus, one can only make general estimates about their number and services which can be varied on the basis of emerging needs and experiences. As mentioned earlier, there are about 172 biomedical research institutes in India. However, only the selected ICMR institutional libraries are recommended to form Special Units for 15 subject specialisations in the first phase (Appendix M); because these libraries are presently better resourced and their ICMR affiliations will endorse continued financial and personnel support to help them emerge as the model special units (table 9.5). For the identification of the additional units, the NML as the Central Unit could serve an important function by making regular analysis of: 1) the subject content of all bibliographies prepared by the Zonal Units; 2) the subject content of the current literature it indexes; and 3) the research projects reported in its roster of current medical research in India, to detect current interests and new trends in medical and health care activities in the country and abroad. Upon finding an interest in a subject for which there is no Special Unit, but there is evidence of sustained research activity, the NML would approach various organisations, institutions and funding agencies close to the subject and recommend consideration for support of a Special Unit in that particular subject. If the need is found to be justified by the funding agency, it would work in concert with the NML as Central Unit to identify the potential institutions in which the new Special Unit might be located. The NML would then forward network standards/requirements for Special Units to the funding agency, which would use them as the basis for preparing requests for proposals from the applicant institutions. Part of the specifications would consist of detailed descriptions of required flows between

TABLE 9.5
Selected Affluent ICMR Libraries & Their Resources

Institution	Budget*	Jr.**	Books
National Inst. of Virology	10	250	4,000
National Inst. of Nutrition	13	500	15,000
National Inst. of Cholera & Enteric Diseases	6	125	3,000
Tuberculosis Research Centre	2	116	3,000
Institute of Pathology	2	65	1,990
National Inst. of Occupational Health	4	120	6,000
Institute for Research in Reproduction	6	140	5,000
Central JALMA Inst. for Leprosy	N.A.	N.A.	N.A.
Institute of Immunohaematology	2	24	175
Malaria Research Centre	N.A.	N.A.	N.A.
Inst. of Cytology & Preventive Oncology	1	28	2,500
Inst. for Research in Medical Statistics	N.A.	N.A.	N.A.
Enterovirus Research Centre	N.A.	N.A.	N.A.
Desert Medicine Research Centre	N.A.	N.A.	N.A.
Centre for Research in Medical Entomology	N.A.	N.A.	N.A.

* Indian Rupees in lacs; figures pertain to the year 1989-90

** Number of journal titles subscribed

N.A. Data not available

the Special Unit and the NML to ensure that the new unit becomes an integral part of the networking system.

9.6 Personnel and Training

We have seen (sections 6.5.3.3; 6.6.3.3; 6.8.2.4; and 6.9.2.4) that staff training has been perceived as one of the most highly rated and outstanding possible contributions of the Regional Library Unit in the Regional Medical Library and Information Service Systems in the U.K. Underlying the feasibility of all the foregoing functional and implementation proposals thus is the question of human resources development; the availability and training of staff which will ultimately manage not only the type and quality of the services that the network units perform but also the rate at which they can be made operational.

9.6.1 Staff Requirements

The number and type of staff required are directly related to the services required by the system's users. It is generally believed that in a library the number of professional and non-professional staff should be approximately equal. However, if the user community is not actively involved in research, the majority of the library staff can be sub-professional because in such cases the major part of the library's activities are devoted to routine duties, like circulation and processing new acquisitions. In institutions where considerable library use occurs to support research, the proportion of trained librarians with a knowledge of reference techniques must ideally increase.

9.6.2 Staff Available

The census of the staff presently working in Indian medical and health science libraries was a component of the survey the results of which were discussed in section 3.6.1. The number of staff was ascertained in three broad groups: professional; supportive; and subject specialists. A professional librarian holds a formal library and information science degree and is responsible for the administration of a library, if he/she happens to be the Chief Librarian. Supportive staff include library assistants, technicians, clerical assistant, stenographers, xerox operators, etc. and housekeeping staff. Subject specialists do not hold a formal library science degree but have other scientific degrees like BSc., MSc., etc. The proportion of professional to the rest of the staff is depicted in figure 3.6; and the professional and academic qualifications held by the staff in figures 3.7 and 3.8 respectively. The majority of the libraries (60%) are managed by 1/2 professional librarians, out of which 38% libraries are managed by only one professional librarian. It is understandable that the smaller non-teaching hospitals cannot afford, nor do they necessarily need, a full-time librarian but the Medical Council of India regulations require a professional librarian to supervise a medical school library as one of the pre-requisites for recognition of the school's graduate and postgraduate degree programmes, which explains the higher proportion of professional librarians in the majority of colleges employing only 1/2 professional librarians. The proportion of professional and supportive staff is almost equal in 3/4 person libraries but there after it increases in favour of supportive staff, which is due to the fact that the predominant portion of the jobs performed in the majority of these libraries at present are non-professional, which even though routine take most of the staff time in libraries. Only a small number of libraries presently offer skilled

professional services, like compiling bibliographies, literature searches, current awareness service, in-house abstracting, Medline searches, etc. (figures 3.23 and 3.24). The position with regard to the availability of professionally qualified staff in medical libraries is thus not very encouraging. An immediate solution to this problem would be fresh recruitment of staff with suitable qualifications, but it must be seen that the existing staff is employed usefully. This can be done by providing them with necessary training. In fact, the freshly recruited staff may also need some sort of training in the organisational set-up as well as detailed training in particular areas of activities in which they are required to work.

9.6.3 Educational and Professional Requirements

The minimum requirements for a professional librarian is BLIS, from a recognised library school which requires a Bachelors degree (BA/BSc/BCom); an additional year of training leading to a Masters degree in library and information science (MLIS) is preferred. A Chief librarian in addition has 5 or more years of professional experience preferably in a medical or science library and familiarity with the standard reference tools in biomedical or scientific subjects. The majority of the existing medical library staff hold their Bachelors or Masters degrees in Arts/Humanities (70%) as compared to the small number (18%) having a Bachelors or Masters degree in sciences (figures 3.7 and 3.8).

9.6.3.1 Duties of the Librarian

The duties of a head librarian are varied and complex, depending upon the organisation served. He/she is generally responsible for the overall administration of

the library; serves as member-secretary of the Library Committee; attends to the bibliographic needs of users; publicizes the library's resources and services; assists in the selection of acquisitions; plans the physical lay-out of the library; writes annual reports; supervises correspondence; selects, trains, and supervises staff; prepares staff appraisals; conducts staff meetings; and recommends new positions, promotions and salary adjustments. The duties of the supportive (non-professional) staff are mainly housekeeping; general reader assistance; loan of library materials; maintenance of circulation records; processing new acquisitions; collation of serial publications; handling correspondence, etc.

9.6.3.2 Job Function in Libraries

The typical workload in a medical library is essentially the same for all classes of special libraries and is outlined in Appendix N. The activities of library personnel can be categorized as "supportive" which include routine conventional tasks; and "service" including functions pertaining to creative user services, reference and bibliographic activities. Since circulation activities are concerned with routine inventory accounting, they have been considered library oriented rather than a "service" for the users. A review of these activities would suggest that the bulk of the staff in a medical library is non-professional; about eighteen of the routine library operations can be performed by non-professionals; ten requiring professional staff and are more time-consuming. Figures 3.23 to 3.26 demonstrate that at present the deficiencies in the medical libraries in India are not primarily in the area of routine library office positions but with regard to jobs relating to serving the user community; and suggest that it is

important to promote user "services" in medical libraries through staff training and continuing education

9.6.4 Implication for the System Design

The significance of the survey concerning staff, their number and qualifications discussed above, can be summarised for the proposed system as follows:

- 1 The need for more staff with science qualifications.
- 2 New and different skills and subject competence is needed at all levels.
- 3 The need and demand for medical libraries will continue to increase beyond anticipated supply. Continually increasing financial support of medical research and medical libraries through the implementation of the programme, "Health for All by the Year 2000" increasing input of both men and material in the higher education especially medical education and research, will place even greater stresses on the manpower situation than has previously been encountered.
- 4 The present educational programmes for training professional librarians cannot adequately meet the existing demands, much less meet the anticipated requirements of the future. This implies the necessity for a complete acceptance by the professionals of the need for improved educational programmes tuned to the specific needs of medical and health library practice.
- 5 There must be more involvement of the Medical Library Association of India (MLAI) and its regional subsidiaries; the proposed regional medical libraries; the library schools in their affiliate universities; and the UGC in the training programmes of (intending) medical librarians to increase the number of trained

people, and to improve the training of qualified people produced by the traditional library schools.

- 6 There should be an expanded programme of assistance in curriculum improvement to develop computerised information science training programmes at the proposed regional libraries in medical institutions close to existing medical schools. Without a new approach to the problem of human resources development, the prospects for closing the gap between automation and manual operations in medical libraries are indeed dismal. The education and training of a professional-level medical librarian takes two years, and the abilities and aptitudes required of students sharply limit the number of potential candidates for such a training. Even if, by some magic, training facilities could be improved and expanded many-fold very rapidly, the schools to produce librarians would be too few or too late which could combine the expansion of facilities for training librarians and exploitation of modern technology. By developing regional library and library school combinations as advanced centres of training, our hope is that the routine and repetitive tasks librarians now perform can be automated, thereby enabling them to concentrate on activities that demand professional knowledge and experience.

9.6.5 The Training of Medical Librarians

In the previous section a discussion of the objectives, nature, and evaluation of the personnel presently working in medical libraries at the professional and supportive levels has been presented. It is the position of the author that the present library curricula in library schools have been designed primarily for academic, school and

public library systems and do not meet the real needs of the medical library practice. There are only two library schools in the country (Mysore and Delhi) which have a special optional paper on "medical library systems", but in both these schools it is not operative. In these situations, the appropriate training of qualified personnel for effective implementation of the system in future is ultimately dependent on a coordinated effort on the part of the Medical Library Association of India (MLAI) and its regional affiliates; proposed regional medical libraries; and the library schools in their affiliate universities; the UGC; the system's governing body and largely on the medical librarians themselves.

9.6.6 Trends Affecting Future Training Programmes

The training programmes of the future for medical library personnel must be shaped to anticipate the trends now in evidence, which clearly demonstrate that new skills, knowledge and orientation will be called upon. Some of the most important of the trends which will affect the nature and functions of the medical library practice as well as the educational orientation of the training programmes in India in coming years are:

- 1 Increased growth in the number of specialised biomedical research institutes in the country and the library/information centres to support them.
- 2 Greater inter-disciplinary research and collaboration of specialist institutes, obliging the need for the development of collections allied to medicine but not now collected, e.g., medical statistics, medical entomology, behavioral sciences, desert medicine.

- 3 Increasing use of computers/electronic data processing equipment on a local or regional basis for information retrieval as well as for other library management functions.
- 4 Increased emphasis on active dissemination activities replacing the past passive archival role.
- 5 Greater application of systems analysis and operations research techniques to systematize and rationalize library functions and services.
- 6 Increased participation in regional and national information networks and systems in the country and outside according to subject areas serving a variety of users.
- 7 Increased demand by users for efficient rapid services in document location and delivery.

9.6.7 Implication for Personnel

Taken together, these and other trends in medical research and information technology will demand greater skills, more knowledge and more exacting standards of service from the medical library's personnel than ever before. If the library schools and medical librarians do not anticipate these trends correctly, and in the same degree and directions as the trends occur, the medical libraries and other biomedical information centres will be bypassed in favour of suitably qualified personnel. It is already clear that there will be an increased demand for personnel who combine either individually or collectively the skills of a programmer, librarian, biomedical subject specialist, systems analyst, computer oriented technician and systems specialist. The lessons for librarians and the implications for library training are evident. Most of the staff will

come from the ranks of librarians who will have to be trained in the new techniques, while others will come from centres being established for their training. Special personnel of this kind may be concerned primarily with display of information to users, use of computers or with evaluating and producing scientific information for users in such forms as literature reviews or state-of-the-art evaluations.

9.6.8 Implications for Library Schools

Although about 1,500 persons with BLIS and 150 MLIS qualifications are produced annually by the Indian universities and about 25 Associates by INSDOC and DRTC⁷, candidates having in addition a Masters or Bachelors degree in sciences are not available in adequate numbers. The annual output of Masters in Computer Application (MCA) is about 600⁸. Considering that an estimated 85,000 computer specialists were projected to be needed by the country for its national computerisation programmes in the Seventh Five Year Plan ending 1990⁹, the annual output of 600 is too small to attract suitable persons to the proposed system, MEDLIS. This calls for the strengthening of in-house training programmes because the existing library school curricula do not appear to cope with the special subject needs of the biomedical libraries and do not include as a rule, computer oriented information science courses¹⁰.

As previously noted (figure 3.8), the medical library personnel in India have predominantly humanities graduate background (70%) as compared to science graduate degrees (18%). In the U.S.A., a survey by Mount¹¹ in 1983 found that 32% of

science librarians have degrees in science or technology. Commenting on the availability of science librarians in the U.S.A., Dewey¹² notes:

Although libraries advertising for science librarians have been willing to hire candidates without a science background, they have not been satisfied with the quality or number of applicants from which to choose.

Three conclusions might be drawn from this: 1) the need for people with degrees in sciences persists in developed countries as well but it is more acute in India; 2) medical and other science libraries will accept librarians without a degree in the sciences, given the low number of such applicants; 3) librarians without a science degree can, with a keen interest and perseverance, attain a theoretical grasp of the overall pattern of the literature of science and technology and in the process of doing so find great satisfaction and success in the pursuit of medical librarianship in spite of the lack of degree.

There is thus agreement that subject background is important, if not essential, for anyone working on a professional level in a medical or science library. At present such a background is more of an exception in Indian medical libraries, but it would be imprudent to deny the advantages of knowledge and training for even the most able, or the benefits subject qualification could provide to the proficiency so greatly needed in medical libraries today. This justification of the use of humanities-oriented "generalists" is a reflection primarily of the shortage of science personnel in the field. This shortage has occurred because of a number of factors including: 1) the small number of students with graduate degree in sciences enrolled in library and information science courses in India; 2) non-competitive salaries paid to science librarians; and 3) present personnel policies for staffing medical libraries where by the UGC salary

scales (which are at par with the faculty salary scales in other academic/university institutions) are not made admissible to qualified medical library personnel. It may be argued that given a candidate with intelligence and application, medical terminology and subject expertise can be obtained on-the-job and there are examples of some of the present medical librarians who have surpassed these subject limitations magnificently, and many have become authoritative, highly qualified and scholarly medical librarians. The point is whether their humanities training made them better medical librarians than they would have been if having training in some biological discipline. It is hard to see how a biological background could have been a hinderance to their professional development; all evidence points to the opposite conclusion. No medical librarian given the choice of employing a biology or science-graduate candidate, other things being equal, would hesitate to choose the one with science or biological subject competence. Two possible solutions are, therefore, recommended: 1) the Medical Council of India, the UGC and library and information science profession should establish a priority for the recruitment of science and non-science degree holders for careers in medical and in science librarianship; 2) library schools should expand their curricula with courses designed to educate librarians with non-science degrees for careers in science librarianship.

9.6.9 A Suggested Medical Library Programme-Course

In 1982, Kaula¹³ evaluated library and information science programmes in library schools in India and other Asian countries, pointing out the need to reconsider library science education particularly in view of the new technologies. After about a decade (in 1991) he observed that:

library and information personnel are at present reluctant to consider revolutionary innovations in their art, nor are they prepared to accept reforms from outside the world of librarianship which are taking place in developed countries... Schools of Library and Information Science should reform the traditional pattern of education for librarianship and abandon what has become obsolete with the present day needs of library and information work. They should recognise the new dimensions in various areas of Library and Information Science and consequently transform themselves into an institution which is primarily concerned in developing the knowledge content of would-be library and information personnel, their proficiency in handling information out of a mass of accumulated documents and their efficiency in using instruments for transmission of data through computer and other systems.¹⁴

The UGC has recently conducted a survey (prepared by Professor Kaula) to evaluate the present pattern of library and information science education in the country and the status report is awaited¹⁵.

It is not the intention of the author to devise an ideal or detailed study programme but merely to indicate an outline of a desirable programme-course which may have to be studied in conjunction with the other elements of the curriculum. The three distinct areas for which professional manpower will be required in greater numbers are: 1) Library and Information Science; 2) Computer Application in Libraries; and 3) Database Searching/Telecommunication. It is not possible to estimate the number of personnel required in each category at this stage. Some idea will be gained when the networking system takes concrete shape and views from other participants are also available. It would be more desirable initially to have four model facilities, each with the an in-depth study programme for 25-30 students/in-service librarians than the present less adequate but the only programme offered by the Medical Library Association of India (MLAI). It is required that the candidates selected for training have studied a minimum of one science subject in their graduation but it is recommended that the candidates have a BSc in a life science. The suggested course

outline (Appendix O) is based on a review of the library and information science curriculum of four of the ten central Indian universities: the University of Delhi, Delhi; Jamia Millia Islamia, Delhi; Banaras Hindu University, U.P.; Aligarh Muslim University, U.P. The central universities are financed entirely by the Government of India and are considered the best funded as compared to the other 178 universities. Their library schools are better suited for early innovations with regard to their curricula.

The suggested curriculum represents a blending of the elements of traditional librarianship and the information sciences disciplines, with the emphasis somewhat heavier on the latter and can be suitably modified by potential advanced training centres as they come into being. The traditional "History of the Library" course has been replaced by a course on the "Role of the Medical Library in the Professional Community". The Library School curriculum is represented by "Technical Services", "Reference and Bibliography", (including "Medical Bibliography"), and "Library Administration". Added to this are courses from the information science/technology, computer application in libraries and special courses on "Survey of Current Research in the Biological, Physical and Medical Sciences".

9.6.10 Administrative Implementation

There is a considerable difference, administratively and economically, between offering a course in which a fair number of the students in the general library curriculum may enrol as an elective and thus help to support the activity for those few having a certain intent to become medical librarians, and the problems involved in

trying to support an entirely new curriculum with a large number of specialized faculty for a small student body. The problems are mainly related to availability of faculty. It is administratively difficult, if not impossible, to support or even find the academic staff necessary for implementation of such a programme. It would also require a large increase in the number of students opting for the medical librarianship course.

The solution is the creation of prototype or model programmes at a few adequately staffed medical complexes (Regional Libraries) where the presence of an relatively excellent medical library and library school is complemented by appropriate faculty and practising medical librarians who are conversant with modern documentation and information handling methods. The problem of obtaining qualified faculty for the computer component of the course can initially be eased in part by utilizing the faculty of computer science departments in the affiliate universities. The courses about systems analysis will be provided from the other departments of the University. Offering an advanced curriculum might attract more aspiring medical librarians to these institutions. The training stipend/scholarships may be offered jointly by the parent institutions of the librarians, Regional Libraries, UGC, etc. which would subsidize their full-time attendance at such facilities, so that geographic considerations should not prove an obstacle in attracting enough students to support the programme.

9.6.11 Facilities for Advanced Training

It became apparent, as this study evolved, that constructing a model curriculum was an interesting and important exercise, but that the implementation of such a curriculum

required an indication of educational capabilities, training and research facilities, availability and access to computer systems, and the inspired leadership of leading teachers. Some of the facilities and capabilities that will eventually have to be developed in the proposed centres of medical library and information science education and training are summarised below:

- 1 A strong resource in a regional medical library, with active internship and in-service training programmes.
- 2 A progressive medical library staff, some of whose members are on the faculty of the library school in teaching and research positions.
- 3 A library school with a strong interest and orientation in information science methods and research, ideally having a complete or partially integrated programme in the information sciences, rather than added elective courses attached to a traditional library school programme.
- 4 An associated medical institution/college with internship, residency and nursing training programmes, and medical research programmes to create an active demand for skilled library/information services.
- 5 A computer centre with associated systems and programming personnel, support facilities, training and advisory facilities.

The development of an institutional base with such facilities has an enormous potential for specialized and diversified training of medical library personnel at all required levels, and will offer students valid training and experimental programmes contrary to the class room environment of the present. It is also evident that bringing about

such a model environment is less difficult and more economic than attempting to build or create new facilities at any other institutions or schools.

9.6.12 The Subject Specialists

Biomedical research centres such as those of the Institute of Immunohaematology at Bombay; Enterovirus Research Centre at Haffkine Institute, Bombay; National Institute of Virology at Pune; Centre for Research in Medical Entomology at Madurai; National Institute of Nutrition at Hyderabad; Malaria Research Centre at Delhi; Tuberculosis Research Centre at Madras, etc. will require an increasing number of information oriented library specialists. At these centres it will be necessary to have information specialists with Masters or Bachelors degrees in the natural or physical sciences as well as information specialists. The component of the survey to ascertain the number and qualification of subject specialists (staff not holding library and information degrees but having other scientific qualifications, such as MSc, BSc, etc.) revealed that not even a single librarian indicated the presence of a subject specialist amongst its staff. This implies a new and more active role for the "Special Unit" medical librarians than has been assigned in the past to such personnel. The Special Units of the system, potentially about 172 in number, will have one or more trained biomedical information specialists whose primary responsibility will be to provide the local user community with documents, references, and possibly evaluated information according to predetermined profiles of user interests. The active SDI programmes and other local service to institutional members, with all the benefits short lines of communication and proximity can bring, may be better suited to the habits and desires of the busy scientists. To train adequately the medical librarian who has to perform

such an active information role will require a curriculum of subject specialization and information science.

