CLASSIFICATION OF MENTAL RETARDATION

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SUPPLEMENT

Classification of Mental Retardation

Mental Retardation: Development of an International Classification Scheme

MENTAL RETARDATION is a universal phenomenon. It occurs, with varying degrees of frequency, in families from all walks of life in both developed and underdeveloped countries. In its most severe forms it is a source of great trauma, hardship, and despair to parents and is an economic and social burden to communities. Even the milder forms of intellectual handicap pose serious threats to individual self-fulfillment, family security, and national productivity. The most affluent of nations can ill afford such losses in their human resources.

The prevention and treatment of mental retardation on both the individual and societal levels rest fundamentally on a fuller understanding of its causes and pathogenesis, on concerned and skilled professional practitioners, and on the commitment of appropriate resources at all levels of government. Efforts to reach the first of these goals—which is essential to classification—have been greatly enhanced in recent decades through basic and applied research. During this period we have identified additional clinical syndromes, developed a technology for prenatal diagnosis and prevention, improved nutritional and medical intervention techniques, and made progress toward solving the mysteries surrounding the transmission of genetic materials at the cellular level.

In the behavioral sciences much has been learned about the impact of environmental deprivation on mental growth and the compensating effects of early stimulation, about methods for promoting language development and reading skills, and about the untapped capacities of many retarded individuals for socially useful living. Perhaps most important of all is the growing recognition that in most forms of retardation, even where a single etiological factor can be isolated, the individual's functional performance is the product of the interaction of his biological makeup and environmental events and can be modified. The potential for behavioral change, sometimes to the point of reversibility, represents one of the most significant concepts in the field to emerge in recent years.

The changing attitudes of psychiatrists, pediatricians, and obstetricians toward the mentally retarded stem in part from this new conceptualization of the problem and the growing conviction that even where "cures" are not possible, informed treatment of the individual and his family can significantly aid life adjustment. To capitalize more fully on this burgeoning interest, these disciplines need more precise information on hazards to fetal development, symptomatology and treatment potentials for specific diagnostic conditions, and the values and limitations of psychological test measurements. Furthermore, to keep abreast of new discoveries and program developments, these disciplines must share a terminology and language that permit communication. Our failure in this latter area has seriously handicapped efforts of professionals from different countries to learn from one another.

The World Health Organization, mindful of these deficiencies and of our increasing fund of knowledge, has embarked upon a series of seminars to develop an international scheme for the diagnosis, classification, and reporting of statistics in psychiatric disorders, including mental retardation. This effort comes at a most opportune time. Comparative data among countries on the incidence and prevalence of mental retardation and the factors with which specific conditions are associated are not highly reliable. Although there are significant variations in prenatal care, population homogeneity, disease control, degree of environmental deprivation, and other factors causative or contributory to mental retardation, reported statistical differences may be more artifactual than real. Differences in the definition and conceptualization of mental retardation, inadequacies and variations in classification schemes used, confusion of terminology, and cultural variability in demands and expectations for human performance are only a few of the artifacts that preclude valid comparisons. Within and among countries, meaningful planning for the retarded cannot be accomplished until these issues are resolved.

The 1969 seminar, cosponsored by the World Health Organization and the National Institute of Child Health and Human Development, was a milestone in the realization of these goals. It is clear that the complex issues confronted will require continuing attention, but meaningful dialogue has begun and a sounder base for assessing the extent and diversity of this problem is being established. Community planners and professional practitioners should profit from this activity, but the ultimate beneficiaries and the raison d'etre of the seminar will be the mentally retarded and their families.

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Fifth WHO Seminar on Psychiatric Diagnosis, Classification, and Statistics

This report describes in detail the problems of adequately classifying mental retardation and the recommendations made for the forthcoming ninth revision of the International Classification of Diseases. *In general the Seminar agreed that the current classification of mental retardation is inadequate and that a multiaxial scheme should be adopted. This scheme would consist of three axes: 1) intellectual level, 2) associated or etiological factors, and 3) clinical psychiatric system, and would require that each axis be recorded. Information that should be considered in classifying mental retardation includes: degree, organic aspects, psychiatric and behavioral aspects, and psychosocial aspects. The participants also considered the need to develop a glossary and how best to promote the effective use of the* ICD.

THIS SEMINAR was the fifth in the World Health Organization's (WHO) ten-year program on "Psychiatric Diagnosis, Classification, and Statistics." Previous seminars' dealt with "Problems of Functional Psychoses, Particularly Schizophrenia" (2), "Reactive Psychoses" (3), "Mental Disorders in Children" (4), and "Psychiatric Disorders of Old Age" (5). In the development of a classification of mental disorders, four principles had been previously adopted.

1. The study of the process of psychiatric diagnosis, as provided by the diagnostic exercise, should be used as the basis for understanding the different schemes that psychiatrists of different schools employ. Major sources of variation and error should be identified in order to improve the reliability and validity of psychiatric diagnosis.

.2. In view of the variety of theoretical concepts regarding the etiology and pathogenesis of mental disorders, and because of the paucity of evidence that might lead to a choice between theories, emphasis should be placed on the use of solid clinical facts as a starting point in developing a classification.

3. The definition of terms should be operational and capable of clinical application.

4. Any scheme agreed upon at a seminar will be tested through national and international exercises and through further refinement and revision before a final recommendation is made for the revision of the *International Classification of Diseases (ICD)* in 1975.

The following activities that were carried out in different countries since the last seminar were reported by the participants (see appendix 1): 1) Diagnostic exercises using case histories from previous seminars were carried out in Bulgaria, Czechoslovakia, Japan, and the U.S.S.R.; 2) glossaries and diagnostic manuals were prepared in a number of countries that were represented at the Seminar; 3) trial use of the Paris classification of children's disorders is being planned in France, the United Kingdom, and the United States. The importance of such experiments was particularly stressed by many participants as being essential for the improvement of the *ICD.*

Diagnostic Exercises

The procedure, which had been successfully used in previous seminars, of beginning with a

This seminar, sponsored jointly by the World Health Organization and the National Institute of Child Health and Human Development, was held in Washington, D.C., October 29–November 4, 1969.

This paper is an edited and condensed version of the official report; the table of contents and several short preliminary items have been omitted. A copy of the complete report may be obtained upon request from Norman Sartorius, M.D., Mental Health Unit, World Health Organization, Geneva, Switzerland (English version), or from the World Health Organization Regional Office, 525 23rd St., N.W., Washington, D.C. 20037 (Spanish version).

[1] Two other seminars have been held since the fifth seminar was held in Washington, D.C. The sixth seminar dealt with the "Standardization of Psychiatric Diagnosis, Classification, and Statistics." A report of this seminar has been published (1). The seventh seminar was held in December 1971; a report will be available shortly.

detailed discussion of problems arising from the analysis of case histories and of videotapes, was again used in this one. Here the purpose was to enable participants first, to study a common set of case materials relating to mental retardation and to record their judgments about it; second, to discuss disagreements, ambiguities, and points of controversy; and third, through the elucidation of specific problems to approach general principles of diagnosis, classification, and statistics in this area.

Case History Exercise

Several months before the meeting participants received case histories of 11 patients that they were asked to read and to analyze. The cases were chosen to illustrate problems that were related to difficulties in diagnosis regarding level of intellectual retardation, the causes of the patients' retardation, the diagnosis of psychiatric disorder accompanying the mental retardation, and the differential diagnosis of mental retardation and developmental disorders. The patients included some who were typical and others who were borderline or had an uncertain diagnosis that posed considerable problems. Each case history followed a standard format, giving the reasons for the patient's admission, his family history, information about his siblings, his developmental history, his history of neurological and physical illnesses, the results of current physical examination, neurological examination, laboratory findings, and psychological evaluation, and some information about his hospital course or disposal. Participants were invited to make a diagnosis of the patient, using their own terminology, to indicate whether the diagnosis was firm or provisional, and to code their diagnosis according to the *ICD* rubrics by using one or more than one category. They were given standardized forms on which to record their judgments; these were then returned to WHO for analysis. Summaries of the data indicating diagnostic agreement and disagreement on the patients, as well as the comparison of diagnoses, were handed out at the meeting and participants brought with them the case material they had been sent. The excellent preparation of case histories by the U.S. colleagues in the preparatory committee and in the National Institute of Child Health and Human Development (NICHD) was widely appreciated, and there was general comment throughout the meeting on the outstandingly good choice of cases that highlighted the chief issues to be considered during the discussions.

Videotape Diagnostic Exercise

Three patients who were representative of different types of problems were shown on videotape to the participants. The purpose of this exercise was, again, to illustrate different facets of the diagnostic problem by showing a videotaped interview. The three patients shown illustrated problems of the differential diagnosis of developmental disorders and mental retardation, the problem of the differential diagnosis of child psychosis and mental retardation, and a diagnostic problem that was complicated by the fact that one of the patients was an identical twin. Following a recommendation made at a past conference, the technique adopted at the Seminar was first to show the videotape to the participants, who were asked to rate the patient according to his behavioral characteristics, knowing only his sex and age. Participants were then given a case history and were invited to ask for additional information that was not included in it. They then made a final diagnosis of the patient, rating this as either firm or provisional.

The method of presentation of the video material proved to be reasonably satisfactory in that it enabled analyses to be made of ratings of observed behavior and of this together with the written case material. It was thought, however, that the discussion would have been more fruitful had the videotapes been available for replay during the discussion, and it was recommended that arrangements be made for this in future seminars. It was also recommended that for future seminars there be testing and revision of the evaluation sheets before the meeting.

Principal Topics of Discussion

Agreement on Diagnosis and Classification

Level of intellectual retardation. For each of the patients in the case history exercise, the participants were asked to categorize the level of mental retardation according to the six-point coding (310-315) given in the eighth revision of *ICD (ICD-8)* (6). In most cases this caused no major difficulties, and there was a high level of agreement—80 to 90 per-

cent of the participants giving the same coding for the level of retardation. The only patient over whom there was appreciable disagreement was a six-week-old boy with chromosomal abnormalities. It was agreed that it was not possible to make a meaningful assessment of intelligence in infancy and that judgments on level of retardation in very young children could only be approximate. Participants were unanimous in agreeing that the greatest difficulties in assessing retardation existed for individuals from minority groups, from cultures other than those in which the participants were living, and from socially deprived communities. Whereas intelligence tests are of great value in assessing level of retardation, they should never be used in isolation from clinical considerations of social-adaptive functioning. When individuals come from cultures other than those used for the standardization of intelligence quotient (IQ) tests, the tests are of limited value.

Causation of retardation. The fourth digit in the *ICD-8* mental retardation coding, that which specifies the cause of the disorder, gave rise to no difficulties in patients who had a clearly defined disease or disorder. Thus, cases of phenylketonuria and chromosomal abnormality resulted in unanimous agreement on fourth-digit codings of .2 and .5, respectively.

However, in patients who did not have a definite brain dysfunction or who did have some probable or definite organic brain disorder, but one that did *not* fit the criteria for any *specific* disease, agreement on fourth-digit coding was extremely poor. This was due to uncertainties about etiology and to the problems of multiple factors in etiology; thus different participants coded different etiologic factors. For example, in case one, a child with a definite neurological disorder of an unknown type that had been present since birth, codings of .1, .2, .3, .4, .6, and .9 were all used, and one participant made a diagnosis under Section VI (Diseases of the Nervous System and Sense Organs) rather than under Section V (Mental Disorders).

This patient and several others caused two important points to be raised: 1) Most cases of mental retardation, even those due to organic brain dysfunction, are not associated with clearly diagnosable diseases, and 2) the fourth digit of the mental retardation coding overlaps other parts of *ICD-8,* and there is no clear instruction as to whether the same condition should be recorded under one or both headings. Everyone agreed that it was most important to record the biological disorders underlying mental retardation, but dissatisfaction was expressed with the fourth-digit coding in that it necessitated judgments about hypothetical causes (which were shown to be unreliable) rather than recording associated neurological handicaps. This issue was returned to later in the Seminar.

Psychiatric or behavioral disorder accompanying mental retardation. Several of the patients showed disorders of behavior, as well as mental retardation. For example, the third patient in the case history exercise was a hostile, extremely hyperactive child who had started several fires and who had gotten into frequent fights. However, only ten of the 16 participants made a diagnosis outside of the mental retardation section and even these ten coded psychiatric disorder under three different headings. The same issue arose in connection with one of the patients shown in the videotape exercise. Most of the participants diagnosed psychosis of some type, but this was coded in several different ways. Some coded 295.8 ("childhood schizophrenia") without recording anything in the mental retardation section; some coded 310.7 ("mental retardation following major psychiatric disorder") without coding the type of disorder separately; some diagnosed psychosis but coded it under 308 ("behavior disorders of childhood"); and some diagnosed psychosis but coded only mental retardation.

It was generally agreed that this state of affairs was most unsatisfactory. In spite of a high level of agreement on diagnosis, there was a very low level of agreement on coding. This arose through three factors: 1) no satisfactory means of coding child psychiatric or behavior disorders; 2) no instruction on how many diagnoses to code when a psychiatric disorder accompanies mental retardation; and 3) unfamiliarity with sections of *ICD-8* outside of Section V. This issue was further discussed in relation to the report of the Paris Seminar.

Developmental disorder. Several of the patients in both the case history and in the videotape exercises showed a severe delay in the development of speech and/or language that could not be accounted for in terms of

mental retardation. For example, the second patient in the videotape exercise was a five-year-old boy whose language comprehension was at the three-year level and whose language expression was even more retarded in spite of an overall IQ of 78 and of performance abilities at above-age level. Some participants noted only the child's cognitive difficulties in their diagnosis. However, even those participants who made a primary diagnosis of a specific disorder of language for this boy did not agree in their coding, some coding under 306 ("special symptoms not elsewhere classified"), some under 308 ("behavior disorders of childhood"), and some under 310 ("mental retardation"). This case also emphasized the lack of instructions on how to deal with multiple diagnoses. It also demonstrated the lack of a suitable coding for developmental disorders (also noted in 1967 at the Paris Seminar). This arose partly through a lack of suitable categories in the *ICD* and partly through the scattered and ill-defined nature of such categories.

Considerations of the Paris Seminar Report Concerning Child Psychiatry

In discussing the case histories it was noted several times that the same problems were being encountered as those previously discussed at the Paris Seminar on child psychiatric disorders. The Paris Seminar (4) had noted that there was no adequate provision for child psychiatric disorders in *ICD-8,* and decided that any scheme for the inclusion of such disorders must be simple and practical, must include only a basic minimum of information (in this respect classification necessarily differed from both a diagnostic formulation and nomenclature), and must include unambiguous coding since the chief purpose of a classification is to facilitate communication.

Two main issues had arisen out of the case histories presented at the Paris Seminar: 1) Some psychiatric diagnoses for children were not included in the current *ICD,* and 2) the same diagnoses were coded differently by different psychiatrists because of a lack of explicit instructions about what the coding should include. As a result of these issues the Paris Seminar (4) recommended a triaxial scheme of classification in which all three axes had to be coded. The first axis was "clinical psychiatric syndrome," the second was "intellectual level," and the third was "associated and etiological factors."

The present Seminar *recommended* that the proposals of the Paris Seminar for the classification of child psychiatric disorders be accepted and noted that the classification of mental retardation posed similar problems. It was agreed that a similar scheme was needed for mental retardation but that some modifications might be required.

Principles of Classification

It was agreed that the diagnosis of mental retardation necessarily involved recording several different and independent aspects of a case. Thus, at a minimum, it was essential that the degree of retardation, as well as the basic disorder (where present), be classified. Obviously, it would be totally unsatisfactory if it were only possible to record that a patient had either Down's syndrome or moderate retardation. In fact, both statements are required for a diagnosis of his condition. In addition, many mentally retarded patients show some major emotional or behavioral disorder that must be recorded for the purposes of providing medical care.

It was decided that this problem could be solved by either a multiaxial scheme, as proposed at the Paris Seminar, or by a multicategory scheme. In both cases a clear set of instructions would have to be provided to ensure that each axis or category was routinely recorded for all patients. It was decided that at least three major axes or categories were required, namely, those outlined in the Paris Seminar. For all mentally retarded patients the intellectual level, the associated or etiological factors, and the clinical psychiatric syndrome would need to be recorded. Whether a multiaxis or a multicategory scheme is adopted would be dependent on decisions made by WHO in relation to the organization of the *ICD* as a whole.

