



PLAN OF ACTION
FOR THE
WESTERN PACIFIC
DECLARATION
ON
DIABETES
2000-2005

World Health Organization
Western Pacific Region
Manila, 2001



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Glossary of Acronyms

CVD	Cardiovascular disease
DCCT	Diabetes Control and Complications Trial
GDM	Gestational diabetes
IDF/WPR	International Diabetes Federation, Western Pacific Region
IGT	Impaired glucose tolerance
ISPAD	International Society for the Study of Paediatric and Adolescent Diabetes
NCD	Noncommunicable diseases
NGO	Nongovernmental organization
SPC	Secretariat of the Pacific Community
UKPDS	United Kingdom Prospective Diabetes Study
WHO/WPRO	World Health Organization, Western Pacific Regional Office
WPDD	Western Pacific Declaration on Diabetes
WPR	Western Pacific Region

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Executive Summary

In 1989 the World Health Assembly called on all countries to develop national plans to combat the increasing personal and public health and cost burden of diabetes. Since 1998 the World Health Assembly and the WHO/WPRO have adopted a series of resolutions to identify noncommunicable diseases, including diabetes, as a priority health issue.

Following the successful example of two other major diabetes initiatives, the St Vincent Declaration (1989) and the Declaration of the Americas (1996), the IDF/WPR and the WHO/WPRO have jointly led a 'Call to Action' to address the problem of diabetes in the WPR. Through broad regional consultation culminating in a Joint Regional Meeting hosted by Malaysia, 2-4 June 2000, in Kuala Lumpur, these two lead agencies have developed a WP Declaration on Diabetes and Plan of Action. They are assisted by the SPC, as a key collaborator, in involving all WPR countries and other potential partners in a concentrated effort to reduce this burden.

The Declaration and Plan of Action target the governments of all countries and areas in the WPR, international and regional agencies, professional diabetes and related organizations, public health practitioners, planners, funders, clinical health professionals, business, and industry to take action to stem the increasing incidence of diabetes and to prevent or reduce complications in those already diagnosed.

The Declaration

The Western Pacific Declaration on Diabetes (WP Declaration on Diabetes) focuses on eight key concepts which are central to creating health promoting environments and reducing the personal suffering and public cost of diabetes and its associated complications. They are:

- obtaining increased recognition of diabetes and priority status as a health issue
- developing and resourcing national diabetes prevention and control plans/programmes
- promoting universal access to appropriate care, education, medications and supplies for people with diabetes
- encouraging alliances and partnerships between stakeholders and interest groups to foster an intersectoral approach to diabetes prevention and care
- promoting education about diabetes prevention and care for people with diabetes, health professionals and the community
- integrating diabetes activities with other noncommunicable diseases to create attitudes and environments to prevent diabetes and reduce diabetes complications
- recognizing and addressing issues of discrimination against people with diabetes
- encouraging and applying research to enhance the effectiveness of diabetes prevention, management, and service delivery

The Plan of Action

The Plan of Action covers a five-year period from 2000-2005. It reflects the spirit and intent of the Declaration and is closely aligned to the WHO *Regional Plan for Integrated Prevention and Control of Cardiovascular Diseases and Diabetes for the Western Pacific Region 1998-2003* (WHO,1998a). In addition to a framework, goals and objectives, the Plan suggests specific, activities and implementation pathways to assist and guide action to produce tangible improvements to diabetes and related health problems in the Region. The document is divided into four Sections.

Section 1: *The Framework* describes:

- a mission and vision based on the Declaration
- three broad goals encompassing primary prevention, secondary prevention, and systems ie the policy, planning, organization of care, and evaluation and monitoring
- overarching strategies which are repeated throughout the document and emphasize the importance of an informed, integrated and evidence based approach centered on building the capacity of health systems and services to make what is there work better
- implementation of principles highlighting the need for a cohesive effort based on strategic partnerships, intersectoral collaboration, an outcomes orientation, and improved equity and access for people with diabetes
- a focus on people and communities, providers of health care and support services, places where health care is provided, and health policy and programmes

Section 2: *The Rationale for Intervening* presents a brief profile of the WPR and its diabetes burden. Despite gaps in the literature about some aspects of diabetes prevention and care there is evidence that it is possible to prevent or delay the onset of Type 2 diabetes and even stronger evidence that adherence to certain processes can significantly reduce complications in people who already have either Type 1 or Type 2 diabetes.