9.7 MEDLIS Services

MEDLIS is proposed as a cooperative networking system. Its objectives (outputs and services) are directed towards promoting cooperative endeavours in resource development and utilisation with a view to organising medical library services economically for maximum benefit. Through MEDLIS, medical and health science libraries in the country will coordinate their activities and avoid duplication as far as possible. By doing so, the total annual funds of more than Rs1.80 billion (see section 3.6.4) for the purchase of books and journals allocated to medical and health science libraries in the country will go a long way in optimising the resources and services. The ultimate aim is to offer speedy and efficient document delivery services to medical faculty, practitioners, researchers, students and other para-medical staff through a well articulated and versatile library and information system. In order to accomplish this, a variety of administrative and user services will need to be undertaken both at the regional and national levels. In chapter 6, we sought an understanding of the factors that have formed or could form the basis for particular successes (or failures) in the operation and administration of the direct support services of the potential/Regional Library Units to the member libraries in the Regional Medical Library and Information Service Systems in the U.K. We have also seen as to what extent the Regional Services are used and valued. While as the survey of the U.K. health science libraries has provided a general insight about the services best provided at the systems level in a medical library system on regional

basis; the survey of the medical and health science libraries in India has identified the strengths and deficiencies in the infrastructure and helped to determine specific national needs and priorities, especially the need for cooperative activities (section 3.9). In view of the understanding provided by both these surveys, MEDLIS is proposed to be a multiple function/service networking system and will provide the following services in particular. Their general design conforms to the service pattern proposed for INFLIBNET (section 8.4).

- 1 Collection development
- 2 Catalogue based Services
- 3 Database services
- 4 National database of Indian medical literature
- 5 CD-ROM databases
- 6 Document supply services

9.7.1 Collection Development

The objective is to help the libraries to identify and select publications. This can be based on usage data available at different levels in the networking system (e.g., circulation, interlibrary loan statistics, document copy supply service, citation studies, SDI user profiles, etc.). After examining the strengths/weaknesses, duplication in the document collections and in view of the specialisation of the libraries, if any, MEDLIS will gradually evolve a cooperative acquisition system. The libraries will further develop their collections on the basis of mutually agreed profiles assigned to each of them, so that duplication in acquisitions is minimised. The objective of resource-sharing also implies sharing responsibility in acquisition, in order that the

available total book and periodicals purchase fund of MEDLIS is allowed to go a long way for obtaining the maximum number of documents in the networking system as a whole. The programme will also assist the libraries in the procurement process by providing purchase related information like cost, supplier, ISBN number, local agencies, currency conversions, discount rates, etc. The flow chart for collection development is given in figure 9.7

9.7.2 Catalogue Based Service

9.7.2.1 Shared Cataloguing

Cataloguing has three parts: descriptive cataloguing; subject cataloguing; and location information. The objective of this service is to share the work of cataloguing of publications already done elsewhere in MEDLIS. It will enable a librarian to use the catalogue information available in a major, nearby regional unit for cataloguing new publications added to his/her library. In other words a document will be catalogued only once at the time of first input into the network. The flow chart for shared cataloguing is given in figure 9.8

9.7.2.2 Union Catalogue of Books, Serials and Non-book Material

The objective of this service is to provide a union catalogue of books, serials, and non-book materials held in different libraries in the country with a mechanism for maintaining it up-to-date all the time. For serials, besides title information, holding data of back volumes would also be provided. The union catalogue will be compiled by and made available in six Regions. This is achieved in a manner that when a new catalogue record is added by a participating library, it will first be added into the

Collection Development in MEDLIS

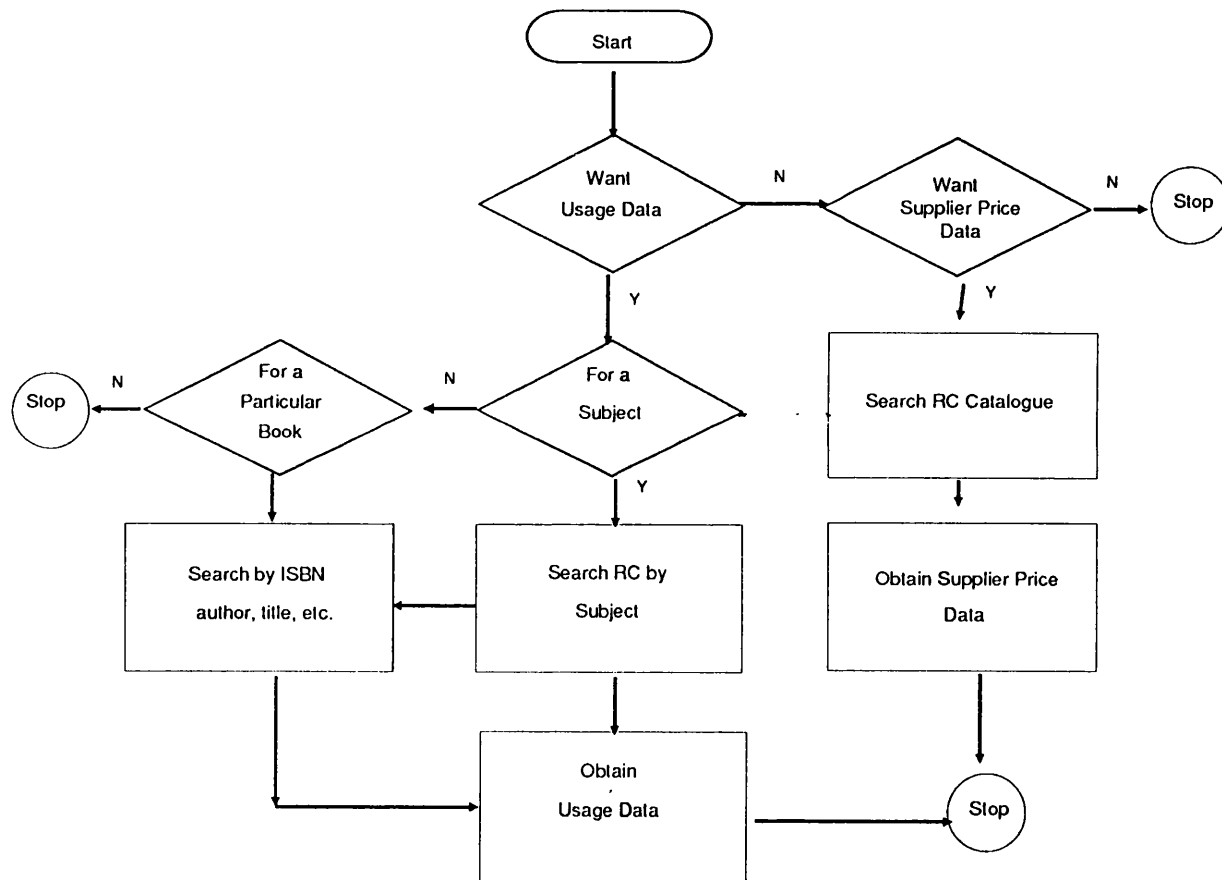


Figure 9.7

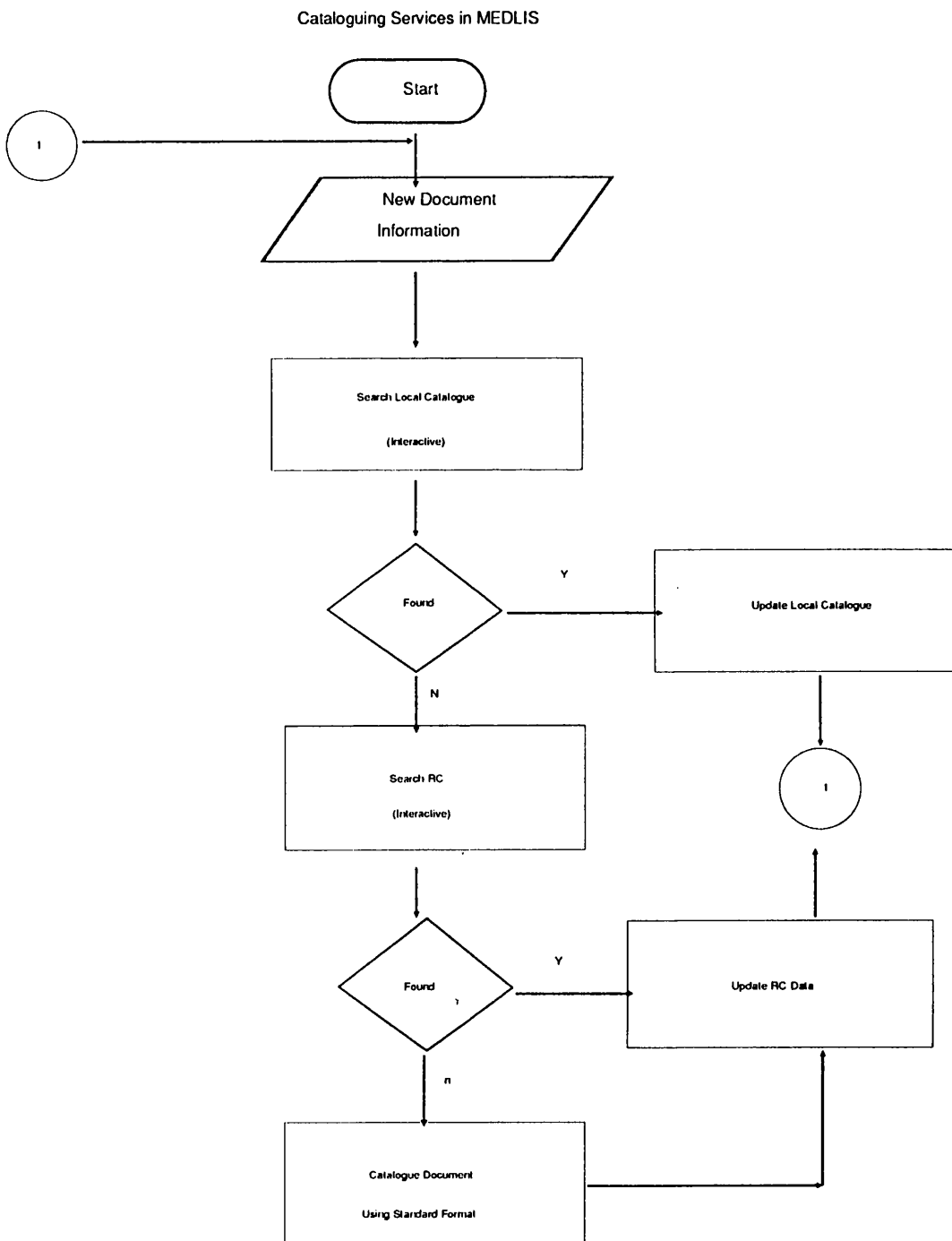


Figure 9.8

union catalogue of its region, and then the incorporation is further carried out into the 5 other union catalogues. A user will be able not only to locate precisely the libraries where his/her sought document can be had, but also limit his search to a particular geographical region which is nearest to him.

A union list of Serials has been perceived as one of the most important contribution of the Regional Library Unit in the Regional Medical Library Service Systems in the U.K. The compilation of the Union List of Serials should thus be undertaken on priority basis in preference to Union Catalogue of Books. The latter could be developed only if time and resources permit. Since the majority of libraries do not have a non-book materials collection (other printed material) at present (figure 3.13), compilation of a union catalogue for them will be considered at a later stage as the need arises. Several attempts have been made in India towards developing union catalogue of serials, such as those by INSDOC for serials in science and technology and NASSDOC (ICSSR) for social sciences. While developing a union catalogue of medical and health science serials for MEDLIS, due attention needs to be paid to utilising the existing union catalogue compilations, to the extent possible. The flow chart for union catalogue is given in figure 9.9

9.7.2.3 Online Catalogue Access

The objective is to provide online catalogue access to the library staff/users at the regional level as well as local library level as facilities develop for the purposes of shared cataloguing or to identify the location of one or more books among

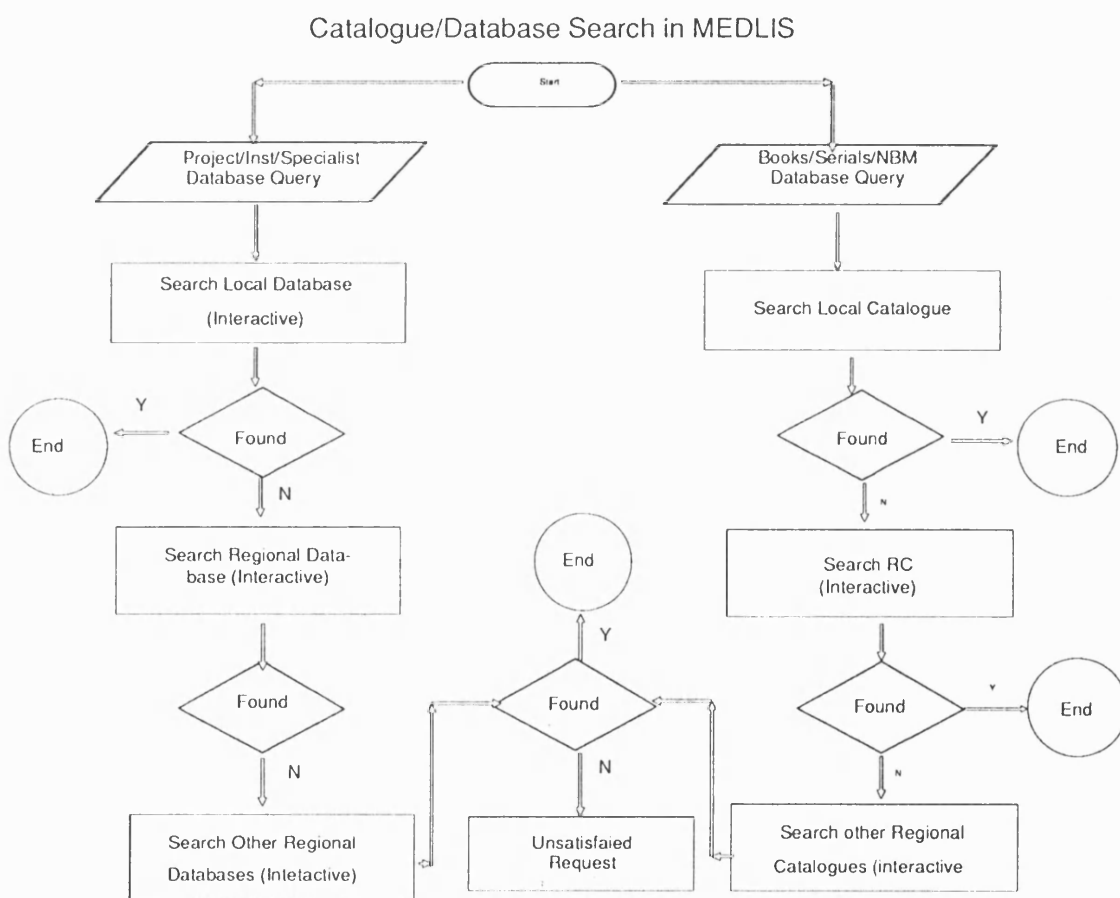


Figure 9.9

participating libraries. The flow chart for online catalogue searching is given in figure 9.9

7.7.2.4 Catalogue Production, Book Processing and Preparation

Catalogue production may be as card, book, magnetic tape or floppy disc form. Book processing and preparation includes generation of spine labels, book cards, list of additions, etc. The flow chart is given in figure 9.10

9.7.3 Database Services

9.7.3.1 Bibliographic Database Services

The development and use of Online/MEDLINE search services have been perceived to be an important contribution of the potential/Regional Medical Library Systems in the U.K. (sections 6.6.3.4; 6.8.2.5; and 6.9.2.5). These services would enable library staff to search bibliographic databases developed at one or more zonal/regional and other centres, in order to disseminate current information and retrieve retrospective information. Anticipatory services like, SDI and CAS and responsive services like, literature searches and bibliography compilations (may be by down-loading) could be offered from the databases. Bibliographic databases may be considered as of three types:

- 1 Retrospective databases in core areas created at the zonal units and special units. The databases comprise bibliographic citations/abstracts of world information on magnetic tapes, which are acquired from foreign database producers as well as locally produced machine readable databases of Indian

Book Processing in MEDLIS

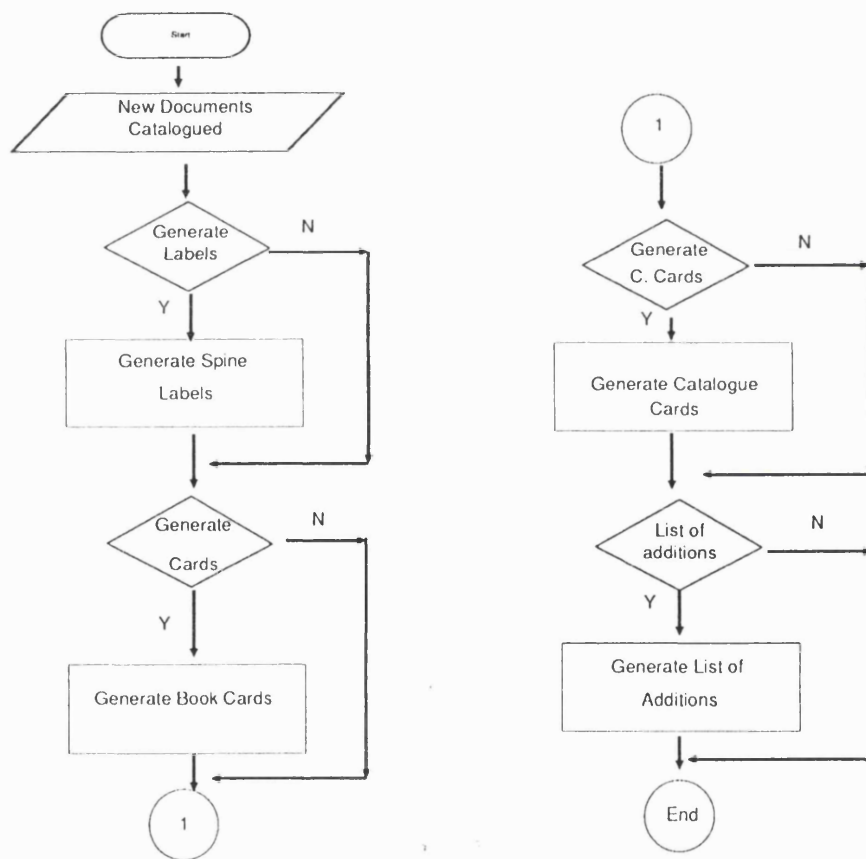


Figure 9.10

bibliographic information. It is the position of the author that the development of a national database of Indian medical literature should be a significant database service of MEDLIS, and this has been delineated separately in the chapter.

- 2 Retrospective databases in peripheral/low usage areas, available through international search systems, like DIALOG, etc. which can be accessed through appropriate gateways.
- 3 Retrospective databases on CD-ROM in particular MEDLINE which is comprehensive and from which service could be generated nationally. The application of medical databases on CD-ROM hold great promise in Indian medical and health science libraries, and has been delineated separately in the chapter.

