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Disability prevention and rehabilitation

Report of the
WHO Expert Committee on
Disability Prevention and Rehabilitation

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Geneva, 17–23 February 1981

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DISABILITY PREVENTION AND REHABILITATION

Report of the WHO Expert Committee on Disability Prevention and Rehabilitation

1. INTRODUCTION

The WHO Expert Committee on Disability Prevention and Rehabilitation met in Geneva from 17 to 23 February 1981. Dr D. Tejada-de-Rivero, Assistant Director-General, opened the meeting on behalf of the Director-General. The meeting was being held in the International Year of Disabled Persons, and it should be regarded as an important part of WHO's contribution to the special efforts being made during that year to improve the lot of the disabled. Reviewing the two earlier reports of the Expert Committee on Medical Rehabilitation (1, 2), he recalled that they had made a valuable contribution to the establishment of rehabilitation as a natural and essential component of all health care. Since the last meeting of the Expert Committee on Medical Rehabilitation 12 years ago, changes in the priorities and policies of WHO had led to the adoption of a primary health care approach to the prevention of disability and the provision of rehabilitation. The two main questions before the Committee were how to provide rehabilitation within the context of community services, especially in relation to primary health care, and how to integrate rehabilitation into the national health care systems and other relevant sectors. The Committee was also requested to consider how disability could be prevented.

2. DEFINITIONS OF VARIOUS TERMS AND CONCEPTS RELATED TO THE DISABILITY PROCESS AND REHABILITATION

The Committee reviewed WHO's contributions in the past 12 years to the development of definitions of the terms and concepts related to the disability process and to rehabilitation in the context

of the WHO International Classification of Diseases programme. In response to resolution WHA29.35 (3) approving the publication, for trial purposes, of a supplementary classification of impairments and handicaps, WHO had recently published a manual of classification relating to the consequences of disease (4). This manual also contained definitions of the terms used in connection with the disability process. The Committee agreed that although an ideal set of definitions does not exist, and it is unlikely that one will ever be developed, the use of the operational definitions given in the following sections should be encouraged.

2.1 The disability process

The traditional model of illness may be viewed as a sequence:

etiology → pathology → manifestation.

This model, however, fails to reflect the full range of problems related to an illness. Illness interferes with the individual's ability to discharge the functions and obligations expected of him; a sick person cannot sustain his accustomed social role. The sequence underlying illness-related phenomena thus needs extension to show the progression as:

disease → impairment → disability → handicap.

The components of this sequence are defined below, the definitions being taken from the above-mentioned manual (4).

Impairment. In the context of health experience, an impairment is any loss or abnormality of psychological, physiological, or anatomical structure or function.

Disability. In the context of health experience, a disability is any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.

Handicap. In the context of health experience, a handicap is a disadvantage for a given individual, resulting from an impairment or a disability, that limits or prevents the fulfilment of a role that is normal (depending on age, sex, and social and cultural factors) for that individual.

The use and utility of these terms will be reviewed by the Tenth Revision Conference of the International Classification of Diseases, probably in the latter part of the 1980s. The Committee made the following observations with regard to these definitions.

(1) It is important to realize that impairments and disabilities may be visible or invisible, temporary or permanent, progressive or regressive.

(2) A handicapping condition is not always the result of a disability; sometimes impairments cause handicaps without necessarily passing through the intermediate stage of disability.

(3) Besides individual limitations resulting from impairment/disability, social and environmental factors can increase or reduce handicapping conditions.

2.2 Disability prevention

Disability prevention relates to all preventive measures aimed at (1) reducing the occurrence of impairments (first-level prevention), (2) limiting or reversing disability caused by impairment (second-level prevention), and (3) preventing the transition of disability into handicap (third-level prevention). The three levels of prevention are discussed further in sections 5.1.1, 5.1.2, and 5.1.3 respectively, and examples of preventive measures for each level are given in Annex 1.

2.3 Rehabilitation

Rehabilitation includes all measures aimed at reducing the impact of disabling and handicapping conditions, and at enabling the disabled and handicapped to achieve social integration.

Rehabilitation aims not only at training disabled and handicapped persons to adapt to their environment, but also at intervening in their immediate environment and society as a whole in order to facilitate their social integration.

The disabled and handicapped themselves, their families, and the communities they live in should be involved in the planning and implementation of services related to rehabilitation.

2.4 Community-based rehabilitation

Community-based rehabilitation involves measures taken at the community level to use and build on the resources of the community, including the impaired, disabled, and handicapped persons themselves, their families, and their community as a whole.

2.5 Social integration

Social integration is viewed as active participation of disabled and handicapped persons in the mainstream of community life. In order to achieve this aim it is necessary to provide adequate rehabilitation for all the disabled and handicapped and to reduce to a minimum all handicapping conditions in all aspects of their environment.

3. REVIEW OF PREVALENCE OF DISABILITY, QUALITY OF LIFE AMONG THE DISABLED, AND FUTURE TRENDS IN PREVALENCE

3.1 Prevalence of disability

The Committee reviewed the available information on the prevalence of disability. A document submitted to the World Health Assembly in 1976, setting out a new WHO policy for disability prevention and rehabilitation, included a summary of the results of the most important studies of disabilities undertaken in developed countries and of estimates of the prevalence of impairing conditions in a number of developing countries.¹ From this and other information no more accurate an estimate can be made than that the disabled comprise about 10% of the world's population. The Committee observed that while some experts believe this represented an underestimate of the real magnitude of the problem, others had arrived at lower figures by applying a narrower definition of disability.

The Committee noted with satisfaction that WHO is supporting scientific surveys of the disability problem in several developing countries and that more accurate estimates should become available in 1982.

It was agreed, however, that it is more important to find out what proportion of the population needs rehabilitation services than to discover the prevalence of disability. Preliminary estimates from several developing countries suggest that at any given time about 1.5% of the total population consists of disabled persons who could benefit from rehabilitation. Thus, some 40 million disabled persons in

¹ Unpublished WHO document, No. A29/INF. DOC/1, Geneva, 1976. A limited number of copies of this document are available, on request, from the Division of Diagnostic, Therapeutic and Rehabilitative Technology, WHO, Geneva, Switzerland.

developing countries need rehabilitation. This estimate may require revision after the results the WHO survey become available in 1982.

3.2 Quality of life

The WHO-sponsored surveys in developing countries include focus on the quality of life among disabled persons.