The three classes of information needed to provide a satisfactory classification of mental retardation correspond with those proposed for child psychiatry, and the seminar foresaw no great problem in working out a scheme that would serve the needs of both disciplines while retaining compatibility with the rest of the *ICD.* The essential feature of the scheme is that for each patient three categories of information should be provided. Codings should be available that note where informa-

tion is not known or where no abnormality is present.

It was noted that the necessity for clear instructions on how to code multiple diagnoses is one common to all parts of the *ICD* that concern mental disorders. It was recommended that a similar multiaxial or multicategory system be considered for the psychiatric section of the *ICD* as a whole.

Degree of mental retardation. It was agreed that the degree of mental retardation should constitute a principal dimension in the diagnostic classification. Discussion centered around three issues in this connection: 1) the criteria to be used in the assessment of retardation, 2) the level below which retardation would be regarded as present, and 3) the subdivision into degrees of retardation.

It is now known that intelligence is not a fixed and immutable quality, and in the present state of knowledge, prognostications about future intellectual development are necessarily rather uncertain. In view of these considerations it was agreed that, in line with the recommendations of the Paris Seminar, mental retardation should be assessed on the basis of *current* level of functioning without regard to its nature or causation.

It was also agreed that retardation concerned intellectual functioning and that social handicaps due to other disorders, e.g., sensory defects or physical handicaps, should not be included. When used appropriately, intelligence tests could provide valuable guidelines to assess the level of retardation. However, IQ scores should not be used in isolation; rather, they should be taken in conjunction with clinical judgments regarding the patient's social and adaptive behavior and development.

It was noted that intelligence tests were the least useful and, indeed, might sometimes be quite inappropriate for individuals from populations in which the social and cultural factors were quite different from those found in the populations on which the tests were standardized. Attention was drawn to the Resolution on Psycho-Technical Tests (7) passed by the Educational, Scientific, Cultural, and Health Commission of the Organization of African Unity (OAU). This reads as follows:

CONSIDERING that the psycho-technical tests at present used in our countries are ill-adapted and do not correspond with our culture, our environment and our development; CONSIDERING the danger of giving wrong guidance to our youth and workers through continued use of these ill-adapted tests; CONSIDERING the importance of having tests that are adapted to studying and using our human resources to better advantage; RECOMMENDS 1) that studies be undertaken by Member States, wherever possible, to establish properly adapted psycho-technical tests; 2) that OAU, with the assistance of the United Nations Specialized Agencies (UNESCO: WHO: FAO: UNICEF) and the ICC take part in these studies.-

The Seminar considered the Fifteenth Report of the WHO Expert Committee on Mental Health on the "Organization of Services for the Mentally Retarded" (8). It recommended that its suggestions on classification by degree of mental retardation be accepted. The Committee had criticized the classification of those with an IQ in the range of 68-85 as being "borderline mentally retarded," noting that this vastly widened the concept of mental retardation, in that at least 16 percent of the general population would be considered retarded. The Committee also expressed itself as being strongly opposed to this expansion of the concept, taking the view that a level of functioning equivalent to an IQ two standard deviations below the mean, i.e., about 70, was a most useful upper demarcation of mental retardation. The Seminar expressed the view, however, that IQ limits should constitute only a guide, it always being necessary to take clinical considerations of social and adaptive functioning into account.

The Seminar concurred with the recommendation of the Expert Committee that the term "borderline mental retardation" had no place in a medical classification and that it should be dropped from the *ICD.* As it was necessary in all patients to make some coding under the rubric of "current level of intellectual functioning," it was recommended that the coding of "borderline mental retardation" be replaced by a coding of "normal variations in intelligence—including borderline intelligence."

The Seminar concurred with the recommendations of the Expert Committee on the various degrees of mental retardation, name-

[3] UNESCO—United Nations Educational, Scientific, and Cultural Organization; FAO—Food and Agriculture Organization; UNICEF—United Nations International Children's Education Fund; and ICC—International Children's Centre.

ly that the categories of "mild," "moderate," "severe," and "profound" be retained. However, in view of the advice that IQ scores should never be the sole measure of degree of retardation, it was recommended that IQ levels that define the categories be omitted from the category headings. Instead, the terms should be carefully defined in the *Manual on Psychiatric Disorders and Classifications.* Where appropriate, the IQ ranges proposed by the Expert Committee should be used as a guide instead of the current limits *ICD-8* suggests.[3] However, the IQ limits should constitute just one aspect of the definition of categories that should include a careful description of the degree of handicap in social and adaptive terms.

The category "unspecified mental retardation" (315 in *ICD-8)* should be retained but instructions to coders should indicate very clearly that it be used as sparingly as possible; it is intended solely for patients whose current level of intellectual functioning cannot be assessed either by standardized tests or by clinical judgments (e.g., a newborn).

Associated or etiological organic factors. As the case history exercise showed, the fourth-digit coding for mental retardation proved to be quite unreliable. This is partly because it demands a knowledge of the etiology of the retardation, which is often lacking due to the pathogenesis of mental retardation being only imperfectly understood. Furthermore, nine of the fourth digits combine into groups a larger number of conditions representative of many areas of *ICD-8,* so that as a statement of etiology, they are inadequate. Moreover, clinicians or coders who work mainly with Section V of *ICD-8* do not always have the complete manual available to them; hence they may be unable to code correctly conditions other than those specifically mentioned as inclusions of the fourth digits as listed, and in some cases, they may fail to record relevant information on diagnosis.

The Seminar recommended that these difficulties be eliminated by making the category of "associated and etiologic factors" use, where appropriate, *ICD* codings from other sections. The organization of this method of coding needs further consideration and it may be necessary to provide special codings for definite neurological disorders that do not constitute a clearly defined disease of a recognized type. A working party needs to be set up to determine how this should best be done. Alternatives to be considered by the working party are that the fourth digits should merely indicate the presence of an associated physical condition that would then be coded under its *ICD* number, or that the provision for coding such disorders under the fourth digits be revised to provide a more satisfactory system. The list of available terms in *ICD-8* should be reviewed to ensure that all diagnoses required for the satisfactory classification of mental retardation were available and that added provision be made where necessary. The Seminar recommended that the terms describing conditions commonly found and reported in the classification of mental retardation be brought together in a glossary accompanying the classification.

Occasionally more than one associated organic condition may be present. For example, one of the patients in the exercise had diabetes, as well as epilepsy, but only a small number of the participants coded diabetes. It was recommended that, as a rule, the diagnosis of the condition most closely associated with the pathogenesis of mental retardation be recorded. Where feasible, and where the patient's condition demands this for purposes of medical care, more than one diagnosis should be entered on the second axis. (The problems of dealing with data involving multiple coding present no difficulties in modern computer technology, but coding more than one diagnosis may present problems to the personnel involved in maintaining records systems.) Where there are no organic features associated with the patient's retardation, this fact should be recorded on the second axis.

Associated or etiological psychosocial factors. Problems of intellectual retardation arise not infrequently in relation to psychosocial factors, and the Seminar considered it desirable that there be provisions for the coding of such factors. The provision and definition of categories of psychosocial

[3] Mild mental retardation is currently defined as being equivalent to 2 to 3.3 standard deviations below the mean of 100, that is, an IQ range of 51 to 70; moderate is equivalent to 3.3 to 4.3 standard deviations below the mean, that is, an IQ range of 36 to 50; severe is equivalent to 4.3 to 5.3 standard deviations below the mean, that is, an IQ range of 21 to 35; and profound is equivalent to at least 5.3 standard deviations below the mean, that is, an IQ of 20 or less.

influences posed difficulties beyond the scope of the present Seminar, but it was recommended that a working party[4] be set up to develop appropriate definitions for psychosocial factors, both those important in the pathogenesis of mental retardation and also those influences, familial and other than familial, that are important in the pathogenesis of emotional and behavioral disorders. In view of the importance of psychosocial influences it was recommended that this be a separate axis or category to be recorded for all patients instead of the present fourth digit, .8, that associates mental retardation with psychosocial (environmental) deprivation and that was felt to be insufficient.

Genetic factors in mental retardation. Some cases of mental retardation are due to specific diseases that are genetic in origin. These should be noted in the category recording etiological or associated physical conditions. In addition, however, cases of mental retardation not due to any brain disease often result from an interaction between polygenic factors and environmental influences. Although the science of behavioral genetics is rapidly advancing, the Seminar recognized that in the current state of knowledge it is usually not possible to differentiate genetic influences from psychosocial influences of an environmental kind.

Associated psychiatric and behavioral conditions. The Seminar agreed that coding any associated psychiatric condition constituted an essential part of the diagnosis and classification of mental retardation. An axis or category should be included to deal with this dimension. As far as adult patients were concerned, Section V of *ICD-8* provided suitable categories, and as far as child patients were concerned the recommendations of the Paris Seminar should be accepted.

Classification of Child Psychiatric Disorder

It was noted that the recommendations on child psychiatric disorders necessitated only a few extra codings and that provision might be made for these by transferring the *ICD-8* category 308 and utilizing categories 316 to 319 that are at present not assigned. By appropriate adjustments to the glossary to take account of disorders in children, neurotic disorders, personality disorders, psychosomatic disorders, and other clinical syndromes could be included in existing codings. By redefining psychoses and by providing extra digits, child psychoses could also be included under the current codings. Normal variation, conduct disorder, and manifestation of mental subnormality only would need additional codings. Adaptation reaction would need an extra coding, but this might be provided by a redefinition and reorganization of category 307, "transient situational disturbances." Specific developmental disorders also need a special category but this might be provided by a reorganization of category 306.

Mental Retardation in Adults

Whereas the Seminar spent the majority of its time discussing mental retardation in children, it was recognized that any classification scheme must also apply to adult patients. It was thought that the scheme suggested by the Seminar would be equally appropriate for all age groups.

Glossary and Instructions on Use

Throughout its deliberations, the Seminar stressed the need for a glossary that would bring together terms commonly used in describing mentally retarded patients, whether or not these were found in Section V *of ICD-8* or in other sections. An essential task is to define terms. Several countries and professional organizations have produced glossaries concerning mental retardation, that put out by the American Association on Mental Deficiency being the most comprehensive (9). The Seminar welcomed the initiative of WHO, which has undertaken to produce a glossary of mental disorders, taking into account the existing national glossaries. A publication incorporating a glossary should also contain a manual that would give clear coding instructions about what should be included in, and excluded from, any particular category of the classification. Where the instructions state that a particular diagnosis should *not* be included in a particular category, there should be clear instructions about where the diagnosis should be coded. Consistency is essential; this cannot be achieved unless coding instructions are unam-

[4] The Seminar noted with approval that WHO is currently considering the classification of socioenvironmental factors leading to hospitalization or to other medical care.

biguous and unless they cover most contingencies.

Classifications for Different Purposes

The Seminar agreed that no classification would meet all purposes: Statistical data on mental retardation are of interest not only to clinicians, but also to geneticists, other medical scientists, and psychologists, educators, and social service agencies concerned with health, education, and welfare. The Seminar noted that whereas the *ICD* was originally designed to provide a basis for vital statistics and for public health purposes, increasing attention was paid in the future to health service needs, including the utilization of hospital and other medical care facilities. However, it was recognized that a classification that served these needs would not necessarily be entirely satisfactory to educators and to social agencies concerned with welfare, or in the treatment of offenders who did not present psychiatric or other medical problems. While it took cognizance of these problems, the group recognized that they fell outside the scope of medicine; and for the purposes of the *ICD* it is important that categories included in it be relevant to medical needs. If classifications for different needs are produced, they should be capable of translation into the *ICD* categories. However, no classification should be used unless it has been satisfactorily tested in practice, and in general the use of different classifications for different purposes should be discouraged.

Recommendations to Other Working Groups

The Seminar noted that the current *ICD-8* classification of neurological disorders associated with mental retardation is not entirely satisfactory, for example, in relation to epilepsy and to certain types of encephalopathy not diagnosed as specific diseases. The Seminar called the attention of the Working Group on Neurological Disorders to this shortcoming. Neurological disorders often accompany mental retardation, and the Seminar expressed the wish that the working group should be cognizant of the problems of mental retardation in its deliberations.

Promoting the Effective Use of ICD

The Seminar discussed what steps could be taken to ensure that the *ICD* be used in the most effective manner possible, both within a given country and internationally. It expressed its appreciation of the lead that WHO had taken in this field and stressed the vital part it could play in promoting further studies.

The point was made that a decision by a member country or by a professional organization to use the *ICD* routinely for reporting purposes could have a beneficial effect not only upon the standard of case reporting, but also upon the attention paid to diagnosis and classification in medicine. If, for example, pediatricians were constantly reminded of the need for early diagnosis and classification, this would lead not only to their making better use of the *ICD*, but it would also influence the attention paid to diagnosis and classification during medical and pediatric training. Use of the *ICD* might thus have an influence upon medical education in a more general sense.

Attention should also be paid to providing medical students with training in classification and in the use of the *ICD* scheme. This topic should be included in the curricula of clinical training. Case history exercises might be a suitable method of teaching in this connection.

At a local level there needs to be close collaboration among biostatisticians, clinicians, and coding officers in medical records departments regarding the use of the *ICD*. Records officers require training in the use of the *ICD* and of the manual of coding instructions, and they should be encouraged to work closely with clinicians and to return to them for clarification records that do not permit ambiguous coding. Seminars and short courses in the correct use of the *ICD* according to the manual and glossary would do much to improve the quality of statistical reporting; and regular feedback both for queries regarding particular patients and for material fed to a central statistical office would ensure that record keeping achieves and maintains high standards.

Professional organizations (including local and national medical societies and associations for the scientific study of mental retardation) can also help to educate their members in the use of the *ICD*. Studies should be planned and carried out with the help of statisticians who should be consulted early and with whom analyses of data should be discussed at each stage of inquiry-research and fact-finding. At an international level the

support of the International Association for the Scientific Study of Mental Deficiency should be sought.

The Seminar was impressed by the usefulness of the diagnostic case reports and videotape exercises in bringing to light specific problems and in clarifying concepts.

National Centers of Health Statistics and professional organizations should be encouraged to work together to adapt the *ICD* to more specialized purposes, thus ensuring that when they themselves are involved in collecting statistical data, the data would be put in a form that would allow the use of the *ICD.*

Even in countries capable of carrying out case reporting and videotape exercises on their own, the initiative of WHO in sponsoring such exercises by bringing together experts from different countries and in providing case materials and videotapes from different countries had been of great importance in efforts to promote uniformity in diagnosis and in case reporting. It was recommended that WHO should promote further exercises of this type at local and regional levels. It was also hoped that WHO would be able to make readily available case materials from different centers in different countries and that it would further promote or facilitate seminars concerned with diagnosis and classification.

Arising from the deliberations at hand, the Seminar emphasized the importance of preparing at an early date and of testing in practice a provisional classification on the lines suggested earlier. The results of any field studies that use the proposed classification and that should, by preference, be carried out in more than one country, should be reported back to WHO. A future seminar that would take up the problems raised but not settled in this one would be invaluable. The group recognized that WHO could take a lead in stimulating these developments. Indeed, without WHO's sponsorship they are unlikely to occur at all.

Summary and Recommendations

The Ninth Revision of ICD

The Seminar considered alternative approaches to the problems of classification in mental retardation. It decided in favor of a scheme compatible with, and derived from, the proposals recommended by the Third Seminar on Psychiatric Diagnosis, Classification, and Statistics, that dealing with child psychiatry (4). This would require that for each patient, the following four types of information would be recorded: 1) degree of mental handicap, 2) etiological or associated biological or organic factors, 3) associated psychiatric disorder, and 4) psychosocial factors. For each patient, all four types of information would be routinely reported, instead of only the degree of mental handicap.