The flow chart for accessing databases is given in figure 9.9

9.7.3.2 Database of Projects/Institutions/Specialists

An integrated information system, besides handling bibliographic information, should also cover non-bibliographic information about on-going and completed projects, institutions, specialists, etc. MEDLIS should make it possible for participating libraries to capture this information from a unified database created and stored at the national level by the National Medical Library. The users and library staff should be able to search the database by various search elements. The flow chart for the database of projects, institutions and specialists is given in figure 9.11

Nonbibliographic Database of Projects, Specialists & Institutions in MEDLIS

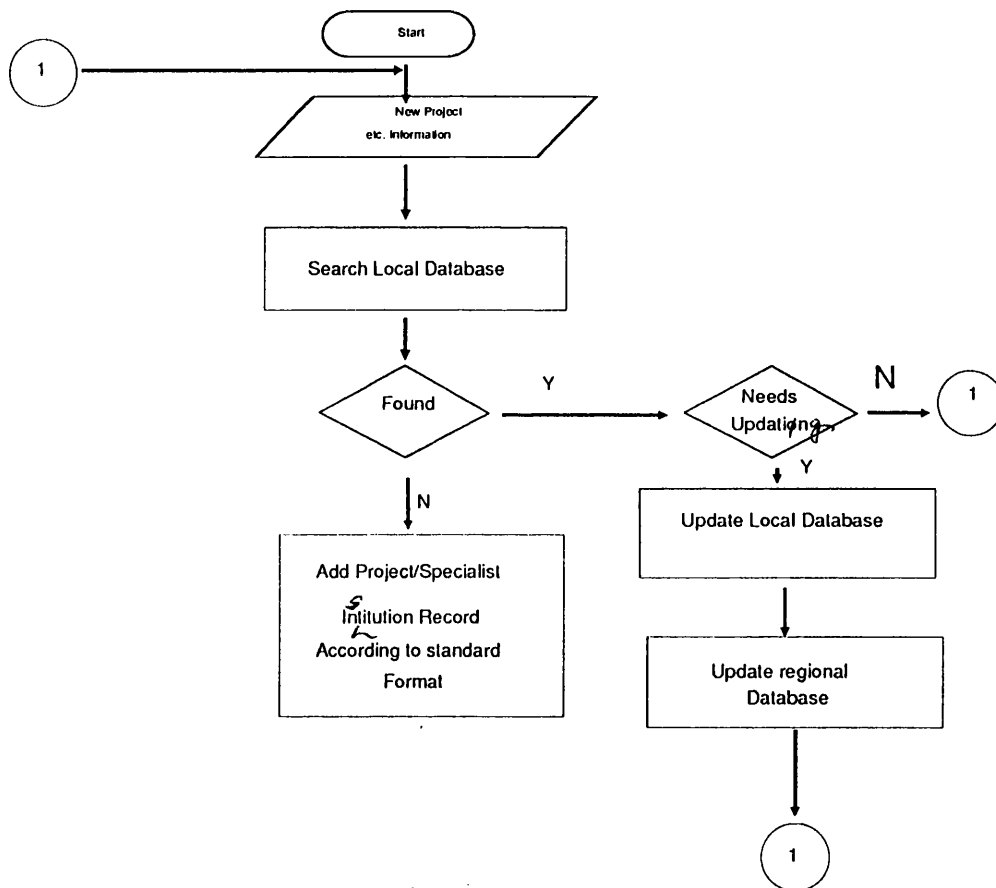


Figure 9.11

9.7.4 National Database of Indian Medical Literature

The development of a national database of Indian medical literature needs particular discussion here as the growth of research activities and the proliferation of research output in a number of Indian journals and different types of documents calls for an organised effort in the organisation of such information and dissemination to the medical community. It would involve two aspects: creation of a database of Indian medical literature; and development of infrastructure and facilities to make use of this indigenously produced information. Some of the libraries provide dissemination services at national level in their own specialised areas, such as the National Institute of Health and Family Welfare, the National Institute of Nutrition, the National Institute of Virology, the National Institute of Homeopathy, etc. There are other specialised institutions which generate information services in their respective fields, for example, the Central Drug Research Institute brings out monthly Current Indian Titles, Industrial Highlights, and Patent Awareness Bulletin. All these efforts are valuable but sporadic. There is no coherence and most of these services are published irregularly and late. The country is yet to create a comprehensive database to produce information services which can be effectively used to locate or access the information generated within the country. Considerable work is carried out in India in some of the areas of medicine, like malaria, gastrointestinal diseases, leprosy, etc., in both allopathic and Indian systems of medicine which may have an impact on the research activities in India and abroad.

There has been no attempt so far to create a comprehensive database of Indian medical literature, so much so that it is difficult to estimate even the actual number

of medical periodicals currently published in the country. In 1986 Bhatt¹⁶ estimated that the total number of such periodicals was 395 (English language 210, other Indian languages 185). According to the Directory of Scientific Serials of India, 1990 (compiled by INSDOC) the total number of medical periodicals currently published in India is 217. Beyond this, it is difficult to estimate the total output of medical literature in the country. The National Medical Library brings out Index to Indian Medical Periodicals (Quarterly) which covers about 150 periodicals, but this is an irregular publication. Indian Science Abstracts (ISA) covered 88 medical periodicals in 1987, out of which 72 are listed in the Directory by INSDOC. It also scanned 17 other periodicals from related areas. Thus a total of 105 periodicals were scanned by ISA in 1987 to report the Indian medical literature. The coverage of ISA in medical sciences is, therefore, not exhaustive. There are some more periodicals which are neither covered by the Directory nor ISA such as Indian Journal of Gastroenterology (Bombay), Quarterly Medical Review (Bombay), etc.

If we look at the coverage of Indian medical literature in international services, the situation is not very encouraging. Index Medicus (a printed indexing service of MEDLARS) covered only 25 Indian periodicals in 1989 out of the total of 2,888. A look at the journals covered by Index Medicus reveals that journals like, Indian Medical Journal (Calcutta), Journal of Genetics, Journal of Scientific and Industrial Research are not covered. These journals report considerable on-going work in India in various areas. Moreover, even if a journal is covered in Index Medicus, all the articles are not included¹⁷.

Similarly, the coverage in other indexing journals also is not encouraging. For example, Science Citation Index (SCI) covers very few Indian journals. Then each indexing service has its own selection policy. For example, Journal of Genetics is covered in SCI but not in Index Medicus. Similarly, journals like Indian Journal of Gastroenterology (Bombay), Indian Journal of Ophthalmology (Bombay), Quarterly Medical Review, Journal of Genetics, etc. are covered in international services (Index Medicus and SCI) but not in ISA. The Index Medicus for WHO South-East Asia Region (IMSEAR) also does not cover Indian medical literature comprehensively. For example, its volume 1 (1980-81) included only 29 periodicals from India out of 75 periodicals; the rest were from Bangladesh (10), Indonesia (5), Sri Lanka (7), Thailand (24)¹⁸.

There have been many developments in all fields of scientific activities in India since independence, including health and medical sciences. The Government has taken major initiatives to ensure "Health for All by the Year 2000". The medical science thus receives special attention by way of establishing colleges and specialised research institutions, allocating more funds and creating a more favourable environment for medical research and practice. The budget allocation for the Seventh Five Year Plan (1985-90) went up to Rs.3392.89 crores (Rs.339.28 billion) as against Rs.65,20 crores (Rs.6.52 billion) in the first plan¹⁹. The number of medical colleges increased manifold (162 at present, as against 30 before the First Five Year Plan period). Besides, there are about 97 colleges for Indian systems of medicine (Ayurvedic 84, Unani 11, Siddha 2) and 91 colleges and institutions in Homeopathy²⁰. The Indian Council of Medical Research (ICMR) coordinates medical research and it has about

25 permanent research units²¹. There are also specialised research institutes such as the Indian Cancer Research Institute, Bombay; the Pasteur Institute, Nilgiris; the National Tuberculosis Institute, etc. The total number of research institutions in medicine in the country is estimated to be 172²². All these activities result in the proliferation of societies, and publication of a number of periodicals and other types of publications which is bound to increase manifold in future.

It is clear that the information service in this field is not well organised. Development of a medical information system on the lines of MEDLARS and creation of a indigenous national database on Indian medical literature is indispensable. Such a database may also act as a feeder service to the international medical database, MEDLARS. This will facilitate access to the information generated in India from within and outside. The creation of a national database in an individual discipline may also lead to restructuring of all-pervading national abstracting services like ISA. The access to MEDLARS available at present is one way of making world information accessible. Creation of a comprehensive Indian database is to augment the objective. International databases like MEDLARS may perhaps some time in the future link to this by which their coverage of world medical literature will be much more exhaustive. The examples of INIS (International Nuclear Information System) or AGRIS (International Agricultural Information System) as a decentralised input system from India through co-operative effort are already there. The Library and Information Service of the Bhabha Atomic Research Centre, Bombay is the national centre responsible for INIS activities in India, and is responsible for scanning, selecting and inputting in the standard form bibliographic details, along with abstracts and

descriptors, of all documents published in India in the field of nuclear science and technology²³. For medical literature, NIC-ICMR is the best placed at present to take responsibility in this regard. It has already developed computer facilities at the national level to provide MEDLINE searching to its users and thus has the necessary infrastructure to create a national database of Indian medical literature. As a consequence a computerised version of Index to Indian Medical Periodicals will also be comprehensive and regular.

The creation of such a database, when backed-up by the network of medical libraries and information centres in the country, will make access to the information and delivery of the documents possible in the manner that MEDLARS, operated by the National Library of Medicine, is backed-up by 8 regional medical libraries, about 125 resource libraries at medical schools and more than 4,000 local medical libraries to facilitate access to medical information (chapter 7).

9.7.5 CD-ROM Databases

Evaluation of MEDLINE Services offered in Indian medical and health science libraries was a component of the survey, the results of which were discussed in section 3.84. The librarians were asked if they used MEDLINE services, the source of obtaining MEDLINE searches and to indicate the number of MEDLINE searches requested during the last one year (1989). The results show that only 39 libraries (20%) made use of MEDLINE services, out of which only 3 libraries (8%) had their own arrangements to provide this service. The majority of libraries (65%) obtained

them through the National Informatics Centre (ICMR-NIC Centre for Biomedical Information) New Delhi.

The technological resources available in respondent libraries are described in chapter 3.6.3. The availability of microcomputers in only 13 libraries (6%) and CD-ROM in none of the libraries is notable. However, the plans to instal microcomputers in 22 libraries (11%) and CD-ROMs in 10 libraries (5%) are very encouraging and suggest that the librarians and the medical professionals are now appreciating the current trends in dissemination of latest information and the role of CD-ROMs in this regard. These efforts, however, are very meagre and need to be promoted intensively on a national scale because the database technology presents a relatively low cost means by which bibliographic data can be shared rather than producing it themselves.

The sharing of information processing, information storage and information transmission facilities among medical libraries became technically feasible in 1971 when the MEDLINE service provided a remote online bibliographic search capability for libraries at medical schools, hospitals and research institutions throughout the United States and elsewhere in the world. The database provides access to world-wide biomedical literature and contains references to articles from about 3,500 journals published in the U.S.A. and about 70 other countries²⁴. The National Library of Medicine now produces more than 28 databases for online users²⁵. It is the position of the author that:

- 1 although there is an abundance of (computerised) biomedical information relevant to the requirements of the Indian medical

community, there is a serious lack of facilities to access this enormous information partly due to lack of suitable infrastructure and partly due to the lack of financial resources.

- 2 CD-ROM technology is one of the best short-term and practical alternatives for improving access to biomedical information to increase information self-sufficiency, overcoming the need for the availability of parallel and developed telecommunication facilities in the country on a wider scale at affordable costs.
- 3 there is an urgent need for investigating the implementation of this new information technology in medical school libraries in the country.

9.7.5.1 Biomedical Information: A Vital Need in India

In Bhopal (India) an industrial accident at the Union Carbide Chemical Plant in December 1984, exposed an estimated 200,000 people to a toxic gas known as methyl-isocyanate. About 2,000 people died. The long-term effects on survivors affected by the gas are not known. The press appreciably focused on the large scale human sufferings and the problems of litigation but little was written about the valiant efforts of civil and medical authorities in responding to this disastrous emergency. One hospital had an estimated 20,000 emergency visits in 24 hours. Amongst other problems, one which is relevant to the theme of this deliberation was the lack of suitable information to the doctors and para-medical staff on methyl-isocyanate such as:

- 1 chemical processes involved in its production
- 2 toxicity of methyl-isocyanate

- 3 potential downstream interaction of methyl-isocyanate with the environment and the production of other toxic substances
- 4 acute and long-term health hazards
- 5 methods of treatment, etc.

The response to the Bhopal disaster was immense from the international community and the contribution from the Centre for Disease Control (CDC) Georgia U.S.A. was a packet of articles giving abstracts of animal experiments with methyl-isocyanate and detailing its toxicity. These papers were copied and widely distributed throughout Bhopal (India). So CDC was able to provide the world's latest literature on methyl-isocyanate from its two in-house databases (NIOSHTIC and RTECS), National Library of Medicine and other commercial databases. Large scale disasters in one or the other context are not uncommon in a developing country and when a country is faced with a calamity the limited information becomes vital²⁶.

9.7.5.2 Status of Telecommunication Facilities

Databases have become indispensable in the process of information supply. Firstly, because millions of bibliographic references are made available for searching from almost any location in the world; secondly, because of the speed and efficiency with which a computer system can provide answers, thus greatly reducing the time needed for literature searching and compiling bibliographies. However, these enormous information resources have so far remained inaccessible for most of the researchers in the country. The medical institutions, like other university or research centres in the country, are not yet connected to any data network and still have to make use of telephone and telex calls to obtain access to international databases. For example,

DIALOG is used through normal telexes by the libraries of the National Chemical Laboratory, Pune; Regional Research Laboratory, Trivandrum; Bharat Heavy Electricals Ltd., Hyderabad: the online use of the system being promoted by Informatics (India) Private Ltd.

Though technical expertise is available in India, there was little experience in modern technologies for production and services. It was in 1984 that the Centre for Development of Telematics (C-DOT) was launched on its own to design a Family of Digital Switching Systems for various applications such as PABX, RAX, MAX, TAX. Developments have been speedy since then and India has already developed a 128 line digital PABX manufactured by 20 different companies in the country and a 128 port rural exchange. Beginning April 1988, India has been installing at the rate of one digital rural exchange a day in its telephone network. A 512 line Main Exchange was under field trial in Delhi before going into production in 1989. Similarly a 16,000 line Main Exchange is being installed and undergoing final field trial in Bangalore (as on 1990). All these products are designed to suit Indian conditions which demand very high traffic of the order of over 20 calls per line, high temperature and humidity environments. For example, the rural exchange is designed to work without air-conditioners because the power supply is unreliable in rural environments. Besides C-DOT there are several other national organisations involved in the overall telecommunication related activities²⁷.

Assuming that adequate telecommunication facilities do become available in due course, a librarian has to cope with setting up the microcomputer, modem and

telecommunication software. Training available from the major hosts is limited, as courses are normally conducted in major Western countries, and toll free help lines do not extend outside major industrialised Countries. In December 1984, Turkey introduced online search facilities at the Council of Higher Education Documentation Centre and the telecommunication system was found to present complicated problems. Reporting the experiences Nilufer Tuncer²⁸ observed that due to usage of much slower line, the high level of background noise is a persistent problem. Intercepts and cuts are common phenomena and constant use of international telephone lines costs a lot more with the additional frustration of dialling 12 digits sometimes with out success for hours. My impression is that the online situation is developing rather slowly in India, and has its operational problems too. Even though the country has achieved remarkable results in science and technology during the last decade, development in telecommunication systems is rather not parallel even though remarkable advances are now being made in the development of information networks and systems²⁹ (see sections 8.5 to 8.10). Consequently access to international databases can be made only through telex and long distance telephone calls which are usually cumbersome and expensive. Telephone charges are usually high and the line quality is often poor. The situation as stated above is not likely to improve rapidly within the next few years. Apart from the technological difficulties of access to foreign databases, another major constraint is the high cost of connection to these databases which usually ranges from £16 to £44 per computer connection hour, exclusive of the cost of down-loading the search results which is in the range of £0.20 to £0.75 per record³⁰. It is over a decade now since online bibliographic databases became accessible to health care libraries and while the librarians are still exploring

the problems and complications of telecommunications and the cost thereof, the information industry has come up with databases held locally on CD-ROM.

9.7.5.3 CD-ROM: Local Access to Computerised Databases

Until recently computerised information was usually stored on magnetic media such as hard discs and floppy discs which have a limited capacity and are susceptible to interference. The Compact Disc Read Only Memory (CD-ROM) was developed by a joint venture of Philips and Sony. It is a compact disc on which data can be stored in digital form which is machine readable. Read Only Memory means that data written on the disc cannot be altered. Discs are about 10.6 cm in diameter and hold 600 million characters, thus storing the equivalent of 1500 floppy discs or 200 books of 300 pages each. It is a high-capacity, low distortion, durable and transportable information carrier. CD-ROM discs hold 600 megabytes of data but recently compact discs have been announced which hold double the amount of data. Mr Reynold of Nimbus Records, the British developer, has claimed that they have already made 1.2 Gigabyte discs and the next step is 2.4 Gigabytes³¹.

Complete databases can be recorded onto compact discs which can be used in conjunction with software, a microcomputer, a CD-ROM player and a printer. Software packages with powerful indexing, search and retrieval capabilities are designed specifically to exploit CD-ROM technology. Together with the information itself, the software is also recorded onto CD, giving the user instant access to data by simply turning on the microcomputer, after which the system will be automatically loaded³².

9.7.5.4 Medical Databases

The CD-ROM Directory (1992) published by TFPL Publishing shows that the number of titles has increased from 189 in 1988 to 2,200 in 1992. Published in print since 1986 and on CD-ROM since 1990, the directory has increased in size and coverage with each edition. The majority of the databases concern science and biomedicine although more are appearing in business information sector. The new developments in information technology urged the publishers of the Online medical databases to assume this new and more specific title since 1989, as most of the bibliographic databases in its predecessor the Directory of medical databases are now available on CD-ROM. The 1989 edition of Online medical database directory lists over 130 bibliographic or full-text online databases on a range of subjects including biomedicine, health care, toxicology and pharmaceutical disciplines³³. The CD-ROM database of Excerpta Medica Abstract Journals corresponds to the previous year's printed abstract journals. There are discount schemes from 60-100% available to libraries already subscribing Excerpta Medica in hard copy. MEDLINE from Cambridge Scientific Abstracts (CSA) offers 4 options for subscription. Current year in these options refers to 12 months subscription from any starting date. Option 1 offers a choice of backfiles to 1966 at £150 p.a. after taking a current year subscription for £850 p.a. Option 2 offers all years of MEDLINE to 1966 plus current year subscription for £1,795 p.a. Option 3 offers current year subscription plus nine years backfiles for £930 p.a. Option 4 offers current year subscription plus four years backfiles for £1,125 p.a.³⁴. MEDLINE is available on Silver Platter from 1966 in 4 volumes. Volume 1 covers 1966-77; volume 2 covers 1978-82; volume 3 covers 1983-87; volume 4 covers 1988 to present with monthly updates. There is, however,

a cumulation subscription price for all the 4 volumes³⁵. An increasing amount of data is appearing in CD-ROM format, and it is estimated that by 1995, as much as 40% of all storage capacity will be optical³⁶.

9.7.5.5 MEDLINE Usage

To determine the extent to which MEDLINE search results are actually received and used by the medical community in India, the respondents were asked to indicate the number of MEDLINE searches received by them during the last one year. The results are shown in figure 3.24. About 80% of libraries have received less than 20 searches in one year. Only three libraries got more than 140 searches. During one year (1989-90) the respondent medical and health science libraries in India have cumulatively requested 927 MEDLINE searches. Out of this, the libraries have received back 780 MEDLINE searches, showing a response rate of 84%. This appears to be a fairly good response rate in view of the fact that the searches are conducted by NIC (library) staff and the interaction of the requesting doctor is not available, which could help in monitoring the search and its relevance. The libraries having their own arrangements for MEDLINE searches did not provide the number of searches performed in a year.

9.7.5.6 MEDLINE on CD-ROM: Users Response

It is premature to think about having responses of the users in India to MEDLINE searches either on CD-ROM or online because many of the end users do not presently have the facilities or opportunity to conduct searches for themselves. There is a similar situation in other developing countries as medical databases on CD-ROM are still new to them. However, user response to MEDLINE on CD-ROM is reported in

the literature from developed countries. One of such reports is from UCLA Biomedical Library in the U.S.A. which was testing a six month portion of the MEDLINE database on CD-ROM from CSA (Cambridge MEDLINE) to determine its potential application in health science library environments. The study³⁷ reported that 83% respondents found the system easy to learn and easy to use once learned. Only 13% found it difficult to use. Out of these 65% had never done a computer searching before and 33% had online experience. Regarding user satisfaction, 50% expressed their satisfaction with their searches and 30% dissatisfaction. It was interesting to note that 85% of these who were not satisfied still said that they would use the system again and 63% of them went on to suggest that the library should purchase it. Since then a number of medical libraries have purchased the database and it has been reported³⁸ that the product performs well in terms of speed of search and capabilities of search. A full range of Boolean facilities AND, OR, NOT, WITHIN, (word adjacency) are available^{39,40}.

The MEDLINE database is now available on compact disc from a number of suppliers, but it is difficult to generalise about them. Vendors like CSA, Silver Platter, DIALOG and Online Research Systems (MEDBASE) all provide one year of complete database with abstracts per disc. Aries Systems (Knowledge Finders) EBSCO and BRS all have several years of database per disc. Most vendors offer discs on a quarterly cumulative basis, but MEDBASE is announced as monthly product and BRS three times a year. Since the products differ enormously, the intending libraries may have to evaluate various features in detail⁴¹.

9.7.5.7 CD-ROM as Document Supply Medium: Feasibility Study on Medical Journals

Ten ADONIS systems are to be placed in developing countries, following an agreement with UNESCO in November 1991⁴². UNESCO users will be able to pay royalties using UNESCO coupons. ADONIS is a CD-ROM subscription system for retrieving and printing full-page images from more than 370 biomedical related journals. Weekly discs are delivered, each holding over 10,000 pages together with an index which accumulates on the PC hard disk. The project was initially sponsored by ten international publishers and fifteen document supply centres as a document delivery service on CD-ROM. It worked on trial basis till June 1989 and supplied 219 biomedical journal articles published in 1987 and 1988 on CD-ROM⁴³. The discs which appeared every week were delivered to major document supply centres in Europe, U.S.A., Mexico, Australia and Japan where they were used to fulfil requests for individual articles received by the centres in the course of their normal activities. Biomedical science was chosen as the subject area for the project on the basis of the findings of three major document delivery surveys. These surveys had shown that the demand for biomedical articles is greater than that for other subjects and that most of the articles in demand are less than three years old. The project was reported as a success with libraries and information seekers⁴⁴.

