

*Editorial***The World Health Organisation and Diabetes**

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The great non-event of 1965 was the publication of World Health Organisation Technical Report Series No. 310, otherwise known as "Diabetes Mellitus. Report of a WHO Expert Committee". Though available for only one U.S. Dollar (~ 3 sfrs.) and available in towns as unlikely as Cardiff and Turin, it failed to achieve any best seller list. The reasons for this are lost in the sands of antiquity, but one was the failure of any body to implement the recommendations of that Committee. Only now has the final recommendation been followed. This was that "... this disease should be kept under regular review by WHO", although the main emphasis was on WHO as a counting house for epidemiological sweetmeats. One can only partly blame WHO for failing to fulfill this rather vague assignment, but now after fifteen years a Second Report has been filed. The key question is whether this report (WHO Technical Report Series No. 646<sup>1</sup>) will have the same propensity to behave like a lead balloon as its predecessor or whether it can and will have a real impact on diabetes; more important, what will be its direct value to the 30 or more million diabetic people who cohabit the globe with non-diabetics.

It is instructive to examine how the report was produced. In September last year an assorted team of "Diabetologists", selected from WHO's Panel of Experts, were locked into a room at WHO in Geneva. The rules governing selection of such a group must ensure a balanced representation of ethnic, socio-political and geographic groupings. This presented difficulties in that it was found that many members of the Expert Advisory/Panel had left the diabetic scene – some indeed in the most permanent way possible – and new appointments had to be made

hurriedly. The end result was, however, a satisfactory mix with representatives from India, Poland, Nigeria, England, Japan, Cuba, USSR and the United States. Imbalances were ironed out to some extent by a secretariat which included Dr. V. Grabauskas of the WHO as Secretary and an Englishman, Frenchman and Kenyan as Temporary Advisers. The Englishman, your E-in-C, was included for his linguistic abilities (!) and immediately appointed Rapporteur; (synonyms – "Chairman's sidekick" or "writing hack"). In addition four members of the International Diabetes Federation were present as "representatives" of other organisations.

The group was expected (or instructed?) to produce a report reviewing diabetes in its entirety, recommending ways in which WHO could help to prevent, contain and counter the disease. They had two conditions to meet: (a) they could not leave Geneva without handing in a completed report; and, (b) they had 8 days to do it in. In this situation even the mighty quail (particularly those, like your E-in-C for whom a deadline has more to do with telephones than writing commitments) and two people are all important. These are the Chairman (who is elected "democratically" by the Committee) and the Secretary, the WHO representative. In the present case these roles were filled by Professor Harry Keen and Dr. Grabauskas, without whom little would have been achieved.

The extraordinary arrival at consensus was undoubtedly helped by the "must get it finished in 8 days" method, and consensus by exhaustion surely played a part. By day six most of the committee was so tired that they became uncaring, inattentive or reasonable. Indubitably they became less loquacious.

But what was achieved? Was this prodigious exercise in chronic insomnia to some point? Will there be

<sup>1</sup> Available from the World Health Organisation, CH-1211 Geneva 27, Switzerland, at a cost of 5 sfrs

**Table 1.** Conclusions of WHO expert committee on diabetes mellitus<sup>a</sup>

1. Diabetes mellitus is a major public health problem known to affect more than 30 million people. In many it remains undiagnosed. It contributes significantly to premature death and prolonged ill-health
2. Diabetes is widespread throughout the world. The known prevalence of diabetes is rising sharply in the developing countries in which it has been studied
3. The causes of diabetes are manifold and often unknown. In most cases it probably results from the interaction of environmental factors in genetically susceptible individuals. In some this susceptibility can be determined, thus opening the way to identification of high-risk individuals and the possibility of protection from the environmental factors
4. Diabetes may be divided clinically into two major types: insulin-dependent and non-insulin-dependent. These clinical types differ in genetic background and environmental determinants. There is heterogeneity within clinical groups. Present methods of classification are unsatisfactory and need to be reviewed
5. Obesity is a major association of non-insulin-dependent diabetes. Its nature and causes are poorly understood, its treatment unsatisfactory. Further research on the relationship of obesity to diabetes, on its causes and on simple methods of treatment and prevention are all relevant to the problems of diabetes. The role of malnutrition also requires careful investigation
6. The diagnosis of diabetes is ordinarily made on the basis of obvious signs and symptoms, confirmed by blood glucose measurement. The oral glucose tolerance test is not usually considered necessary but it is nevertheless useful in some situations and has application to population studies and as an adjunct to screening. Epidemiological and other studies suggest that criteria for the oral glucose tolerance test were set too low in the past. New criteria, with a standardized glucose load are suggested. They incorporate a new intermediate state of "impaired glucose tolerance", and subjects in this category usually require surveillance
7. Diabetes is a major cause of disability through its complications of retinopathy, nephropathy, neuropathy and large blood vessel disease. These complications may lead to blindness, kidney failure, coronary thrombosis, gangrene of the lower extremities, and sometimes amputation. Present evidence suggests that some of these complications may be lessened or prevented by improved metabolic control of the diabetic, as well as by general health measures. Major efforts should be directed towards achieving this
8. Care for the diabetic varies considerably in quality and availability. The major health services for the diabetic should be provided at community level. The community itself should be actively involved in the health care and support system for the diabetic. Preventive, promotive, curative, educational and research activities should be carried out at the primary health care level
9. The provision of basic equipment, insulin and drugs for all diabetics in all countries should be given the highest priority and economic barriers to treatment removed