Degree of mental retardation. In the assessment of the degree of mental retardation, relevant information about the sociocultural background of a patient and his social and adaptive functioning must be taken into account. The grade of mental retardation recommended by the Expert Committee on Mental Health (8) should be used in the ninth revision of *ICD.* These comprise *ICD* categories 311-314—"mild," "moderate," "severe," and "profound" mental retardation, together with category 315—"unspecified mental retardation." Category 310, "borderline mental retardation," which includes backwardness, borderline intelligence, deficientia intelligentiae, borderline mental deficiency, or subnormality, and an IQ range of 68 to 85 should be replaced by a category of normal variations in intelligence in *ICD-9.*

The Seminar departed from the recommendations of the WHO Expert Committee on Mental Retardation in recommending that IQ ranges should *not* be included in the *ICD* manual, but rather, should be specified in an accompanying glossary that would draw attention to the limitations, as well as to the usefulness, of IQ data for the assessment of intellectual handicaps. The glossary should also stress that in evaluating the grade of intellectual retardation, social and cultural background be taken into account.

Organic aspects. The second type of information to be recorded for each patient should, at a minimum, consider the principal organic feature, if any, associated with the retardation. If no such features are reported, this should be recorded. Users should employ multiple coding on this axis, etiological and other diagnoses being included where appropriate.

Psychiatric and behavioral aspects. The third class of information should include psychiatric symptoms or syndromes catego-

rized in a form compatible with that used in child psychiatry and elsewhere in the *ICD*. The same considerations regarding multiple coding that apply to the previous section should apply to this one.

Psychosocial factors. The Seminar recognized the importance of psychosocial factors in the pathogenesis of mental retardation and recommended that psychosocial influences be recorded on a separate axis or category. A working party is needed to develop appropriate categories and to provide definitions for them.

Adequacy of ICD *Rubrics*

A small working group should review the rubrics used in sections of the *ICD* other than Section V to see whether they will provide on the axes of the proposed classification a comprehensive list of terms for classification in mental retardation. This working group should include representatives from the seminar on child psychiatry to ensure compatibility between the two systems of classification, and between them and the rest of the *ICD*.

The same working group should discuss with WHO the possibility of incorporating sociocultural factors in the diagnostic classification, linking this with the attempt now being made by WHO to classify socioenvironmental factors leading to hospitalization or to a need for medical care.

Recommendations Concerning Other Scientific Groups

Because mental retardation is so frequently associated with neurological disorders, including epilepsy, the Seminar expressed the hope that the scientific group considering neurological disorders would bear in mind the problems of mental retardation in making their recommendations. It was also hoped that the forthcoming seminars concerned with character disorders and with neuroses would give some consideration to any particular problems arising in relation to mental retardation.

Glossary and Manual of Instructions

The Seminar was greatly impressed by the need for a glossary[5] and for a manual of instructions to accompany *ICD-9*. It welcomed both WHO initiative and the efforts of national and of professional organizations in taking steps to provide an acceptable glossary. The group recommended that the glossary should bring together terms commonly applicable to the mentally retarded and found in all sections of the *ICD*, and that the accompanying manual of instructions should give guidance to users concerning where particular diagnoses should or should not be placed.

Promoting the Effective Use of the ICD

The Seminar recommended that WHO should consult with government agencies and international and professional organizations about steps that might be taken to promote the effective use of the *ICD* in member countries. These steps include: further diagnostic exercises, national and regional seminars organized on the lines successfully pioneered in the series of WHO seminars on classification, and short training courses for medical students and for persons particularly responsible for coding and classification.

The Need for Field Trials

The Seminar recommended that WHO should consider as soon as it can the possibility of sponsoring field trials in different countries in which the proposed classification would be tried in practice. The results of any field studies should be reported back to WHO. It was also recommended that a future meeting be convened to discuss the results of the field trials and also the integration of the various recommendations of the seminars on different mental disorders.

The Seminar endorsed the recommendations of the Paris Seminar with regard to the need for an adequate provision of categories regarding child psychiatric disorders in *ICD-9*.

The 1969 recommendation of the Educational, Scientific, Cultural, and Health Commission of OAU (7) was noted with approval. The recommendation proposes that appropriate intelligence tests be developed for different cultures and that tests developed for one culture should not be applied without modification in very different cultures. The Seminar considered that the same issue might apply to different cultures within one country.

[5] A draft of an international glossary has been proposed since this Seminar and is currently in trial use in a number of countries. It is expected that a final version of this draft glossary will be available in the course of the year.

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APPENDIX 1

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Some Thoughts on the Classification of Mental Retardation in the United States of America

BY GEORGE TARJAN, M.D., AND LEON EISENBERG, M.D.

It is desirable to reach a generally accepted international resolution that assures that patients afflicted with severe emotional disorders and manifesting the symptomatology of mental retardation are classified into the same category. The solution advocated by the current Diagnostic and Statistical Manual of Mental Disorders*—placing first emphasis on mental retardation—offers the most for comparability of biostatistical information from diversified geographic settings. Further, the manual's encouragement of multiple psychiatric diagnoses assures against loss of information.*

THE MOST COMMONLY USED classification system in mental retardation in the United States of America is the one contained in the *Manual on Terminology and*

Read at the Fifth Seminar on Psychiatric Diagnosis, Classification, and Statistics of the World Health Organization, Washington, D.C., October 29–November 4, 1969.

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Classification in Mental Retardation, second edition, of the American Association on Mental Deficiency (AAMD)(1). Its categorization of medical diagnoses is similar to that of the *Diagnostic and Statistical Manual of Mental Disorders,* second edition *{DSM-II),* published by the American Psychiatric Association (APA) (2). Both manuals define mental retardation in a similar fashion. According to AAMD, "Mental retardation refers to subaverage general intellectual functioning which originates during the developmental period and is associated with impairment in adaptive behavior" (1, p. 3). APA's definition substitutes for "impairment in adaptive behavior" the following phrase: "impairment of either learning and social adjustment or maturation, or both" (2, p. 14).

We will first briefly discuss the parameters of classification of mental retardation in common use in the United States of America; then we will focus on two issues of diagnosis that are often subjects of controversy in the United States.

Parameters of Classification of Mental Retardation

The diagnosis of mental retardation in the United States usually takes into account two dimensions: medical classification based on assignment to one of a number of specified syndromes and severity of retardation based on standardized developmental or intelligence tests. Both of these dimensions are present in the AAMD and APA manuals. In these respects the two manuals are very similar, except for the fact that AAMD places first emphasis on medical classification and *DSM-II* emphasizes degree of retardation. Both medical classifications assign a primary role to causation in their definitions of syndromes and use syndromes of a descriptive nature only when etiology is unknown.

The AAMD classification system uses one major dimension not contained in *DSM-II,* i.e., classification by degree of impairment in adaptive behavior, based on global clinical judgment, in comparison to descriptive vignettes of age-specific adaptive behavior deficits. Systematized ratings can also be made in more than 20 supplementary categories, among which are genetic factors, impairments of special senses, psychiatric symptoms, motor dysfunctions, cultural conformity, and reading and arithmetic skills. The utilization of all dimensions in the AAMD classification system provides, in addition to basic typology, a reasonably adequate profile of the patient.

Controversial Issues of Diagnosis

Sociocultural Retardation

The first of the two special issues we wish to discuss pertains to sociocultural retardation, a category frequently used in the United States but not in some other countries. In the AAMD classification two diagnostic categories are applicable to this group within the major class of "mental retardation due to uncertain (or presumed psychologic) cause with the functional reaction alone manifest." They are: "cultural-familial mental retardation" (code no. 81) and "psychogenic mental retardation associated with environmental deprivation" (code no. 82). In *DSM-II* the appropriate category is mental retardation "with psycho-social (environmental) deprivation" (subdivision .8), which includes two subclasses: "cultural-familial mental retardation" and mental retardation "associated with environmental deprivation." Two decades ago the diagnoses usually assigned to the same group of patients were "familial" and, less frequently, "undifferentiated" mental deficiency (3).

A general description of the patients who qualify for these diagnoses follows. In most instances retardation is of a mild degree, with IQs in the range of 50 to 70. The condition is usually not diagnosed prior to the individual's entrance into school, and the overt diagnosis generally disappears when he reaches adulthood. Thus most patients are of school age, i.e., six to 18 years old. An important cause of the age specificity of the diagnosis results from the basic clinical definition of mental retardation in the United States, which requires that subaverage general intellectual functioning and impairment in adaptive behavior be present concurrently. The correlation between these two impairments is highest during school years, when academic demands make evident deficits that may not be apparent when the practical skills of the patient function adequately in the job market.

These generally mildly retarded patients

are normal in appearance and show no concomitant physical disabilities or abnormal laboratory findings. The morbidity and mortality rates of the group are fairly average. Children with economically, socially, and educationally underprivileged backgrounds have a high risk for this diagnosis. A conservative estimate places the risk of mild retardation, including sociocultural retardation, at a level 15 times higher for impoverished urban and rural children than for those of middle-class suburban origin (4).

Debates are still common about the etiology of sociocultural retardation. Children so retarded are usually born to mothers who were undernourished during their adolescence and whose pregnancies occurred at a young age and with high frequency. The prematurity rate is twice the national average. Prenatal care is either nonexistent or limited, and perinatal and postnatal care is below average. During infancy and early childhood the patients' nutrition is often inadequate. The children are exposed to a series of somatic noxae, including infections, poisons, and traumata, and they are often unprotected by customary public health measures. It is therefore not difficult to conceptualize a variety of biomedical models (5) that explain the causation of this type of retardation on the basis of the cumulative effects of organic insults to the central nervous system. Some clinicians prefer such biomedical models, while others proffer a genetic explanation for this syndrome on the theory of assortative mating of the mildly retarded.

But these are also children who are usually unwanted, unplanned, and conceived accidentally and, frequently, extramaritally. They are raised in homes with absent fathers and with physically or emotionally unavailable mothers. During infancy they are not exposed to the same quality and quantity of tactile and kinesthetic stimulations as other children. Often they are left unattended in a crib or on the floor of the dwelling. Although there are noises, odors, and colors in their environment, the stimuli are not as organized as those found in middle-class and upper-class environments. For example, the number of words they hear is limited, with sentences brief and most commands carrying a negative connotation. From these empirical observations a causal model of environmental deprivation has been constructed by American behavioral scientists, and the syndrome acquired its labels: sociocultural deprivation, psychosocial deprivation, cultural-familial retardation, etc. (6).

Two current etiological questions that have a bearing on diagnostic classification need discussion. The first involves the role of organic factors in the causation of sociocultural retardation. The AAMD manual describes mental retardation due to "uncertain (or presumed psychologic) cause with the functional reaction alone manifest" as suited only for those instances of mental retardation that occur "in absence of any clinical or historical indication of organic disease or pathology which could reasonably account for the retarded intellectual functioning" (1, p. 39). "Cultural-familial mental retardation" and mental retardation "associated with environmental deprivation," into which groups patients with sociocultural retardation are placed, are two subclasses of this major category. If clinicians were to adhere literally to the category description, they might not diagnose anyone as socioculturally retarded because, in most instances, the history of poor medical care and the multiple exposures to somatic noxae in themselves would contradict the requirement of absence of historical indications of organic disease.

Observations on the longitudinal development of impoverished children and on the effects of major changes in the mode of rearing favor the psychosocial etiological model. On the other hand, the uncritical acceptance of pure functional causation does not take into account the probable effects of the biomedical traumata. As a consequence, the erroneous conclusion might be drawn that somatic noxae do not play a role in the causation of sociocultural retardation.

The second etiologic question involves the specific roles of the various elements of deprivation. Global conclusions have been drawn concerning the total effect of deprivation without specific information on the components of deprivation in regard to quality, quantity, specificity, or timing.

Transcultural studies, in addition to solving diagnostic and classification problems, have much to offer toward a better understanding of the causation of sociocultural retardation (7). More specifically, much is to be gained from such studies about the roles of genetic, somatic, and experiential forces as

they interact in producing that mild, and age-specific, type of retardation that has a high prevalence in impoverished population groups and that is generally labeled in the United States as sociocultural retardation.

Relationship Between the Diagnoses of Early Childhood Psychoses and Mental Retardation

The second controversial problem pertains to the relationship between the diagnoses of early childhood psychoses and mental retardation. It is not uncommon to find children in the United States who sequentially, and in any combination, acquire a series of diagnoses that include early infantile autism, mental retardation, childhood schizophrenia, brain damage, early childhood autism, and minimal brain dysfunction. At times the clinical pictures in these patients are further complicated by a variety of organic or functional sensory impairments.

On the surface this problem may appear quite limited in scope, but closer scrutiny calls attention to a number of ramifications. One example of the consequences of diagnostic and classificatory uncertainty is the varied use of the term "pseudo-retardation" among clinicians in the United States (8). Some use the term to describe the socioculturally retarded, i.e., those in whom no central nervous system damage can be demonstrated; others restrict the term to those in whom sensory or motor deficits produce some of the symptoms of retardation. Advocates of these concepts often argue that in these cases true retardation (or deficiency), per se, is not present and that the impairment in measured intelligence is more a function of the inadequacies of the psychological tests than of the impairment in the patient's cognitive functions.

Some clinicians prefer to use the term "pseudo-retardation" in those instances in which, in their judgment, retarded intellectual performance and inadequate adaptive behavior are explainable on the basis of underlying psychogenic mechanisms. "Pseudo-retardation" in this context refers to those patients in whom mental retardation results from psychosis, severe emotional disturbance, neurotic disorder, or other types of major personality disorders during infancy and early childhood. For example, the child who during infancy manifests the signs of autism and who, on the basis of evaluations of his intellectual and adaptive performances, qualifies for a diagnosis of retardation in this framework, would be placed into the category of "pseudo-retardation."

The controversy about the interrelationship between psychosis and retardation, when both coexist, is not yet resolved. The AAMD classification provides two categories for these patients: code no. 83, "psychogenic mental retardation associated with emotional disturbance," and code no. 84, "mental retardation associated with psychotic (or major personality) disorder." The underlying assumption is that mental retardation in these patients is due to psychologic causes, and therefore the diagnosis of mental retardation should be made with the presumed psychologic causation being specified. *DSM-II* provides one major category for this group: mental retardation "following major psychiatric disorder" (subdivision .7). The underlying philosophy is essentially the same as that found in the AAMD manual.

It is unquestionable that severe mental disturbances in infancy and early childhood impair intellectual adaptive performances. As a consequence, such patients fulfill the requirements of the diagnosis of mental retardation by both AAMD and APA standards. Moreover, measurable IQ in such patients functions as the best single prognosticator of outcome (9). On the other hand, one might argue that the primary disease in these children is the psychosis or the emotional disorder, with mental retardation being one of the several manifestations of the severe emotional pathology. At the present time no firm scientific conclusions can be drawn on the basis of etiologic research. The argument, although often heated, therefore remains a philosophic and semantic one.

Summary

For the benefit of national and international professional communications, it is desirable to reach a generally accepted resolution that assures that patients who are afflicted with severe emotional disorders and who manifest the symptomatology of mental retardation are classified into the same category, independent of the idiosyncrasies of clinicians. The solution advocated by *DSM-II* has the most to offer to bring order into

this semantic chaos. It states: *"'Mental retardation* is placed first to emphasize that it is to be diagnosed whenever present, even if due to some other disorder" (2, p. 1). The manual's encouragement of multiple psychiatric diagnoses assures against loss of information. The decision of the manual might seem arbitrary, but it offers the most for comparability of biostatistical information from diversified geographic settings.

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Differing Concepts of Diagnosis as a Problem in Classification

BY JACK R. EWALT, M.D.

The author discusses the differences in the British and U.S. concepts of mental retardation that make achieving a uniform international classification difficult. Although U.S. and British definitions and classifications of mental retardation seem to be similar, a basic conflict exists. The British define mental retardation as an arrested or incomplete development of the brain, while the United States defines it as a person's mental status current at a given time but that may be subject to change.

MAJOR PROBLEMS in reaching agreement on an international classification of diseases may be attributed to: 1) differences in the perception of symptoms, and 2) differences in the inference and interpretation of the meaning of a symptom in diagnostic terms. These problems have been amply illustrated by international diagnostic exercises (1) and by a joint exercise of the United States and the United Kingdom (2).