Section 3: The Goals deals with the three goals and links them to key objectives and strategies. It outlines regional and country indicators and the outcomes which might be expected if appropriate action is taken. The goals are:

1. Prevent or delay the onset of diabetes in susceptible communities and individuals
2. Prevent or delay the development and progression of diabetes complication
3. Strengthen the capacity of national health systems to deliver and monitor equitable, affordable, and effective services for the prevention and care of diabetes and its complications

Section 4: The Plan of Action concentrates on implementation issues and suggests regional, national and local structures and pathways to encourage appropriate action including examples of activities which can contribute to achievement of the goals.

The Way Forward

The WHO/WPRO and the IDF/WPR are obtaining formal endorsement of the Declaration and Plan of Action and, with the SPC, will establish a regional coordinating body to encourage and support the countries of the WPR to implement the Declaration and Plan of Action.

Introduction

Diabetes affects countless millions of people of both sexes, all ages, and all socio-economic, cultural and educational backgrounds. Globally, the burden of diabetes is increasing alarmingly with rapid increases particularly evident in developing countries where urbanisation is altering dietary habits, reducing physical activity, increasing overweight and obesity and impacting on many other aspects of everyday life.

Over 30 million people in the WPR have diabetes and by 2025 it is predicted that this may increase to 56 million. Already twelve countries and areas in the Region estimate that the prevalence of diabetes equals or exceeds 8% and in certain populations, notably some Pacific Islands, is as high as 20%. WHO (1999a) classifies four types of diabetes.

- Type 1 (insulin dependent) diabetes – occurring most commonly in children and young adults and often having an autoimmune basis. In most countries of the WPR this accounts for less than 5 % of cases (excepting Australia and New Zealand where the figure is 10-15%)
- Type 2 (non insulin dependent) diabetes – this typically occurs in mature adults but is increasingly affecting all ages, including children and this latter point is a particular cause for concern. In the WPR type 2 diabetes accounts for approximately 85-90% of all cases
- Other Types of diabetes – specific types of diabetes which include diseases of the endocrine system, pancreas, genetic forms of diabetes, and drug or chemically induced diabetes
- Gestational diabetes (GDM) – glucose intolerance diagnosed for the first time during Pregnancy

People 'at risk' of Diabetes

Whilst research into determinants of Type 1 diabetes is progressing, there is currently little information available about modifiable risk factors for its development.

For Type 2 diabetes non modifiable risk factors include a genetic susceptibility (for example, having a first degree relative with diabetes, belonging to certain ethnic backgrounds), a history of gestational diabetes, and increasing age. Impaired glucose intolerance and impaired fasting glucose also carry a significant predisposition to subsequent diabetes and have been shown to be amenable to preventative strategies. In addition there are clearly acknowledged modifiable risk factors which are linked to lifestyle factors such as:

- obesity
- physical inactivity
- diet (eg, high saturated fat, low fibre, high glycaemic load)

Obesity doubles the risk of Type 2 diabetes. Combining the various risk factors further increases the risk of Type 2 diabetes but, conversely, reducing modifiable risks can delay or prevent the development of diabetes.

Diabetes Complications

Undiagnosed, untreated or poorly controlled diabetes can lead to serious complications in all types of diabetes, eg,:

- cardiovascular disease and stroke
- blindness and varying stages of visual impairment
- kidney disease including end stage renal failure
- foot ulceration and lower limb amputation
- sensory neuropathy
- erectile dysfunction

Due to the large numbers involved, most of this burden is attributable to Type 2 diabetes. However, people with either of these forms of diabetes are equally susceptible to the full range of complications. Women with gestational diabetes and the children of gestational diabetes pregnancies are at increased risk of subsequent diabetes and are an important group for targeted prevention strategies. Recent research also highlights the dangerous combination of low birth weight with subsequent obesity as a risk for the later development of diabetes and heart disease and is particularly relevant to countries and communities where inadequate nutrition may impact unfavorably on the health of pregnant women and their babies.

Purpose of the Declaration and Plan of Action

There is increasing evidence that the onset of Type 2 diabetes can be prevented or delayed and conclusive evidence that secondary prevention measures for both Type 1 and Type 2 diabetes can achieve significant reductions in diabetes complications. To address the increasing burden of diabetes in the WPR, the WHO -WPRO and the IDF -WPR are jointly developing a WP Declaration on Diabetes and Plan of Action. The purpose of the Plan of Action is to provide a framework and strategic plan to:

- assist all people in the Region with diabetes to receive the quality of care, and essential medications and supplies they require to achieve optimal health outcomes
- create environments to reduce modifiable diabetes risk factors in the non-diabetic population such as obesity and overweight, physical inactivity, inappropriate nutrition

The role of the Plan of Action is to underpin the Western Pacific Region Diabetes Declaration by outlining strategic directions to encourage and guide the development, implementation and monitoring of effective, integrated regional, national and local diabetes prevention and care programmes over the next 5 years.