<sup>a</sup> Taken with kind permission from World Health Organisation Technical Report Series No. 646. The full report is available from the World Health Organisation

**Table 2.** Recommendations of the WHO expert committee on diabetes mellitus<sup>a</sup>

1. Health care for the diabetic should be incorporated into community-based health care systems with appropriate additional facilities available at all levels of care. Models should be carefully evaluated in respect of both health care and cost-effectiveness. Such experience might serve as a prototype for other chronic disorders
2. The adequate and continued availability of insulin must be assured to diabetics everywhere by national guarantee
3. The establishment of special centres in developing countries to promote and integrate care, learning, and research in diabetes is desirable. These centres would constitute the focal points in the national network of diabetes health care
4. An organizational structure for educational activities aimed at the patient as well as at health care personnel should be established
5. International standardisation should be increased and directed towards: diagnostic tests for diabetes and revised criteria for diagnosis; a more rational classification of diabetes; identification, labelling, types, and strengths of insulin; and learning aids and materials for global use
6. The concept of primary prevention should be vigorously explored with particular attention to high-risk people and to environmental factors including undernutrition and overnutrition
7. Intensive efforts should be made to reduce the burden of complications and premature death by improving the quality of diabetic care and metabolic control. Special measures should include: better education; improved treatment regimens and self-monitoring; and the provision, as regionally appropriate, of facilities for early diagnosis and treatment of diabetic eye disease
8. Traditional methods of treatment of diabetes should be further investigated
9. The establishment of national and local registries of diabetics should be encouraged to facilitate health care, research, and education
10. The World Health Organisation should make every effort to promote the implementation of these recommendations

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a useful outcome, for those to whom the report is directed? At this point you might fairly say that it is not correct for your E-in-C to write this editorial. You may well be right. On the other hand it is incontestable that he has read every word of the report, and perhaps more important was party to the argument and is aware of the philosophy that led to some of the recommendations. It is also incontestable that other views will appear in journals elsewhere, which will offset any bias that, unwittingly but undoubtedly, creeps into the present account.

So what does the report contain? In bald terms it comprises ten chapters, conclusions, recommenda-

tions and a variety of annexes. And this all in less than 100 pages. Obviously it is not a textbook of diabetes – even the King's College Hospital pocket-book on Diabetes [1], which is the best short account available, contains 225 pages. Report 646 is rather a summary of the major known facts about diabetes, centred on patient care and its strengths and deficiencies with special attention paid to the needs of the developing world. It is meant to make the present state of knowledge and emerging trends of thought readable and understandable to lay readers, policy makers, health planners, politicians and health workers, as well as professional diabetologists and scientists. It is also intended as a guidebook to the disease for the World Health Organisation itself.

The report is timely. At WHO the emphasis on communicable diseases is beginning to give way to growing concern with the broad category of chronic non-communicable disease. Diabetes mellitus is a "model" disorder in this category posing, as it does, a major health hazard throughout the world. Also crucial to the philosophy of the report is the desire both at WHO and in the Expert Committee to move away from simply transferring first world methods, approaches and technologies to developing countries. Methods, technology and organisation need to be fashioned individually and appropriately in each country, the resources available and the priority given to a disease such as diabetes must differ in, for example, industrialised countries such as the United States and the U.K. and developing countries, where malnutrition and public health in general are the major immediate problems.