International uniformity in classification may be easier to achieve for the disorders known as mental retardation or mental subnormality than for the psychoses, neuroses, and character disorders. However, differences in the concepts and interpretations of disordered behavior between countries must be considered in our attempts to reach agreement on a scheme of classification for mental retardation. In the British *Glossary of Mental Disorders* (3), mental retardation is divided by degree of severity into six categories; these categories appear to be the same as those in the eighth revision of the *International Classification of Diseases (ICD-8)* (4) and as those in the second edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-II)* (5). All of these systems define their subdivisions by estimates of the levels of retardation expressed in terms of numerical IQs, as well as in descriptive phrases ranging from "borderline" to "severe." This apparent agreement between British and U.S. classifications is not firm, however, since it seems that the manner in which the level of retardation is assessed and

the attitude about prognosis vary; herein lies the problem in comparative statistics.

British Concepts

The British define subnormality (by quoting from the England and Wales Mental Health Act of 1959) as "a state of arrested or incomplete development of mind—which includes subnormality of intelligence and is of a nature or degree which requires or is susceptible to medical treatment or other special care and training of the patient" (3, p. 22). Severe subnormality is defined as "a state of arrested or incomplete development of mind which includes subnormality of intelligence and is of such a nature or degree that the patient is *incapable of living an independent life* or of guarding himself against serious exploitation or will be so incapable when of age to do so" (3, p. 22). They also state that the term "severe subnormality" does not always relate exactly to that position in their six-point classification. They discuss the difficulties of assessing IQ levels and how test scores will vary among different IQ tests.

U.S. Concepts

DSM-II uses similar terms in defining mental retardation, but it is apparent that these terms do not mean exactly the same thing as the British ones. *DSM-II* states that: "Mental retardation refers to subnormal general intellectual functioning which originates during the developmental period and is associated with impairment of either learning and social adjustment or maturation, or both" (5, p. 14). It also states:

> It is recognized that the intelligence quotient should not be the only criterion used in making a diagnosis of mental retardation or in evaluating its severity. It should serve only to help in making a clinical judgment of the patient's *adaptive behavioral capacity*. This judgment should also be based on an evaluation of the patient's developmental history and present functioning, including academic and vocational achievement, motor skills, and social and emotional maturity (5, p. 14).

In the United States, the most widely used glossary for mental retardation is *A Manual on Terminology and Classification in Mental Retardation.* 2nd edition (6), of the American Association on Mental Deficiency (AAMD). The *DSM-II* section dealing with mental retardation is essentially a modification of the manual in order to make it conformto *ICD-8.*

The AAMD classification has two large categories, which are organized in *DSM-II* as subgroups (fourth-digit items) under each of the five degrees of retardation. The two categories are 1) Medical Classification, and 2) Behavioral Classification.

Medical Classification includes the following groups: 1) diseases due to infection; 2) diseases due to intoxication; 3) disease due to trauma or physical agents; 4) diseases due to disorder of metabolism, growth, or nutrition; 5) diseases due to new growths; 6) disease due to unknown prenatal influence; 7) disease due to unknown or uncertain causes, with structural reactions manifest; and 8) disease due to an uncertain cause with the functional reaction alone manifest and presumed psychologic.

Under Behavioral Classification, behavior is considered in two dimensions—measured intelligence and adaptive behavior. Thus, according to the manual:

> Mental retardation refers to subaverage general intellectual functioning which originates during the developmental period and is associated with impairment in adaptive behavior.... The definition specifies that the subaverage intellectual functioning must be reflected by *impairment in adaptive behavior*. Adaptive behavior refers primarily to the effectiveness of the individual in adapting to the natural and social demands of his environment. Impaired adaptive behavior may be reflected in: (1) maturation, (2) learning, and/or (3) social adjustments. These three aspects of adaptation are of different importance as qualifying conditions of mental retardation for different age groups (6, p. 3).

The manual also mentions that objective measures for adaptive behavior, especially for degree of maturation and for quality of social adjustment, are not sufficiently developed to allow easy assessment.

Currently, one can only make estimates of impairment in adaptive behavior by comparing the patient's performance with that of persons of the same age level in the general population. The objective measures of general intelligence must be ". .. supplemented by evaluation of the early history of self-help and social behavior, by clinical evaluation of pres-

ent behavior, and by whatever measures of academic achievement, motor skills, social maturity, vocational level, and community participation are available and appropriate" (6, p. 4). Impairment in any one of these spheres reflecting the subaverage intellectual function is all that is required for a diagnosis of mental retardation. However, it is rare that a person shows mental retardation in only one of these categories.

At first glance, these statements are in essential agreement with those in the British glossary. However, the AAMD glossary continues:

> Within the framework of the present definition, mental retardation is a term descriptive of the *current* status of the individual with respect to intellectual functioning and adaptive behavior. Consequently, an individual may meet the criteria of mental retardation at one time and not at another. A person may change status as a result of changes in social standards or conditions or as a result of changes in efficiency of intellectual functioning, with level of efficiency always being determined in relation to the behavioral standards and norms for the individual's chronological age group (6, p. 4).

This latter attitude is somewhat in conflict with the British definition: "a state of arrested or incomplete development of mind which includes subnormality of intelligence and is of such a nature or degree that the patient is *incapable of living an independent life* or of guarding himself against serious exploitation or will be so incapable when of age to do so" (3).

Summary

The difference in these concepts of mental retardation will cause little if any confusion in the classification of patients with severe structural changes of the brain. Confusion will arise over the less severely retarded and in the classification of persons who have been successfully rehabilitated and who are functioning satisfactorily in an ordinary environment. The U.K. use of the term, which, to the best of my knowledge, somewhat accurately reflects the general attitude on the Continent, describes prognostic qualities of the condition and in some way reflects their attitude toward the term "psychoses." In the United States, on the other hand, the term "mental retardation" describes a combination of behaviors manifest in an individual at the time of examination, and while the term has some prognostic implications, a bad prognosis is not seen as an essential element in arriving at the diagnosis. This attitude may cause an overinclusion of patients in the U.S. series, especially patients in whom retardation is due to educational, language, and social problems, and whose retardation might be largely corrected by proper environmental and educational experiences, but who at the time of assessment were definitely retarded in their mental and and social functioning.

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Comments on the *ICD* Classification of Mental Retardation

BY JOSEPH WORTIS, M.D.

Strictly speaking, mental retardation is not a disease but a symptom; it may be the result of biological deficits, vicissitudes of experience, or both. The author believes that ways must be found to avoid the misleading implications and consequences of dealing with it as a disease. Toward this end, he proposes a multidimensional system of classification that distinguishes between the biologic and psychosocial causes of mental retardation.

HISTORICALLY the *International Classification of Diseases {ICD)* began as a classification of the causes of death; it was later extended to include a classification of diseases. Mental retardation is not a cause of death and can scarcely be called a disease. The historical origin of the classification of mental retardation was of a different nature and related mainly to the needs of educators to group their pupils on the basis of attained levels of mental development. These origins are connected with the names of Binet and Simon, both of whom dissociated themselves from the tendency (most pronounced in the United States) to equate IQ scores with innate biological capacity. Half a century ago they wrote:

> As a general rule, the children classed as retarded are the victims of disease, constitutional debility or malnutrition. We find included in our lists some who are the children of migratory parents; some who have been kept from school; some who have attended a religious school, where they learned little but sewing and writing; some who have changed their school too often; some also who are foreigners and understand little French, and lastly, some who have been kept back in their studies by unrecognized myopia … **(1,** p. 47).

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This article is part of Dr. Wortis' contribution to the preliminary papers for the ninth edition of the *International Classification of Diseases*, which is to be published by the World Health Organization. Portions of this article are reprinted with permission from Wortis J. (ed.): *Mental Retardation: An Annual Review, II.* New York, Grune & Stratton, 1970.

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The **Problem with** Standardized Tests

Since one's level of intellectual performance, or intelligence, is always a product of both biological equipment and educational experience, and since social and educational opportunity cannot be said to be uniformly available to all, it is unreasonable to assume that intelligence is normally distributed on a Gaussian curve. Yet standardized tests, like the Stanford-Binet Intelligence Scale, have been trimmed and altered in an attempt to achieve just such a distribution, although some skewness to the left cannot be avoided (2). A test constructed in such a way will inevitably disclose that a minimum of 15 percent of the population utilized (i.e., IQs two standard deviations from the mean) is mentally retarded. But since IQs vary with social class, the percentage will be much higher in the lower classes. The American Negro population, most of whom are poor and socially deprived, was excluded from the Stanford-Binet standardization; it is not surprising therefore that at least half of the American Negro child population, whose mean IQ is currently about 85, could be stigmatized with the disease or condition called mental retardation, by the criteria (one standard deviation) of the eighth revision *of ICD (ICD-8)(3).* In the Puerto Rican rural population the percentage is even higher (4). These absurdities are compounded when a test whose standardization is based on a white, somewhat middle-class population is applied to the population of a foreign nation.

The other horn of the dilemma is this: If

the test is restandardized and is thus adapted to a foreign nation, under the assumption that the intelligence of that nation's populace is normally distributed, one will again find that about 15 percent of the population is mentally retarded, since a standardized test must yield roughly that percentage one or more standard deviations from the mean. Comparative statistics thus become meaningless and even historical changes within the same country elude analysis, since the tests must be constantly restandardized.

An IQ score, at best, can indicate where an individual stands in intellectual performance compared to others. What others? His nation? His social class? His ethnic group? No intelligence test that has ever been devised can surmount all of these complicating considerations and claim universal validity. International criteria based on IQ scores thus have no validity, and are, at best, rough indicators of one's relative rank in roughly comparable groups, for example, in the urban populations of New York City and of London. One may question whether any important scientific interest is served in *ICD-8* by the use of IQ criteria for the diagnosis of mental retardation; and one may ask whether these interests could not be served more modestly, yet more effectively, by the use of well-defined clinical judgments as indicators of general adaptive capacity.

Shortcomings of Current Classifications

The principle that different purposes require different classifications is clearly recognized in the introduction to *ICD-8* (3). A classification designed for educational needs should be based on different criteria and categories than a medical classification is based on. Is there not a certain confusion of aims involved in our present classification?

ICD-8 lists five categories under "mental retardation" (310-314) that are based on IQs, spaced by standard deviations from the mean, on intelligence tests developed under the assumption that intelligence is normally distributed. There is also a category for "unspecified mental retardation" (315). There are nine subcategories (.0-.9) based on classes of etiology, i.e., infections, trauma, metabolic disorders, brain disease, prenatal influences, chromosomal abnormalities, prematurity, major psychiatric disorder, psychosocial causes, and other and unspecified. These subcategories are not complete and are not mutually exclusive, logically consistent, or systematic; in some instances mental retardation "follows" the presumptive cause, in others it is "associated with" the cause, and in others it is "due to" the cause. This pragmatically accords with the general pattern of *ICD-8,* which makes no claim to completeness, logical consistency, mutually exclusive categories, or systematic organization, although it has attempted to move toward these goals. Current usage must be reckoned with, and a practical classification has to be a compromise between usage and ideals.

An important source of some of the difficulties in classification derives from the failure to make distinctions among etiology, true pathology, physiological malfunction, level of performance, and capacity for development (5).

Virchow's theory of cellular pathology served a useful function in its day but has been partly superseded by the concept of pathophysiological dysfunction as the basis for disease. In other words, it is not the anatomical lesion or defect that causes the disease or disability but the resulting physiological malfunction. Some anatomic defects may not significantly impair function, and conversely, some malfunctions may be due to chemical, electrophysiological, or other deficiencies not associated with anatomical disease. Sometimes the anatomical lesion is only a late product of the malfunction. To take an extreme example, an exhausted, overstimulated, poorly nourished child may have serious and chronic learning difficulties because of his condition, but, strictly speaking, he is not diseased and his condition is reversible, up to a point. Beyond this point irreversible pathophysiological malfunction may supervene and at a later stage pathological anatomical lesions may appear.

Suggestions for a New Classification

Since mental retardation is not a disease but a level of development or a level of function, perhaps it would be better to list it as a symptom in a subcategory rather than as a primary disease diagnosis. From this point of view, the suggestion of a triaxial system of diagnosis in child psychiatry has merit (6).

Perhaps a lesson can be learned from the American Heart Association (7), which decided long ago to employ the following four-dimensional system of cardiac diagnosis: 1) etiological (e.g., rheumatic); 2) anatomical (e.g., mitral stenosis); 3) physiological (e.g., auricular fibrillation); 4) functional (e.g., dyspneic at rest); and in addition to these: 5) possible heart disease; and 6) potential heart disease.

If such a system were applied to mental retardation, performance level could be measured by an intelligence test or an adaptive scale, while physiological efficiency could be measured by Pavlovian paradigms, evoked potentials, electroencephalograms, expectancy curves, intersensory transfer, inhibitory and discriminatory capacity, or other measures of basic cognitive function that are relatively uncontaminated by vicissitudes of experience. The situation would be quite different if we had some measure of cerebral efficiency at levels low enough to permit objectivity, but high enough to be relevant to intellectual processes. While we do not have such reliable measures, perhaps it is not too early to begin to use all available data to make judgments on the physiological intactness or efficiency of an individual's cerebral functions as a basis for appropriate management. Such an approach would help sharpen our diagnostic skills and should serve to break down the harmful assumptions of homogeneity implied in our current dependence on IQ scores.

Intelligence tested to show an IQ above 50 correlates closely with social class. Mild and borderline retardation is largely an accompaniment of poverty (8, 9). It seems highly desirable to make diagnostic formulations that would distinguish more sharply between biologic mental retardation and psychosocial mental retardation. By using the same primary diagnosis for both types of mental retardation, as is the current trend, this distinction tends to be obscured, and dissimilar problems with dissimilar needs are likely to be lumped together, as is the case in our schools.

Because there is a practical difference between the two broad categories of biological handicap and of psychosocial deprivation, I think the earlier method of distinguishing between the two groups should be restored, even when well-validated diagnoses cannot be made (10). If this were done, there would be a category for known or presumed biological defect and a category for presumed biological intactness. Appropriate terms or numerals could be applied to each. Thus a post-encephalitic patient with an IQ of 65 would no longer carry the same primary diagnosis as that of a biologically normal slum dweller with the same IQ. In many cases a presumptive diagnosis of biological handicap would have to be made on the basis of a compromising medical history, delayed developmental milestones, motor awkwardness, soft neurological signs, and empirical teaching experience with the child, all leading to an assumption of, biological inadequacy with no further specification possible. As our diagnostic skill improved this nonspecific category would in time be reduced as more definitive diagnoses became possible.

From an empirical point of view, the most common labels I apply to patients are: 1) encephalopathy, cause unknown; 2) encephalopathy, presumed or definite cause; 3) mental retardation, cause unknown, presumed biological; 4) mental retardation, cause unknown, presumed psychosocial; and 5) mental retardation, cause unknown, presumed mixed causes.

Of the specific disease entities that are diagnosable, mongolism is by far the most common and is likely to be found in about 15 to 20 percent of the patients seen in a medical setting with a presenting complaint of retardation (11). Encephalopathy is likely to be diagnosed in about 45 percent but etiology can seldom be established, and in about 15 percent it is not even possible to assume the presence of an encephalopathy. About 15 percent of these patients have other primary psychiatric disorders. All other specific medical causes make up, at most, a small percentage of the retarded population, using currently available diagnostic knowledge and resources. But in spite of their rarity, specific diagnoses should be encouraged, and the frequency of such diagnoses should increase. In former years much emphasis was placed on a presumed idiopathic form of mental retardation as an aspect of normal variation in native intelligence. With our increased awareness of biological causation on the one hand and psychosocial causation on the other, the frequency of this diagnosis has declined and in some settings it is rarely made. Where it oc-

curs it can either be subsumed under the category "mental retardation, cause unknown, presumed biological," or, less desirable, a category of idiopathic mental retardation can be created. On the whole we do not get very far with our current classification, since so many patients are not specifically diagnosable. With the exception of mongolism, most diagnoses are still based on clinical judgments that have strong subjective influences.