It is a known fact that mortality among disabled children is much greater than that among unimpaired children. Malnutrition and gastrointestinal and bronchopulmonary infections are the main causes of death among disabled children (e.g., among children with blindness, mental retardation, and those with mobility difficulties). Similarly, morbidity is also higher. Disabled adults have generally lower incomes than able-bodied adults and, consequently, they are more likely to suffer from poverty. Visibly disabled adult women, such as the blind, are often abandoned by their husbands and deprived of their children. Disabled children have less opportunity to attend school than normal children. The presence of one child with visible and stigmatizing disabilities in a family has negative consequences for the marriage of not only the disabled child but also for that of the brothers and sisters.

Social segregation of disabled persons is extremely widespread. It affects not only persons with communicable diseases (e.g., tuberculosis or leprosy) but also those with visible defects (e.g., persons missing an eye, nose, or limb, and those with kyphoscoliosis or a large scar), and with mental retardation, psychoses, epilepsy, etc. In many societies the disabled are often segregated because of deep-rooted fears and beliefs, originating from age-old cultural and religious convictions—for instance, that the disabled are possessed or under divine punishment. Such negative attitudes and discriminatory behaviour towards the disabled are the rule rather than exception.

The disabled are very often excluded from any position of leadership in their communities, they are seldom elected or appointed to any political office, and are in general excluded from planning and decision-making in their societies. This almost complete lack of representation in community affairs results in the neglect of their needs.

The quality of life of disabled persons in developed countries has been the subject of many scientific studies. It is well known that disabled persons receive less education and vocational training and are often unemployed. Although they receive disability benefit, their economic situation is less favourable than that of the able-bodied and thus their standard of living is lower. Fewer of them marry and found

a family. The problems related to the lack of say in their own welfare have been somewhat overrated during the last few decades, but still many of the disabled have no influence on policies and services aimed at them.

3.3 Projections for the future

It has been estimated that during the period 1975–2000 the number of the disabled in the world will grow by about 200 million. This estimate was made using projections of population growth available some years ago and assuming that the proportion of the disabled would remain unchanged during that period. According to another estimate, in 1970 there were some 60–70 million disabled children in the developing countries; if existing preventive measures were not applied and new ones developed, that number could be expected to grow to about 135–150 millions in the year 2000. This may be compared with an estimated increase in the number of disabled children from 12 to 25 million in developed countries over the same period.

Specific factors that may affect the future proportion of disabled persons in the world include: (1) changes in the age composition of the general population; (2) changes in the patterns of mortality and morbidity; (3) changes in the extent of health services; and (4) increase in urbanization and industrialization. It is generally accepted that unless major improvements in disability prevention are achieved, the proportion of the disabled will remain the same or show a slight increase in the next 20–30 years. But since the world population is expected to grow by about 2 thousand million in this period, the absolute number of disabled persons will show a dramatic increase.

4. WHO STRATEGIES AND APPROACHES RELATED TO THE DISABILITY PROBLEM

4.1 General approach

In 1977 the World Health Assembly decided that “the main target of governments and WHO in the coming decades should be the attainment by all the citizens of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life” (resolution WHA30.43) (3). In the following year it was declared at the Alma-Ata International Conference on Primary Health Care that the key to the attainment of this goal was

primary health care (5). Since "health for all" includes disability prevention and rehabilitation, primary health care, the key to the attainment of that goal, therefore, is also the general approach of WHO for preventing disability and providing rehabilitation.

The Committee wished to reiterate the following statements from the Declaration of Alma-Ata (5):

"Primary health care is essential health care based on practical, scientifically sound and socially accepted methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination.... It is the first level of contact of individuals, the family and community with the national health system, bringing health care as close as possible to where the people live and work, and constitutes the first element of a continuing health care process.... Primary health care... addresses the main health problems in the community, providing promotive, preventive, curative and rehabilitative services accordingly" (5).

4.2 Specific strategies and approaches

There are two principal strategies:

(1) Prevention of disability through all types of measure, within and without the health sector, that contribute to a reduction in the incidence of impairment. If impairment is already present, measures should be taken to reduce the severity or to postpone the occurrence of disability and handicap.

(2) Provision of rehabilitation using the primary health care approach. Community-based rehabilitation services (with an appropriate system of supervision and referral) should be provided, with the aim of total coverage of all populations. These services deliver at least the most essential care, and form an integral part of the national socio-economic development programme.

The Committee emphasized the importance of the earliest possible implementation of the aforementioned general approach and specific strategies.

In doing so it will be necessary to restructure and reorient the present organization and delivery of national health and other relevant services in all countries in order to accommodate the above approach and strategies. The subsequent sections of this report pro-

vide recommendations and suggestions for strengthening community services in order to prevent disability and to develop rehabilitation services so that the most essential care is available to all.

5. PREVENTION OF DISABILITY

The situation with regard to disability prevention is very different in developed and in developing countries, and the Committee decided to consider them separately.

5.1 Disability prevention in developing countries

5.1.1 First-level prevention¹

The major causes of disabling impairments in the developing countries are malnutrition, communicable diseases, low quality of perinatal care, and accidents (including violence). These are responsible for about 70% of all cases of disability in developing countries.

Since the impairments resulting from these causes involve, to a large extent, infants and children, they are also the major causes of life-long disability. The greatest impact of disability prevention measures can thus be expected among children. Furthermore, since disabled infants and children experience higher mortality rates than normal children, the impact of disability prevention measures can be easily judged from the changes in their mortality rates.

In reviewing the progress made during the past decades with regard to disability prevention, the Committee noted that on the whole the situation had continued to remain unsatisfactory. While malnutrition had decreased in some countries, it had become worse in some others, notably in Africa where the per capita food production had declined. Disabling communicable diseases had been, to some extent, brought under better control during the last decade; for example, smallpox had been eradicated. Also, increased efforts had been made in some countries to immunize more and more children against poliomyelitis, tuberculosis, measles, tetanus, diphtheria, and whooping-cough. However, with respect to several other communicable diseases, particularly malaria, the situation was worse.

¹ The annex provides a set of examples of the different preventive measures for each of the three levels of prevention.

Perinatal care is still very poor in developing countries and only an extensive coverage of the population with an adequate quality of primary health care is likely to reduce the incidence of disability related to the perinatal period.

Accidents seem to be on the rise as a result of increase in road traffic, violence, and rapid industrialization; attempts in the past to deal with these problems have been inadequate.