9.7.5.8 CD-ROM: Some Considerations

One of the major drawbacks presented by CD-ROM is the fact that it supports only a single user. However, multiple access provision is now available; for example, Silver Platter has made an information work station capable of supporting multiple drives to provide access to four CD-ROM files. Silver Platter has produced

networking software called "Multiplatter" which can network up to 21 CD drives, with each workstation having access to any drive⁴⁵. 'Voyager' is a disc library with a capacity for 250 discs which may be accessed within seconds using an innovative juke-box like mechanism. This capacity supports millions of text pages, images, data sets, etc. in a unit the size of a suitcase. Like a library, the discs and their information can be shared amongst groups of users. These developments will make these products more useful in library applications. However, the main benefits continue to be:

- 1 massive data storage capacity;
- 2 indestructible nature of the data stored;
- 3 ability to combine mixed media formats, e.g., graphics, audio and text;
- 4 easy to use;
- 5 unlimited usage;
- 6 inexpensive drives;
- 7 saves on binding costs;
- 8 saves shelf space;
- 9 saves time.

In order to support the trend of CD-ROMs in India, NISSAT established a "CD-ROM Information Centre" at the National Aeronautical Laboratory, Bangalore in 1988 to provide information about hardware, suppliers, reference tools, databases on CD-ROM and other technology trends. However, some factors like staff training, cost and availability need some consideration here⁴⁶:

Staff Training

With the introduction of the CD-ROM in the libraries the staff is bound to be faced with very typical questions and problems, for example, "this machine is stuck", "this has stopped printing", "how do I change the disc for backfile", etc. There can be issues about which even the staff may not have sufficient comprehension. It will necessitate that some staff members have primary responsibility for these matters and others serve as back-ups. So due care needs to be taken for deputing motivated staff members for training at the right time. Sometimes the training is imparted by the firm but wherever it is not, the cost involved on staff training will have to be taken into account while deciding about subscription to CD-ROM products with necessary hardware. As the new information medium gets working in the library, the trained staff will perform the following jobs⁴⁷:

- 1 Serve as a primary liaison with the publishers and vendors of optical discs and microcomputers;
- 2 Seek guidance in the resolution of equipment, disc and software problems;
- 3 Keep contacts with institutional computer centre and work with them when needed;
- 4 Write documentation on paper, set up routines, appropriate microcomputer workstation selection and use;
- 5 Help users in proper procedures;
- 6 Work with the librarian in designing instructional pamphlets on suitable bibliographic searching techniques for each system, etc.

Costs

The capital outlay involves the purchase of a suitable microcomputer with hard disc, CD-ROM drive (Hitachi, Sony or Philips) and a printer - likely to cost around £2,000. Backfiles may also involve a sort of capital expenditure. The maintenance of hardware and consumables like paper and print ribbons will involve recurring cost. Besides, recurring expenditure on subscriptions to databases, even though coming down due to competition, will have to be taken into consideration besides ascertaining the availability of the specific CD-ROM product, a time value of the data sought, database updating requirements and any other complexities of specific databases⁴⁸.

Health science libraries the world over are undergoing radical changes with the advent of new information technology and the availability and easy access to a large number of databases. The use of microcomputers has led to increasing computing power for decreasing cost and many librarians in India have expressed their eagerness to install them. These new advances could have a far reaching impact in dealing with vital biomedical information needs of India but the lack of parallel telecommunication systems makes online access perplexing. The advent of CD-ROM provides us with an opportunity to access large volumes of data via relatively inexpensive hardware and software, obviating the need for developed telecommunication systems. CD-ROM could enable medical information to flow into the country where it can be used by the health science professionals to have an impact on the quality of life of the people. The medical librarians thus have the responsibility to create organisational climates that would encourage and promote beneficial changes. The traditional approach is insufficient to anticipate and meet these challenges. Experimentation is the need of

the hour, improvisation inevitable and sharing of both successes and failures a professional and organisational imperative. Only by actively debating and creatively experimenting with forthcoming technologies and ideas, will we be able to ensure our validity as information providers in the most dynamic health care and medical environment of today. After having an overview of optical disc technology, it can generally be believed that CD-ROM has a great potential to serve as an alternate medium of access to biomedical information in India to support the communication of biomedical information and thus to contribute in developing excellence in the field of medical librarianship.

9.7.5.9 Implications for MEDLIS

At present CD-ROM search facilities are available only at the National Informatics Centre (ICMR-NIC Centre for Biomedical Information, New Delhi), and none of the libraries have such facilities. Centralised provisions of CD-ROM search services could be the last thing desirable in a vast country of the size of India. However, it is very encouraging to find that ten libraries have plans to install CD-ROM facilities (table 9.6). These include one of the proposed Special Subject Units (National Institute of Nutrition, Hyderabad) and one of the proposed Regional Libraries (PGI, Chandigarh), other than the National Medical Library, New Delhi. It is surprising, as evidenced by the survey results, that most of the better resourced libraries in various regions of the country have not so far planned to install CD-ROM facilities. We will in particular be interested that such facilities are essentially developed in the six proposed Regional Medical Libraries and 15 Special Subject Units in the very first phase of the development and implementation of MEDLIS network. This would help

TABLE 9.6
Libraries Planning to Install CD-ROM

1	National Institute of Nutrition (ICMR), Hyderabad
2	PGI, Chandigarh
3	Christian Medical College & Hospital, Vellore
4	Central Drug Research Institute, Lucknow
5	National Medical Library, New Delhi
6	National Documentation Centre, National Institute of Health & Family Welfare, New Delhi
7	J.J.M. Medical College, Devangere
8	SK Institute of Medical Sciences, Srinagar
9	National Institute for the Mentally Handicapped, Secunderabad
10	Central Leprosy Teaching & Research Institute, Tirumani .

TABLE 9.7
Libraries having Microcomputers

1	National Institute of Virology, Pune
2	National Institute of Nutrition (ICMR), Hyderabad
3	C.U. Shah College of Pharmacy, Bombay
4	PGI, Chandigarh
5	Central Food Technological Research Institute, Mysore
6	National Institute of Mental Health and Neuro-sciences, Bangalore
7	Central Drug Research Institute, Lucknow
8	All India Institute of Medical Sciences, New Delhi
9	National Medical Library, New Delhi
10	National Documentation Centre, National Institute of Health & Family Welfare, New Delhi
11	National Institute for the Mentally Handicapped, Secunderabad
12	Rajah Muthiah Dental College & Hospital, Annamalia Nagar
13	Dyanand Medical College, Ludhiana

to create awareness and demand for such services amongst the numerous Basic/Resource Units in all the four regions in an effective way, and ultimately serve the requirements of the medical and health care professionals in these regions. The establishment of CD-ROM search facilities in these designated centres will be the first important step in the development of MEDLIS network within the country; but this will be followed by the establishment of similar facilities in other major libraries, and we have seen that some other libraries have already planned to introduce automation.

The provision of CD-ROM search services pre-supposes the availability of a microcomputer and there are 13 libraries (6%) which already have microcomputers (table 9.7); out of which four libraries in addition have access to Mini or Main Frame computers in their parent institutions (table 9.8). Two of the libraries having microcomputers are the proposed Special Subject Units; and one library, namely, PGI, Chandigarh is the proposed Regional Library (North). Nineteen libraries which have indicated their intention to install microcomputers, include two proposed Special Subject Units, namely, 1) the National Institute of Cholera and Enteric Diseases, Calcutta, and 2) the Institute for Research in Reproduction, Bombay (table 9.9). So these libraries are already moving towards computerisation; hence the installation of CD-ROM drives and the provisions of ondisc search services is most likely to be accomplished for such libraries with lesser investment in the near future.

9.7.6 Document Supply Services

Information dissemination services by themselves are of no avail unless they are backed up by actual provision of copies of source documents. The user is invariably

TABLE 9.8
Libraries having Access to Mini or Main Frame Computer

1	National Institute of Nutrition (ICMR), Hyderabad
2	Central Food Technological Research Institute, Mysore
3	All India Institute of Medical Sciences, New Delhi
4	SK Institute of Medical Sciences, Srinagar
5	National Institute for the Mentally Handicapped, Secunderabad
6	Regional Medical Research Centre for Tribals, Jabalpur

TABLE 9.9
Libraries Planning to Install Microcomputers

1	Sawai Man Singh Medical College, Jaipur
2	King George Medical College, Lucknow
3	Stanley Medical College, Madras
4	Topiwala National Medical College and B.Y.L. Charitable Hospital, Bombay
5	Maulana Azad Medical College, New Delhi
6	J.J.M. Medical College, Devangere
7	Sk Institute of Medical Sciences, Srinagar
8	National Inst. of Cholera & Enteric Diseases, Calcutta
9	Institute for Research in Reproduction (ICMR), Bombay
10	Industrial Toxicology Research Centre (CSIR), Lucknow
11	Medical College, Kottayam
12	MGM Medical College, Jamshedpur
13	Institute of History of Medicine and Medical Research, Tuglaqabad, New Delhi
14	Christian Medical College, Ludhiana
15	MGM Medical College, Indore
16	Goa College of Pharmacy
17	Siddhartha Medical College, Vijayawada
18	VP Chest Institute, Delhi
19	Central Leprosy Teaching & Research Institute, Tirumani

interested in going through the original source document of his interest. For that reason, the document supply service assumes a great importance and has duly been rated as one of the top user services in the Regional Medical Library Service Systems in the U.K. MEDLIS has thus to pay due attention to it.

9.7.6.1 Interlibrary Loan Request

This service enables a library to request from another library through the network one or more books on an interlibrary loan basis for meeting the demands of its users. This may also include the facility for reserving a book, if it is on loan in the lending library. The actual delivery of the book itself will be through postal mail or other physical delivery mechanism like city or inter-city courier services (e.g., using document pick-up and delivery vans). An efficient and effective mechanism for physical delivery of the document needs to be developed. The success of this service depends upon the cooperative spirit of participating libraries. A code for interlibrary loan transaction may have to be evolved and adopted by all the libraries. Libraries having a richer collection will be major providers of this service; such libraries may need additional funding for administering the interlibrary loan service satisfactorily. The flow chart for interlibrary loan is given in figure 9.12

9.7.6.2 Document Delivery

It refers to the supply of hard copy of documents required by users, by mobilising the document resources mostly available in the country through the Zonal Units backed by Special Units. Supplying xerox copies of documents is the most convenient method, even though microfilms or microfiche may be involved occasionally for

ILL Requests in MEDLIS

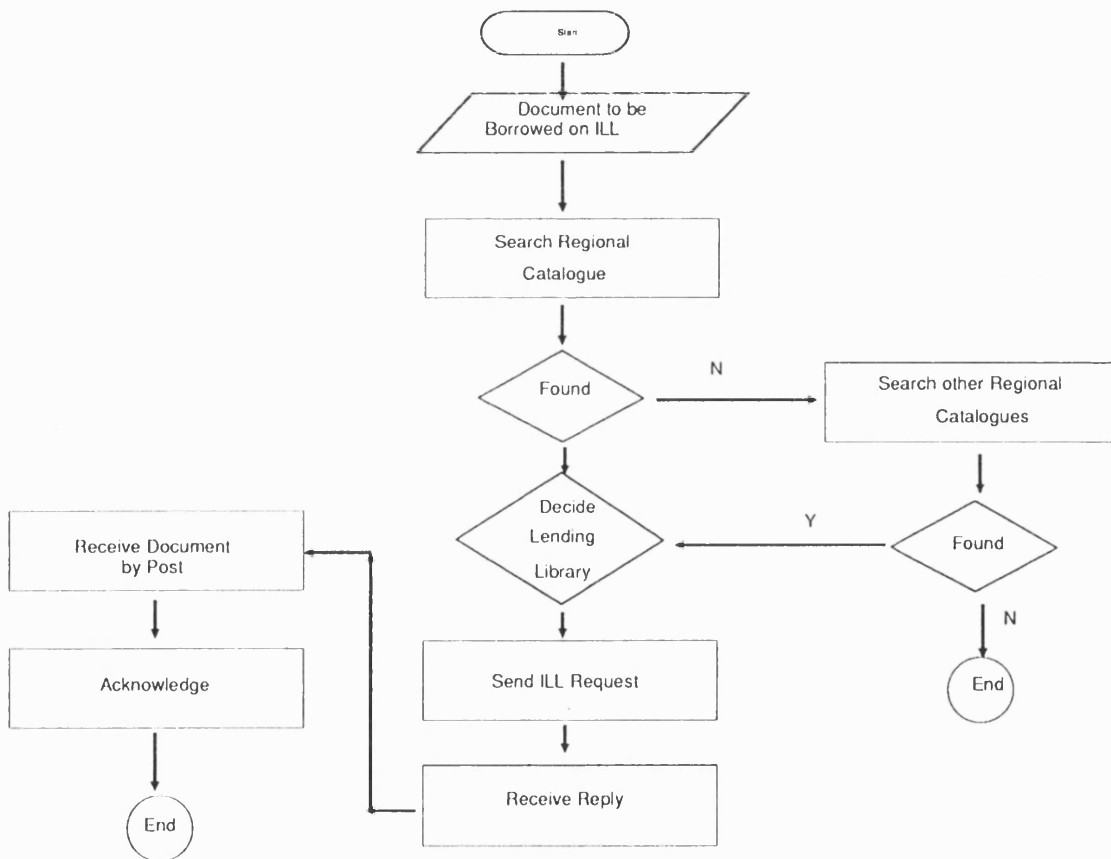


Figure 9.12

certain types of documents. The Central and Zonal libraries which are likely to serve as major document resource centres are in particular to be equipped with one or more heavy duty xerox machines and supporting facilities to handle a large volume of demand for document copies. MEDLIS being national in scope, a major part of the demand for document copies could be met from the designated libraries within the network. Still, there will be a residual demand for documents that are not available in the country, within or outside MEDLIS. There would be a need to procure documents from foreign libraries and documentation centres. Organisations like INSDOC (New Delhi) are offering a national level document delivery service and these facilities could be initially availed to meet the demand for documents not available within the country. Alternatively, the British Library Document Supply Centre at Boston Spa, which is well known for its international document delivery service, can be approached in such cases. The task of procuring documents not available within the country may be centralised and handled by the Zonal/Regional Units in their capacity as the regional document resource centres. Problems associated with copyright regulations need to be considered in consultation with concerned organisations like, the Department of Education, Ministry of Human Resource Development. It may however, be noted that the major users of MEDLIS belong mainly to the medical research and teaching community and that reproduction of a single copy of journal articles for bonafide academic/research pursuits may not encounter any serious problem in regard to the prevailing copyright regulations in the country.

Document Delivery by Fax, which enables a library to request another library for a copy of a document to be transmitted via telefacsimile, can be considered in future

when facilities are made available and the cost becomes affordable. This service may be largely used for transmitting a few pages from documents, say, journal articles on an urgent basis.

9.8 Determination of Alternate System Technologies

As we are aware, this is a time of rapid technological changes. Some of these changes undoubtedly affect cooperation and resource sharing activities and should therefore be taken into account in the design of the networking system. The selection of a suitable technology has been recognised as an important step in the planning processes and needs to be undertaken after an analysis of the general technological situation in India, its availability in medical libraries and in accordance with the constraints imposed by official policy and local factors. We have seen (section 8.5 to 8.10) that the potential for the application of technological advances in India to information and library work are great in future but it may take a considerable period before such an effect is felt. Not only may developments be slower than have sometimes been predicted, but their economic implications may prove difficult and it will certainly take some time before the latest technology will be affordable on a large scale.

If we look at India's situation, we notice that the application of computers and other modern technology in library and information services did not make significant progress until a decade ago. So far as medical libraries are concerned, the phenomenon is comparatively more recent. There are economic and technical reasons for the slow development besides the lack of a national information policy until

recently and general interest in technological applications to library and information work. One particular difficulty lay in the underdevelopment of the computer industry in the country, costlier computers and lack of library related software packages. With the development of indigenous computer industry in the country, microcomputers have become more affordable like anywhere else in the world which has increased interest and the prospects of computer application in libraries. Encouragingly, a few library-related software packages have been developed in the country in recent years. More recently, IBM has announced that it will collaborate with a local business house Tata, on a large scale. The progress will eventually promote the computerisation in library and information centres in India on a wider scale. Nevertheless, the present situation will not permit a widespread and high degree of computerisation in medical and health science libraries in India in the near future due to technical and economic reasons. There are big gaps for the libraries and information services in India to fill in order to catch-up with the developments in the developed countries. However, there is a great relief that there is a vast quantity of documents in the libraries in conventional form, to which conventional access is provided. Even if technology has a radical influence on the system of the future, the great body of knowledge enshrined in the past publications has still to be made available. But at the same time it is noticeable that new technology has numerous impacts on the effectiveness of the library and information services. The changes have been mainly brought about with regard to the physical forms; (e.g., publication in microforms, summary forms, such as Synopsis Journal where full text is supplied on demand, high-density storage, such as CD-ROMs, the Electronic Journal in which papers are submitted, referred, edited and subsequently made available online); document delivery (e.g., facsimile transmission,

Satellites); information storage and retrieval (e.g., large computerised databases, in-house databases, online and offline access, Viewdata).

Whether the network will apply any of the aforementioned technologies will depend largely upon the development and maturation of the technological infrastructure in the country in the coming years, their availability to libraries, and the willingness and resources of libraries to make them applicable in the library and information work as such. Since the introduction of computers enables libraries and information networks to automate their processes and services, computerisation can be regarded as a revolutionary process in the information and library world. A relevant issue here is to see the extent to which computers will be involved in the networking system functions. In other words, how much computerisation the proposed system will employ as the system participants gradually move from manual operations to computer applications. Based on this, three alternative programmes are identified, namely, Non-computerised, Semi-computerised and Computerised.

Non-computerised Networking System here means that all the processes of major functions are run manually, in other words, no computer will be involved in any processes of the four major functions. *Semi-computerised Networking System* here means that parts of the processes of the four major functions will be carried out by the application of the computers. *Computerised Networking System* here means that all the processes of four major functions will be computerised as much as possible.

The author has identified: 1) the means of processing of the major MEDLIS services under different programmes (table 9.10); 2) the possible input of resources, equipment and facilities which will have to be incurred to make the different programmes work (table 9.11); and 3) the possible ideal configurations/management structure for each service under different programmes (table 9.12). The choice of means and resources for non-computerised and computerised programmes are straightforward while that for semi-computerised programmes is based on the knowledge of technological advances in India and the author's personal preferences.

9.9 Standardisation in Information Processing Methods

Standards foster economy of human effort, cost and time, simplify exchange of information across units of a networking system, improve the quality of information services and lessen the economic and technical impediments in information flow. Application of a good set of standards by the units in a networking system is a pre-requisite to aim at. It contributes to optimisation in utilisation of resources and facilities of the total networking system. Standards are thus essential to ensure compatibility for alliance of libraries and information centres in the MEDLIS. Framing and confirming of appropriate standards, rules, guidelines and directions and their adoption and promotion by the constituent units of the MEDLIS at all levels should be taken care of by the NML as the Central Unit. The NML must actively participate in the preparation of standards, by working in collaboration with relevant national and international agencies like, the Bureau of Indian Standards (BIS) (formerly Indian Standards Institution); International Standards Organisation (ISO); UNESCO General Information Program (UNESCO-PGI); International Federation for

TABLE 9.10
MEDLIS Services and their Possible Means of Processing

<u>Service</u> Process	Non- Computerised	Semi- Computerised	Computerised
<u>Col. Development</u>			
Policy Planning	Meetings	Meetings	Meetings
Col. Evaluation (Data Collection)	Manual	Manual	Manual/ Computer
Collection Analysis	Manual	Manual	Computer Analysis
Interlibrary Communication	Mail/Meetings	Mail/Meetings	E Mail/ Teleconferencing
<u>Catalogue Based</u>			
Cataloguing	Manual-Cards	Manual- Microfiche	MARC-Inputting
Compilation	Manual	Manual/Computer	Automatic
Production	Card/Type	Microfiche/ Computer	Online/MARC/ Computer
<u>Database</u>			
Database Building	Secondary Sources/Print	Database Subscription/ Inhouse	Database Subscription/ Inhouse
Searching	Manual	Offline in Library	Via Network Centre & National Centre
Reproduction	Photocopy	Offline Print & Photocopy	Online Print/ Downlaoding
<u>Document Supply</u>			
Verification	Manual	Manual/Inhouse Database	Online Catalogue/ Inhouse Database
Transmission	Mail/Phone	Mail/Phone/Fax	E Mail
Document Supply	Mail	Mail	Mail
Reproduction	Photocopy	Photocopy	Photocopy/Fulltext Computer

TABLE 9.11
MEDLIS Services and the Resources Required

	Non-Computerised	Semi-computerised	Computerised
Collection Development	Staff time	Staff time	Staff time, Computer, Software package
Catalogue Based Services	Staff time, Cards, Typing	Staff time, Microfilming camera, Film/fiche Readers	Staff time, Computer Software, Tapes
Database Services	Staff time, Secondary sources- Print	Staff time, Computer, Database subscriptions, Inhouse databases, Search software	Staff-time, Computer terminals, Telephone (dedicated), Inhouse database Searching software
Document Supply	Staff time, Telephone, Photocopier	Staff time, Photocopier, FAX	Staff time, Telephone (dedicated), Computer (terminal), Photocopier

TABLE 9.12
MEDLIS Services and their Possible Management Structure in Alternate Technology Programmes

<u>Service</u>	Non-Computerised	Semi-Computerised	Computerised
Governance	Hierarchical	Hierarchical	Decentralised
Communication	Hierarchical	Hierarchical Decentralised	Centralised Decentralised
Collection Development	Hierarchical Centralised	Hierarchical	Decentralised
Document Supply	Hierarchical	Decentralised	Decentralised
Catalogue Based	Centralised Hierarchical	Centralised Hierarchical	Decentralised
Database	Centralised	Centralised Hierarchical	Centralised Decentralised

Library Associations and Institutions - Office of Universal Bibliographic Control (IFLA-UBC) and other relevant national standards bodies. A basic element of the rationale underlying the proposed system is the utilization of the existing medical library mechanism as far as feasible; but this does not preclude or diminish the need for a common basis for system utilization and communication through computers and computer utilisation, for which standards need to be worked out later to avoid repetition of expensive problems and errors. It should be emphasized that the purpose of standards is not to force the network components to do things in a certain way, but to foster the compatibility which is essential to maximum participation and benefit from the networking system.