Conclusion

ICD-8 realistically and pragmatically disclaims logical consistency, completeness, and even modernity. It attempts to note all current designations for diseases or conditions requiring medical attention and to supply labels and numbers for them in order that they can be counted. It thus uses eponyms, anatomical lesions, metabolic disorders, and a number of overlapping categories so that a given condition or disease can often be labeled in several different ways. From this point of view the acceptance by *ICD-8* of the condition called mental retardation is a simple reflection of contemporary practice. In *ICD-8,* Section XVI is devoted to Symptoms and Ill-Defined Conditions and lists such things as coma, sleep disturbances, speech impediments, fainting, hiccoughs, nausea, sweating, fatigue, unknown fever, malingering, and the like. There is even a category for "mental observation." From this point of view mental retardation, although not a disease, could also be included here. It would be better, however, if it could be more clearly designated as a symptom rather than as a disease. The primary diagnosis would then be the disease, if diagnosable, or a category of diseases, such as encephalopathy, if it could not be further diasnosed. I would like to recommend the creation of four broad major categories that would help in our approach to these cases: 1) presumed biologic cause, 2) presumed psychosocial cause, 3) presumed mixed cause, and 4) unknown cause. Where a concurrent presence of a true disease and of mental retardation exists, some suitable designation should be devised to indicate whether or not there is a presumed causal relationship between the two.

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A Note on the International Statistical Classification of Mental Retardation

BY JACK TIZARD, PH.D.

The author feels that classification in mental retardation should be multiaxial. While it is unimportant whether diseases or conditions associated with it are included in Section V (Mental Disorders) of the World Health Organization's International Classification of Diseases *or elsewhere, it is important that terms be used consistently and that a glossary that is comprehensive and operational in definition accompany the classification manual.*

A CLASSIFICATION, whether of diseases or of any other phenomena, will be used only if it is found useful. To be really useful, a classification of mental retardation must serve a variety of purposes: medical (clinical, genetic, and epidemiological) as well as social (giving guidelines for education and training and for the planning of services).

A useful classification of mental retardation must accommodate children and adults. It cannot be too elaborate or no one will use it; yet it must also be both comprehensive and compatible with other sections of the eighth revision of the *International Classification of Diseases (ICD-8)* (1).

The Eighth Revision of the *ICD*

Although for some purposes a single axis of classification is adequate, this is not true in psychiatry. In mental retardation a single axis is unsatisfactory because the mentally retarded commonly have multiple disabilities, none of which is primary, and because the classification has to serve more than one function. *ICD-8* is better than previous revisions because its categorization is more logical and because its use of a fourth digit permits a biaxial system of classification. The primary axis is a division by grade of defect; five grades are distinguished (borderline, IQ of 68 to 85; mild, IQ of 52 to 67; moderate, IQ of 36 to 51; severe, IQ of 20 to 35; and profound, IQ of less than 20).

This classification was criticized by the WHO Expert Committee on Mental Health (2) on two main counts. The first was that although IQ ranges were used to describe the five categories, no indications were given of the mean and standard deviation on which these ranges were based. The second criticism was that the classification of individuals with an IQ in the range 68 to 85 as "borderline mentally retarded" would vastly widen the concept of mental retardation; on this basis, 16 percent of the general population would be considered mentally retarded. The WHO committee was strongly opposed to this expansion of the concept of mental retardation; it held the view that an IQ of 70 (two standard deviations below the mean) was the traditional and most useful upper borderline measure.

The WHO committee advocated slightly different IQ ranges to define the various grades of intellectual retardation: mild, 2 to -3.3 standard deviations from the mean of 100, i.e., IQ of 50 to 70; moderate, 3.3 to -4.3 standard deviations from the mean, i.e., IQ of 35 to 50; severe, 4.3 to 5.3 standard deviations from the mean, i.e., IQ of 20 to 35; and profound, more than 5.3 standard deviations from the mean, i.e., IQ of less than 20. It should be stressed, the committee said, that these are not exact measurements, and they should not be considered the sole criteria for diagnosis.

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Opinions expressed herein are those of the author and do not necessarily reflect the views of anyone else.

In practice the categories will tend to overlap, but the IQ has some value within the range of mental retardation both as a diagnostic and a prognostic guide.

Although some of the terms used in both the *ICD-8* (1) and the WHO report (2) to describe the gravity of intellectual handicaps are perhaps somewhat sanguine, the actual division by grade makes good clinical sense. Unfortunately, however, the intention that all mentally retarded persons should be categorized first by the severity of their intellectual handicap may be nullified if *ICD-8* category 315, "unspecified mental retardation," allows clinicians to avoid making judgments about the grade of defect. It would be preferable to require that particulars of grade of defect be recorded for all patients classified as mentally retarded, a clinical estimate being given if no psychometric data were available.

It is therefore recommended that in future revisions of *ICD-8,* category 315 should be omitted. Every person classified as mentally retarded should be assigned to one or other of the grades finally agreed upon. (In the case of infants the grading must be provisional, but this could be specified in the instructions).

The second axis in *ICD-8* (the fourth digit) is broadly medical, and disorders are divided into ten categories. Most of these are reasonably satisfactory, although they are too broad. (Category .2, for example, lumps together "disorders of metabolism, growth, or nutrition," and category .5 is for those "with chromosomal abnormalities.") It is recommended that the second axis be expanded to two digits to allow for finer differentiation within each category.

While several categories in the present fourth-digit subdivision would probably benefit from the results of discussion among pediatricians and psychiatrists (e.g., category .6, mental retardation "associated with prematurity"), there are two categories in particular that are important for behavioral scientists. These are category .7 ("following major psychiatric disorder") and category .8 ("with psycho-social [environmental] deprivation").

Tarjan and Eisenberg discuss these problems in relation to the classification of mental retardation in the United States of America (3). They point out:

> It is not uncommon to find children in the United States who sequentially, and in any combination, acquire a series of diagnoses that include early infantile autism, mental retardation, childhood schizophrenia, brain damage, early childhood autism, and minimal brain dysfunction. At times the clinical pictures in these patients are further complicated by a variety of organic or functional sensory impairments. . . .
>
> At the present time no firm scientific conclusions can be drawn on the basis of etiologic research [as to which is primary]. The argument, although often heated, therefore remains a philosophic and semantic one (3, p. 17).

Nonetheless, they feel that it is desirable that children who have both severe emotional disorders and symptoms of mental retardation be classified in a consistent fashion, independent of the idiosyncrasies of clinicians. They themselves favor the solution recently advocated by the American Psychiatric Association (APA): *"Mental retardation* is placed first to emphasize that is to be diagnosed whenever present, even if due to some other disorder" (4, p. 1). This decision, they say, might seem arbitrary, but it offers the most for comparability of biostatistical information from diversified geographic settings.

ICD-8 uses one of the fourth digits for this type of patient (category .7, "following major psychiatric disorder"). The word "following," however, prejudges the issue; the term *"with* major psychiatric disorder" would be better.

The other type of mental retardation that Tarjan and Eisenberg discuss (3) is that usually referred to as sociocultural retardation or, as in *ICD-8* category .8, retardation "with psycho-social (environmental) deprivation." Both the APA and the American Association on Mental Deficiency (AAMD) classifications (4, 5) divide sociocultural retardation into two categories: "cultural-familial mental retardation" and either mental retardation "associated with environmental deprivation" (APA) or "psychogenic mental retardation" (AAMD).

As Tarjan and Eisenberg point out, both categories discount the possible effects of biomedical traumata in bringing about functional retardation. "As a consequence, the erroneous conclusion might be drawn that somatic noxae do not play a role in the causation of sociocultural retardation. . . . [Moreover] global conclusions have been

drawn concerning the total effect of deprivation without specific information on the components of deprivation in regard to quality, quantity, specificity, or timing" (3, p. 16).

ICD-8's categorization of mental retardation "with psycho-social (environmental) deprivation" is both clumsy and inaccurate. "Psycho-social (environmental)," like "sociocultural" and "cultural-familial," tells us no more than the older terms "familial," "undifferentiated," "residual," "aclinical," "subcultural," or "primary." The term "deprivation" is also a misnomer because it almost inherently contains the value judgment that anyone who has not had a middle-class upbringing is somehow deprived.

At the present time there is no way of disentangling the effects of genetic, biological, and social factors in the causation of sociocultural retardation, and it would seem more honest to acknowledge that fact—particularly since doing so is likely to lead to a more reliable, and hence more useful, system of classification. Moreover, the degree of environmental deprivation is usually judged by the social circumstances of the family. A more useful indicator of sociocultural retardation can probably be obtained from two-way tables that record the social class of the parents and the clinical condition of the child. Is "psycho-social (environmental) deprivation" worth recording as a cause of mental defect at the present time?

Compatibility of the Various Sections of *ICD-8*

The working group in child psychiatry of the Third WHO Seminar on Standardization of Psychiatric Diagnosis held in Paris in 1967 (6) opted for a triaxial system in which the first axis described the "clinical psychiatric syndrome," the second the "intellectual level," and the third the "associated or etiological factors." The group made little reference to the classification of mental retardation in *ICD-8* and assigned mental retardation only a single number—9.0—on the clinical axis. It would be extremely unsatisfactory if diagnosis in child psychiatry were to remain in this form, for the classification of a patient would become a function of the place of referral or the allegiance of a clinician.

This is, of course, the case today. *ICD-8's* instructions say: "For primary mortality classification and for morbidity classification where the main interest is not in the mental state, these categories [describing conditions which are secondary to physical conditions] should not be used, but assignment made to the underlying cause." Does this mean that a grossly defective spastic or epileptic child, who is referred to a department of neurology or pediatrics, is likely to be classified differently from the way in which he would be if referred to a department of child psychology or to a mental retardation clinic?

The problem of differential classification according to place of referral may not have been of great importance in the past because of the lack of interest by departments of pediatrics, neurology, and psychiatry in patients (especially children) with chronic neurological and behavioral handicaps. But this situation is changing, and it is important to anticipate future developments. The problem is one that affects child psychiatry in particular. Most mentally retarded patients first come to notice as children, and for planning purposes it is necessary to monitor changes in prevalence and to highlight inadequate case finding.

Hence an effort should be made to integrate the proposed triaxial system of classification proposed by the working group in child psychiatry with that proposed for mental retardation. This could be done by expanding the second axis of the triaxial classification in child psychiatry (that concerned with intelligence, which, incidentally, makes no separate provision for *very bright* children) and by making the other two axes in the classification proposed for child psychiatry compatible with those to be proposed for mental retardation. The clinical axis in the child psychiatry classification is more adequate than the corresponding axis in the mental retardation section of *ICD-8.* The etiological axes have much in common and could probably be integrated, especially if a two-digit system is to be used—as is proposed in the child psychiatry working paper (6).

I hope that the seminar will consider how classification in mental retardation can be integrated with that in child psychiatry. A multiaxial system has much to commend it on theoretical grounds, but it would clearly need to be tried out in practice before being incorporated into the *ICD.* I therefore recommend that WHO assume responsibility

for pilot studies to provide information about the feasibility of such a system.

Comprehensiveness of Classification

Whether or not a triaxial system common to child psychiatry and mental retardation is developed, consideration should be given to the possibility of including additional physical handicaps from other sections of *ICD-8* in the mental retardation scheme. It is absurd, for example, that cerebral palsy and epilepsy should not find a place in a classification of mental retardation.

For mental retardation, therefore, a useful and feasible classification would require four axes: 1) grade of intellectual functioning; 2) etiological and medical diagnosis; 3) psychiatric aspects; and 4) additional physical handicaps (to include epilepsy, cerebral palsy, cleft palate, sensory handicaps, etc.).

It is easy to envisage that a system of classification could be devised that would be common to child psychiatry, developmental neurology, and mental retardation and that would also serve the needs of the adult retarded. The inclusion of "associated physical handicaps" would involve the introduction of categories and terms that are rightly included in other sections of *ICD-8.* As Wing (7) has pointed out, this could be accomplished if the classification were accompanied by a glossary, the need for which is manifest in any case because of the confusion that surrounds terminology in mental retardation. Wing states:

> It would therefore be useful for the *Glossary* to include all sub-headings given in Section V of the *LCD.* manual [so that it could be used by doctors or clerical workers assigning codes without having to search for appropriate labels in two different books]....
>
> A consistent policy for cross-references would be desirable. . . . [and] . . . it would be most helpful if the *Glossary* also included parts of the *LCD.* manual, other than Section V, which might be useful in classifying psychiatric problems (7).

In summary, classification in mental retardation should be multiaxial. While it is unimportant whether diseases or conditions associated with it are included in Section V of *LCD* or elsewhere, it *is* important that terms be used consistently and that a glossary that is comprehensive and operational in definition accompany the manual.

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Addendum

The first draft of this paper was sent for comment to a number of colleagues [1] in Britain, Europe, and the United States; many of their suggestions have been incorporated into the text. Several colleagues felt that two aspects of the classification system required more discussion.

Dr. Michael Begab, of the National Institute of Child Health and Human Development, explained this point of view as follows:

> The terms "sociocultural," "cultural-familial," and "psychosocial deprivation" are indeed vague categories because of the uncertain etiological factors underlying. Biological and genetic contributors may well be involved but their significance to intellect and function (when too minimal to measure with current techniques) is yet to be established. In the absence of more definitive substitutes, I doubt whether we can do away with the only classification denoting the role of social-environmental circumstances as a cause of retardation. I am concerned this would lead to a conceptualization of retardation as one deriving from biological determinants alone, thus drawing attention away from the major dimensions of the problem. Although admittedly imprecise, the emphasis on

[1] I am very much indebted to the following people for sending comments on the earlier draft of this paper: Dr. Michael J. Begab, Dr. E.R. Bransby, Professor A.D.B. Clarke, Dr. Ernest Gruenberg, Dr. Maureen Hodgson, Dr. Brian H. Kirman, Professor Sir Aubrey Lewis, Dr. Tsung-yi Lin, Ms. Joy Moser, Professor L.S. Penrose, Dr. M.L. Rutter, Professor Michael Shepherd, Dr. George Tarjan, Dr. R. Wilkins, Dr. J.K. Wing, and Dr. Lorna Wing.

cultural deprivation has been an important stimulant to educational, social and nutritional intervention and research programs. If this category were deleted in favor of an interactionist concept—minor neurological impairment, genetic endowment and psychosocial deprivation—we may be back to an undifferentiated, waste-basket classification.

My other point of contention is your implicit discard of the supplementary adaptive behavior classification. There is considerable disenchantment in this country with the IQ as an index of current performance or future adaptation and we continue to struggle with more refined measures of behavior. I doubt whether the clinical classification proposed by the Working Group on Child Psychiatry would adequately cover this dimension. While I agree that compatibility with other sections of the *ICD* is important, the sacrifice to mental retardation is, in my view, too great. If we delete this element because of limitations in measurement, we may discourage research on adaptive behavior scales.

The Problem of the Classification of Mental Retardation

BY G. E. SUHAREVA, M.D.

The author proposes a new system of classifying the various forms of mental retardation. Using the time of exposure to a pathogenic agent and its etiology as a basis, she classifies the forms of mental retardation into three groups: 1) those caused by a pathological condition of the reproductive cells of the parents; 2) those caused by harmful factors that act during the intrauterine period; and 3) those caused by damage to the central nervous system in the perinatal period or in the first three years of life.

As a result of the great progress that has been made in the biological sciences (luring the last few decades, a more solid theoretical basis has been established for studying the etiology and pathogenesis of various forms of mental retardation.[1] Armed with new and improved methods of research, workers in various branches of theoretical and clinical medicine have begun to study the causes and mechanisms of anomalies in the development of the human organism. During this process wide use has been made of the latest findings in medical genetics, embryology, biochemistry, and teratology and of the clinical observations of obstetricians, pediatricians, psychiatrists, psychologists, and neuropathologists. The work of these specialists has made it possible to establish the etiology, pathogenesis, and clinical manifestations of many forms of mental retardation and to outline new ways of treating them.

In this way the latest findings on the etiology and pathogenesis of various forms of mental retardation have enabled psychiatrists to come closer to solving the intricate task, set over 50 years ago, of breaking down this complex group into its component clinical forms.

Read at the Fifth Seminar on Psychiatric Diagnosis, Classification, and Statistics of the World Health Organization, Washington, D.C., October 29–November 4, 1969.