The Committee emphasized that in order to improve the situation in developing countries much more effective general and specific measures need to be applied more widely in the future. The general measures include efforts to promote socioeconomic development and to improve the health status of some 800 million people who still live in absolute poverty. The specific measures relate to the development of the components of primary health care aimed at reducing malnutrition and communicable diseases, improving the quality of perinatal care, and reducing accidents and providing better care when they have happened. The Committee pointed out that prevention of impairment (first-level prevention) was the most effective way of dealing with the disability problem, and that attempts to cure, restore, or rehabilitate rarely give totally satisfactory results. Thus, despite both past failures of implementation and the likelihood of future problems in this regard, first-level prevention should be given overriding priority by all national health authorities, organizations, and WHO.

5.1.2 Second-level prevention

Once impairment has occurred, it is desirable, whenever possible, to prevent any long-term disability. This requires improved early detection followed by early, effective curative care.

There are three areas of health care that are of high importance: (1) provision of appropriate drugs (e.g., for leprosy, tuberculosis, ear infections, epilepsy, psychosis, hypertension, diabetes, and trachoma); (2) provision of essential surgery (e.g., in the treatment of wounds and fractures, limb injuries, and cataracts); and (3) provision of rehabilitation as soon as possible during the span of a potentially disabling condition. It must be emphasized that too low a quality of care may also cause disability.

Some of the aforementioned services may not be available at the community level. In such cases an effective system of referral to health centres at the district or regional level will be necessary. In some

countries full implementation of referral services may have to wait until the communities can afford to develop and maintain them.

It has been estimated that in developing countries second-level prevention can reduce the incidence and severity of disability by 10% to 20% from current levels.

5.1.3 Third-level prevention

Third-level prevention includes all measures aimed at preventing a disability from causing a handicap, or at diminishing its handicapping effects. Such measures are included in rehabilitation.

It should be made clear that the full implementation of the first and second levels of prevention does not reduce the importance of rehabilitation. As explained earlier, the present proportion of the disabled in the world population will not change considerably in the near future, though there may be changes in the age groups involved and in the importance of certain impairing conditions as causative factors. Therefore, the number of people in need of rehabilitation will continue to remain high.

5.2 Disability prevention in developed countries

In developed countries malnutrition, communicable diseases, and poor perinatal care, are of little importance as causes of disability, and are, for the most part, restricted to populations in urban slums and to some minority ethnic groups. Accidents, however, seem to cause an increasing amount disability, especially among the younger population. Thus, accident prevention should receive priority in developed countries. Many countries have already implemented highly effective measures to reduce home, traffic, and occupational accidents, especially those involving children, through public education campaigns, improved safety measures, and legislation.

Apart from accidents, chronic somatic diseases, such as rheumatic disorders, cardiovascular, pulmonary, and psychiatric illnesses, genetically induced impairments, and chronic pain and injuries now cause the major proportion of all disabilities in developed countries. Functional psychiatric disturbances and diseases and chronic alcohol and drug abuse are also increasing, and although some possibly effective methods for their prevention have been suggested, the implementation of those methods has met with many practical difficulties.

It should be pointed out that modern medical care and therapeutic measures aimed at prolonging life sometimes increase the incidence of disability (e.g., disability in patients who in the past would not have survived severe accidents, disability in cancer patients after intensive surgery and chemotherapy, and disability in those who survive stroke, severe cardiovascular diseases, and complicated obstetric interventions).

The Committee strongly recommended that more attention be paid to and additional resources be assigned for research related to the prevention of the main causes of disability in developed countries, e.g., chronic pain, rheumatic disorders, and cardiovascular diseases.

6. REVIEW OF AND RECOMMENDATIONS FOR REHABILITATION SERVICES IN DEVELOPED COUNTRIES

The developed countries do not constitute a single homogeneous group with respect to the provision of rehabilitation services. The Committee, however, felt that a review of some common developments and problems, as well as certain recommendations, were justified.

The situation in most developing countries is completely different from that in developed countries. Reviews of rehabilitation services and recommendations relating to these countries are given in sections 7 and 8, respectively.

6.1 The scope of disability and rehabilitation

A disabled person has been and still is perceived by the public as a young person sitting in a wheelchair or as someone who is blind. This reflects the bias that has resulted from the narrow definition of disability applied by the traditional institutions and the rehabilitation services that were offered many years ago.

It is time to widen the scope of disability and rehabilitation to accommodate all types of disability. The Committee endorsed the process that in the last few decades has contributed to wider definitions and wider responsibilities for rehabilitation services.

Widening the scope of rehabilitation means providing rehabilitation not only for those with motor or sensory disabilities (e.g., para-

plegics or the blind), but also for the mentally retarded and ill; for persons with chronic cardiovascular and pulmonary diseases, chronic gastrointestinal impairments, skin diseases, cancer, and chronic pain; and for persons with symptoms of chronic alcohol or drug abuse. There is also a need to single out the multihandicapped in order to give them special attention.

In developed countries the elderly comprise the majority of the disabled. Owing to the effectiveness of the disability prevention measures applied to date, the prevalence of disability among persons under 30 years of age is relatively low in these countries. Enlarging the definition and scope of rehabilitation will put increased demands on rehabilitation services; therefore, in each country there should be a review of how rehabilitation services can be improved to meet the needs of the major groups of the disabled.

6.2 Reasons for providing rehabilitation

There are a number of reasons for giving high priority to programmes for disability prevention and rehabilitation; these range from the strictly pragmatic and economic to the broadly humanitarian.

A United Nations Expert Group Meeting on Socio-Economic Implications of Investments in Rehabilitation Services for the Disabled (6), held in Geneva in December 1977, stated that, whether or not rehabilitation services are provided, the occurrence of disability causes society to incur costs of both an economic and social nature, and that these costs can be reduced by effective rehabilitation and support programmes. A social policy based on respect for the human rights of all persons and on the responsibility of the nation to ensure social equity for all its citizens will give importance to measures to assist disabled persons and their families. In some developed countries, a narrow interpretation of the economic implications of the problem has placed unwarranted emphasis on the levels of productivity of disabled persons and, on this basis, has led to a concentration on the job-oriented rehabilitation of some groups at the expense of services for others. Such selectivity should be avoided since the real costs to society, and the full range of benefits to be gained, are probably integral to the situation of all people with disabilities and to all effective rehabilitation services.

6.3 The impact of social and economic changes on the situation of the disabled

In developed countries, considerable social and economic changes have taken place since the Second World War. On the one hand, increasing economic benefits and community services (including more generous pensions), increased access to public transport and facilities, reduced physical barriers, and better technical aids have contributed to increased daily life independence for many of the disabled. Also, recent developments in some countries have helped lessen the psychological barriers resulting from negative attitudes and discriminatory behaviour. Such developments include integrated housing and neighbourhoods for both disabled and able-bodied persons and sensitization of the public to the problems of the disabled through social encounters, seminars, and the mass media.

