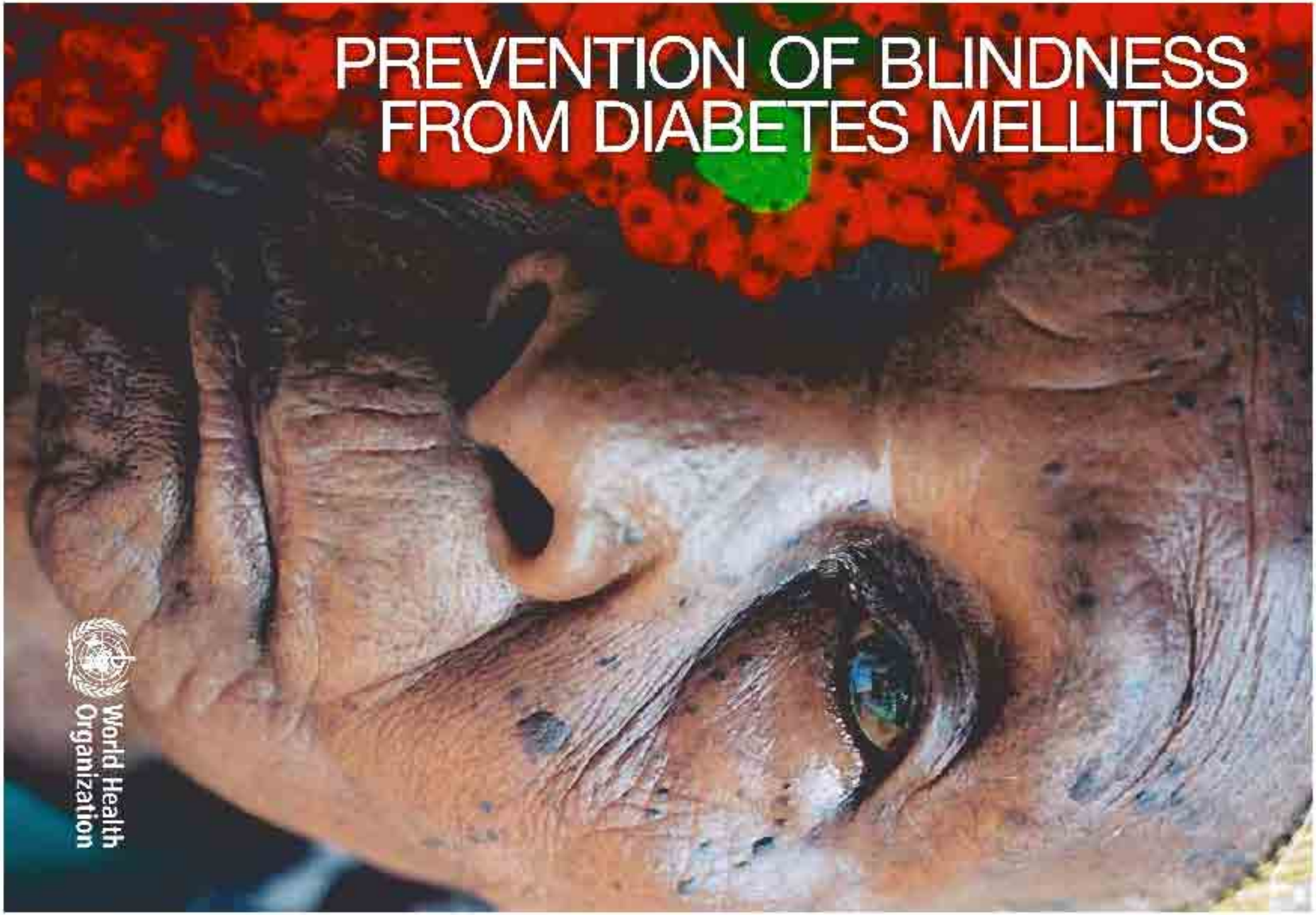
PREVENTION OF BLINDNESS FROM DIABETES MELLITUS



World Health Organization

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Report of a WHO consultation in Geneva, Switzerland,
9–11 November 2005

World Health Organization

WHO Library Cataloguing-in-Publication Data

Prevention of blindness from diabetes mellitus : report of a WHO consultation in Geneva, Switzerland, 9-11 November 2005.

1.Diabetic retinopathy - prevention and control. 2.Diabetic retinopathy - therapy. 3.Diabetic retinopathy - classification. 4.Diabetes complications - prevention and control. I.World Health Organization.

ISBN 92 4 154712 X (NLM classification: WK 835)
ISBN 978 92 4 154712 3

Printed in Switzerland

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EXECUTIVE SUMMARY

Global prevalence of diabetes mellitus and diabetic retinopathy

Diabetes mellitus currently affects more than 170 million persons worldwide and will affect an estimated 366 million by 2030, with the most rapid growth in low and middle-income countries, among populations of working age. More than 75% of patients who have had diabetes mellitus for more than 20 years will have some form of diabetic retinopathy.