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[1] Throughout this paper the Russian term "oligophrenia" has been translated as "mental retardation."

Early Classifications

Attempts to differentiate among various forms of mental deficiency were made by psychiatrists as long ago as the 19th century. Various criteria were proposed (for example, for etiology whether a defect was congenital or acquired and for the degree of intellectual deficiency whether idiocy, imbecility, or feeblemindedness was present). However, at that time there was no generally accepted classification, since the selection of a criterion depended largely on the purpose the classification was to serve. Thus, to determine the possibility of teaching a mentally retarded

child or adolescent, use was commonly made of a classification in which three degrees of mental underdevelopment were distinguished. If feeblemindedness was present, the child was sent to auxiliary schools, while patients who were imbeciles were taught to perform elementary forms of work. Persons at the level of idiocy needed supervision and care and could not adapt to an independent way of life.

However, this method of settling the problem of mental retardation is not adequate for properly organizing teaching of and therapy with the mentally retarded or for determining their working capacity and recommending the best forms of work for them to do. Even if their degree of intellectual deficiency is exactly the same, the working capacity of patients may differ depending on their level of activity and drive. If there is marked asthenia or apathy and if the intellectual defect is combined with psychopathic manifestations, the patient's activity is always reduced to a greater or lesser extent. In the case of atypical and complicated forms of mental deficiency, the clinical picture of signs of local defects, e.g., whether in hearing, in vision, or in speech, and disturbances in cognitive activity and working capacity may be considerable, even though the patient's intellectual deficiency is slight.

For these reasons, coupled with the needs of those who teach the mentally retarded and the need for expert assessment of the working capacity of the mentally retarded, use has been made of a system of classification that reflects the structure of the deficiency. An outline of this kind has been proposed by Pevzner(l). She distinguishes five clinical forms of mental retardation:

1. An uncomplicated form without gross deficiencies in any particular analyzer and without marked emotional disturbances or disorders of volition. This form is usually hereditary in nature.

2. A form of mental retardation complicated by hydrocephalus in which the intellectual defect is combined with a behavioral disturbance and a reduction in working capacity that includes an increased tendency to tire quickly and attacks of headache. This form is due to external causes.

3. Mental retardation combined with focal disorders of hearing, speech, or the spatial synthesis of the motor system.

4. Mental retardation with gross underdevelopment of the prefrontal areas of the brain and that is characterized by specific changes in personality and motor activity. This form is of an exogenous etiology.

5. Mental retardation combined with damage to the subcortical structures. This form includes underdevelopment of the cognitive faculty and psychopathic behavior.

Need **for** a New Classification System

However, a different classification scheme is required for the purposes of clinical practice and for scientific research; preferably, this would be a classification system based on the criterion of etiology and pathogenesis. A criterion of this type for classifying mental retardation has been used by many eminent scientists who have studied the condition. Although these classifications reflect very well the multiplicity of forms of mental retardation encountered in clinical practice, no generally accepted classification exists. The lack of unanimity on this question is not difficult to explain if it is remembered that the very concept of mental retardation is interpreted differently by different workers.

For this reason I thought it necessary, before describing my classification scheme, to insert a short introduction describing my point of departure in defining the concept of mental retardation and in delimiting it from other clinical manifestations of intellectual defect. In studying the clinical features of mental retardation in children and in adolescents, I thought it essential to make a strict distinction between the following two concepts: 1) an intellectual defect that is the manifestation of the anomalous development of the brain, and 2) intellectual disturbances caused by damage to brain structures that have already been formed. This distinction fully accords with the ideas prevalent in teratology; the investigator sets himself the task of distinguishing a developmental defect from a disablement caused by damage to an organ that has already been formed.

The clear-cut differentiation between these two concepts makes it possible to distinguish two forms of deficiency that differ in structure. The first, oligophrenic dementia, is a nonprogressive, pathological condition that constitutes a form of mental underdevelopment. The second is dementia in the sense of a

decay of mental functions that have already been established and as a result of a process that has produced the dementia.

I consider mental retardation to be a group of pathological conditions with different etiologies, but with one factor in common—all of the conditions represent clinical manifestations of dysontogenesis, an anomaly of the development of the brain often combined with developmental defects in other body systems. Assigned to the group are those forms of general mental underdevelopment characterized by: 1) the presence of a defect in cognitive activity, and 2) the nonprogressive nature of the condition.

It is important to emphasize that mental retardation is characterized by the particular complexity of its clinical manifestations; it is a matter of the underdevelopment of the highest forms of cognitive activity, which cannot develop without the participation of the ontogenetically and phylogenetically youngest brain structures. These structures mature late and are formed most intensively during the first few years of postnatal development. That is why a disease process that attacks the central nervous system of a child during his first years of life can lead not only to the destruction of previously formed systems, but also to the underdevelopment of those structures that, at the time, have not yet taken final shape. In view of this the forms of mental retardation should include, in addition to the hereditary and congenital forms, those forms acquired in the first few years of life (up to three years of age).

If this concept of the essence of mental retardation were adopted, the boundaries of the condition would become more clear-cut. The forms should exclude, first, all those intellectual disturbances that occur at later stages in the development of the child during various progressive pathological processes affecting the brain, or in the residual period, and that represent the decay of intellectual functions that have already been formed; and second, milder forms of disturbances in intellectual activity that are due to a slow rate of development (infantilism), incorrect child rearing, asthenia from somatic causes, and behavior disorders.

A Three-Group Classification

These were my initial assumptions when I undertook a classification of mental retardation (appendix 1). Considering it to be a special form of dysontogenesis of the brain, and sometimes of the body as a whole, I thought it essential to take into account the laws governing the occurrence of developmental defects in general. Experimental research has shown that a developmental defect depends not only on the nature, intensity, and acuteness of the pathogenic factor, but also, and mainly, on the time of exposure, i.e., the stage of ontogenesis at which the organism was damaged.

For this reason two criteria—the time of exposure and the nature of the pathogenic agent (its etiology)—were put forward as a basis for differentiating mental retardation into different clinical forms. In accordance with this, all of the clinical forms of mental retardation are divided into three groups, depending on the time of exposure to the harmful factor.

The first group is caused by a pathological condition of the reproductive cells of the parents, i.e., hereditary disease, a chromosomal aberration, and a pathological condition caused by exposure to harmful external agents (ionizing radiation).

The second group is dependent on harmful factors acting during the intrauterine period (embryopathies and pathologies of the fetus).

The third group includes those forms of mental retardation caused by damage to the central nervous system in the perinatal period or in the first three years of life, i.e., during the period where the ontogenetically young structures of the brain have not yet been completely formed. Within each of these three groups different clinical forms are distinguished on the basis of etiology.

Conclusions

The scheme proposed here for the classification of mental retardation cannot be considered to be perfect and exhaustive. In addition to the forms listed here, the causes of which are more or less clear, there are a number of other forms (the so-called undifferentiated forms of mental deficiency) for which no accurate findings are available on the causes and origins. The difficulty of differentiation on the basis of pathogenesis is also due to the fact that some clinically well-defined forms of mental retardation have been insufficiently studied with respect to

etiology. In addition, forms are quite often seen in clinical practice that have multiple causes, and it is difficult in each concrete case to isolate the principal cause of the disease.

At the present time it is still not clear what forms of enzymopathy can be considered to be mental deficiences. It is often difficult to make a differential diagnosis between an enzymopathy form of mental retardation and dementia caused by a progressive enzymopathy disease. It can only be said that the earlier the hereditary chemical defect is discovered, the more often are observed symptoms of the underdevelopment of cognitive activity of a mental deficiency type.

In other words, it is still difficult to determine a classification of mental retardation that can be accepted as completely satisfactory. The only thing that is clear is the way we should proceed if we wish to solve this problem in the future. The systematics of mental retardation, as of other forms of disease, must mainly be based on data regarding pathogenesis.

The pathogenesis of various types of mental retardation depends not only on the severity and nature of the etiological factor, but also, and mainly, on the stage of ontogenesis at which the organism was damaged. The more carefully we study the type of reactivity of the nervous system at various periods in antenatal and postnatal development, the easier it will be to establish a classification of mental retardation, and the better that classification will be.

REFERENCE

1. Pevzner MS: Mentally Retarded Children. Moscow, Academy of Pedagogical Sciences Press, 1959

APPENDIX 1
The Classification of Mental Retardation into Three Groups

Group 1

Pathological Condition of the Reproductive Cells of the Parents

Genetic Forms of Mental Retardation

1. Familial forms with a polygenic type of inheritance
2. True microcephalus
3. Arachnodactylia (Marfan's syndrome)
4. Craniofacial dysostosis (Crouzon's disease)
5. Craniofacial dysostosis with syndactylia (Apert's disease)
6. Laurence-Moon-Biedl syndrome
7. Mental retardation combined with the disturbance of endochondral ossification, with congenital epiphyseal dysplasia
8. Mental retardation combined with ichthyosis (Rud's syndrome)
9. Some of the nevoid defects with a nonprogressive course
10. Mental retardation caused by damage to the reproductive cells of the parents through exposure to exogenous factors, e.g., ionizing radiation
11. Other genetic forms

Enzymopathic Forms of Mental Retardation

Disturbances of Protein Metabolism

1. Phenylketonuria (blockage of phenylalanine-hydroxylase)
2. Maple syrup urine disease (disorders in the metabolism of valine, isoleucine, and leucine)
3. Hyperlysinemia (disturbed metabolism of lysine)
4. Hypervalinemia (disturbed metabolism of valine)
5. Histidinemia (disturbed metabolism of histidine)
6. Citrullinuria (disturbed metabolism of citrulline)
7. Homocystinuria (disturbed metabolism of methionine)
8. Arginosuccinicaciduria (disturbed metabolism of arginine)

Disturbances of Carbohydrate Metabolism

9. Galactosemia (a disturbance in the action of the enzyme galactose-L-phosphate-uridyltransferase)
10. Fructosuria (hyperaminoaciduria)
11. Sucrosuria (intolerance of saccharose)

Disturbances in Pigment Metabolism

12. Methemoglobinemia (blockage of the enzyme needed to convert methemoglobin into hemoglobin)
13. Deficiency of glucuronyl transferase and incapability of converting indirectly acting bilirubin into the directly acting form (Crigler-Najjar syndrome)

Clinical Forms of Mental Retardation Caused by Chromosomal Aberrations

1. Mental retardation caused by a chromosomal aberration in Group A chromosomes (ring chromosomes)
2. Mental retardation caused by an aberration in Group B that is connected with the deletion of the short arm of the fourth pair of chromosomes (Wolfs syndrome)
3. Mental retardation connected with deletion of the short arm of the fifth pair of chromosomes ("Cri du chat" syndrome)

4. Mental retardation connected with a trisomy in Group D, 13th to 15th pairs of chromosomes (Patau's syndrome)
5. Mental retardation connected with an aberration in Group E; a trisomy of the 18th pair of chromosomes (Edward's syndrome)
6. Mental retardation connected with deletion of the short arm of the 18th pair of chromosomes (De Grouchy's syndrome)
7. Mental retardation connected with deletion of the long arm of the 18th pair of chromosomes (Lejeune's syndrome)
8. Mental retardation caused by a trisomy of the 21st pair of chromosomes (Down's syndrome)
9. Mental retardation connected with an aberration in the system of sex chromosomes (Klinefelter's syndrome)
10. Turner's syndrome
11. The triple X syndrome
12. Mental retardation in men connected with an extra Y chromosome.

Group 2

The second group is comprised of types of mental retardation caused by harmful factors acting during the intrauterine period. Making a distinction between the various clinical forms of mental retardation on an etiological basis is considerably more difficult in this group than in the previous one, since it is not always possible to determine which pathogenic factor is preventing the establishment of the optimum environment for the development of the embryo and the fetus (the supply of nutritive substances and of oxygen). These pathogenic factors may be different at different stages in intrauterine development. There is no doubt that disturbances in uteroplacental blood circulation, cardiovascular diseases in the mother, diseases of the kidney and liver, and late pregnancy toxemia are of great importance in this respect.

In defining this group a distinction has been drawn only between those clinical forms of mental retardation whose etiology has been more or less clearly determined. The forms in this group are as follows:

1. Mental retardation arising under the influence of immunopathological factors—incompatibility of the antigenic properties of the maternal and fetal blood with regard to blood type and rhesus factors
2. Mental retardation associated with Little's disease
3. Mental retardation caused by the mother catching measles during pregnancy (embryopathia rubeolaris)
4. Mental retardation caused by other viruses (influenza, mumps, infectious hepatitis, cytomegalic inclusion disease)
5. Mental retardation caused by toxoplasmosis and listeriosis
6. Mental retardation associated with congenital syphilis
7. Clinical forms of mental retardation caused by hormonal disturbances in the mother and by toxic factors (exotoxins and endotoxins)
8. Mental retardation caused by hemolytic disease of the newborn.

Group 3

The third group is comprised of types of mental retardation caused by harmful factors acting during the perinatal period and the first three years of the postnatal period. The clinical forms in this group occur following exposure to various exogenous factors, e.g., birth injury, postnatal injuries, asphyxia during labor, and injuries and intoxications during the first years of life. These clinical forms of mental retardation are more complex in structure since, in their clinical and morphological characteristics, signs of underdevelopment are combined with residual manifestations of the disease concerned.

The following clinical types of mental retardation may be distinguished in this group:

1. Mental retardation due to birth injury and asphyxia.
2. Mental retardation caused by craniocerebral injury in the postnatal period (early childhood)
3. Mental retardation caused by general infections during the first three years of life (influenza, measles, pneumonia, dysentery, severe forms of dyspepsia)
4. Mental retardation caused by encephalitis, meningoencephalitis, or meningitis in early childhood
5. Mental retardation caused by severe disorders of sensory functions (blindness, deafness)
6. Mental retardation combined with speech defects
7. Mental retardation due to craniostenosis
8. Mental retardation combined with congenital hydrocephalus

Classification and Mental Retardation: Issues Arising in the Fifth WHO Seminar on Psychiatric Diagnosis, Classification, and Statistics

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In conjunction with the official report of the seminar, this paper discusses in more detail some of the chief issues considered at the seminar and outlines the reasoning behind the recommendations. The issues considered include the integration of child psychiatry and mental retardation, multiaxial classification, choice of axes, assessment of intellectual retardation, values and limitations of IQ tests, assessment of social competence, classification of biological factors, application of the multiaxial scheme to adult patients, and field trials to test new schemes of classification.

THIS PAPER by the officers of the Fifth WHO Seminar on Psychiatric Diagnosis, Classification, and Statistics gives an outline of some of the main issues discussed at the seminar in order to clarify the reasons for the decisions listed in the official report of the seminar. We have tried to faithfully represent the tenor of the discussion at the seminar but, in expanding upon the reasoning behind the official recommendations, we can necessarily only speak for ourselves. For the decisions made at the seminar, readers are referred to the official report **(1).**

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Integration of Child Psychiatry and Mental Retardation

Although the classification of mental retardation in adults was discussed at the seminar, most of the discussions concentrated on the problems associated with mental retardation in children. It became clear early in the seminar that the issues which arose at an earlier seminar in this program, the Paris seminar (Third WHO Seminar on Standardization of Psychiatric Diagnosis, Classification, and Statistics held in Paris in 1967), with respect to child psychiatry (2), applied equally to mental retardation. Retarded children may present psychiatric disorders that require diagnosis and treatment in the same way as do children of normal intelligence.

It was found that the current *International Classification of Diseases (ICD-8)* (3) has inadequate provision for the coding of psychiatric disorders in children. Most disorders tend to be coded under category 308, "behavior disorders of childhood," a vague term that implies that psychiatric disorders in childhood cannot be further differentiated. This "rubbish-basket" coding no longer represents the state of knowledge in the subject (3). The seminar recommended that the outline provided by the Paris seminar (which gives ten main categories) be accepted as a provisional scheme to be tried out internationally in or-

der to arrive at a more definitive scheme when the *ICD* is next revised in 1975.