Furthermore organizations of the disabled have achieved a stronger influence in decision-making, planning, implementation of services directed at them, and in numerous initiatives to secure general and specific human rights. The Committee strongly recommended that all governments should be encouraged to continue their efforts in this direction.

On the other hand, there have been many social changes with negative implications for the disabled. In most developed countries the extended family system has been abandoned, and most adults in the household are encouraged by economic circumstances and changing values to leave home to work. This leaves fewer persons at home to look after any disabled family member. In many countries there is a decreased willingness on the part of the relatives of the disabled to provide care and rehabilitation for the disabled at home. Relatives of the disabled often do not feel that it is their obligation to look after a family member who is disabled; rather they perceive it as a function of government. This has led to increased demands for better government services (not the least for the elderly disabled) or for remuneration of family members who undertake such care at home.

The Committee noted that institution-based rehabilitation services now carry very high costs, and that whenever rehabilitation is provided at home, even the most simple service is often delivered by a highly trained professional. This has contributed to the belief that good results can be achieved only when rehabilitation is provided by professionals, and not when it is provided by lay community workers,

under the guidance and supervision of professionals, or when the disabled themselves train in self care.

In view of the social changes, that have occurred and the high cost of institution-based rehabilitation services, the Committee recommended that it should be explained to the public that if a shift is made from institutional care to community-based rehabilitation, and if the relatives of the disabled undertake to look after their disabled family members, equally good, if not better, care can be provided at a much lower cost to society as a whole. The benefits of community-based rehabilitation are discussed further in the following sections.

6.4 Development of rehabilitation services

In response to the rising demand for rehabilitation and care of the disabled, services increased in all developed countries, especially during 1950–70—a period of rapid economic growth. Rehabilitation institutions, hospitals, and rehabilitation departments within hospitals were built and staffed in all developed countries. It was believed, then, that through an expansion of these services all the needs of the disabled would eventually be met. However, only some groups of the disabled have benefited from institutional care, and in most countries institutional care has met with serious problems resulting from mounting staff costs. The Committee emphasized that most of the needs of the disabled can be effectively met by providing community-based rehabilitation and that institutional care should be reserved for the disabled with special needs. Several factors contributing to the lack of success of institution-based rehabilitation are discussed in the sections below.

In several countries rehabilitation is still accessible only to the urban populations, and sometimes only to the population of the capital. Furthermore, highly specialized institutions often cater for only specific categories of the disabled, when with the resources and manpower they have been given they could serve a much wider spectrum of the disabled. Thus, there is a need for decentralization and intensive development of services at the community level.

6.5 Administrative problems

In its second report the Expert Committee on Medical Rehabilitation (2) drew attention to the “confusion that results from a large number of ministries and government agencies sharing the organiza-

tional and financial responsibility for rehabilitation services". The main factor contributing to this situation is the compartmentalization of different aspects of rehabilitation work in separately organized and financed facilities. This—and the division of responsibility between national, regional, and community levels without adequate coordination—sometimes poses considerable problems for those seeking to use several rehabilitation services.

The present Committee felt that in developed countries a lack of administrative coordination had resulted in excessive overhead costs, wastage of manpower and other resources, and low efficiency of service. Very few countries had undertaken measures to streamline the administration of rehabilitation services. In this regard the Committee cautioned developing countries against importing the existing complicated organizational structures of the developed countries.

The Expert Committee on Medical Rehabilitation (2) made several suggestions for streamlining the administrative structures of rehabilitation services. These included:

- the creation of interministerial commissions comprising representatives of government agencies, social security organizations, workers' compensation bodies, etc.;

- the setting up of national advisory boards on rehabilitation that include representatives of voluntary agencies, universities, medical and allied professions, etc.; and

- the creation of committees at regional and community levels to assess problems and to refer them to the responsible national body.

The Committee reviewed these suggestions and strongly endorsed the setting up of interministerial bodies for the formulation of policies and for ensuring that funds for rehabilitation services are allocated. The Committee also favoured the setting up of single executive bodies with the authority to plan, coordinate, and evaluate rehabilitation services, including not only those related to education, social welfare, health, and vocational training, but also those related to community rehabilitation.

In its final review of the issues related to the administration of rehabilitation services, the Committee stressed that the present *ad hoc* systems of administration cannot adequately deal with the disability problem, and that an integrated approach was necessary to provide all components of disability prevention and rehabilitation.

6.6 Organization of rehabilitation services

The question of how best to organize rehabilitation services was discussed at length. The Committee noted that some countries have started programmes to set up specialized rehabilitation departments in all district and/or regional hospitals (specialized approach). In other countries, a greater emphasis has been placed on the provision of better training for undergraduate medical students, integrating the teaching of rehabilitation measures with the preventive and curative aspects of disability. Such an approach aims at encouraging all physicians to deal with rehabilitation as an integral part of their daily work (nonspecialized approach). Professorships in rehabilitation medicine have been set up in universities in several countries to promote undergraduate training and research in rehabilitation.

In some other countries more attention is being paid to community-level services, especially for the elderly. This and other developments have contributed to the involvement of rehabilitation specialists in a number of relevant rehabilitation activities in the communities of the areas served by the hospitals in which the specialists are based.

The Committee found that both the specialized and nonspecialized approaches have proved valuable. There is no need at present to promote any one type of organization of rehabilitation services as superior to another, as long as the major rehabilitation needs of the population are adequately met.

6.7 Manpower problems

In many developed countries the last few decades have been characterized by high specialization of rehabilitation manpower, which has resulted in the creation of several new professional groups and subgroups. There have been two major consequences of this development. First, unnecessarily high standards of education have been introduced for those training in rehabilitation; also, professional groups have often insisted on an ideal quality of education and expanded curricula without the deletion of less relevant topics.

Secondly, increased specialization has made rehabilitation very complex—several specialists are often involved in the treatment of one disabled individual. This has frequently led to unjustifiably high costs, confusion among patients, and problems of communication and jurisdictional disputes among staff. Although teamwork in general should be encouraged, in the case of rehabilitation services

it has often reduced the efficiency of utilization of the available manpower.