The most commonly used information processing and document organisation methods in Indian medical libraries were ascertained as a component of the survey and are discussed in section 3.7 and depicted in figures 3.18 to 3.22. There is need to induce standardisation in the methods presently employed and the specific areas where standards are required are: Classification; Subject headings; Cataloguing rules; Forms of catalogue; Union Catalogue; and Access points for bibliographic and non-bibliographic database searches.

9.9.1 Classification

Medical libraries in the country have been following different schemes of classification (figure 3.18). The MEDLIS standards for classification scheme may be the one which is most specialist for medical collections, making NLM classification scheme the most suitable; but the majority of medical and health science libraries

(54%) follow Dewey Decimal Classification. It would, therefore, not be a practical proposition for such libraries to change their present scheme of classification to conform to the standard scheme of MEDLIS. It is suggested that libraries, following a classification scheme which is different from the standard one, may (while continuing their present scheme) assign for all new books added hereafter, class numbers by the standard scheme additionally for facilitating shared cataloguing, union catalogue compilation, etc. The libraries may retain the class numbers of their existing schemes in respect of their retrospective collection. Local variations are a common practice, which may result in different class numbers being assigned to a specific subject by the same scheme in many libraries. The libraries may have flexibility to retain such variations.

9.9.2 Subject Headings

MeSH (Medical Subject Headings) is very comprehensive and authoritative for any specialised medical library and can hence be used as a standard source of subject headings. It is encouraging to find its use in most of the Indian medical libraries (figure 3.19), but efforts need to be made to promote its use in other libraries which do not presently use any subject headings scheme, to improve document retrieval and contribute to uniformity and standardisation in subject cataloguing.

9.9.3 Cataloguing Rules

AACR-1 is more generally used in Indian medical libraries than AACR-2 (figure 3.20). As a standard, all the system participants should adopt the current Anglo-American Cataloguing Rules (AACR-2), which incorporates the recommendations of

the IFLA International Standard Bibliographic Descriptions (IFLA/ISBD). The National Medical Library as the Central Unit, will develop procedures for receiving recommendations from participating libraries for modifying existing rules of AACR-2 and for addition of new rules which may be warranted for Indian publications. The recommendations thus received will be carefully evaluated and modified/added rules will be codified.

9.9.4 Forms of Catalogue

Catalogues and bibliographic outputs are to be produced for different purposes and on different media by the participating libraries and information centres in MEDLIS. Even though at present card catalogue is very widely used (figure 3.22), some of the other media involved like video display terminals, microfiche, machine readable formats (magnetic tape, floppy, etc.) are bound to increase in the near future. There will thus be a need to develop standards for these physical formats to be used in the networking system. However, standardisation in these aspects has been achieved to a certain extent by international information systems such as INIS and AGRIS, and bibliographic cooperatives such as OCLC (Online Computer Library Centre) and WLN (Western Library Network). The National Centre may consider such efforts while developing standards for various physical formats to be used in the system.

9.9.5 Union Catalogue

MEDLIS aims at resource sharing and interlibrary loan services and for this purpose, a union list of serials and catalogue of monographs is an indispensable tool. MEDLIS should benefit from the experiences of INSDOC in the compilation of the Union

Catalogue of Serials for Science and Technology which is also available in a machine readable form. Besides the catalogue description of the document, each union catalogue record should contain a list of libraries, arranged alphabetically State-wide, which hold the particular document in their collection.

9.9.6 Catalogue/Bibliographic Database Search

Uniformity across the networking system is essential with respect to access points for:

1) catalogue; 2) bibliographic database; and 3) database of projects/institutions/specialists. The syntax of the command set used by the search system for catalogue and bibliographic databases should have a high degree of commonality. However, the search language should support users at novice, intermediate and expert levels. For novice users, the system should be completely menu driven and user friendly.

The NML may assist in ensuring uniformity in information processing activities throughout the networking system by bringing out a handbook designed specifically for this purpose. The handbook should provide detailed guidelines to the participating members on format specifications (bibliographic, project, institution and specialist), cataloguing rules, guidelines for data input/update, guidelines for language, abstracting, indexing, etc.

9.10 Control of the System

In a broader sense, the purpose of control is to provide a mechanism for overcoming the barriers to any "new" organisation such as a networking system of medical and health science libraries. The administration of a networking system requires a general

direction which poses problems of managing people and resources both in individual libraries and in the networking system. The system management requires an informed decision making body, therefore, those charged with the operation of a national system must have the relevant knowledge, insight, technical know-how and administrative capabilities. The management should provide an administrative structure and a decision making process which would be responsive to the needs of the medical community and the system as a whole. Based on the judgment of India's situation of requisition for Central Government finances and support for most of the developmental works, control by the Central Government is the most suitable management mechanism for the proposed system. But the forces of centralisation and decentralisation of governments play a vital role in the manner in which a country approaches the establishment of such a facility. Therefore, the management of this facility must vest in a Board as an autonomous body nominated by the Government of India. The management and administration of the system would best rest with a Governing Body, which will direct and monitor the operations of MEDLIS and should consist of:

- 1 President, Medical Council of India (Chairman)
- 2 Director General, Indian Council of Medical Research (Vice-Chairman)
- 3 Secretary/Joint Secretary, Department of Health and Family Welfare
- 4 Secretary/Joint Secretary, Department of Science and Technology
- 5 Secretary/Joint Secretary, Department of Finance
- 6 Four Directors/Principals of Medical Institutions/Colleges, one each from four regions in the country

- 7 Two Principals, one each from an Ayurvedic and a Homoeopathic Medical College
- 8 President/Secretary, Medical Library Association of India
- 9 President/Secretary, Indian Library Association
- 10 Regional Librarians of the four designated regions, as they are appointed.
- 11 Director/Deputy Director, National Medical Library (Member-Secretary)

The inclusion of medical professionals and administrative secretaries is essential because they are very influential on politicians, and can thus play an important role to mobilise Government mechanism to legislate for the required funding.

The characteristic of this system is that individual libraries, as system participants, will continue to have their individuality and administrative authority. They will in addition serve as useful links between the medical community and the NML/other resourceful libraries in the country to provide library and information services needed from several sources. But it is important that each designated Regional Medical Library, Resource/Basic Library and Special Library professionally works with the utmost cooperation with one another and the NML to form an integrated, interconnected and interdependent facility.

The staff working in Regional, Resource/Basic and other libraries will have to be responsible to their parent organisations and will continue to be governed by their rules and regulations. These will, however, be professionally guided by the appropriate level of system experts.

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CHAPTER 10

RECOMMENDATIONS FOR MEDLIS

The implementation of this project will be impossible without the necessary support and cooperation from the related authorities and potential participating libraries in order to overcome financial, technological and psychological barriers. It is also important to create an organisational climate that is conducive to the development of cooperative endeavours in medical libraries and to create the necessary conditions and atmosphere for the fulfilment of the proposed plan. Like any other networking system, MEDLIS will require commitment on the part of authorities and willingness on the part of potential participating libraries.

Authorities (which include Central and State Government ministries of health and family welfare, autonomous bodies like Medical Council of India (MCI), Indian Council of Medical Research (ICMR), University Grants Commission (UGC), and parent institutions of medical and health science libraries) play very consequential roles in the promotion of health and medical education in the country and hence can make vital contributions in the development of the system. Since they are responsible for funding and other important policy making decisions, their recognition, viewpoint and incitement is of great importance. To facilitate the development of MEDLIS as

a whole, and that of its harmonious advancement with other library systems in the country, the following steps need to be taken by the related authorities, especially by the Ministry of Health and Family Welfare and MCI at different levels:

Objectives and Policies

- 1 Long-term overall objectives should be enumerated for the medical library and information services in consonance with the Central Government's overall library directives and policies. Unified high-level national policies, and compatible regional and State policies should be worked out to assure the fulfilment of the overall objectives;
- 2 MEDLIS should be developed as an integral component of the medical education in the country on a national scale to provide health literature library and information support to biomedical communities in the country.
- 3 Adequate library information services could best be provided by balancing the modernisation efforts and the conventional requirements of library services, such as, expanding and enriching the existing collections in the medical libraries, providing adequate documentation services, promoting cooperative endeavours and efficient management of these libraries to utilise the existing resources to the optimum.
- 4 Six proposed Regional Medical Libraries should be formally designated within the framework of MEDLIS; four for the allopathic system of medicine, and one each for Ayurvedic and homeopathic systems of medicine.
- 5 Fifteen proposed ICMR library information centres should formally be designated as "Special Subject Units" within the framework of MEDLIS.

- 6 The National Medical Library, the six designated regional libraries and the library information centres of the proposed ICMR institutes should be supported for library automation programmes in the very first phase.
- 7 About 130 libraries having relatively better collections, should be identified and supported for undertaking document delivery service as designated Resource Units.
- 8 The strengthening of individual libraries must go on hand in hand as cooperation through MEDLIS can never be a substitute for good local collections adequate to meet basic everyday needs.
- 9 MEDLIS should collaborate with INSDOC, NISSAT Sectoral Centres, the Indian Institute of Science and other information centres which perform national level functions for database service in specialised subject fields and benefit from their experiences in the promotion of cooperative activities and services.
- 10 Retrospective conversion of catalogue data for computer applications in regional and other major medical libraries should be carried out as an additional programme in a time-bound manner.
- 11 Adoption of uniform standards in information processing methods is an important requirement on the part of participating libraries and must be stipulated through consensus and their adoption encouraged.
- 12 Participation in the networking system may be made voluntary by means of institutional agreement and the participating libraries required to fulfil the objectives, functions and services of MEDLIS.
- 13 MCI and UGC may be assigned the responsibility of carrying out pre-project

activities and overseeing the implementation in the initial stages.

- 14 MEDLIS may be implemented in a phased manner during the Ninth Five Year Plan (1995-2000) as a project.

New Technologies

- 15 Measures are needed to facilitate the development and provisions of new technologies, e.g., computer systems, CD-ROM systems, telecommunication facilities and photocopying facilities, etc., as per the requirements in various institutions.
- 16 The problems in the acquisition and adoption of CD-ROM systems, which are subject to customs clearance in India and involve a high rate of excise duty, should be redressed.
- 17 Zonal/Regional and other system participants should use common/compatible software and hardware for the computerisation programmes.
- 18 A suitable organisation may be contracted with the task of developing suitable application software packages for library automation and information retrieval.

Investment

- 19 Disparities in the allocation of funds to the libraries in medical colleges (categorised as technical colleges) and other academic colleges should be removed. At present the latter receive 75 to 100% funds for library developments from UGC, which is considered inapplicable to medical college libraries.
- 20 More funds should be allocated for the development of various components of

the medical library and information services system, for example, enrichment of documentary resources, equipment, communication facilities like telephones, improvement of physical facilities, and supportive technologies for development and expansion of services.

- 20 The Government of India should finance the project in full.
- 21 The possibility of seeking external assistance from organisations like WHO, UNESCO etc. for setting up the communication system and for computer software/hardware and other equipments may be explored.

Personnel

- 22 The salary structure of the medical librarians should be upgraded as per UGC recommendations and their general status improved. This will attract science graduates and other better qualified personnel into medical libraries which can help provide a better human resources base to the system.
- 23 Suitably qualified personnel in adequate numbers should be provided for at various levels and nodes of MEDLIS in a phased manner.
- 24 Training of personnel, for present and future requirements, in aspects like computerisation, CD-ROM searches, communication use, data preparation, online search and medical library practice should be provided for at suitably developed regional complexes.

9.(continued)

b) Holding a degree in any other subject than in library science (if not listed in 9a) Please exclude supportive staff.

Name with degree

Designation

.....

10. Please provide approximate number or write zero (0) for the following items:

Items	Approx. TOTAL no. of items (volumes)	Approx. ANNUAL additions
Books and monographs		
Current journals		
Theses/ dissertations		
Non-book material (reports/ pamphlets ...)		
Microforms (microfilms/ microfiche ...)		
Audio-visual (tapes/slides/ films/videotapes...)		
Others (please specify)		

11. Do you have any special collection (e.g., on the history of medicine, govt. publications on health, medical biographies, plastic surgery, AIDS etc.) Yes No

If yes, please name:

.....

12. Please tick () the classification scheme you use.

None NLM DDC CC JUDC LC
 Others i.e.....

13. Please tick the list of **subject headings** you use.

- None MeSH LC Sears
 others i.e.

14. Please tick the **cataloguing rules** you use.

- none AACR 1 AACR 2
 others i.e.

15. Please tick the **type of catalogue** you use.

- none author/title subject
 dictionary classified
 others i.e.

16. Please tick the **form of catalogue** you use.

- none card fiche book on-line
 others i.e.

17. Please tick () against the **equipment held by your library**:

- Photocopy machine
 Projector
 Cassette recorder/player
 Audio-visual equipment
 Microform reader/printer
 Telephone
 Telex
 Micro computer (e.g. Personal Computer)
 Mini or Main frame computer
 CD-ROM
 Others i.e.

18. Which of the **equipment** (question 17) do you expect to install within one year, if not available?

19. Please tick () against the **services provided for the users**:

- Literature searches
 Compiling bibliographies
 SDI (selective dissemination of information)
 In-house abstracting services
 Translating material for users
 Others please specify'

20. Do you use **MEDLARS / MEDLINE** services available in the country? Yes No

If yes, how many searches did you request / receive during the last one year:

No. requested _____
 No. received _____

21. Please give titles of your library publications, if any (e.g., accession lists, annual reports, guides to library etc.)

.....

22. Does your library have some co-operative activity with other libraries in the state or in the country? []Yes []No

IF YES, please tick which of the following activities your library takes part in with other libraries by formal agreements, informal understanding or not at all:

Particulars	None	Formal agreement	Informal agreement
a) Co-operative acquisition
b) Co-operative cataloguing
c) Inter-library loan
d) Information services for medical/para medical specialists of other organisation
e) Gifts and exchanges
f) Photocopying
g) Others (please specify)

23. In case you have inter-library loan co-operation with other libraries, please give;
 approx. number of titles sent in a year _____
 approx. number of titles received in a year _____

24. Please tick () if you would be interested to have a copy of the directory upon publication. []

25. Please add any other information or comments which you consider are relevant to this questionnaire.

THANK YOU FOR YOUR ASSISTANCE. PLEASE RETURN THE QUESTIONNAIRE
 TO: Gayas ud din c/o G R Makhdumi r/o Mohalla Khaja Sahib
 Baramulla Kashmir 193 101

Appendix B

School of Library Archive and Information Studies

UNIVERSITY COLLEGE LONDON

417

GOWER STREET LONDON WC1E 6BT

TELEPHONE 01-387 7050

Project Director:
Dr A B Buxton

July, 1989

Dear Colleague,

As Medical Librarians it is our earnest desire to know about other colleagues engaged in medical library and information services in various parts of the country. An up-to-date directory of Medical Libraries in India can go a long way to fulfill this requirement. Such a directory could also detail the existing collection in medical and para-medical libraries along with other services and facilities available.

The Association of Commonwealth Universities and the British Council have sponsored a project about medical libraries in India and the UK. Compilation and publication of an up-to-date directory of Medical Librarians and Libraries is a component of this project. I would, therefore, request you to kindly provide the data about your library and its staff in the enclosed questionnaire. It may take about 10-15 minutes and I would appreciate if you could return the questionnaire preferably within 10 days of its receipt. A self addressed stamped envelope is enclosed for your convenience.

Your response is of utmost importance and we are looking forward to it, so that upon publication this important reference tool has the benefit of the entry about your library.

With best wishes,

Yours Sincerely

(Gayas ud din)

Enclosures: 1. Questionnaire
2. Self-addressed
stamped envelope

1. Name of the institution/ parent organisation :

2. Address:

3. Telephone number: Grams:.....

4. Does your organisation have a library? [] Yes [] No
IF NO, please ignore the rest of the questionnaire and RETURN IT.

5. Year of establishment of the library :.....

6. Opening Hours:

7. Type/s of library (Please tick more than one if applicable)

- A: [] Hospital [] Academic [] Research
B: [] Pharmacy [] Nursing [] Dentistry [] Medical
[] Multi-disciplinary (combination of two or more)
C: [] Allopathic [] Ayurvedic [] Homeopathic [] Unani
[] Others (pl. specify)

8.a) Are members of other institutions allowed to use the library? [] Yes [] No

b) If yes, are they allowed to borrow the reading material? [] By permission of the Librarian [] Open to all [] No

9. Please give the number of staff in your library as follows:

- a) Total number of staff :
b) Total number of supportive staff (eg, class iv, clerical, office, accounts, xerox operators etc.)

10. Please state the name(s) of staff

a) Holding formal library science degrees
Name with degree Designation

Table with 2 columns: Name with degree, Designation. Multiple rows of dotted lines for data entry.

10.(continued)

b) Holding a degree in any other subject than in library science (if not listed in 10a). Pl. exclude supportive staff

Name with degree

Designation

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11. Please provide **approximate number** or write zero (0) for the following items:

Items	Approx. TOTAL no. of items	Approx. ANNUAL additions
Books and monographs		
Current journals (titles)		
Bound Journals		
Theses/ dissertations		
Non-book material (reports/ pamphlets ...)		
Microforms (microfilms/ microfiche ...)		
Audio-visual (tapes/slides/ films/videotapes...)		
Others (please specify)		

12. Do you have any **special collection** (e.g., on the history of medicine, govt. publications on health, medical biographies, plastic surgery, AIDS etc.) Yes No

If yes, please name:

.....
.....

13. Please tick () the **classification** scheme you use.

None NLM JDDC JCC JUDC JLC
 Others i.e.....

14. Please tick the list of **subject headings** you use.
 None MeSH LC Sears
 others i.e.....
15. Please tick the **cataloguing rules** you use.
 none AACR 1 AACR 2
 others i.e.....
16. Please tick the **type of catalogue** you use.
 none author/title subject
 classified dictionary (author/title/subject)
 others i.e.....
17. Please tick the **form of catalogue** you use.
 none card fiche book on-line
 others i.e.
18. Please tick () against the **equipment** held by your library:
 Photocopy machine
 Microform reader/printer
 Audio-visual equipment (projector, Cassette recorder/player...)
 Telephone
 Telex
 Micro computer (e.g. Personal Computer)
 Mini or Main frame computer
 CD-ROM
 Others i.e.....
19. Which of the **equipment** (question 18) do you expect to install within a year, if not available?

20. Annual **budget** (books & periodicals) 1989/90: _____
21. Please tick () against the **services** provided for the users:
 Literature searches
 Compiling bibliographies
 SDI (selective dissemination of information)
 In-house abstracting services
 Translating material for users
 Others (please specify).....
22. Do you use **MEDLARS / MEDLINE** services available in the country?
 Yes No
- If yes, how many searches did you request / receive during the last one year:
- Source (Institution or library name) _____
 No. requested _____ No. received _____

23. Please give titles of your **library publications**, if any (e.g., accession lists, annual reports, guides to library etc.)

.....

24. Does your library have some **co-operative activity** with other libraries in the state or in the country? []Yes []No

IF YES, please tick which of the following activities your library takes part in with other libraries by formal agreements or informally:

Particulars	By formal agreement	Informally
a) Co-operative acquisition	_____	_____
b) Co-operative cataloguing	_____	_____
c) Inter-library loan	_____	_____
d) Information services for medical/para medical specialists of other organisation	_____	_____
e) Gifts and exchanges	_____	_____
f) Photocopying	_____	_____
g) Others (pl. specify)	_____	_____

25. In case you have **inter-library loan** co-operation with other libraries, please give;
 approx. number of titles sent in a year _____
 approx. number of titles received in a year _____

26. Please tick () if you would be interested to have a copy of the directory upon publication. []

27. Please add any other **information or comments** which you consider are relevant to this questionnaire.

THANK YOU FOR YOUR ASSISTANCE. PLEASE RETURN THE QUESTIONNAIRE
 TO: Gayas ud din c/o G R Makhdumi r/o Mohalla Khaja Sahib
 Baramulla Kashmir 193 101



School of Library, Archive and Information Studies

UNIVERSITY COLLEGE LONDON

Gower Street London WC1E 6BT Tel: 01-387 7050 Direct Line: 01-380 7204

Director: Professor A. G. Watson, MA BLitt DLit

Project Director
Dr A B Buxton

Sept 1989

Dear Colleague,

I have not as yet received your response to the questionnaire on the (directory of) medical libraries/ librarians in India. I realise that as Head Librarian your time is very limited, but I need your help. Please could you kindly fill out the enclosed duplicate questionnaire and return it at your earliest convenience in the enclosed self-addressed stamped envelope.