Similarly, the concept of mental retardation is very relevant to the child psychiatrist who sees many children with educational or intellectual handicaps. Although in the past child psychiatrists may not have been so concerned with the subject of mental retardation, this is less true today. Child psychiatry is developing, and child psychiatrists see many children with educational or intellectual handicaps. The mentally retarded child requires expert assessment and treatment with regard to intellectual, emotional, behavioral, social, and medical factors. Because his handicaps are often multiple, the retarded child may attend a retardation clinic, a psychiatric unit, or a pediatric department. In order to make comparisons between different centers it is essential to have a classification that encompasses each of these dimensions and that is equally applicable to different kinds of clinics. The multiaxial scheme suggested for use in child psychiatry seemed just as well suited for mental retardation, and it was recommended that the scheme be adopted for mental retardation also, with the addition of one further axis.

Multiaxial Classification

The necessity for a multiaxial or multicategory classification scheme arose at the Washington seminar (as it did at the Paris seminar) during the case history exercise when patients showed a psychiatric disorder as well as mental retardation, or a physical disorder as well as mental retardation. For example, at the Paris seminar there was a case of a mentally retarded epileptic girl who showed, in addition, a psychotic disorder. Participants at the seminar agreed that it was appropriate to record three elements (psychosis, mental subnormality, and chronic brain conditions) but, in fact, most people recorded only one, with a fairly even split among the three categories as to which one was chosen for classification.

Similarly, at the Washington seminar there was a case of a mentally retarded child with a severe conduct disorder. More than one-third of the participants did not record the conduct disorder in their classification coding in spite of the fact that they agreed in discussion that it constituted an important part of the diagnosis. Of course, if only one condition is to be coded, the selection will depend upon the special interests of the diagnostician. The patient, however, may receive care or treatment not only from physicians but from teachers, industrial instructors, psychotherapists, and social workers. In order that the person concerned with a retarded child successfully perform his function, he must have not only the information necessary for his own work, but also a comprehensive picture of the child's problems and handicaps. Hence all essential data need to be coded.

ICD-8 does make some provision for the combined coding of physical disorder in association with mental retardation through the use of a fourth digit. However, it is not satisfactory because only a limited number of conditions are covered and because they are grouped together. Thus mental retardation with hypothyroidism and mental retardation with phenylketonuria both have the same fourth-digit category. Although it is possible to code Down's syndrome with mental retardation by using a fourth digit, it is not possible to thus code, for example, cerebral palsy with mental retardation.

It was pointed out at the seminar that *ICD-8* does allow the coding of different elements by the use of multiple categories. Thus it is quite possible to classify the retarded, epileptic, psychotic child within categories 311 ("mild mental retardation"), 345 ("epilepsy"), and 295.8 ("other," including childhood schizophrenia). However, there are no rules as to how many categories to use; as the diagnostic exercise clearly showed, participants varied on how many codings they employed, and when they used only one, they differed on which one they chose. Furthermore, in a number of medical centers the rule is to code only one diagnosis per patient.

In discussion it was agreed that in most cases there is little logic used in selecting the single coding to be used. It might represent the referral problem, the interest of the particular clinician, the most "serious" condition in clinical terms, or the condition that is most relevant to the administrative action taken (i.e., admission to a pediatric ward, psychiatric unit, or a hospital for the mentally subnormal). Exactly the same problem arose in multicategory coding with respect to which disorder was coded first. Modern computer

techniques allow the analysis of multiple codings, but in practice frequently only the first-coded category is analyzed—giving rise to precisely the same problems as when only one category is employed.

The fact that a condition is not coded can lead to multiple contradictory interpretations. It may mean that the condition was not present, that it was present but not thought important, or it may just reflect the fact that it was not coded in spite of being thought important.

A multiaxial scheme is no more than a logical development of a multicategory scheme (such as *ICD-8),* which introduces modifications specifically to meet these difficulties. Thus *ICD-8* could specify that three categories must always be coded in order to ensure that everyone codes the same number of categories. However, this would leave open the question of which categories to code, and clinicians might well decide to record quite different aspects. A short example easily illustrates this point. If a child is knocked down by a car and receives severe head injuries resulting in hemiparesis, fits, an IQ of 58, and the later development of a schizophrenic state, the three codings could be any combination of categories 343 ("cerebral spastic infantile paralysis"), 345 ("epilepsy"), 311 ("mild mental retardation"), E814 (injury resulting from "motor vehicle traffic accident involving collision with pedestrian"), 293 ("psychosis associated with other cerebral condition"), and possibly 295 ("schizophrenia").[1] Even if only three conditions were to be recorded, it would be necessary to provide rules for precedence in selection.

Of course, a multicategory scheme could overcome the problem of selecting from several categories by specifying that the three categories must refer to: 1) clinical psychiatric syndrome, 2) intellectual level, and 3) medical condition. But here there are two further problems. In the first place, for purposes of data processing it would be necessary to ensure that the same disorder was always recorded in the same position among the three codings selected. Secondly, *ICD-8* has no provision for "no abnormality" with respect to these three areas. If such a coding is added, a multiaxial scheme of the type proposed by the Paris seminar is arrived at.

A multiaxial classification simply regroups the categories of *ICD-8* (with appropriate modification where necessary) under broad headings called "axes," provides a "no abnormality" coding in each, and requires that every case receive some coding on each axis. In short, a multiaxial scheme is just a reordering of a multicategory scheme with the addition of simple rules on usage in order to ensure that everyone interprets the scheme in the same way.

Unreliability in classification may be due to several factors, including unreliability in diagnosis and unreliability in coding. A multiaxial scheme is designed to reduce the errors in coding and so enable a more *valid* picture of morbidity. Serious distortions may stem from faulty and incomplete recording of conditions. All the diagnostic exercises in the seminars in the program on the Standardization of Psychiatric Diagnosis, Classification, and Statistics showed that even when everyone agreed on diagnosis, there were often serious disagreements on classification, purely through uncertainty on how to code when there was a multiple handicap disorder.

It is hoped that a multiaxial scheme will eliminate this particular problem and so enhance the value of classification for the purpose of unambiguous communication. How successful it will be will need to be tested in field trials, some of which are in preparation and others of which are already being carried out. The remaining problem of the same diagnostic term being coded to different categories can be overcome only by means of a glossary, a first draft of which has been prepared (by WHO) and is being tried out.

Choice of Axes

Once it had been decided to recommend the adoption of a multiaxial scheme, there had to be a choice of axes. It is obvious that any given clinical case has many clinically important aspects, and in order to have a workable and relatively simple scheme, it was necessary to restrict the number of axes. Axes were chosen on the basis of providing unambiguous information of maximum clinical

[1] It might be argued that it would be an advantage to have all this information recorded, and from the clinical viewpoint this is undoubtedly true. However, *ICD-8* is a classification for statistical purposes, and to produce tabulations involving all combinations of code numbers would be costly in time and money. The single extraordinary case is therefore not of great value here.

usefulness in the greatest number of cases.

With mental retardation, one axis had to pertain to intellectual level, for this has been shown to be of both medical and educational or occupational importance. Nearly all individuals with an IQ below 50 have demonstrable brain disease or damage, whereas for those with an IQ above 50, social factors are of greater importance in etiology, though an important minority of cases are due to brain disorders (4, 5). Thus retarded children with IQs below 50 come from all social groups, with a distribution similar to that of the general population. In sharp contrast, retarded children with IQs above 50 only infrequently come from professional families; most come from socially deprived sections of the community.

The IQ level is also of considerable educational importance. Nearly all children with IQs above 50 can learn to read and write and can attain useful scholastic competence in other subjects. A few children with IQs from 35 to 50 will gain at least some primitive reading skills, whereas virtually no children with IQs below 35 will do so. Similarly, most adults with IQs above 50 but without other gross handicaps are employable, whereas few of those with IQs between 35 and 50 are capable of working in open employment, but can work in a sheltered environment. Of those adults with IQs below 35, none is likely to gain a job outside an institution, and most will be capable of only the most simple tasks under detailed supervision (6-8).

It should be emphasized that there is no qualitative distinction between these various IQ levels. Rather, the point is that on the continuum of intellectual ability, a person's level is of considerable predictive importance.

Many retarded children are under care largely because of the psychiatric problems they present, and it was therefore necessary to record the clinical psychiatric syndrome on another axis. Retarded individuals can suffer from any of the syndromes found in those of normal intelligence, and there is only a very weak association between intellectual level and type of clinical psychiatric syndrome. Accordingly, it was decided to use the same scheme as that employed for individuals of normal intelligence. For children, this meant the scheme suggested by the Paris seminar.

Many cases of mental retardation are associated with brain disease or disorder, and it was evident that medical classification must include an axis for this information. Thus a third axis was called "associated or etiological biological or organic factors." In *ICD-8* the fourth digit of the mental retardation codings was intended to meet this need. Unfortunately, it proved unreliable in the case history exercise, and an alternative was evidently needed. Ideally, this axis should provide a summary classification of the physical disorders coded elsewhere in the *ICD,* but the means for doing so were left to be decided later. The principles upon which such an axis might be based are considered in more detail later in this paper.

Finally, it was recognized that in mental retardation, as in other types of psychiatric disorder, psychological and social factors might be of prime importance in etiology. Accordingly, it was recommended that there should be a fourth axis for the coding of these factors. There is already an E section in *ICD-8* dealing with external causes (such as accidents and excessive heat or cold), so that this recommendation does not introduce a new principle. Nevertheless, there is at present no available scheme for the classification of psychosocial factors, and it was thus necessary to recommend that a working party be formed to develop appropriate categories and to provide definitions for them.

Assessment of Intellectual Retardation

Several issues arose in connection with the assessment of intellectual retardation.

Intellectual Functioning

First it was agreed that mental retardation referred solely to *intellectual* functioning and not to social impairment due to other handicaps (such as sensory defects, physical handicap, emotional disorder, or behavioral disturbance). Although mental subnormality has sometimes been used as a portmanteau category to include psychopathy and delinquency even when intelligence is normal or above normal (9), it was apparent that such usage would be likely to lead only to diagnostic confusion. It was therefore recommended that mental retardation be diagnosed only when there is intellectual impairment.

Current State

It was recognized that intelligence is not a

fixed and immutable quality and that in the present state of knowledge prognostications about future intellectual development are necessarily uncertain. Heber has clearly stated that "a person may meet the criteria of mental retardation at one age level and not at another; he may change status as a result of 'real' changes in intellectual functioning; or he may move from [a] retarded to [a] non-retarded category as a result of a training programme which has increased his level of adaptive behaviour" (10, p. 238). There was general agreement with this view. Classification and diagnosis must be firmly based on the present and not on crystal-gazing into the future. The coding on this axis must therefore deal only with the person's current state.

Behavioral Criteria

The Paris seminar was quite explicit in advising that the coding of intellectual level should be based on the child's current level of intellectual functioning *without regard to its nature.* This ruling was necessary because of theoretical disagreements about the nature of certain sorts of retardation. For example, where there is both psychosis and mental retardation there is no agreement among clinicians on how to decide whether the psychosis caused the retardation, whether the retardation caused the psychosis, or whether both are due to a third factor, such as organic brain disease. To avoid differences in coding due solely to such theoretical disagreements it is necessary to specify that the coding of intellectual level be based on the *current level of functioning* without regard to views on possible pathogenesis.

A similar problem arises in cases of mental retardation associated with psychosocial deprivation. Participants at the seminar agreed that mental retardation may be secondary to environmental influences and that in such cases the current functioning may bear little or no relationship to innate intelligence. By its very nature, innate intelligence is a concept that cannot be directly measured. The coding of intellectual retardation should be based solely on the current level of functioning, and it should be recognized that the coding carries no necessary implications about innate intelligence. It is a behavioral designation, not a speculation about hypothetical potentialities.

Use of Intelligence Tests

The issue concerning the assessment of intellectual retardation proved to be more controversial. The WHO Expert Committee reporting on the "Organization of Services for the Mentally Retarded" (11) had advised that IQ scores should be used to define the level of intellectual retardation; this approach was favored by some participants. The arguments for this method have been detailed elsewhere (12, 13). However, although it was agreed that the IQ constituted an important guide to intellectual level, the seminar participants differed from the WHO Expert Committee on the weight to be attached to the IQ.

It was recommended that the clinical considerations of social and adaptive functioning should always be taken into account and that, in evaluating the grade of intellectual retardation, note should be taken of the individual's social and cultural background. Thus a diagnosis of mental retardation implies that the person so diagnosed is both intellectually retarded and socially incompetent. Not all intellectually retarded persons would be classed as suffering from mental retardation, but all mentally retarded persons must show intellectual retardation. Because the use of intelligence tests proved to be so controversial, this issue will be discussed more fully.

Values and Limitations of Intelligence Tests

In Western Europe, North America, and many other parts of the world where English and French are widely spoken, intellectual ability is usually assessed by means of intelligence tests. An intelligence test is made up of a series of subtests or tasks, each of which is thought to require intelligence for its successful completion. That is, the items selected for inclusion in a test battery will be those on which intelligent or clever people (as judged by other criteria) tend to be successful, whereas unintelligent or stupid people of the same age tend to fail.

Sophisticated statistical methods are used to select items for inclusion in intelligence test batteries and, in standardizing an intelligence test, extensive field trials are first carried out on samples of the population to

which the test will later be applied. During the standardization trials, items that are found not to discriminate between dull and bright individuals (as judged by other criteria) are eliminated, as are items on which one sex shows superiority over the other. In selecting items, efforts are made to choose those that depend as little as possible upon specialized knowledge (e.g., literacy or computational facility) for their solution.

Because of the way in which tests are constructed, the most widely used intelligence tests (such as the various modifications of Binet's original test and the scales devised by Wechsler) have been found to give comparable distributions of scores when used in different industrialized countries. The Wechsler scales have been translated into different languages, and it has been found that only minor modifications need to be made in the wording to make the scales usable in different countries.

This fact—and it is a fact—coupled with the demonstration that clinical ratings, unstandardized judgments, and psychophysiological measures of intellectual ability are highly unreliable and that assessments based on them correlate poorly with what is ordinarily regarded as intelligence or intelligent behavior, has led to the widespread use of intelligence tests to assess intellectual ability. Within a given culture there is no better way of making comparative judgments of intellectual ability, and it is a mistake to think that "clinical" procedures produce better estimates. Unfortunately, too few countries have properly developed and standardized tests.

Even so, the considerable limitations to intelligence tests are still not sufficiently appreciated, although psychologists have long been aware of them. They include the following:

/. *Error Factors*

All measurement is subject to error, due to a variety of causes. The only satisfactory way to assess error is to see what happens when different examiners give the same test (or an equivalent form of it) to the same individuals on different occasions. When this is done, IQ tests are found to have a low number of errors. For example, on the Terman-Merrill revision of the Stanford-Binet Scale, the test-retest correlations obtained range from 0.83 for bright preschool children to 0.97 for dull school children (14). This level of accuracy is considerably above that obtained by clinical assessments, and it is important to note that IQ tests are most reliable in their assessment of retarded individuals. In many branches of medicine relatively little attention has been paid to the problems of reliability, but where they have been examined, all clinical examinations have been found to have considerable error rates (15).

Nevertheless, even this low rate of error carries implications for classification, as Shapiro (16) has pointed out. For example, a school child with an obtained IQ of 69 (indicating mild intellectual retardation) would have IQ scores between 64 and 74 in 19 tests out of 20 if he were retested an infinite number of times. The practical result of this is that a child may score in the intellectually retarded range one day and not the next.

In order to show the extent of these error limits, Shapiro recommended that psychologists routinely include a statement on them in a test report. Thus, for the child with an IQ of 69, the report might say that his score was 69 plus or minus 5, meaning that in 95 percent of the times a child was tested the limits of that child's IQ lay within 5 points on either side of 69. This would indicate that the test result only showed that the child's intelligence lay somewhere in that range (64 to 74) and that it was not possible to be more precise than that. This also applies to clinical judgment of adaptive skills.