The report attempts to encompass this broad spectrum of views. It is patchy in its coverage and variable in style – not surprising in the light of the number of pens involved and the time limitations. The overall emphasis is however right. This comes through most strongly in the conclusions (Table 1) and recommendations (Table 2).

The report begins by outlining the problem, the size of the problem is stated, the gaps in knowledge of incidence, mortality and morbidity, particularly in developing countries, is stressed as is the geographical heterogeneity of the disease. The role of the community in the care of the diabetic, as well as the integration of research and development into care are also emphasised.

The first major chapter covers territory familiar to all of us – the definition, diagnosis, and classification of diabetes. Dull perhaps – but necessary in order to indicate the size and the nature of the resources required for effective measures of treatment and prevention. The diagnostic criteria for the glucose tolerance test recently promulgated by the

EASD [2], American Diabetes Association [3] and British Diabetic Association are adopted, and once again the indiscriminate and unnecessary use of glucose tolerance testing is denounced. The section on classification is less satisfactory – it would have taken the whole week to deal with this alone (and does it really matter). As an interim measure the committee recommended that the classification recently published in our sister journal, *Diabetes*, should be used [3], recognising its anomalies and inadequacies. A new approach to classification appeared a reasonable task for a future working group (and it will be important to include clinical pragmatists as well as epidemiologists, geneticists and theoreticians in such a group).

The next section of the report concerns epidemiology. It makes surprisingly interesting reading (you may begin to recognise your E-in-C's lack of objectivity in such statements). The natural history of the disease is summarized and useful annexes are provided on populations in whom particularly high or low rates of diabetes have been described, as well as on the contribution of diabetes to mortality in different parts of the world. The prevalence of different types of diabetes is described with particular emphasis on malnutrition related diabetes. A useful part of this chapter is the section on screening. The pertinent question "why do it" is discussed, and hints on "how to do it" and "when to do it" are given. Indiscriminate community screening is condemned as is the practice of discovering the disease when inadequate resources exist to treat the newly found cases. With the new diagnostic criteria the yield of new cases will fall and make broadscale screening even less effective. Screening of carefully selected populations still has a role it is concluded and is of special value in countries where little is known of the true prevalence or incidence of the disease. Certain high risk groups – including the obese, and those with a strong family history of diabetes – are worth examining. The pertinent suggestion is also made that screening programmes should always be accompanied by cost-benefit analysis.

The next chapter contains a catalogue of causes of diabetes – highlighting areas of ignorance, mentioning old friends such as genetic factors, HLA associations and environmental toxins. Of particular use to European and North American readers is the section on nutrition both under and over – and its role as an aetiological factor. Areas where more work is required are pointed out. The concept of individual "risk" for diabetes is also explored. This is of particular importance when attempting to concentrate limited resources upon individuals likely to develop the disease.

The next two sections of the report are both important but were perhaps the most difficult to produce. The first concerns the clinical management of the disease – which will differ widely in different parts of the world. Minimal requirements are listed. Much can indeed be achieved with limited resources and commonsense. Infusion pumps and pancreatic transplantation are not required for basic care – but insulin and the means for its administration is, and simple dietary advice is. Diabetic emergencies do not require intensive care units but are potentially lethal. Prevention of this and the many other hazards to the diabetic is all important and much can be done by proper education and with limited facilities. Similarly suggestions on “complications” are difficult to apply globally. There is a good description of the complications and the risk factors that we know at present. Again important points are made with respect to prevention and it is obvious that in the long-term resources should be directed more and more to prevention rather than to treatment.

The main practical thrust of the report is delivered in Chapter 7 “Health Services for the Diabetic”. Stress is placed on the problems of developing countries, but the methods suggested and philosophy are applicable to all nations. They may be of particular value to those without national health care schemes, where the financial state of the individual dictates his standard and quality of health care.

The report places the centre of gravity in the care of the diabetic firmly in the community. The committee were undoubtedly influenced by the International Conference on Primary Health Care, held in Alma Ata in 1978 [4], and which laid major emphasis on placing firmly at community level preventive, promotive, diagnostic, curative and rehabilitative aspects of health. The Alma Ata philosophy is ideally suited to diabetic care. The promotion of better health for the diabetic will be achieved much more effectively if it makes use of an existing framework for overall care, firmly rooted at community level, such as that suggested in Alma Ata.