Diabetic retinopathy is a microvascular complication of both type 1 and type 2 diabetes mellitus. The condition is a leading cause of new-onset blindness in many industrialized countries and is an increasingly more frequent cause of blindness elsewhere. WHO has estimated that diabetic retinopathy is responsible for 4.8% of the 37 million cases of blindness throughout the world.

Evidence-based treatment is available to reduce significantly the risks for blindness and for moderate vision loss. Clinical studies spanning more than 30 years have shown that appropriate treatment can reduce the risks by more than 90%.

Delivery of eye care for patients with diabetes

Despite clearly defined clinical guidelines for evaluating and treating diabetic retinopathy in a cost-effective manner, effective interventions, such as laser treatment, are underused, for a variety of reasons. While the available resources and methods differ from country to country, certain basic components of care should be present.

Patients should know that they have diabetes mellitus and that the condition requires care. General population screening for diabetes mellitus with existing methods is considered neither appropriate nor beneficial, although use of such methods to reach subpopulations with a very high prevalence of diabetes mellitus might be both appropriate and feasible for some Member States.

Patients should receive adequate care for diabetes mellitus. The only means of preventing diabetic retinopathy is regulating blood sugar, blood pressure and other risk factors that can be controlled by patients, under the guidance of their care provider. Often, however, physicians do not care for diabetes patients in the manner indicated by the results of randomized controlled trials.

Patients should undergo periodic eye examinations. Professional organizations advocate annual eye examinations for patients with diabetes and prompt treatment when indicated. Nevertheless, many patients with diabetes are not evaluated or treated adequately to prevent unnecessary blindness and visual loss.

Patients should receive adequate treatment for diabetic retinopathy. The prevention of vision loss from diabetic retinopathy should be an integral part of the management of diabetes mellitus. Specific treatment for sight-threatening stages of retinopathy should follow established guidelines.

Patients should be sufficiently aware and motivated to undergo not only an initial eye examination but also regular follow-up examinations. Understanding the difficulties and barriers to regular eye examinations is one step in addressing the prevention of blindness from diabetic retinopathy. It is not enough to provide information that patients can understand; a ‘marketing’ approach should be used, to ‘sell’ the patient the idea of the importance of regular eye examinations.

Principles for organizing an eye health system for the care of diabetic retinopathy

The consultation sought to address care for diabetic retinopathy from a perspective that would be applicable across diverse settings, such that the insights and lessons acquired in one area or context could be shared to make current and future initiatives more effective. The decisions made by each country are adapted to that country's resources, social expectations and available health care infrastructure. There is always a trade-off between technical performance and costs, and no country can escape this dilemma in making programme decisions. To assist countries in making informed decisions, the consultation considered the accuracy of the various methods for detecting the presence or severity of diabetic retinopathy, the locations that best serve patient needs and the interval between eye screenings or examinations.

Accuracy of examination results: If diabetic retinopathy is suspected after screening, a decision must be made about the overall management for a given level of diabetic retinopathy. In many developing countries, there are too few persons to provide even basic eye care to the population, let alone specialized eye care for patients with diabetes and related blindness prevention. Involving non-ophthalmic health care providers in various aspects of eye care for patients with diabetes is a viable alternative.

Use of specific photographic systems with expert interpretation could increase the ability of primary care providers to detect diabetic retinopathy, and it has been shown that the evaluations of trained readers of photographs can match or exceed those of physicians and optometrists. The advent of digital photography and high-speed internet connections has made use of electronic images feasible, although issues associated with image compression are yet to be resolved.

Locations for detection and treatment of diabetic retinopathy: Diabetes mellitus and diabetic retinopathy are usually detected and treated at health care facilities ranging from private offices to hospital-based facilities. Alternative sites for providing care might be mobile health vans or health care services, which move to or take up fixed locations near patients' homes. Another alternative is mass community examinations or screening, in which large numbers of patients are seen in a coordinated fashion by teams of providers and associated personnel.

Appropriate follow-up intervals: Significant problems have been encountered in ensuring regular follow-up of patients with diabetic retinopathy. High rates of follow-up have, however, been reported with the use of vans and trained photographic readers using reference standard photographs to provide immediate feedback to patients. By directly addressing patient convenience, access and feedback, this system might serve as a model for a 'marketing' approach for patient-centred detection of eye disease associated with diabetes.

Evaluation and improvement of eye care for patients with diabetes mellitus

In assessing approaches to improving the care system, it is important to: (i) determine the purpose of the proposed system, for example, to screen for