2. Errors in Test Construction

In addition to the inherent unreliability of tests there are systematic errors that arise from the manner in which tests are standardized. Although tests are expected to have a mean and median of 100, this is not always the case in practice. For example, one study carried out by Dearborn and Rothney(17) revealed that the median score for nine intelligence tests administered at different times over a period of years to 320 children ranged from 94 to 110. There are also differences in the spread (or standard deviation) of scores on different tests (on some tests the spread is uneven, although it should not be), and different tests measure slightly different abilities. For all these reasons it is possible for someone to score in the mentally retarded range on one test but not on another test. This

also applies to different types of clinical judgments.

3. Errors in Administering Tests

An IQ test makes certain assumptions: for example, that the person can hear the instructions, that he can understand the language, and that he is physically able to make the responses. If a test that relies on spoken instructions is given to a deaf child, then the result will be meaningless. If the psychologist speaks English and the child understands only Spanish, the IQ score obtained will be valueless. No competent psychologist will make such obvious and elementary errors, but the fact remains that administrative decisions are sometimes (quite wrongly) made on the basis of IQ tests given in a totally inappropriate way. This is, of course, a criticism of the usage rather than of the tests themselves.

4. Cultural Factors in the Content of Tests

Children brought up in different societies are likely to have different experiences. These differences in experience may mean that items in IQ tests may have quite different implications for them. To take an absurd example, asking a Spanish child to name the president of the United States is a much more difficult question than it is to a native New Yorker. But in more subtle ways, experiences of language in the home may influence children's responses to items testing verbal skills.

In an attempt to bypass these difficulties, a few years ago attempts were made to devise first "culture-free" and then "culture-fair" tests—that is, in the first case, tests that were genuinely free from or removed from cultural context or bias and, in the second case, tests that only drew upon elements that might be presumed to exist in *any* human culture. Theoretically, this is a dubious procedure, and it has not worked in practice. Children from developing countries or from slums and ghettos in Western societies have often scored even lower on these tests than they have on traditional tests.

Anastasi(18) has put the matter succinctly:

> To criticise tests because they reveal cultural influences is to miss the essential nature of tests. Every psychological test measures a sample of behaviour. Insofar as culture affects behaviour its influence will and should be reflected in the test. Moreover if we rule out cultural differentials from a test we might thereby lower its prognostic validity. The same cultural differentials that impair an individual's test performance are likely to handicap him in school work, job performance, or any other activity we are trying to predict.... Tests cannot compensate for cultural deprivation by eliminating its effects from their scores. On the contrary, tests should reveal such effects, so that appropriate remedial steps can be taken. To conceal the effects of cultural disadvantages by rejecting tests or by trying to devise tests that are insensitive to such effects can only retard progress toward a genuine solution of social problems. Such reactions towards tests are equivalent to breaking a thermometer because it registers a body temperature of 101°.

If the diagnostician, being aware of the dangers in the interpretation of IQ tests, decides to ignore manifest signs of intellectual retardation in certain of his patients on the grounds that nearly all people living in their particular circumstance "behave like simpletons," he will do a serious disservice to those retarded persons who do not have the intellectual resources to cope in other than sheltered circumstances. The needs that led to the provision of special services for mentally retarded persons in developed countries do not cease to exist in developing ones; indeed, they may actually be greater.

On the other hand, unless the IQ test that is used has been thoroughly tested out in the cultural context in which it is to be applied, the test norms given in the manual cannot be taken at face value. It would obviously be wrong to use a test dependent on a particular set of culture-bound experiences to measure the intelligence of a child from a different culture in order to predict his performance *in his own culture.* Attempts to do so are likely to lead to serious underestimates of an individual's intellectual capacity and, on a wider scale, to give rise to absurdly inflated estimates of the rates of mental retardation. This holds for any society, not merely an impoverished one. Unfortunately, there are still many societies in the world in which IQ tests have not been standardized.

However, the difficulty is not solved by simply being ignored. Psychiatrists and psychologists working with impoverished and illiterate or semiliterate patients therefore have a responsibility to ensure that before making judgments, which are essentially

comparative, about the intellectual ability of their patients, they first provide themselves with the bases upon which such comparisons can be made. Where normative data are few, only the grossest of handicaps can be diagnosed with confidence. Again, it should be emphasized that these difficulties apply to clinical judgments in the same way as they do to IQ scores.

J. *Cultural Factors in the Response to Tests*

A person's performance on IQ tests depends on motivational and situational factors (18-20) as well as on intellectual capacity. This means that great care must be taken in ensuring that tests are given under the best circumstances for the testee and in making sure that he is interested and involved in the test. In order to determine that this has been achieved, it is important to assess the validity of the IQ score in relation to the manner of the child's response to the test, his behavior at home and in other settings, and all other relevant findings from observation and investigations. This is of course an intrinsic part of a proper psychological assessment, but clinicians need to beware of carelessly using tests in a rigid and narrow fashion.

However, there are more specific examples of the influence of motivational factors with regard to the testing of individuals from certain minority subcultures. It appears from research both in Britain and the United States (21,22) that attitudes toward racial differences so influence rapport that white testers have a subtle deleterious effect on Negro subjects' scores. This effect probably only applies in a *competitive* situation when Negro subjects know that they are being directly compared with white subjects. It is not yet clear how general or how marked this effect is, but the fact that it does exist means that it would be wise to use testers of the same racial background as the subject whenever there is the slightest doubt about intellectual assessment. Similar effects are likely to apply to an interview situation; care must therefore also be taken with respect to clinical assessments.

These caveats on the use of intelligence tests undoubtedly imply that tests cannot meaningfully be used in a blind fashion. Testers must be alert to the total situation and how it influences the person's response to the test. It is necessary to differentiate between items failed and items not attempted, between items where the person has really applied himself to the problem and items where there has been only a token effort. Where there is a marked discrepancy between an IQ score and a person's performance in the real life situation, it is essential to analyze the reasons for the discrepancy.

Nevertheless, given care and attention to detail, an IQ test remains the best way of making comparative judgments of intellectual ability within a given culture. Because a test only assesses behavior, and not potential, no test can tell us how an individual would have functioned if he had been brought up in a different environment. Accordingly, as Vernon (23) has pointed out, cross-cultural comparisons of "innate" intelligence are futile exercises.

Assessment of Social Competence

Because of these limitations in the use of IQ tests, the seminar recommended that assessments of intellectual level be made from a *combination* of standardized tests and clinical judgments on social and adaptive capacity. Properly applied, this may result in the most valid measures of current intellectual performance. Nevertheless, it is important to also bear in mind the limitations inherent in the assessment of social competence. It has already been pointed out that such measures are subject to the same error factors that apply to IQ tests, that in the same way that different IQ tests measure slightly different intellectual functions, so assessments of social and adaptive capacity will vary according to which clinical criterion is used. The same difficult diagnostic problems arise when assessments have to be made of persons who do not share or who only somewhat share the cultural background of the clinician.

The hope that clinical judgments will be less subject to social biases than IQ tests has not been borne out in practice; this means that this factor should receive particular attention in the training of clinicians. Indeed, where tested, clinical judgments have generally fared *worse* than tests. For example, in Britain, as a result of a proper concern over the possible social biases of IQ tests as used in the assessment of children's scholastic abili-

ties, some local authorities have dropped standardized tests and replaced them with teachers' judgments for the purpose of choosing the most able children for selective schooling. The result has been an *increase* in the discrimination against working-class children in that *fewer* intelligent children from poor backgrounds are being chosen for the academic schools (24). Whether there would be the same result at the other end of the intellectual scale is not yet known.

At present there are few standardized tests of social and adaptive skills, and those that do exist suffer from important defects for the purpose of measuring intellectual retardation. For example, the Vineland Social Maturity Scale has been found to be a poor predictor of scholastic performance, considerably worse than IQ tests (25). Other scales have been found to be influenced by deviant behavior (26,27) so that it is not readily possible to distinguish social incapacity due to intellectual impairment from that due to mental disorder or illness.

A further difficulty stems from the fact that criteria for social adaptation are dependent on how exacting the demands happen to be at that point in time (28). An individual cannot be considered in isolation from his social setting; a person's intellectual functioning may be influenced by his environmental circumstances, as may his mood or affective level. Nevertheless, insofar as social adaptation is taken as the main diagnostic feature of any disorder, there is a danger that fluctuations, for example, in availability of work, may lead to purely artifactual alterations in the prevalence of that disorder.

Thus, when employment conditions are bad, more intellectually limited people will be unable to work, and a diagnosis based on social adaptation will lead to the conclusion that the prevalence of mental subnormality has risen. This is clearly nonsense, but the argument is important because so long as social criteria define mental subnormality, there is a danger that illiberal and unthinking authorities may cause some people to lose their liberty by admitting them to a hospital for the mentally subnormal purely because employment happens to be scarce at that moment.

It should be clear that there is no perfect measure of intellectual retardation; clinical measures and standardized tests both have their strengths and weaknesses. The seminar recognized this and recommended that intellectual level be assessed by thoughtfully applying the fullest possible information on intellectual functioning to the current situation, with proper regard for the person's social situation and relevant motivational factors.

Classification of Biological Factors

It has already been stated that the assessment of a mentally retarded person must include both psychological and medical features. It is important to know whether the retardation is associated with a neurological and physical condition, since this may influence both treatment and prognosis. The fourth-digit system of *ICD-8* has proven inadequate for this purpose, and the seminar recommended that a working party be convened by WHO to consider how this need might best be met. In the meantime, some provisional decision had to be reached to proceed with the field trials (discussed later in this paper) of the scheme proposed by the Paris and Washington seminars. It may be appropriate here to consider the alternatives that are available.

In general, there are three different approaches that may be followed. Pathogenic factors or causal influences may be classified, physical handicaps may be classified without regard to their causation, or classification may be principally concerned with recognizable medical conditions. The decision as to which is preferable depends on considerations of what is practical and on which method gives the most useful clinical information and the greatest predictive power.

It is sometimes thought that an ideal classification should always be based on etiological mechanisms. However, this depends on the *purpose* for which the classification is required. For example, a classification of fractures based on whether the bone was broken by the patient's falling from a tree or being hit by a car is useful when preparing statistics designed to foster the prevention of accidents, but from the viewpoint of treatment it is less useful than one based on the nature and extent of bony- and soft-tissue damage (i.e., simple, compound, complex, and comminuted fractures). Which method is best for mental retardation is therefore an empirical question, subject only to the condition that a

diagnosis should, above all, be descriptive.

ICD-8's fourth-digit system for use with categories of mental retardation is based on pathogenesis. Thus a fourth-digit coding of .3 in mental retardation means an association with gross (postnatal) brain disease, and .5 denotes an association with chromosomal abnormalities. There are three major problems with this system. First, most cases of mental retardation are of unknown etiology, and a classification based on causes tends to do no more than express the clinician's theoretical predilections. Berg and Kirman's survey of hospitalized mentally retarded patients (29) showed that the only large group of known etiology were patients suffering from Down's syndrome (23 percent of the patients). There were another ten percent with known disorders and four percent with a probable disorder; but for 32 percent of the patients it was only possible to surmise the cause, and for 31 percent the cause was unknown.

The second difficulty is that in many cases of mental retardation there is multiple causation, and certain pathogenic influences, by their very nature, group together. For example, in the fourth-digit system .6 (prematurity) is frequently due to .4 (prenatal influences), which is in turn associated with .1 (perinatal trauma). It is now known that the cerebral damage in premature infants is often caused by severe hypoglycemia in the postnatal period, which would further necessitate a coding of .2 (disorder of metabolism, growth, or nutrition). It is by no means clear which of these four codings should have precedence. It was in part this kind of confused overlap that led to the unreliability of the fourth-digit coding in the Washington seminar case history exercise.

The third major difficulty associated with a pathogenic classification is that different disorders may be due to the same cause, and thus the classification will not reflect important diagnostic distinctions. For example, the fourth-digit system cannot tell one whether mental retardation is associated with cerebral palsy because often both are due to the same perinatal causes.

An alternative system is to totally omit questions of either etiology or physical disease and instead code the accompanying handicap. Thus one might code convulsive disorder, motor defect, visual handicap, and sensory impairment. Such a system would undoubtedly provide clinically useful information. The physical handicaps of a retarded person may be of crucial importance in planning services to meet his needs. On the other hand, in using such a system it would not be at all easy to differentiate important conditions such as Down's syndrome. Furthermore, most patients have multiple handicaps, and the use of five or six codings on this axis alone would be tedious and complicated to handle statistically. A classification of handicaps may be the must useful system, in conjunction with other categories, for research or clinical purposes, but it does not seem suitable as the prime principle of coding on the axis for associated or etiological biological factors.

The third system—that of coding medical conditions—is more of a compromise and in some ways less pure and less logical than the other two, but in practice it appears to be the most satisfactory system. In this system, for example, cerebral palsy would be coded rather than the fact that it is thought to be due to perinatal damage. This means that information on how the cerebral palsy was caused is lost, but information about the physical and neurological handicap is retained in more precise form. Cerebral palsy may be due to perinatal damage or to a variety of postnatal insults occurring during infancy (e.g., encephalitis, head injury, cerebral abscess). However, for most purposes it is more important to know that a child is currently hemiparetic than to know what caused the disorder many years ago.

In cases where there is a one-to-one relationship between cause and condition the coding will of course give the same information as a pathogenic classification. This is true of all the well-defined diseases of known etiology, such as Down's syndrome, phenylketonuria, and hepatolenticular degeneration. The difference chiefly occurs with conditions of variable and often unknown etiology, such as cerebral palsy and epilepsy. However, since these are common disorders that are better coded on the "condition" system, the advantages probably lie with this approach. Because of this, it was chosen for the field studies testing out the classification scheme proposed by the Paris and Washington seminars. However, as with each of the three methods of classifying associated or

etiological biological factors, there are problems in deciding how to deal with some conditions. Time and testing will show whether this proves to be the best system.

Application of the Multiaxial Classification to Adult Patients

Little time was spent at the seminar in discussing classification of mentally retarded adults. In the same way that the classification of child psychiatric disorders must be compatible with the scheme used to classify adult psychiatric disorders, so must the classification of mental retardation be developed in such a way as to apply to all age groups.

In general, it was agreed that the multiaxial scheme devised for children should be equally suitable for adult patients. It is just as necessary in adults as in children to classify the degree of intellectual impairment, associated biological condition, associated psychosocial factors, and accompanying mental disorder or clinical psychiatric syndrome. However, there is a less close relationship between intellectual level and school attainment. This means that there will be a more tenuous relationship between IQ and social handicap in adults and, furthermore, that many retarded individuals who were handicapped in childhood will not be retarded as adults (30). These are matters of detail, however, and the principles of classification are the same at all age levels. Whether in fact the scheme proposed works as well for adults as for children is an empirical question that needs to be answered by field trials.

Field Trials

In the past the production and revision of schemes of classification have all too often been an armchair exercise, with changes made largely for diplomatic rather than scientific reasons. The current series of WHO seminars is an exciting new endeavor in which, for the first time, there is a systematic attempt to assess the strengths and weaknesses of the existing *ICD* classification by means of carefully planned case history and videotape diagnostic studies. These have been invaluable in highlighting where and why there were difficulties in classification, and they have clearly shown which parts of the classification need revision or deletion because of their unreliability.

As a result of this preparation there is a reasonable chance that any proposed changes in the classification will be an improvement over what existed before. Nevertheless, the proposal of changes or modifications marks the beginning—not the end—of the process of revising the *ICD.* It was agreed at the outset that any scheme agreed upon at a seminar will be tested through national and international exercises for further refinement and revision before a final recommendation is made for the revision of the *ICD* in 1975.

Accordingly, field trials of the multiaxial scheme proposed by the Paris and Washington seminars are now in progress in the United Kingdom, France, the United States, and Scandinavia. The results of these trials will be reported to future seminars so that findings regarding any one part of the classification may be taken into account in considering other parts of the classification.

Summary

In conjunction with the official report of the Fifth WHO Seminar on Psychiatric Diagnosis, Classification, and Statistics (2), this paper discusses in more detail some of the chief issues considered at the seminar and outlines the reasoning behind the recommendations. The issues considered include the integration of child psychiatry and mental retardation, multiaxial classifications, choice of axes, assessment of intellectual retardation, values and limitations of IQ tests, assessment of social competence, classification of biological factors, application of the multiaxial scheme to adult patients, and field trials to test new schemes of classification.

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