The Committee recommended that each country undertake studies aimed at finding ways for simplifying the current manpower structures and training approaches. While professionals are needed and some of the existing specialties should remain, a reorientation of all current curricula is necessary for improving the effectiveness and performance of all rehabilitation personnel. It is recommended that authorities try to merge tasks of marginal importance, now assigned to more specialized professionals, into the training curricula of other, less specialized personnel. There is also a need to find out if some tasks that are included in the various curricula for historical reasons only can be totally deleted. The curricula should contain only those topics that are of proven effectiveness in rehabilitation. The tendency in the future should be to simplify the contents of the curricula and to reduce the multiplicity of specialists.

The Committee also recommended that relevant parts of rehabilitation procedures be incorporated in the curricula of all health workers. The need for rehabilitation is so great that it cannot be met if only specialists are allowed to provide all existing components of care. Thus, each country should introduce basic tasks related to rehabilitation in the training curricula of doctors, nurses, social workers, teachers, and other undergraduates.

6.8 Problems related to rehabilitation technology

During the past few decades there has been a rapid development of rehabilitation technology. For example, much more is known today about how to provide physical exercise and other active forms of training in relation to various types of disability. Other valuable contributions have been a number of simple, locally developed technical aids that the disabled can use at home and at work. There have been other innovations as well and the Committee recommends that further efforts be made to disseminate this technology.

The Committee emphasized that the provision of technical aids or some other technology alone will not give the desired results unless the disabled are sufficiently trained in their use. Follow-up, through home visits, is a valuable approach to ensure the proper use of aids and other technology.

A variety of passive treatments and other procedures of marginal value, including balneology and various forms of therapy by electrical

or magnetic influence, have been in use since a long time. Because rehabilitation staff have been assigned the duties of delivering such treatment, there is a lack of manpower for the delivery of the more urgent, active type of effective therapies. The Committee noted that during the last few years commercial interests have been successful in further promoting the use of these passive treatments.

The Committee reviewed the scientific evidence of the effectiveness of these forms of treatment and the risks of tissue damage associated with some of them. In view of the fact that their effect, if any, is marginal at best, the Committee recommended that these treatments be phased out from rehabilitation, and that physicians and therapists working in the field of rehabilitation should no longer be trained in the use of such techniques. Furthermore, the prescription of such treatment should be generally discouraged and no payment should be made from social security funds for such treatments. Instead, active training techniques, physical fitness training, and the like should be promoted.

Whenever it is agreed that placebo or marginal techniques should be used because of a total lack of effective treatments, efforts should be made to find the least expensive approaches without harmful side-effects.

In many developed countries there has been a tendency to concentrate scientific resources in the area of rehabilitation on the development of highly sophisticated and expensive technology, both for diagnostic and therapeutic purposes. The Committee felt that the policies that have led to the allocation of research funds for such purposes should be reviewed and that scientific resources should be redirected towards areas offering greater promise to the vast majority of the disabled population, e.g., towards the development of simple but effective technology to help the disabled to perform their daily-life functions.

6.9 Community services

The disabled often have to depend on others for performing daily-life functions. Also, since many adult disabled live alone or are left alone during most of the day, they would benefit greatly from a training that would make them self-sufficient in carrying out day-to-day activities. Thus, training in home functioning is essential.

There has been a tendency to meet such needs of the disabled by providing institutional care, for which the disabled often have to

travel far from home. Furthermore, hospital or institutional care and treatment are often divorced from the real needs of the disabled and have proved to be unnecessarily expensive in view of their ineffectiveness.

Thus, community-based rehabilitation should be strengthened along with the development of appropriate manpower resources. Under community-based rehabilitation, first, the disabled themselves and/or their family members should be trained. There is much evidence to suggest that the training of the disabled in self-care and provision of therapy at home by family members or other lay persons supervised by professionals give similar physical and better psychological results than the provision of training and therapy directly by a professional in an institution.

Secondly, the training curricula of rehabilitation professionals should be reoriented towards instructing the disabled and their families in self-care, rather than directly providing therapy. As indicated above, lay personnel and volunteers can be motivated to participate in all forms of rehabilitation and care for the disabled, including that directed at reducing their isolation and feelings of loneliness.

When community services are being set up, it is important to consider in advance the possibility of administrative complications. The responsibility for providing all components of rehabilitation should be assigned to one local agency in order to avoid the low effectiveness and high costs that are associated with the distribution of the various tasks among a large number of different categories of staff.

7. REVIEW OF REHABILITATION SERVICES IN DEVELOPING COUNTRIES

The problems related to disability vary greatly among developing countries and among areas within each country. The nature of the disability problems in a country is influenced by the level of its economic and social development and by other factors such as climate, population distribution, availability of food and water, and social and cultural systems. Despite many variations, there exist a number of characteristics related to the disability problem that are common to all developing countries. The Committee felt that these could be used to draw a general picture of the disability situation there. The Committee, however, pointed out that the review presented

below of the current situation in the developing countries is incomplete in view of the fact that only the most general aspects have been covered.

7.1 Identification of the disability problem

In many developing countries there is a lack of awareness of the nature, extent, and causes of disability, and of its impact on the socioeconomic situation of the population. Individuals and families may be aware of their own problems, but they have limited knowledge about what can be done to solve or to lessen them.

The lack of understanding of the causes and nature of disabilities leads to prejudice, misbelief, and fear, which in turn unfavourably influence the attitudes and actions of the local community and government. As a consequence, appropriate resources are not allocated.

In trying to evaluate the impact of disability, one must understand the fact that minor impairments and disabilities (e.g., moderate mental retardation or minor mobility disturbances) may not at all be recognized as such. Thus, the perception of disability in developing countries seems to be different from that in developed countries.

7.2 Policies and planning

During the past few years, several countries have started to formulate policies with regard to disability prevention and rehabilitation. The Committee recommended that if a country already has primary health care services, disability prevention and rehabilitation services should be planned in such a way that they can be incorporated into them. If, however, a country is embarking on the formulation of policies for a primary health care programme, essential elements of disability prevention and rehabilitation should be included in the programme while it is still in the planning stage.

Planning is most often only done at the central level and mostly concerns services in the capital and its immediate environs. There is a need to promote coordinated planning and programming of health services, including those related to rehabilitation, for the entire country at the local, regional, and central levels. Although planning should be done on the basis of a knowledge of the needs of the population, national censuses or sample surveys of populations are not a prerequisite to the initiation of community-based services. Estimates made by qualified individuals most often suffice, and more detailed information can be gathered during the development of such services.

7.3 Development of rehabilitation services

Almost all developing countries have some rehabilitation services, however limited. Such services cater for only 1%–2% of the total number of the disabled in the country in need of rehabilitation. Also, since most of the services are provided within institutions, mostly situated in the capital city or other big cities, they are practically inaccessible to the rural disabled. Existing community services rarely include a rehabilitation component.