Your contribution to this study shall be greatly appreciated.

With best wishes,

Yours Sincerely

Gayas-ud-din

Encls: 1. Duplicate questionnaire
2. Self-addressed stamped envelope



School of Library, Archive and Information Studies

UNIVERSITY COLLEGE LONDON

Gower Street London WC1E 6BT Tel: 01-387 7050 Direct Line: 01-380 7204

Director: Professor A. G. Watson, MA BLitt DLit

Project Director:
Dr A B Buxton

9 April, 1990

Dear Librarian,

I am conducting a study of Medical & Health Science Library and Information Systems in the UK as part of a University of London M Phil/ Ph D degree. I would appreciate if you could please fill the enclosed questionnaire and return it by 24 April in the enclosed envelope. I hope it will not take more than 15 minutes.

The study is being sponsored by the Association of Commonwealth Universities and the NHS Regional Librarians Group. This questionnaire has been reviewed and approved by your Regional Services Librarian, Mr John Van Loo.

Your response will be strictly confidential and will not be revealed to any individual or authority. The results of this study will be available as a report.

The purpose of this study is to ascertain in what ways the development of a Regional Library System with a Regional Library or a Regional Library Unit could result in expansion or improvement of library services in the region. The study also examine relationships between different types and combinations of medical and health science libraries. I am interested in learning how libraries of many types and sizes work together within library systems, the extent to which the regional services are used and valued. Data from this study will serve as a guide for working out a medical library and information system for India as we seek to implement multi-disciplinary library cooperation. It may also help you develop more effective working relationships with the library and information systems in your Region.

Your contribution to this study will be greatly appreciated.

With best wishes,

Yours faithfully

Gayasuddin

Enclosures:

- Questionnaire
- Return envelope

Number.....

PART 1

If you come to a question that is not applicable, please note it by writing "not applicable" or "n/a" in the left hand margin.

1. What type of library do you work in?

- Postgraduate Medical Centre Library
- Hospital Staff Library
- District/ Regional Health Authority Library
- Medical / Dental School Library
- School or College of Nursing Library
- Patients Library
- Multi-disciplinary Library (ie, combination of two or more)
- Others (pl. specify)

2. Are you a member of any other formal library network in addition to Oxford Regional Library & Information Service ?

- Yes No

If Yes, please specify.

.....
.....

3. Are you a member of a coordinating committee of any library network/s ?

- Yes No

If Yes, please specify.

.....
.....

PART 2 - THE REGIONAL LIBRARY UNIT (or REGIONAL LIBRARY)

A)

Over the last 1 to 5 years, how much assistance has your Regional Library or Regional Library Unit provided for your library in each of the following administrative areas? Please circle the number that best describes how much, from 0 (none) to 4 (a great deal).

	None		A Great Deal		
	0	1	2	3	4
Advisory & consultant services	0	1	2	3	4
Introduction of new technologies	0	1	2	3	4
Coordination of activities with other libraries	0	1	2	3	4
Planning and budgeting	0	1	2	3	4
Improvement of relations with: Health authorities	0	1	2	3	4
University/ medical school authorities	0	1	2	3	4
Professional standards	0	1	2	3	4
Evaluation/ performance appraisal	0	1	2	3	4
Financial support by: Regional Health Authority	0	1	2	3	4
District Health Authority	0	1	2	3	4
University / medical school	0	1	2	3	4
Staff training/ continuing education	0	1	2	3	4
Staff Recruitment	0	1	2	3	4
User education	0	1	2	3	4
Document Delivery Service	0	1	2	3	4
Cataloguing of library materials	0	1	2	3	4
Selection of library materials	0	1	2	3	4
Union list of serials	0	1	2	3	4

	None		A Great Deal		
	0	1	2	3	4
Physical processing of library materials	0	1	2	3	4
Printing (stationery, brochures, signs..)	0	1	2	3	4
Photocopying	0	1	2	3	4
Centralised purchases: library materials or other supplies	0	1	2	3	4
Others, please specify					
a)	0	1	2	3	4
b)	0	1	2	3	4

B)

The following questions examine the nature of the relationship between your library and the Regional Library Unit (or Regional Library) to assess how this relationship affects your library's overall programmes. Please circle the number that best describes your opinion from 0 (none) to 4 (a great deal).

1. To what extent are the aims of your library compatible with the overall aims of the Regional Library Unit ?

Not Compatible					Fully Compatible
0	1	2	3		4

2. To what extent does agreement on issues of mutual concern characterise your participation with the Regional Library Unit ?

No Agreement					Full Agreement
0	1	2	3		4

3. How important is the Regional Library Unit to the successful operation of your library ?

Not at all					Essential
0	1	2	3		4

4. How important is your library to the successful operation of the Regional Library Unit?

Not at all					Essential
0	1	2	3		4

PART 3 - THE REGIONAL LIBRARY SYSTEM

This part asks about your involvement in the Regional Library System, i e, the co-operative network of various medical and related (para-medical) libraries in the Region.

A)

Over the past 1 to 5 years, how much assistance has the Regional Library System given to your library in providing or improving the following user services. Please circle the number that best describes how much, from 0 (none) to 4 (a great deal).

	None			A Great Deal	
	0	1	2	3	4
Availability of Books	0	1	2	3	4
Availability of Journals	0	1	2	3	4
Availability of material in other media	0	1	2	3	4
Reference/ information service	0	1	2	3	4
MEDLINE Searches	0	1	2	3	4
Interlibrary loans - received	0	1	2	3	4
Interlibrary loans - sent	0	1	2	3	4
Reciprocal borrowing facilities	0	1	2	3	4
New areas of service	0	1	2	3	4
Others, please specify					
a)	0	1	2	3	4
b)	0	1	2	3	4

B)

The following questions examine the nature of relationship between your library and the Regional Library System to assess how this relationship affects your library's overall programmes. Please circle the number that best describes your opinion from 0 (none) to 4 (a great deal).

1. How important is the Regional Library System to the successful operation of your library?

Not at all					Essential
0	1	2	3	4	

2. How important is your library to the successful operation of the Regional Library System ?

Not at all					Essential
0	1	2	3	4	

3. How do you rate the cooperation of other libraries in the Regional Library System with your library?

Non-cooperative					Very cooperative
0	1	2	3	4	

4. How do you rate the cooperation of your library with other libraries in the Regional Library System ?

Non-cooperative					Very cooperative
0	1	2	3	4	

5. With regard to making decisions on issues of mutual concern in your region, how much influence do you have on the decisions reached?

None					A Great Deal
0	1	2	3	4	

6. Do you see any **additional advantages** in belonging to the Regional Library System?

1.

2.

7. Do you see any **disadvantages** for your library in belonging to the Regional Library System?

1.

2.

PART 4 - INTERACTION WITH REGIONAL LIBRARY/ SYSTEM

In a typical year, how much involvement do you have in the following activities?

Number of expert/ advisory/ consultant visits made by the Regional Library personnel to your library	
Number of visits made by other librarians in the Region to your library for professional advice	
Number of visits made by you or your colleagues to the Regional Library or Unit for professional advice	
Number of visits made by you or your colleagues to other libraries in the region for professional advice	
Number of attendances at workshops/ seminars etc organised by the Regional Library or Unit (no. of staff x no. of workshops attended)	
Number of attendances at other library related workshops/ seminars/ meetings/ conferences etc (no. of staff x no. of workshops attended)	

Approx. how often do you communicate with the **Regional Librarian or his staff** on the phone or by writing letters? (Please tick)

Telephone : Daily Weekly Monthly Quarterly Annually

Letters : Daily Weekly Monthly Quarterly Annually

Approx. how often do you communicate with **other Librarians in the Region** on the phone or by writing letters? (Please tick)

Telephone : Daily Weekly Monthly Quarterly Annually

Letters : Daily Weekly Monthly Quarterly Annually

If you wish to make any additional comments regarding the impact of the Regional Library or the Regional Library System, please write on the reverse.

THANK YOU FOR YOUR ASSISTANCE

PLEASE RETURN THE QUESTIONNAIRE IN THE ENVELOPE PROVIDED TO:
GAYASUDDIN, SLAIS, UNIVERSITY COLLEGE, GOWER ST, LONDON WC1E 6BT



School of Library, Archive and Information Studies

UNIVERSITY COLLEGE LONDON

Gower Street London WC1E 6BT Tel: 01-387 7050 Direct Line: 01-380 7204

Director: Professor A. G. Watson, MA BLitt DLit

Project Director:
Dr A B Buxton

7 April, 1990

Dear Librarian,

I am conducting a study of Medical & Health Science Library and Information Systems in the UK as part of a University of London M Phil/ Ph D degree. I would appreciate if you could please fill the enclosed questionnaire and return it by **20 April** in the enclosed envelope. I hope it will not take more than 15 minutes.

The study is being sponsored by the Association of Commonwealth Universities and the NHS Regional Librarians Group. This questionnaire has been reviewed and approved by your Regional Librarian, Mr Michael Carmel.

Your response will be strictly confidential and will not be revealed to any individual or authority. The results of this study will be available as a report.

The purpose of this study is to ascertain in what ways the development of a Regional Library System with a Regional Library or a Regional Library Unit could result in expansion or improvement of library services in the region. The study also examine relationships between different types and combinations of medical and health science libraries. I am interested in learning how libraries of many types and sizes work together within library systems, the extent to which the regional services are used and valued. Data from this study will serve as a guide for working out a medical library and information system for India as we seek to implement multi-disciplinary library cooperation. It may also help you develop more effective working relationships with the library and information systems in your Region.

Your contribution to this study will be greatly appreciated.

With best wishes,

Yours faithfully

Gayasuddin

Enclosures:

- Questionnaire
- Return envelope

PART 1

If you come to a question that is not applicable, please note it by writing "not applicable" or "n/a" in the left hand margin.

1. What type of library do you work in?

- Postgraduate Medical Centre Library
- Hospital Staff Library
- District/ Regional Health Authority Library
- Medical / Dental School Library
- School or College of Nursing Library
- Patients Library
- Multi-disciplinary Library (ie, combination of two or more)
- Others (pl. specify)

2. Are you a member of any other formal library network in addition to SW Thames Regional Library Service ?

- Yes No

If Yes, please specify.

.....
.....

3. Are you a member of a coordinating committee of any library network/s ?

- Yes No

If Yes, please specify.

.....
.....

PART 2 - THE REGIONAL LIBRARY UNIT (or REGIONAL LIBRARY)

A)

Over the last 1 to 5 years, how much assistance has your Regional Library or Regional Library Unit provided for your library in each of the following administrative areas? Please circle the number that best describes how much, from 0 (none) to 4 (a great deal).

	None		A Great Deal		
	0	1	2	3	4
Advisory & consultant services	0	1	2	3	4
Introduction of new technologies	0	1	2	3	4
Coordination of activities with other libraries	0	1	2	3	4
Planning and budgeting	0	1	2	3	4
Improvement of relations with: Health authorities	0	1	2	3	4
University/ medical school authorities	0	1	2	3	4
Professional standards	0	1	2	3	4
Evaluation/ performance appraisal	0	1	2	3	4
Financial support by: Regional Health Authority	0	1	2	3	4
District Health Authority	0	1	2	3	4
University / medical school	0	1	2	3	4
Staff training/ continuing education	0	1	2	3	4
Staff Recruitment	0	1	2	3	4
User education	0	1	2	3	4
Document Delivery Service	0	1	2	3	4
Cataloguing of library materials	0	1	2	3	4
Selection of library materials	0	1	2	3	4
Union list of serials	0	1	2	3	4

	None			A Great Deal	
Physical processing of library materials	0	1	2	3	4
Printing (stationery, brochures, signs..)	0	1	2	3	4
Photocopying	0	1	2	3	4
Centralised purchases: library materials or other supplies	0	1	2	3	4
Others, please specify					
a)	0	1	2	3	4
b)	0	1	2	3	4

B)

The following questions examine the nature of the relationship between your library and the Regional Library Unit (or Regional Library) to assess how this relationship affects your library's overall programmes. Please circle the number that best describes your opinion from 0 (none) to 4 (a great deal).

1. To what extent are the aims of your library compatible with the overall aims of the Regional Library Unit ?

Not Compatible					Fully Compatible
0	1	2	3	4	

2. To what extent does agreement on issues of mutual concern characterise your participation with the Regional Library Unit ?

No Agreement				Full Agreement
0	1	2	3	4

3. How important is the Regional Library Unit to the successful operation of your library ?

Not at all				Essential
0	1	2	3	4

4. How important is your library to the successful operation of the Regional Library Unit?

Not at all				Essential
0	1	2	3	4

PART 3 - THE REGIONAL LIBRARY SYSTEM

This part asks about your involvement in the Regional Library System, i e, the co-operative network of various medical and related (para-medical) libraries in the Region.

A)

Over the past 1 to 5 years, how much assistance has the Regional Library System given to your library in providing or improving the following user services. Please circle the number that best describes how much, from 0 (none) to 4 (a great deal).

	None			A Great Deal	
	0	1	2	3	4
Availability of Books	0	1	2	3	4
Availability of Journals	0	1	2	3	4
Availability of material in other media	0	1	2	3	4
Reference/ information service	0	1	2	3	4
MEDLINE Searches	0	1	2	3	4
Interlibrary loans - received	0	1	2	3	4
Interlibrary loans - sent	0	1	2	3	4
Reciprocal borrowing facilities	0	1	2	3	4
New areas of service	0	1	2	3	4
Others, please specify					
a)	0	1	2	3	4
b)	0	1	2	3	4

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1. How important is the Regional Library System to the successful operation of your library?

Not at all					Essential
0	1	2	3	4	

2. How important is your library to the successful operation of the Regional Library System ?

Not at all					Essential
0	1	2	3	4	

3. How do you rate the cooperation of other libraries in the Regional Library System with your library?

Non-cooperative					Very cooperative
0	1	2	3	4	

4. How do you rate the cooperation of your library with other libraries in the Regional Library System ?

Non-cooperative					Very cooperative
0	1	2	3	4	

5. With regard to making decisions on issues of mutual concern in your region, how much influence do you have on the decisions reached?

None					A Great Deal
0	1	2	3	4	

6. Do you see any **additional advantages** in belonging to the Regional Library System?

1.

2.

7. Do you see any **disadvantages** for your library in belonging to the Regional Library System?

1.

2.

In a typical year, how much involvement do you have in the following activities?

Number of expert/ advisory/ consultant visits made by the Regional Library personnel to your library	
Number of visits made by other librarians in the Region to your library for professional advice	
Number of visits made by you or your colleagues to the Regional Library or Unit for professional advice	
Number of visits made by you or your colleagues to other libraries in the region for professional advice	
Number of attendances at workshops/ seminars etc organised by the Regional Library or Unit (no. of staff x no. of workshops attended)	
Number of attendances at other library related workshops/ seminars/ meetings/ conferences etc (no. of staff x no. of workshops attended)	

Approx. how often do you communicate with the Regional Librarian or his staff on the phone or by writing letters? (Please tick)

Telephone : Daily Weekly Monthly Quarterly Annually

Letters : Daily Weekly Monthly Quarterly Annually

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Telephone : Daily Weekly Monthly Quarterly Annually

Letters : Daily Weekly Monthly Quarterly Annually

If you wish to make any additional comments regarding the impact of the Regional Library or the Regional Library System, please write on the reverse.

.....

THANK YOU FOR YOUR ASSISTANCE
 PLEASE RETURN THE QUESTIONNAIRE IN THE ENVELOPE PROVIDED TO:
 GAYASUDDIN, SLAIS, UNIVERSITY COLLEGE, GOWER ST, LONDON WC1E 6BT



School of Library, Archive and Information Studies

UNIVERSITY COLLEGE LONDON

Gower Street London WC1E 6BT Tel: 01-387 7050 Direct Line: 01-380 7204

Director: Professor A. G. Watson, MA BLitt DLit

Project Director:
Dr A B Buxton

15 June, 1990

Dear Librarian,

About six weeks ago a questionnaire seeking information about the interaction of your library with the South West Thames Regional Library Unit and the Regional Library System was mailed to you. So far I have not received your reply. I would appreciate if you could fill the questionnaire at your earliest convenience. If by some chance you did not receive the questionnaire, or it was misplaced, please notify me and I will mail a replacement to you.

I am writing to you again because of the importance each questionnaire has to the usefulness of the study. The purpose of this study is to ascertain in what ways the development of a Regional Library System with a Regional Library or a Regional Library Unit can result in expansion or improvement of library services in a region.

Your cooperation is greatly appreciated.

Yours faithfully

Gayasuddin



School of Library, Archive and Information Studies

UNIVERSITY COLLEGE LONDON

Gower Street London WC1E 6BT Tel: 01-387 7050 Direct Line: 01-380 7204

Director: Professor A. G. Watson, MA BLitt DLit

Project Director:
Dr A B Buxton

7 April,1990

Dear Librarian,

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The study is being sponsored by the Association of Commonwealth Universities and the NHS Regional Librarians Group.

Your response will be strictly confidential and will not be revealed to any individual or authority. The results of this study will be available as a report.

The purpose of this study is to ascertain in what ways the development of a Regional Library System with a Regional Library or a Regional Library Unit could result in expansion or improvement of library services in the region.

Your contribution to this study will be greatly appreciated.

With best wishes,

Yours faithfully

Gayasuddin

Enclosures:

- Questionnaire
- Return envelope

Number.....

PART 1

If you come to a question that is not applicable, please note it by writing "not applicable" or "N/A" in the left hand margin.

1. What type of library do you work in?

- Postgraduate Medical Centre Library
- Hospital Staff Library
- District/ Regional Health Authority Library
- Medical / Dental School Library
- School or College of Nursing Library
- Patients Library
- Multi-disciplinary Library (ie, combination of two or more)
- Others (pl. specify)

2. Are you a member of any formal library network/s?

- Yes No

If yes, please specify.

.....

.....

3. Are you a member of any coordinating committee of any formal library network/s?

- Yes No

If Yes, please specify.

.....

.....

PART 2 - THE REGIONAL LIBRARY UNIT (or REGIONAL LIBRARY)

I would like to assess whether a cooperative regional library system with a regional library or regional library unit would be able to contribute to your library's operation and effectiveness.

Please indicate what degree of assistance you think a regional library or regional library unit might give to your library's management or operation. For each area, please circle the number that best describes how much, from 0 (none) to 4 (a great deal).

	None			A Great Deal	
	0	1	2	3	4
Advisory & consultant services	0	1	2	3	4
Introduction of new technologies	0	1	2	3	4
Coordination of activities with other libraries	0	1	2	3	4
Planning and budgeting	0	1	2	3	4
Improvement of relations with:					
Health authorities	0	1	2	3	4
University/ medical school authorities	0	1	2	3	4
Professional standards	0	1	2	3	4
Evaluation/ performance appraisal	0	1	2	3	4
Financial support by:					
Regional Health Authority	0	1	2	3	4
District Health Authority	0	1	2	3	4
University / medical school	0	1	2	3	4
Staff training/ continuing education	0	1	2	3	4
Staff Recruitment	0	1	2	3	4
User education	0	1	2	3	4
Document Delivery Service	0	1	2	3	4
Cataloguing of library materials	0	1	2	3	4
Selection of library materials	0	1	2	3	4
Union list of serials	0	1	2	3	4

	None			A Great Deal	
Physical processing of library materials	0	1	2	3	4
Printing (stationery, brochures, signs..)	0	1	2	3	4
Photocopying	0	1	2	3	4
Centralised purchases: library materials or other supplies	0	1	2	3	4
Others, please specify					
a)	0	1	2	3	4
b)	0	1	2	3	4

Have you ever worked in another NHS Region which has a Regional Library / Unit?

Yes

No

Do you consider a professional association of medical and health science librarians in the region as an adequate substitute of Regional Library Services ?

Yes

No

PART 3 - THE REGIONAL LIBRARY SYSTEM

Regional Library System in these questions refers to the co-operative network of various medical and related (para-medical) libraries in the Region. Please indicate what degree of assistance you think a Regional Library System might provide for your library's user services. For each area, please circle the number that best describes how much, from 0 (none) to 4 (a great deal).

	None			A Great Deal	
Availability of Books	0	1	2	3	4
Availability of Journals	0	1	2	3	4
Availability of material in other media	0	1	2	3	4
Reference/ information service	0	1	2	3	4
MEDLINE Searches	0	1	2	3	4
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Interlibrary loans - sent	0	1	2	3	4
Reciprocal borrowing facilities	0	1	2	3	4
New areas of service	0	1	2	3	4
Others, please specify					
a)	0	1	2	3	4

Do you see any **additional advantages** in belonging to a Regional Library System?

- 1.
- 2.
- 3.

Do you see any **disadvantages** for your library in belonging to a Regional Library System?

- 1.
- 2.
- 3.

PART 4 - INTERACTION WITH OTHER LIBRARIES

In a typical year, how much involvement do you have in the following activities?