Self care for the diabetic is seen as desirable for both medical and social reasons – but this demands education of the patient. Self-help teams can be established, involving diabetics helping in each others care. The family must also take part – and again need to be educated, as do voluntary workers, and semiskilled primary health workers. The basic unit will work from a health centre supervised by a medical practitioner, and nursing staff.

The secondary level of care will be based on smaller hospitals and will incorporate a physician trained in diabetes, nurses and the special services of the dietician, social worker and foot-care specialists. At this level there should be access to in-patient and

day-care centres. Uncomplicated pregnancy and operations could be undertaken. Simple investigative facilities should be available. It is envisaged that patients from primary health centres can undergo brief periods of more specialized care and educational procedures here. Tertiary level care would be centred on large hospitals with units specialized in the treatment of retinopathy, nephropathy and other advanced complications.

Having said all this where does the traditional diabetic clinic fit in? It will tend to lie across all three levels of care, with an educational and consultative role. It should where possible not be totally removed from the patient’s own community, and must not become, as it so often does, the only purveyor of care for the diabetic. Clinics in many countries are depersonalising organisations with poor or non-existent continuity of care, with staff unavailable for emergencies, and seeing patients far too infrequently to make any real impact on the disease. They should be used selectively and their role must be much more carefully defined.

Organisation of care along these lines cannot spring out of a vacuum. Much will have to be done, particularly with regard to education. This is covered in Chapter 9, albeit briefly. However, the right emphasis is there: that education of the patient, the family, the community, health care personnel and those that control resources are major priorities before proper health care can be established.

Research and development activities should be promoted at all levels of care. They may need to be initiated or organised from tertiary centres, but should be carried out at all levels. The report does also acknowledge that much fundamental work still needs to be done, and I would strongly support that primary health care and health care organisation are not the only gods to be placated. Laboratory work at a basic level is just as necessary for the long term health of the diabetic as field work and so-called applied research. The first answers to “prevention” of insulin dependent diabetes, for example, are likely to be found in a laboratory far-removed from the patient but later research and application of new knowledge will be at the primary health care level. Clearly there must be working contacts between all health care levels for the best use of research.

A final thought was that each country should contain at least one major diabetes centre. Such a centre could give advice on technical and practical problems, as well concerning itself with research, and its organisation, promoting national investigations and evaluating new technologies.

The last chapter of the report is an exercise in crystal ball gazing – which areas are the most fruitful for further research and development. Workers in

diabetes have their own ideas on this, and many will disagree with the list provided. The principles laid down are however reasonable: that basic research and operational research should not be divorced from each other; that more community based programmes are needed; that most diabetes research in the long term is and should be applicable to all societies; and that major efforts are required in preventive medicine.

The part of the report likely to be most widely read are its Conclusions and Recommendations. The Conclusions summarize the comments made above and are shown in Table 1. The Recommendations (Table 2) are the most critical part of the report and will determine whether the Report meets the fate of its predecessor.

The first recommendation concerns the organisation of health care based on the community and includes the suggestion that differing models should be carefully evaluated. The Committee indeed felt strongly that at least two such model systems should be established immediately in two developing countries, where there is already a community based health care system. These could be run in parallel with recommendation 3: the establishment of special centres which will only have a real impact if set up in the countries themselves. They should not be based in developed countries. It was however felt that one or two centres could be sited in developed countries but would examine the problems of those societies, and would be more directed towards advanced methodologies and laboratory research. Recommendation 4, on education must go together with the first and third recommendations. Recommendation 5 on standardisation, is obviously important as is recommendation 9. But the bite and impact can only come through implementation of the final recommendation.

The efforts put into the report will be wasted in part if not in their entirety if follow-up action is not taken. The Committee indeed felt strongly that a Working Group should be established immediately to start implementing at least some of the recommendations. The World Health Organisation obviously cannot do everything, but they can, by establishing a permanent base for diabetes with at least a Working Group, incorporating members of the other bodies such as the I.D.F., and providing some funds for implementing the recommendations, ensure that battle is commenced. Much needs to be done, much can be done and our hope must be that WHO will be able at the very least, to light the fire, which will in the long run set in motion a co-ordinated attack on the problems of diabetes throughout the world.

As a final comment, some of you may have read a similar editorial in the I.D.F. Bulletin – any similarity is purely intentional.

## References

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