Many institutions providing rehabilitation services are run by non-governmental organizations, which sometimes have their roots outside the country. Such institutions are financed through external contributions and are, to a large extent, dependent on expatriate staff or on staff trained abroad. These factors considerably limit their effectiveness and population coverage. Also, many institutions specialize in treating only certain kinds of disability, which considerably limits their effectiveness. Other factors contributing to the low impact of these institutions include lack of coordination between the various components of rehabilitation services; the maldistribution of educational, vocational, and health services; and underdeveloped infrastructures (e.g., transport).

7.4 Administrative problems

In section 6.5 the Committee advised that the developing countries should not import administrative structures from the developed countries. However, some developing countries with rehabilitation services have done so and now have the problems of compartmentalization typical of the developed countries. The recommendations made by the Committee in section 6.5 for streamlining the administrative structures of developed countries also apply to developing countries with similar problems.

In establishing rehabilitation services some developing countries have focused all their resources on only one of the components of rehabilitation (medical, social, educational, vocational, etc.), which has resulted in the disabled receiving only a small part of the total care and training they need. The Committee recommended that, as far as possible, the services should be evenly distributed among the various components of rehabilitation.

7.5 Manpower problems

Shortage of trained manpower is a major problem in developing countries. There are two main reasons for this. First, there is a lack of training institutions. Second, wherever training is provided, it is usually entirely based on an internationally accepted training curriculum imported from a developed country, and persons with such training often migrate to developed countries; also, attempts to make the curricula more suitable to local needs are often resisted by professional organizations.

There is an urgent need to make appropriate changes in the training curricula of all rehabilitation professionals in order to meet adequately the different needs of individual countries. The training standards set by professional organizations in developed countries should not be used as criteria for judging the usefulness of training courses in developing countries. In changing the curricula priority should be given to the inclusion of appropriate community-based rehabilitation practices and standards.

The Committee further recommended that the technical-cooperation-among-developing-countries (TCDC) approach be used in developing manpower resources in developing countries. Training centres for professional staff and for postgraduate training could be shared among several developing countries. Standards for the quality of training should be set by the developing countries themselves.

8. RECOMMENDATIONS AND GUIDELINES FOR IMPLEMENTATION OF COMMUNITY-BASED REHABILITATION IN DEVELOPING COUNTRIES

The Committee reviewed a number of steps necessary for the implementation of community-based rehabilitation in developing countries.

The two WHO documents *Disability prevention and rehabilitation* (see footnote on page 10) and *Training the disabled in the Community*¹ provide additional details regarding several aspects of the following recommendations.

¹ HELANDER, E., MENDIS, P., & NELSON, G. *Training the disabled in the community—an experimental manual on rehabilitation and disability prevention for developing countries*. (Unpublished WHO document, No. DRP/80.1, Version 2, 1980.) A limited number of copies of this document are available, on request, from the Division of Strengthening of Health Services, WHO, Geneva, Switzerland.

8.1 Promotional efforts

Efforts to promote disability prevention and rehabilitation should be encouraged. In principle, all WHO Member States have already committed themselves to the goal of providing the most essential health services, including rehabilitation of the disabled, for all by the year 2000, and have accepted that the primary health care approach is the key to the achievement of this target.

In promoting community-based rehabilitation, it is realistic to expect that in many countries there will be a number of initial difficulties to overcome. These include the widespread perception of rehabilitation as institutional care, which, as discussed in section 6.4, implies high costs, low throughput, low effectiveness, and complex manpower problems. Therefore, first, there is a need to explain the advantages of the community-based rehabilitation approach in a way that can be understood in each country. Secondly, there may be a need to set up initially a research project in a small area of a country in order to develop and test practical approaches for service delivery and to evaluate the cost-effectiveness of the approaches developed.

There are a number of possible ways of initiating community-based rehabilitation programmes. One way is to ask the national International-Year-of-Disabled-Persons committees to include the implementation of community-based rehabilitation programmes in their long-term plans. Nongovernmental organizations can also be of great assistance and may even offer to implement some early phases of such a programme. However the programmes are started, one important point to bear in mind is that existing rehabilitation institutions and professionals should be involved in the promotion of community-based rehabilitation programmes.

The Committee recommends that WHO promote community-based rehabilitation, using the technical-cooperation-among-developing-countries (TCDC) approach, in the course of interregional, regional, or country seminars, workshops, and country visits that the Organization undertakes, and through technical discussions at the Regional Committee meetings.

Other United Nations bodies such as UNICEF, UNDP, ILO, FAO, and UNESCO, as well as nongovernmental organizations, can also make important contributions to the promotion of the community-based rehabilitation approach.

8.2 Government commitment

Before the start of any programme, it is necessary that the government decides on the policies regarding it, and commits itself to the various steps in its development. A community-based disability prevention and rehabilitation programme must in the long run be financed and maintained by the resources of the country and national manpower and should not depend on external inputs. However, this does not exclude financial support from international sources during the period of the development of the programme.

Thus, governments starting community-based rehabilitation programmes should have clear-cut policies, a plan of action with a time schedule, and a mechanism for ensuring that the required funds are allocated.

8.3 Policy-making and planning¹

Policy-making and planning should involve not only decision-makers in the various government ministries, but also representatives of the organizations representing the disabled and professionals from institutions for the disabled. In order to prepare the partners involved in policy-making and planning, WHO, other United Nations bodies, as well as nongovernmental organizations may organize national seminars.

In planning, every effort should be made to integrate disability prevention and rehabilitation into the existing community services, particularly primary health care services. Creation of a special organization, independent of other services, should be discouraged.

As indicated above, a community-based rehabilitation programme may be started in a number of different ways: e.g., by the government, by an existing institution for the disabled, or by a nongovernmental organization.

If developed as a government programme, various community-based services can be involved in its early development, including health teams, rural development teams, agricultural extension groups, local social services groups, and primary schools.

¹ While this section includes only some major points regarding policy-making and planning, the WHO document *Training the disabled in the community* (see footnote on page 43) contains a "Guide for policy-makers and planners", which provides a detailed discussion of the subject.

Sometimes, as discussed in section 8.1, a community-based rehabilitation programme may be started as a research project, either as a part of a general rural or health development programme or independently. In such cases there may be a need to train the future staff of this project in fields such as epidemiology, statistics, and evaluation techniques. Since such a project includes the development and evaluation of approaches for the delivery of rehabilitation services, no other mechanism for evaluation may be necessary in the programme. If, however, a programme is started without a research project, it will be necessary to ensure at the planning stage that a mechanism for evaluation of the programme has been incorporated. By this means it will be possible to measure the cost-effectiveness of the programme, to analyse the causes of any shortcomings, and to find ways of overcoming the problems.