Number of visits made to your library for professional advice by other librarians in the Region.	
Number of visits made by you or your colleagues for professional advice to other libraries in the region	
Number of attendances at library related workshops / seminars/ meetings/ conferences etc.(no. of staff x no. of workshops attended)	

Approx. how often do you communicate with other Librarians in the Region for professional advice on the phone or by writing letters? (Please tick)

Telephone : Daily Weekly Monthly Quarterly Annually

Letters : Daily Weekly Monthly Quarterly Annually

If you wish to make any additional comments regarding the possible impact of the Regional Library or the Regional Library System, please write below or on the reverse.

.....

.....

.....

.....

THANK YOU FOR YOUR ASSISTANCE
PLEASE RETURN THE QUESTIONNAIRE IN THE ENVELOPE PROVIDED TO:
GAYASUDDIN, SLAIS, UNIVERSITY COLLEGE, GOWER ST,
LONDON WC1E 6BT



School of Library, Archive and Information Studies

UNIVERSITY COLLEGE LONDON

Gower Street London WC1E 6BT Tel: 01-387 7050 Direct Line: 01-380 7204

Director: Professor A. G. Watson, MA BLitt DLit

Project Director:
Dr A B Buxton

15 June, 1990

Dear Librarian,

About six weeks ago a questionnaire was mailed to you seeking your views about the contributions a Regional Library System with a Regional Library (or a Regional Library Unit) might be able to make to your library's operation and effectiveness. So far I have not received your reply. I would appreciate if you could fill the questionnaire at your earliest convenience. If by some chance you did not receive the questionnaire, or it was misplaced, please notify me and I will mail a replacement to you.

I am writing to you again because of the importance each questionnaire has to the usefulness of the study. The purpose of this study is to ascertain in what ways the development of a Regional Library System with a Regional Library or a Regional Library Unit could result in expansion or improvement of library services in a region.

Your cooperation is greatly appreciated.

Yours faithfully

Gayasuddin



FACSIMILE TRANSMISSION COVER SHEET

DATE: November 13, 1990TELEFAX NUMBER: 202-393-0062TO: Mr. M. M. Muddin
Commonwealth Research Scholar
University College LondonFROM: Richard K. C. Hsieh, Dr. P.H.
National Library of Medicine
Bethesda, MD

TELEPHONE NUMBER: _____

NUMBER OF PAGES (including cover): 1

COMMENTS:

In response to your fax received today, please come to Building 38A, Lister Hill Center, of the National Library of Medicine, 8600 Rockville Pike, Bethesda, Maryland, promptly at 12:45 p.m. the Library tour begins at 1 p.m. from the Visitor Center in the lobby of the Lister Hill Center.

Thank you for your interest in the National Library of Medicine.

Our telefax number is 202 396 4450

Our office telephone number is _____

Appendix J

Visit of Mr. Gayasuddin

November 13, 1990

11:00 A.M. - 3:00 P.M.

- 11:00 A.M. - Faith Meakin
Executive Director
SE/Atlantic Regional Medical Library Services
- Noon - Lunch at The University Club
- 1:00 P.M. - Tour of the Library
- 1:30 P.M. - Diana Cunningham
Acting Director
UMAB - Health Sciences Library/SE/A RMLS
- 2:15 P.M. - Jean Shipman
Coordinator
SE/Atlantic Regional Medical Library Services
- 2:45 P.M. - Faith Meakin
Wrap-up



GREATER MIDWEST REGIONAL MEDICAL LIBRARY NETWORK

Management Office

Library of the Health Sciences University of Illinois at Chicago
1750 West Polk Street Chicago, Illinois 60612 Phone 312 996-2464

Mailing Address:

P O. Box 7509 Chicago, Illinois 60680
Telex: 20 6243

REGIONAL COUNCIL

The Inn at University Village
625 South Ashland Avenue
Lower Level Conference Room
Chicago, IL 60612
(312) 243-7200
November 16, 1990

AGENDA

9:30 a.m.	Call to order	P. Hamilton
9:30 a.m. - 9:35 a.m.	Announcements Modification of Agenda	P. Hamilton
9:35 a.m. - 9:40 a.m.	Approval of Minutes	P. Hamilton
9:40 a.m. - 10:00 a.m.	RML Director's Report ■ Coll. Dev. Update ■ DOCLINE Update/Loansome DOC	F. Weise C. Millson-Martula K. Goldman
10:00 a.m. - 10:15 a.m.	GMRMLN Serials Database	Kedde/Tovrea/R. May
10:15 a.m. - 11:15 a.m.	*** OCLC Group Access Capability and Implications for Region	P. Cappuzzello/R. May
11:15 a.m. - 11:30 a.m.	Grant Activity Within Region	P. Hamilton
11:30 a.m. - 11:45 a.m.	CD-ROM, Price Increase Medlars Product	P. Swanson
11:45 a.m. - 1:00 p.m.	LUNCH BREAK	

MEDICAL INFORMATICS PROGRAM

1:00 p.m. - 1:05 p.m.	Program Speakers Introduction	F. Weise
1:05 p.m. - 3:00 p.m.	The UMLS Knowledge Sources: Tools for Building Better Health Care	B. Humphreys
3:00 p.m. - 3:40 p.m.	Model Curricula in Health Information in Management Health & Information Science	S. Miller
3:40 p.m. - 4:00 p.m.	Spring RAC Meeting Agenda	P. Hamilton
4:00 p.m.	Adjournment	

The Greater Midwest Regional Medical Library Network (Region 3) is supported by the National Library of Medicine, National Institutes of Health. Service is provided to health science personnel in Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, North Dakota, Ohio, South Dakota, and Wisconsin.

NETWORK CONFIGURATIONS

The network configuration consists of its members (or nodes), links amongst them, and the coordinating mechanism. Whether networks are computerised or not, they can be configured in a number of traditional ways for resource sharing activities. The most common configurations, however, are: 1) star or centralised; 2) hierarchical or tree; 3) loop or ring; and 4) distributed.^{1,2,3,4}

1 Star or Centralised Network

In this configuration one network member holds all the resources and other members utilise these resources. The main advantages of this network are that the overall administrative control is very simple, hardware and software can be shared fully, and the widest possible interchange of information among the members is ensured. The main disadvantages of this network are that the communication channels cannot be shared, leading to high cost of lines; alternate routing of information cannot be achieved without adding redundant links between the central node and remote terminals; storage of a huge volume of information/documents at the central unit is essential (figure L.1)

2 Hierarchical or Tree Network

In this type of network all members share resources locally and the unsatisfied requests are passed on to the resource centre in order of increasing volume of collections (figure L.2). A hierarchical network provides (as does the cyclic network) single path from any node to any other, hence relatively long response time or turn-around time might be expected. But since it is organised as a branching tree, the hierarchical network provides for relatively simple monitoring and control of information flow and transaction⁵.

3 Loop or Ring Network

In this type of network, various libraries are connected in the form of a loop of communication channels. There is precisely one arc leading from each node to

Network Configurations

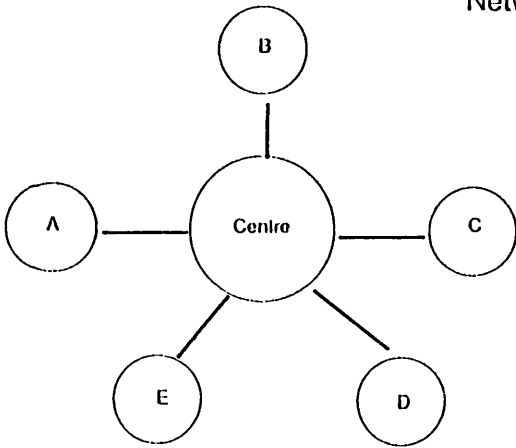


Figure L.1

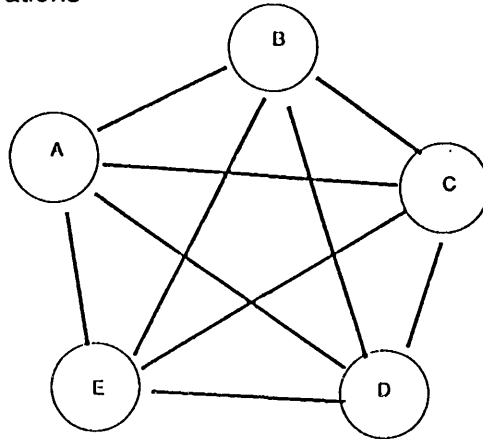


Figure L.4

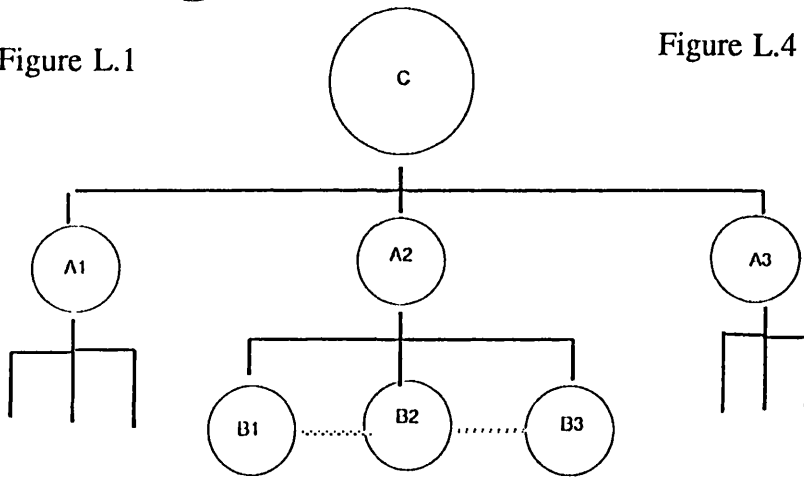


Figure L.2

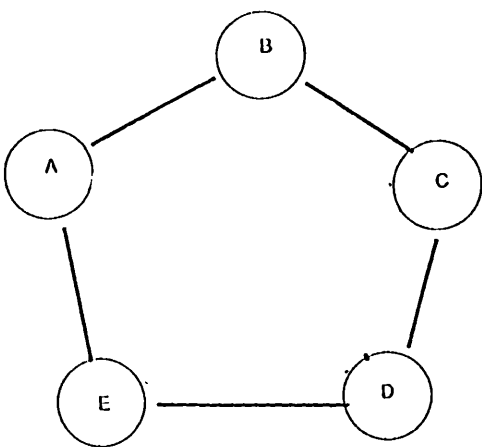


Figure L.3

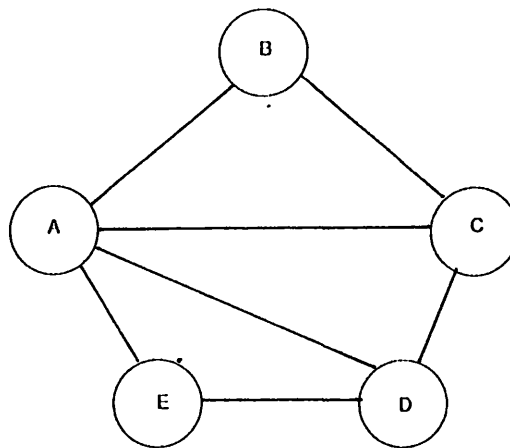


Figure L.5

another and these arcs are so chosen that the entire configuration forms one cycle or loop (figure L.3). In such a network, most network members usually hold almost equal resources. One example can be seen in an interlibrary loan network without location information, in which the route policy is usually relaying the request to the nearest libraries until satisfied. In this case, the turn-around time is very much dependant on the relay times, which is decided by the ability of nodes in satisfying the specific request. One characteristic shared by both the cyclic and the decentralised network is the absence of a natural head or main library. The loop structure works very well when the distances among the network members are short. This structure is not good for libraries dispersed over long distances.

4 Decentralised or Distributed Network

A decentralised or distributed network is composed of members with equal, but different resources, with all members able to call directly on the resources of all other members, providing immediate access from each node to every other by joining each node.

Distributed networks are of two types: 1) fully distributed and 2) partially distributed. In the fully distributed type each node or network member is connected to every other node network member (figure L.4). In a partially distributed network some nodes may be connected to all the nodes (figure L.5). In this network, management decision making may be dependent on consensus among all the participants. There is no central authority and all members contribute equally to the decision making process. With distributed authority, it becomes difficult to evaluate the overall network activity.

There are examples of each type of network in existence. OCLC would be classified as a totally centralised network, RLG (Research Library Group) as a decentralised network, the Suburban Library System in Illinois as a distributed centralised, and the National Library of Medicine (NLM) as a hierarchical network. But upon closer examination, few networks are of pure type. In fact many of the library and information networks tend to have a variety of configurations in one system. They may be centralised in one aspect and decentralised, hierarchical or mixed in another. To gain high efficiency in the networks, the configuration, in terms

of information flow will usually be rather complicated and it must be a mixed one. Information, thus can be transferred horizontally and vertically. For instance, OCLC is centralised in the physical sense but not in terms of how it is utilised by libraries. Some libraries utilise OCLC as a part of distributed centralised libraries. That is, an OCLC node is also a central node for another network. In such a structure the central node in the library network queries and capture data from OCLC, that is, makes it available to its nodes for circulation, bibliographic access, etc. The selection of a particular configuration model for the proposed system would depend on the characteristics of various participating members of the networking system, more particularly on their relative size, compatibility, resources and degree of specialisation.

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3. Rouse, Williams B., and Sandra H. Rouse. Management of library networks: policy analysis, implementation and control. New York: John Wiley, 1980.
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5. Williams and Flynn. Op cit.

APPENDIX M

SPECIAL SUBJECT UNITS IN MEDLIS

SPECIAL SUBJECT UNIT	INSTITUTION	LOCATION	REGION
Virology	National Inst. of Virology	Pune, Maharashtra	Western
Nutrition	National Inst. of Nutrition	Hyderabad, A. P.	Southern
Cholera & Enteric Diseases	National Inst. of Cholera & Enteric Diseases	Calcutta, West Bengal	Eastern
Tuberculosis	Tuberculosis Research Centre	Chetpur, Madras, T.N.	Southern
Pathology	Institute of Pathology	New Delhi	Northern
Occupational Health	National Inst. of Occupational Health	Ahmedabad, Gujarat	Western
Reproduction	Institute for Research in Reproduction	Bombay, Maharashtra	Western
Leprosy	Central JALMA Inst. for Leprosy	Agra, Utter Pradesh	Northern
Immunohaematology	Institute of Immunohaematology	Bombay, Maharashtra	Western
Malaria	Malaria Research Centre	Delhi	Northern
Cytology & Preventive Oncology	Inst. of Cyto-logy & Preven- tive Oncology	New Delhi	Northern
Medical Statistics	Inst. for Research in Medical Statistics	Chetpur, Madras, T.N.	Southern
Enterovirus	Enterovirus Research Centre	Bombay, Maharashtra	Western
Desert Medicine	Desert Medicine Research Centre	Jodhpur, Rajasthan	Northern
Medical Entomology	Centre for Research in Medical Entomology	Madurai, Madhya Pradesh	Eastern

APPENDIX N

Typical Job Functions in a Medical Library

LIBRARY JOBS	STATUS
Circulation and Reader Services	
Shelving and shifting reading material	NP*
Issuing books, periodicals, etc.	NP
Discharging and inserting cards in returned items	NP
Answering routine telephone queries	NP
Maintenance of membership/circulation records	NP
Sending overdue notices to overdue items	NP
Receiving, recording, & shelving new issues of current per.	NP
General reader assistance	NP
Maintenance of order, security, physical facilities (library temperature, ventilating, dusting of shelves...)	NP
Acquisition and Processing	
Selection of new acquisitions	P**
Interlibrary loans	NP
Accessioning and processing of new acquisitions, typing of catalogue entries and filing of catalogue cards	NP
Classifying and cataloguing of new acquisitions; revision of existing catalogues	P
Scheduling purchases and placing orders	P
Collating and processing back periodicals for binding	NP
Collating serial publications	NP
Reference Services	
Literature searches (for pertinent articles..)	P
Technical reference assistance	P
Arranging for translations	NP
Compilation of bibliographies	P
Compilation/editing of library's publications	P
Library Administration	
Preparing reports, planning, supervision and training of staff, staff meetings, visits to other libraries, etc.	P
Clerical Duties	
Receiving and sorting incoming mail	NP
Correspondence, filing, and general office assistance	NP
Maintenance of inventory of supplies	NP
Typing duties (reports, bibliographies, etc.)	NP
Stock verifications	NP
Messenger duties	NP

*NP =Non-professional

**P =Professional

APPENDIX O

Proposed Programme-Course for Medical Library and Information Practice-System

Technical Services**Reference and Bibliography**

Medical bibliography including reference to the following subject literatures as they pertain to medicine: Medicine, Dentistry, Nursing, Pharmacy, Hospitals, Social and Behavioral Sciences, Physical Sciences and Biological Sciences

Role of the Medical Library in the Professional Community:

Analysis of the professional hierarchy, analysis of medical institutions, governmental health structure, analysis of the user community, governmental relationships on the local, regional and national level

Survey of current research in the biological, physical, and medical sciences

Library Administration:

Library Publications, Library Statistics, Budgeting, Planning Physical Facilities,

Thesaurus, indexing and abstracting techniques, Biostatistics

Computer Applications in Libraries

Computer fundamentals, input preparation, data entry, file creation, construction of user profile, use of microcomputer systems, database searching, computerisation of library functions like serials control, accession list and circulation control. Software packages, online access to databases, information networks, CD-ROM databases. Systems Analysis;

Information technology

Information generation, processing, storage, retrieval, dissemination and use. Introduction to computer software and hardware, programming language. Information structure and file organisation, analysis of software packages for library operations, SDI, online systems, introduction to telecommunication and systems and services, operating systems, databases, word processing.

Research Methodology

Interpersonal Relationships in Libraries

TABLE P-1
Impact of the Oxford Regional Library Unit:
Administrative Areas

	N	Score (percentages)					Mean Score
		0	1	2	3	4	
Advisory & consultant service	25	4.0	20.0	32.0	24.0	20.0	2.36
Introduction to new technologies	25	28.0	12.0	32.0	12.0	16.0	1.76
Coordination of activities with other libraries	24	-	12.5	37.5	20.8	29.2	2.66
Planning & budgeting	22	27.3	31.8	31.8	9.1	-	1.22
Improvement of relations with: -Health authorities	24	50.0	25.0	8.3	12.5	4.2	0.95
-University/medical school authorities	22	68.2	18.2	9.1	4.5	-	0.50
Professional standards	24	12.5	16.7	33.3	25.0	12.5	2.08
Evaluation/performance appraisal	24	25.0	8.3	33.3	12.5	20.8	1.95
Financial support by: -Regional Health Authorities	24	29.2	8.3	33.3	16.7	12.5	1.75
-District Health Authorities	22	68.2	13.6	9.1	4.5	4.5	0.63
-University/medical schools	19	73.7	10.5	15.8	-	-	0.42
Staff training/continuing education	25	-	-	12.0	52.0	36.0	3.24
Staff recruitment	25	44.0	32.0	8.0	12.0	4.0	1.00
User education	25	52.0	28.0	20.0	-	-	0.86
Document delivery service	24	25.0	16.7	16.7	16.7	25.0	2.00
Cataloguing of library materials	24	66.7	12.5	4.2	12.5	4.2	0.75
Selection of library material	24	75.0	16.7	8.3	-	-	0.33
Union list of serials	25	-	-	-	4.0	96.0	3.96
Physical processing of library materials	25	92.0	4.0	4.0	-	-	0.12
Printing	25	56.0	16.0	28.0	-	-	0.72
Photocopying	25	52.0	4.0	24.0	4.0	16.0	1.28
Centralised purchases	25	64.0	24.0	8.0	4.0	-	0.52

TABLE P-2
Impact of the Oxford Regional Library System:
User Services

	N	Score (percentages)					Mean Score
		0	1	2	3	4	
Availability of books	25	8.0	44.0	32.0	12.0	4.0	1.60
Availability of journals	25	4.0	12.0	16.0	20.0	48.0	2.96
Availability of material in other media	25	68.0	16.0	12.0	4.0	-	0.52
Reference/information service	25	20.0	20.0	40.0	16.0	4.0	1.64
Online/Medline searches	25	36.0	16.0	12.0	16.0	20.0	1.68
ILL received	25	-	12.0	16.0	32.0	40.0	3.00
ILL sent	25	4.0	8.0	24.0	24.0	40.0	2.88
Reciprocal borrowing	24	8.3	8.3	12.5	29.2	41.7	2.87
New areas of service	23	21.7	30.4	21.7	21.7	4.3	1.56

TABLE P-3
Oxford Regional Medical Library System:
Nature of Relationships between
Regional Library Unit & other Libraries

	N	Score (percentages)					Mean Score
		0	1	2	3	4	
Aims compatibility with RLU*	24	-	-	45.8	20.8	33.3	2.87
Agreement on issues of mutual concern	23	-	13.0	21.7	43.5	21.7	2.73
Importance of the RLU to other libraries	24	-	16.7	20.8	29.2	33.3	2.79
Importance of other libraries to the RLU	24	-	25.0	37.5	29.2	8.3	2.20

*Oxford Regional Medical Library Unit

TABLE P-4
Oxford Regional Medical Library System:
System Relationships

	N	Score (percentages)					Mean Score
		0	1	2	3	4	
Importance of the RLS* to member libraries	25	4.0	8.0	12.0	36.0	40.0	3.00
Importance of the member libraries to the RLS	25	8.0	8.0	28.0	44.0	12.0	2.44
Cooperation of other libraries in the RLS with your library	25	-	-	4.0	20.0	76.0	3.72
Cooperation of your library with other libraries in the RLS	25	-	4.0	4.0	8.0	84.0	3.72
Influence on decisions of mutual concern	25	16.0	16.0	44.0	16.0	8.0	1.84

*Oxford Regional Medical Library and Information System

TABLE P-5
Advisory Visits by Oxford Regional Library
Unit Personnel to a Library

Responses=25		Mean=4.32		Standard Dev.=5.22	
No. of Visits	%	No. of Visits	%		
0	32.0	8	8.0		
1	12.0	9	12.0		
2	12.0	12	8.0		
4	12.0	20	4.0		

TABLE P-6
Advisory Visits by other Librarians in the
Oxford Region to a Library

Responses=25		Mean=2.68		Standard Dev.=3.13	
No. of Visits	%	No. of Visits	%		
0	32.0	5	4.0		
1	16.0	6	8.0		
2	20.0	9	8.0		
4	8.0	10	4.0		

TABLE P-7
Visits by a Librarian/Library Staff to
Oxford Regional Library Unit for Professional Advice

Response=25		Mean=3.12		Standard Dev.=3.68	
No. of Visits	%	No. of Visits	%	No. of Visits	%
0	24.0	6	8.0		
1	28.0	8	4.0		
2	12.0	9	8.0		
4	8.0	14	4.0		
5	4.0				

TABLE P-8
Visits by a Librarian/Library Staff to
other Libraries in Oxford Region for Professional Advice

Responses=25		Mean=3.20		Standard Dev.=2.75	
No. of Visits	%	No. of Visits	%	No. of Visits	%
0	12.0	4	12.0		
1	16.0	5	8.0		
2	28.0	8	8.0		
3	8.0	9	8.0		

TABLE P-9
Attendances at Workshops, etc., Organised by
Oxford Regional Library Unit

Responses=25		Mean=6.12		Standard Dev.=5.83	
No. of Visits	%	No. of Visits	%	No. of Visits	%
1	8.0	8	4.0		
2	20.0	9	16.0		
3	20.0	12	4.0		
4	8.0	20	4.0		
5	4.0	25	4.0		
6	8.0				

TABLE P-10
Attendances at other Library Related Workshops, etc.
(not organised by Oxford Regional Library/Unit)

Responses=25		Mean=4.48		Standard Dev.=4.42	
No. of Visits	%	No. of Visits	%	No. of Visits	%
0	8.0	5	4.0		
1	12.0	6	16.0		
2	32.0	9	12.0		
3	4.0	10	4.0		
4	4.0	20	4.0		

TABLE P-11
Communication with Oxford Regional Librarian
or his Staff on Phone

Responses=23		Mean=3.30		Standard Dev.=1.02	
Frequency	%	Frequency	%	Frequency	%
Daily (1)	-				
Weekly (2)	30.4				
Monthly (3)	17.4				
Quarterly (4)	43.5				
Annually (5)	8.7				

TABLE P-12
Communication with Oxford Regional Librarian
or his Staff by Writing Letters

Responses=20		Mean=3.60		Standard Dev.=1.35	
Frequency	%	Frequency	%	Frequency	%
Daily (1)	5.0				
Weekly (2)	25.0				
Monthly (3)	10.0				
Quarterly (4)	25.0				
Annually (5)	35.0				

TABLE P-13
Communication with other Librarians in
Oxford Region on Phone

Responses=24	Mean=2.04	Standard Dev.=1.12
Frequency	%	
Daily (1)	33.3	
Weekly (2)	50.0	
Monthly (3)	-	
Quarterly (4)	12.5	
Annually (5)	4.2	

TABLE P-14
Communication with other Librarians in
Oxford Region by Writing Letters

Responses=21	Mean=2.42	Standard Dev.=1.36
Frequency	%	
Daily (1)	28.6	
Weekly (2)	38.1	
Monthly (3)	4.8	
Quarterly (4)	19.0	
Annually (5)	9.5	

TABLE P-15
Impact of the SW Thames Regional Library Unit:
Administrative Areas

	N	Score (percentages)					Mean Score
		0	1	2	3	4	
Advisory & consultant service	30	13.3	13.3	26.7	23.3	23.3	2.30
Introduction to new technologies	30	33.3	13.3	3.3	33.3	16.7	1.86
Coordination of activities with other libraries	30	10.0	6.7	16.7	20.0	46.7	2.86
Planning & budgeting	29	31.1	24.1	27.6	10.3	6.9	1.37
Improvement of relations with: -Health authorities	30	46.7	20.0	13.3	16.7	3.3	1.10
-University/medical school authorities	27	59.3	14.8	14.8	7.4	3.7	0.81
Professional standards	30	23.3	10.0	20.0	20.0	26.7	2.16
Evaluation/performance appraisal	30	43.3	16.7	23.3	10.0	6.7	1.20
Financial support by: -Regional Health Authorities	29	58.6	6.9	17.2	6.9	10.3	1.03
-District Health Authorities	29	58.6	17.2	10.3	13.8	-	0.79
-University/medical schools	25	80.0	16.0	-	-	4.0	0.32
Staff training/continuing education	30	16.7	-	6.7	33.3	43.3	2.86
Staff recruitment	30	40.0	26.7	20.0	10.0	3.3	1.10
User education	30	23.3	13.3	30.0	20.0	13.3	1.86
Document delivery service	30	23.3	16.7	6.7	16.7	36.7	2.26
Cataloguing of library materials	30	16.7	10.0	3.3	13.3	56.7	2.83
Selection of library material	29	44.8	17.2	13.8	13.8	10.3	1.27
Union list of serials	30	-	-	-	3.3	96.7	3.96
Physical processing of library materials	30	66.7	6.7	10.0	10.0	6.7	0.83
Printing	30	6.7	6.7	13.3	40.0	33.3	2.86
Photocopying	29	58.6	17.2	10.3	6.9	6.9	0.86
Centralised purchases	30	43.3	16.7	16.7	6.7	16.7	1.36

TABLE P-16
Impact of the SW Thames Regional Library System:
User Services

	N	Score (percentages)					Mean Score
		0	1	2	3	4	
Availability of books	29	13.8	6.9	17.2	17.2	44.8	2.72
Availability of journals	29	10.3	10.3	6.9	24.1	48.3	2.89
Availability of material in other media	29	17.2	27.6	37.9	6.9	10.3	1.65
Reference/information service	30	26.7	13.3	30.0	13.3	16.7	1.80
Online/Medline searches	29	13.8	-	20.7	20.7	44.8	2.82
ILL received	30	6.7	3.3	6.7	30.0	53.3	3.20
ILL sent	30	6.7	-	13.3	23.3	56.7	3.23
Reciprocal borrowing	30	10.0	6.7	13.3	13.3	56.7	3.00
New areas of service	28	21.4	10.7	42.9	10.7	14.3	1.85

TABLE P-17
SW Thames Regional Medical Library System:
Nature of Relationship between
Regional Library Unit & other Libraries

	N	Score (percentages)					Mean Score
		0	1	2	3	4	
Aims compatibility with RLU*	30	3.3	-	23.3	20.0	53.3	3.20
Agreement on issues of mutual concern	29	3.4	13.8	10.3	37.9	34.5	2.86
Importance of the RLU to other libraries	30	10.0	6.7	10.0	20.0	53.3	3.00
Importance of other libraries to the RLU	30	10.0	10.0	36.7	30.0	13.3	2.26

*South West Thames Regional Medical Library Unit

TABLE P-18
SW Thames Regional Medical Library System:
System Relationships

	N	Score (percentages)					Mean Score
		0	1	2	3	4	
Importance of the RLS* to member libraries	30	10.0	6.7	3.3	20.0	60.0	3.13
Importance of the member libraries to the RLS	29	6.9	10.3	34.5	31.0	17.2	2.41
Cooperation of other libraries in the RLS with your library	30	-	-	3.0	10.0	86.7	3.83
Cooperation of your library with other libraries in the RLS	30	-	-	10.0	13.3	76.7	3.66
Influence on decisions of mutual concern	30	13.3	23.3	20.0	33.3	10.0	2.03

* South West Thames Regional Medical Library and Information System

TABLE P-19
Advisory Visits by SW Thames Regional Library
Unit Personnel to a Library

Responses=30		Mean=2.50		Standard Dev.=2.70	
No. of Visits	%	No. of Visits	%	No. of Visits	%
0	26.7	5	10.0		
1	23.3	6	6.7		
2	10.0	9	3.3		
4	3.3	10	3.3		

TABLE P-20
Advisory Visits by other Librarians
in the SW Thames Region to a Library

Responses=30		Mean=3.30		Standard Dev.=4.36	
No. of Visits	%	No. of Visits	%	No. of Visits	%
0	36.7	6	10.0		
1	10.0	8	3.3		
2	13.3	9	3.3		
4	6.7	10	3.3		
5	10.0	20	3.3		

TABLE P-21
Visits by a Librarian/Library Staff to SW Thames
Regional Library/Unit for Professional Advice

Response=30		Mean=3.36		Standard Dev.=3.80	
No. of Visits	%	No. of Visits	%	No. of Visits	%
0	23.3	5	3.3		
1	16.7	6	10.0		
2	13.3	9	3.3		
3	13.3	10	6.7		
4	6.7	16	3.3		

TABLE P-22
Visits by a Librarian/Library Staff to other
Libraries in SW Thames Region for Professional Advice

Responses=30		Mean=3.73		Standard Dev.=5.68	
No. of Visits	%	No. of Visits	%	No. of Visits	%
0	30.0	6	3.3		
1	3.3	8	3.3		
2	20.0	9	3.3		
3	10.0	10	3.3		
4	10.0	30	3.3		
5	10.0				

TABLE P-23
Attendances at Workshops, etc., Organised
by SW Thames Regional Library Unit

Responses=30		Mean=5.66		Standard Dev.=4.97	
No. of Visits	%	No. of Visits	%	No. of Visits	%
0	3.3	6	10.0		
1	13.3	8	3.3		
2	16.7	9	3.3		
3	3.3	10	13.3		
4	16.7	12	6.7		
5	6.7	24	3.3		

TABLE P-24
Attendances at other Library Related Workshops, etc.
(not organised by SW Thames Regional Library Unit)

Responses=30		Mean=4.20		Standard Dev.=3.40	
No. of Visits	%	No. of Visits	%	No. of Visits	%
0	3.3	7	3.3		
1	20.0	8	3.3		
2	10.0	9	3.3		
3	20.0	10	3.3		
4	13.3	16	3.3		
6	16.7				

TABLE P-25
Communication with SW Thames Regional
Librarian or his Staff on Phone

Responses=28		Mean=2.53		Standard Dev.=0.99	
Frequency	%	Frequency	%	Frequency	%
Daily (1)	7.1				
Weekly (2)	53.6				
Monthly (3)	25.0				
Quarterly (4)	7.1				
Annually (5)	7.1				

TABLE P-26
Communication with SW Thames Regional Librarian
or his Staff by Writing Letters

Responses=25	Mean=2.72	Standard Dev.=0.89
Frequency	%	
Daily (1)	4.0	
Weekly (2)	40.0	
Monthly (3)	40.0	
Quarterly (4)	12.0	
Annually (5)	4.0	

TABLE P-27
Communication with other Librarians
in SW Thames Region on Phone

Responses=29	Mean=2.13	Standard Dev.=0.99
Frequency	%	
Daily (1)	20.7	
Weekly (2)	58.6	
Monthly (3)	13.8	
Quarterly (4)	-	
Annually (5)	6.9	

TABLE P-28
Communication with other Librarians in
SW Thames Region by Writing Letters

Responses=29	Mean=2.20	Standard Dev.=1.29
Frequency	%	
Daily (1)	37.9	
Weekly (2)	31.0	
Monthly (3)	10.3	
Quarterly (4)	13.8	
Annually (5)	6.9	

TABLE P-29
Possible Impact of the North Western Regional Library Unit:
Administrative Areas

	N	Score (percentages)					Mean Score
		0	1	2	3	4	
Advisory & consultant service	33	3.0	6.1	30.3	27.3	33.3	2.81
Introduction to new technologies	33	6.1	6.1	18.2	42.4	27.3	2.78
Coordination of activities with other libraries	33	6.1	6.1	15.2	30.3	42.4	2.97
Planning & budgeting	33	24.2	12.1	36.4	21.2	6.1	1.72
Improvement of relations with: -Health authorities	32	21.9	12.5	25.0	15.6	25.0	2.09
-University/medical school authorities	32	12.5	12.5	25.0	28.1	21.9	2.34
Professional standards	33	9.1	9.1	18.2	36.4	27.3	2.63
Evaluation/performance appraisal	32	15.6	9.4	34.4	25.0	15.6	2.15
Financial support by: -Regional Health Authorities	32	25.0	12.5	25.0	9.4	28.1	2.03
-District Health Authorities	31	29.0	9.7	35.5	3.2	22.6	1.80
-University/medical schools	30	40.0	13.3	23.3	6.7	16.7	1.46
Staff training/continuing education	33	9.1	-	18.2	36.4	36.4	2.90
Staff recruitment	33	30.0	9.1	36.4	21.2	3.0	1.57
User education	33	24.2	18.2	27.3	27.3	3.0	1.66
Document delivery service	33	9.1	15.2	27.3	33.3	15.2	2.30
Cataloguing of library materials	33	24.2	18.2	18.2	27.3	12.1	1.84
Selection of library material	33	24.2	18.2	48.5	-	9.1	1.51
Union list of serials	33	-	-	15.2	21.2	63.6	3.48
Physical processing of library materials	33	39.4	21.2	27.3	12.1	-	1.12
Printing	33	27.3	15.2	30.3	21.2	6.1	1.63
Photocopying	33	21.2	21.2	18.2	27.3	12.1	1.87
Centralised purchases	33	30.3	9.1	24.2	30.3	6.1	1.72

TABLE P-30

Possible Impact of a North Western Regional Medical Library System: User Services

	N	Score (percentages)					Mean Score
		0	1	2	3	4	
Availability of books	33	-	15.2	27.3	24.2	33.3	2.75
Availability of journals	33	-	3.0	15.2	21.2	60.6	3.39
Availability of material in other media	30	3.3	13.3	30.0	20.0	33.3	2.66
Reference/information service	32	-	12.5	18.8	21.9	46.9	3.03
Online/Medline searches	32	12.5	6.3	28.1	25.0	28.1	2.50
ILL received	32	3.1	-	21.9	56.3	18.8	2.87
ILL sent	31	3.2	-	32.3	48.4	16.1	2.74
Reciprocal borrowing	31	3.2	3.2	22.6	48.4	22.6	2.83
New areas of service	27	11.1	11.1	25.9	22.2	29.6	2.48

TABLE P-31

Visits to a Library for Professional Advice by other Librarians in North Western region

Responses=33		Mean=4.15		Standard Dev.=13.84	
No. of Visits	%	No. of Visits	%	No. of Visits	%
0	45.5	6	3.0		
1	6.1	9	3.0		
2	24.2	10	3.0		
3	6.1	80	3.0		
4	6.1				

TABLE P-32

Visits by a Librarian for Professional advice to other Libraries in North Western Region

Responses=33		Mean=2.27		Standard Dev.=3.03	
No. of Visits	%	No. of Visits	%	No. of Visits	%
0	36.4	6	3.0		
1	9.1	9	3.0		
2	33.3	10	3.0		
4	6.1	12	3.0		
5	3.0				

TABLE P-33
Attendances at Library Workshops:
North Western Region

Responses=33		Mean=7.39		Standard Dev.=9.287	
No. of Visits	%	No. of Visits	%		
0	6.1	9	9.1		
1	9.1	10	9.1		
2	12.1	12	3.0		
3	6.1	25	3.0		
4	18.2	30	3.0		
5	6.1	45	3.0		
6	12.1				

TABLE P-34
Communication with other Librarians on Phone:
North Western Region

Responses=32		Mean=3.00		Standard Dev.=1.07	
Frequency	%				
Daily (1)	9.4				
Weekly (2)	18.8				
Monthly (3)	43.8				
Quarterly (4)	18.8				
Annually (5)	9.4				

TABLE P-35
Communication with other Librarians by Writing Letters:
North Western Region

Responses=28		Mean=3.22		Standard Dev.=1.36	
Frequency	%				
Daily (1)	14.8				
Weekly (2)	18.5				
Monthly (3)	14.8				
Quarterly (4)	33.3				
Annually (5)	18.5				

TABLE P-36
Possible Impact of a Trent Regional Library Unit:
Administrative Areas

	N	Score (percentages)					Mean Score
		0	1	2	3	4	
Advisory & consultant service	27	-	14.8	18.5	33.3	33.3	2.85
Introduction to new technologies	28	10.7	17.9	7.1	25.0	39.3	2.64
Coordination of activities with other libraries	28	-	3.6	10.7	35.7	50.0	3.32
Planning & budgeting	28	21.4	17.9	28.6	17.9	14.3	1.85
Improvement of relations with: -Health authorities	28	14.3	10.7	35.7	28.6	10.7	2.10
-University/medical school authorities	24	12.5	33.3	37.5	8.3	8.3	1.66
Professional standards	27	18.5	11.1	18.5	22.2	29.6	2.33
Evaluation/performance appraisal	28	14.3	21.4	14.3	28.6	21.4	2.21
Financial support by: -Regional Health Authorities	27	18.5	11.1	25.9	18.5	25.9	2.22
-District Health Authorities	27	25.9	7.4	14.8	22.2	29.6	2.22
-University/medical schools	20	35.0	15.0	30.0	5.0	15.0	1.50
Staff training/continuing education	28	3.6	7.1	7.1	35.7	46.4	3.14
Staff recruitment	28	32.1	21.4	28.6	14.3	3.6	1.35
User education	28	28.6	10.7	35.7	17.9	7.1	1.64
Document delivery service	28	7.1	7.1	32.1	28.6	25.0	2.57
Cataloguing of library materials	28	25.0	17.9	17.9	14.3	25.0	1.96
Selection of library material	28	39.3	17.9	25.0	3.6	14.3	1.35
Union list of serials	28	14.3	-	7.1	21.4	57.1	3.07
Physical processing of library materials	28	46.4	17.9	17.9	3.6	14.3	1.21
Printing	28	42.9	10.7	14.3	14.3	17.9	1.53
Photocopying	27	44.4	14.8	25.9	14.8	-	1.11
Centralised purchases	28	32.1	10.7	35.7	17.9	3.6	1.50

TABLE P-37
Possible Impact of a Trent Regional Medical Library System: User Services

	N	Score (percentages)					Mean Score
		0	1	2	3	4	
Availability of books	28	-	17.9	10.7	39.3	32.1	2.85
Availability of journals	28	-	7.1	10.7	32.1	50.0	3.25
Availability of material in other media	27	7.4	11.1	18.5	14.8	48.1	2.85
Reference/information service	28	3.6	17.9	14.3	28.6	35.7	2.75
Online/Medline searches	28	21.4	3.6	28.6	21.4	25.0	2.25
ILL received	26	15.4	7.7	19.2	34.6	23.1	2.42
ILL sent	27	18.5	14.8	22.2	33.3	11.1	2.03
Reciprocal borrowing	28	10.7	7.1	14.3	25.0	42.9	2.82
New areas of service	28	7.11	14.3	35.7	17.9	25.0	2.39

TABLE P-38
Visits to a Library for Professional Advice by other Librarians in Trent Region

Responses=28		Mean=2.35		Standard Dev.=2.75	
No. of Visits	%	No. of Visits	%		
0	39.3	5	7.1		
1	10.7	6	3.6		
2	3.6	9	3.6		
3	21.4	10	3.6		
4	7.1				

TABLE P-39
Visits by a Librarian for Professional advice to other Libraries in Trent Region

Responses=28		Mean=2.71		Standard Dev.=3.00	
No. of Visits	%	No. of Visits	%		
0	28.6	4	3.6		
1	25.0	5	7.1		
2	7.1	6	10.7		
3	7.1	9	10.7		

TABLE P-40
Attendances at Library Workshops: Trent Region

Responses=28		Mean=6.71		Standard Dev.=5.96	
No. of Visits	%	No. of Visits	%		
0	3.6	8	10.7		
1	7.1	9	7.1		
2	14.3	10	10.7		
3	14.3	18	3.6		
4	7.1	20	3.6		
5	3.6	25	3.6		
6	10.7				

TABLE P-41
Communication with other Librarians on Phone:
Trent Region

Responses=27		Mean=3.63		Standard Dev.=0.96	
Frequency	%				
Daily (1)	-				
Weekly (2)	18.5				
Monthly (3)	14.8				
Quarterly (4)	51.9				
Annually (5)	14.8				

TABLE P-42
Communication with other Librarians by Writing Letters:
Trent Region

Responses=25		Mean=3.96		Standard Dev.=0.73	
Frequency	%				
Daily (1)	-				
Weekly (2)	-				
Monthly (3)	28.0				
Quarterly (4)	48.0				
Annually (5)	24.0				

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