8.4 Manpower development and involvement of existing professionals and institutions

The implementation of a community-based rehabilitation programme relies first on members of the local community. The disabled themselves, their family, or other community members have to be trained to undertake the daily tasks related to the training of the disabled. Locally recruited first-level supervisors should be trained to identify the disabled, motivate the disabled or family members who will undertake the training, offer instruction, and follow up the progress of the programme.

Local supervisors should also be members of the community, they may be disabled themselves and should have had appropriate schooling. If no other means exist, the first phase may consist of self-training, using material such as that provided in the previously mentioned WHO document *Training the disabled in the community*. During later phases of programme development formal training programmes should be instituted. Local supervisors may have other community functions, such as primary health care work or social work.

The second level of supervision requires a professional with the knowledge and skill necessary for the training and supervision of the local supervisors and for functioning as the first level of referral. This professional will be an integral member of a district health team. In the early phases, and if there are no practical obstacles, the functions of the second-level supervisor can be performed by a community nurse or some other professional. As services are developed, however, it

seems desirable for a specially trained community rehabilitation therapist to carry out this work.

Staff of any existing rehabilitation institutions in the country are a most precious resource and should be strongly urged to participate in the development of community-based rehabilitation services. They should contribute to the training of second- and/or first-level supervisors, and may also become part of mobile rehabilitation teams or act as local consultants for referral cases. In line with this principle, the existing institutions will need to be upgraded at an appropriate time to enable them to serve as referral centres, to which disabled persons requiring special services or rehabilitation can be sent for short-term interventions.

WHO may, on request, organize national technical training programmes for the first- or second-level supervisors in order to facilitate the implementation of the early phases of the programme.

8.5 Rehabilitation technology

In developing technology for any community-based programme it is appropriate to use local materials and skills. Technical aids necessary for the rehabilitation and care of the disabled should be provided in accordance with this principle. However, the Committee suggested that problems related to the provision of orthoses and prostheses be the subject of special review. Orthopaedic appliances have been developed in a number of countries for many years, and it will be useful to evaluate the results of this work, in order to assess benefits, costs, and issues related to future development.

The Committee noted that many developing countries have been importing orthopaedic appliances that are not always suited to their needs.

It considered that technology transfer is most likely to fail unless technological knowledge and experience from different countries are shared so as to adapt the technology to the special needs and environments of those countries.

8.6 Contribution of other sectors

The effectiveness of a community-based disability prevention and rehabilitation programme depends much on the provision of health care services, education facilities, opportunities for employment, adequate housing, etc. Any attempt to integrate the disabled as nor-

mal members of the community depends not just on rehabilitation but also on contributions from these sectors.

8.7 Evaluation, research, and studies

8.7.1 Evaluation

The WHO document *Training the disabled in the community* mentioned previously contains detailed descriptions of the techniques and methods used in the community-based rehabilitation approach. Since these techniques and methods are new, all their aspects should be systematically evaluated before they are firmly adopted. The Committee felt that, although the techniques and methods described in the document include an inbuilt system of evaluation (which is now being used in the field testing of the document), the approach taken by the document should be subjected to scientific evaluation by an independent expert or experts. The document should also receive "consumer evaluation", i.e., evaluation by the disabled themselves. The results of these evaluations should be published and made available to all users of the document.

8.7.2 Research and studies

Because the community-based rehabilitation approach uses new methods to deliver services, research (including simple studies) should be promoted. Since the resources for this are limited, priority should be given to action-oriented research and studies, for example:

(1) the development, testing, and evaluation of training modules on subjects not included in the WHO document *Training the disabled in the community*, e.g., on rehabilitation and the prevention of disability related to respiratory diseases, and on attitudinal changes to disability.

(2) finding and testing alternative ways of implementing the various components of the delivery of services; and

(3) preparing and testing alternative training modules for the disabled, their families, and professionals and local supervisors.

Appropriate resources should be committed to the study of social and psychological factors influencing the effectiveness of community-based programmes. The effectiveness of any measures aimed at educating the public should be assessed. Finally, research should also be carried out on the promotion and assessment of locally developed technology in preference to imported technology.

8.7.3 *Mechanism for promotion of research and information*

As indicated above, resources for research are very limited. In order to ensure that this area receives urgent attention, the Committee proposed that a permanent mechanism be set up at the international level to promote research. The Committee envisaged this mechanism as a centre for training and research in disability prevention and rehabilitation in each WHO region. Each centre, which might operate for a 5–10-year period, would mobilize the necessary resources for a research and training programme. A research committee associated with each centre would decide on research grants, using part of the funds mobilized by the centre to train scientists for future work in disability prevention and rehabilitation. Each committee should ensure that the research programme is evaluated by independent experts.

Another area of importance is the exchange of information. It seems appropriate to recommend that in each WHO region there should be provision for collecting and disseminating information related to disability prevention and rehabilitation. Whenever established, regional centres for training and research may incorporate this function. Some mechanism for interregional exchange of information should also be set up.

9. COORDINATION OF WHO ACTIVITIES WITH OTHER ORGANIZATIONS

A basic role of WHO is to function as a coordinator of international health activities. Activities related to disability prevention and rehabilitation should be closely coordinated between international and nongovernmental organizations, especially at the country level.

WHO should continue to strengthen meaningful collaboration and coordination with all relevant organizations, including those representing professional groups and disabled persons; there is a need to explain to these organizations the WHO policies and programmes and to request their full cooperation in the promotion of the new community-based rehabilitation approach. Coordination and collaboration between organizations are often of a passive type, involving mainly the exchange of information on each other's activities. Although such information is valuable, there is a need to go beyond this, and WHO should promote active cooperation and participation among

the relevant organizations at the country level in implementing jointly financed and fully coordinated programmes for disability prevention and rehabilitation.

The support that WHO provides in the future for the promotion of coordinated efforts related to disability prevention and rehabilitation should be primarily for community-based programmes.

10. CONCLUSIONS AND RECOMMENDATIONS

The Committee emphasized that the wider concept of rehabilitation as expressed in section 2.3 should be used as the basis for the development of all rehabilitation services.

About 10% of the world's population is affected by various kinds of disability and handicap. These cause serious social, economic, physical, and psychological problems not only for the disabled and handicapped and their families, but also for their communities. In view of the seriousness and widespread occurrence of disabilities and handicaps, the Committee urged all governments to take urgent action. In this regard the Committee made the following recommendations for governments.

10.1 Recommendations for governments

All governments are committed to the goal of "Health for all by the year 2000", and the primary health care approach has been declared as the key to the achievement of this goal. The Committee once again emphasized that disability prevention and rehabilitation form integral parts of primary health care.

The Expert Committee recommends:

(1) Governments should make a firm commitment to include disability prevention and rehabilitation in their plans for primary health care development, and disability prevention and rehabilitation services should be started at the earliest possible stage of the development of primary health care.

(2) Governments should adopt the guidelines provided in the WHO documents *Disability prevention and rehabilitation* and *Training the disabled in the community* (see footnotes on pages 10 and 28) as the basis for action in developing disability prevention and rehabilitation within primary health care.

(3) Since a large proportion of all disability—especially in developing countries—is caused by preventable conditions, the most important ones being malnutrition, communicable diseases, poor perinatal care, and accidents, governments should give the highest priority to the implementation of the various components of disability prevention.

(4) Governments should establish national mechanisms for the formulation of policies and planning, and for the coordination, implementation, and evaluation of disability prevention and rehabilitation services, including:

(a) a high-level interministerial body for the formulation of policy and for ensuring that financial resources are made available; and

(b) an executive body for planning, providing guidelines, coordinating, and evaluating all rehabilitation services.

(5) Governments should initiate development programmes related to community-based rehabilitation and disability prevention as an urgent matter.

(6) Governments should pay particular attention to the need for promoting manpower development so that the community-based rehabilitation programme can provide sufficient supervision and referral.

(7) All existing facilities and manpower resources in the field of rehabilitation should be utilized and oriented toward the development and support of community-based rehabilitation.

(8) Governments should support the development of local technology in order to increase self-reliance and independence.

(9) Governments should promote the exchange of experience and information with other countries, and provide facilities for consultation, training, and research to the greatest possible extent through the technical-cooperation-among-developing-countries (TCDC) approach.

10.2 Recommendations for WHO

The Expert Committee recommends:

(1) WHO should continue to *promote* disability prevention and rehabilitation as part of primary health care, as described in the two aforementioned WHO documents (see footnotes on pages 10 and 28).

(2) WHO should continue to cooperate with Member States, on their request, in: country planning and programming; development of manpower and training material; promotion of local technology; preparation and execution of national and intercountry workshops, seminars, and training courses; and research projects and dissemination of information.

(3) WHO should continue its efforts to strengthen cooperation with intergovernmental and nongovernmental organizations working in the field of disability prevention and rehabilitation in order to plan and implement practical disability prevention and rehabilitation programmes at the country level.

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REFERENCES

1. WHO Technical Report Series, No. 158, 1958.
2. WHO Technical Report Series, No. 419, 1969.
3. WHO Handbook of Resolutions and Decisions of the World Health Assembly and the Executive Board, Vol. II, fourth edition, Geneva, 1981.
4. WORLD HEALTH ORGANIZATION. *International classification of impairments, disabilities, and handicaps*. Geneva, 1980.
5. *Primary health care—report of the International Conference on Primary Health Care*. Geneva, World Health Organization, 1978 ("Health for All" Series, No. 1).
6. HAMMERMAN, S. & MAIKOWSKI, S. ED. *The economics of disability—international perspectives*. New York, Rehabilitation International, 1981.

Annex

EXAMPLES OF MEASURES FOR DISABILITY PREVENTION

The term "disability prevention" includes all measures in the three levels of prevention described below. It can be summarized as follows:

- (1) interventions acting upon the individual directly—therapies, counselling, prosthetics, medical care, training, etc.;
- (2) interventions acting upon the individual's immediate surroundings—family and community (this includes changing of employers' attitudes and behaviour of the public towards the disabled); and
- (3) interventions with the broad aim of reducing risks occurring in a society as a whole.

Disability prevention is not limited to health sector interventions. It also includes all types of social, vocational, educational, legislative, and other interventions. The best results will be achieved only if all these interventions are combined.

1. First-level prevention

This term is more or less equivalent to "primary prevention".

It includes measures aimed at reducing the occurrence of impairment, for example: provision of safe water and sanitation facilities; vaccination against communicable diseases; health education of the public; the encouragement of proper child-rearing practices; improving nutrition, hygiene, and physical fitness of the population; limiting the availability and use of alcohol, psychotropic drugs, and tobacco; termination of pregnancies to prevent congenital diseases; passing legislation to reduce the number accidents and to diminish occupational health hazards; effective control of the side-effects of therapeutic drugs; education of the public aimed at reducing accidents; improving food distribution; improving the general level of education; and preventing gross child neglect and abuse.

2. Second-level prevention

Once an impairment has occurred, measures can be taken to prevent the development of disability. These include: early treatment of trachoma; use of effective drugs in the treatment of psychiatric disorders and tuberculosis; early effective treatment and care of

fractures and wounds; early postsurgical ambulation; vocational and educational counselling; provision of suitable work; elimination or reduction of risk factors, including continued exposure to hazardous agents; and changing of family and community attitudes.

Second-level prevention includes what is usually termed "secondary prevention"; in addition, it involves social interventions and the prevention of additional impairments in people who already have one impairment, e.g., preventing the appearance of psychological disturbances following a somatic condition.

3. Third-level prevention

Once a disability has occurred and is found to be irreversible, measures can be taken to prevent its transition into handicap. These include: provision of therapy such as that at present provided by physiotherapists, occupational therapists, speech therapists, and psychologists; training of the disabled in self-care; provision of technical aids such as prostheses or orthoses; provision of social and vocational counselling and guidance and of vocational training; training of specific groups (such as the blind and the deaf) to enable them to participate in social and community life; education of the public in order to improve community and family attitudes towards disabled persons; provision of education and suitable jobs for those with functional limitations; provision of suitable housing and transport to those with restricted self-care ability or mobility; and elimination of physical barriers. These measures are also used to reverse disability, but with an increased emphasis on additional psychosocial measures, since the patient at this stage has often lost his motivation to break away from a pattern of already established dependency. Third-level prevention includes "tertiary prevention", plus a wide range of social interventions.

There is some overlap in the definitions of "rehabilitation" and "disability prevention", especially with regard to third-level prevention. These two approaches can be said to complement each other, preventive techniques being used as the first effort to reduce disability, and rehabilitation and care becoming necessary when preventive measures fail and disability or handicap sets in, or when appropriate preventive measures and technology are lacking.

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