History and progress to date

The WP Declaration on Diabetes and Plan of Action are an initiative of the IDF/WPR and the WHO/WPRO who have formed a strategic alliance to establish a regional movement to address, and encourage and support all countries in the Region to join them in addressing the crippling and ever increasing burden of diabetes among the peoples of the Western Pacific.

The concept of a WP Declaration on Diabetes was initially raised by New Zealand, a member association of IDF/WPR and considered formally in Singapore during the 1998 IDF/WPR Regional Council meeting. The WHO/WPRO responded enthusiastically to the invitation to collaborate in this initiative. Spurred by the 1989 World Health Assembly call for all countries to develop national diabetes plans, and encouraged by the success of the European St Vincent Declaration (1989) and the Declaration of the Americas (1996), the two organizations have since worked in partnership to lay the groundwork to make the concept of a WP Declaration on Diabetes and Plan of Action a reality. This work has involved a 'Call to Action' on diabetes in the Asia Pacific Region made jointly by IDF/WPR, WHO/WPRO, and participants at the 1999 IDF/WPR Regional Congress in Sydney, and the development of an eight point WP Declaration on Diabetes and supporting background paper.

The IDF/WPR and WHO/WPRO are sharing responsibility for development of the WP Declaration on Diabetes and Plan of Action and co-hosted a preparatory meeting in Hong Kong, 15-16 March 2000 involving representation from the SPC, WHO Collaborating Centres and other key interests including potential industry partners. This meeting revised the Declaration and identified a framework and essential components of a plan of action for implementing the strategies identified by the Declaration. With Malaysia as the host country, a further joint WHO/WPRO/IDF/WPR meeting was held 2-4 June 2000 in Kuala Lumpur in collaboration with the SPC. This meeting, attended by a range of partners, potential partners and key stakeholders from within and outside the Region endorsed the Declaration and Plan of Action. Subsequent consultation and negotiations will be undertaken by WHO/WPRO, IDF/WPR, and the SPC collectively and with individual governments and health ministers, and with other potential partners and allies.

Whilst excellent progress is being made in many countries in the battle to contain diabetes and cardiovascular disease, much work remains to be done particularly in the areas of prevention, organization and consistency of care, socially equitable access to care, and integration. The success of the WP Declaration on Diabetes and Plan of Action will ultimately depend on the willingness of all countries, government and nongovernmental agencies, regional and national organizations, corporate partners, communities, and other stakeholders to commit their hearts, minds, and appropriate resources to this cause. Given the epidemic and growing proportions of diabetes in the WPR, for humanitarian reasons alone if not for economic reasons, this is a ‘Call to Action’ which should not be ignored.

Responding to the ‘Call to Action’ described in the WP Declaration on Diabetes will require some fundamental rethinking and revision of the status quo including:

- government level review of current health care needs and how these needs are met within countries and a preparedness to refocus and integrate health services to meet identified needs;
- government, and government-led intersectoral initiatives to encourage healthy lifestyle;
- a cohesive effort on the part of diabetes consumer and professional organizations to mobilize national diabetes organizations to work and lobby for appropriate recognition and prioritization of diabetes as a personal and public health problem;
- in countries which do not already have national diabetes associations, the nurturing and establishment of national diabetes organizations in the regional diabetes network; and
- the establishment of regional mechanisms for encouraging, supporting and facilitating communication, technical, clinical, scientific and organizational improvements to diabetes care as required across the Region.

Section 1:



The Framework

Mission

The purpose of the WP Declaration on Diabetes and Plan of Action is to assist people with or at risk of diabetes to lead full, productive lives and to approximate the health outcomes and life expectancy of people who do not have diabetes and are not at risk of diabetes. Its mission is:

Better health outcomes through better care and healthier environments for people with or at risk of diabetes

Vision

This vision statement outlines an ideal environment for reducing the public and personal burden of diabetes and urges all concerned to work towards a Region where:

- Governments, non-governmental organizations, health professionals, the media, and communities are aware of diabetes as a major public and personal health threat and work together to address the problem
- Diabetes has priority status on the national health agenda of all relevant countries in the Region and this is reflected in national action plans designed to address locally prioritized prevention and care issues
- Policy, planning, and services are based on representative information obtained from systematic monitoring of the incidence and prevalence, cost and clinical outcomes of diabetes prevention and care
- Strong partnerships and strategic alliances within and between government and nongovernmental agencies, professional and consumer organizations, industry and business underpin comprehensive and consistent approaches to health and related social policy and programmes

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- Integrated primary and specialist services and links between chronic disease programmes promote optimal clinical effectiveness and efficiency to provide the people of the Region with truly ‘seamless’ diabetes and related prevention and care
 - People with diabetes have access to clinical care, diabetes education and health care supplies appropriate to their age, type and stage of diabetes, and individual needs as a child or adult, regardless of their geographical, cultural, or socio-economic status
 - The development of diabetes is delayed, where possible, through community health education and environments where healthy lifestyle choices are a realistic option
 - New research aimed at addressing currently unresolved diabetes prevention and care problems is encouraged and the results of existing evidence for prevention and care is applied in routine practice

Goals

Goal 1: Primary prevention

Prevent or delay the onset of diabetes in susceptible communities and individuals

Goal 2: Secondary prevention

Prevent or delay the development and progression of diabetes complications

Goal 3: Systems

Strengthen the capacity of national health systems to deliver and monitor equitable, affordable and effective services for the prevention and care of diabetes and its complications

Overarching strategies

The preparatory meeting for the WP Declaration on Diabetes and Plan of Action (Hong Kong, March 2000) identified three broad overarching strategies which should underpin all activities aimed at achieving diabetes and related health improvement. They are:

- Action based on evidence

There is conclusive evidence that adherence to certain practices and processes of care significantly reduces complications, and costs, and improves quality of life in people with diabetes. There is increasing evidence for the effectiveness of preventative strategies. Action based on evidence is advocated to guide and maximize the use of human and material resources.

- Integration

Addressing common risk factors for diabetes and related NCDs across the continuum of care and between primary and specialist care is strongly recommended as a means of optimizing efficiency and effectiveness and providing comprehensive and coordinated health promotion and clinical care services

- Information and community education

Information is vital to achieving optimal outcomes and requires the collection and use of clinical and service data to evaluate the effectiveness of prevention and care activities and guide decisions about policy and resource allocation; an informed health workforce; informed individuals with diabetes; communities that are educated to optimize their potential for good health

- Capacity building - making the available mechanism work better

Even the least sophisticated health systems have the raw materials for improving diabetes outcomes by strengthening the capacity of primary care through training, support, and re-organizing services to deliver the best possible quality of care

Implementation principles

The setting out of principles to focus attention on the attitudes and approaches most likely to result in successful implementation is an important aspect of the Plan. They include:

- A spirit of collaboration - getting the job done together

Dr Omi, Regional Director of the WHO WPRO, subtitled his August 1999 policy document (*WHO in the Western Pacific Region: a framework for action*) "Let's get the job done together". The WPR is geographically huge, and culturally and politico-socio-economically diverse. Barriers imposed by the size and diversity of the Region can only be fully overcome by a spirit of generosity, open communication, and collaboration within and between all countries and all partners... *Let's get the job done together.*

- An intersectoral approach

Involve all aspects of government (ie, health, education, agriculture, fisheries, taxation, central planning etc), nongovernment agencies, industry, business and the community in implementing the Plan. Ill health does not occur in isolation but is intimately related to socio-economic circumstances, education, and physical and social environments. The Plan urges an intersectoral approach.

- Access and equity

Access to affordable health care and supplies is a fundamental human entitlement. In countries with scarce financial resources, innovation, prioritization, and refocusing of services is required to achieve best value for money and ensure geographically accessible and socially equitable health care for the whole population, not just the privileged.

- Focusing on results

The aim of all public health and clinical care activity is to improve physical and psychosocial health outcomes, and reduce suffering. A result-oriented focus centers on

milestones and output which indicate progress in the desired direction and attempts to identify and adopt processes which lead to the best outcomes.

- A family orientation

The successful management of Type 1 diabetes, especially in the young, requires the family to exercise considerable knowledge, skills, and vigilance. Families of people with Type 2 diabetes are automatically at risk of diabetes either by virtue of their close blood relationship and/or because of shared lifestyle related risk factors. A family familiar in diabetes care and education has potential to maximize the value of family as a ready made and underutilized health resource.

- A top down - bottom up approach

Centralized action cannot be fully effective unless it takes account of local needs, priorities and feedback. The effect of local action is enhanced by informed central planning, coordination and support. Combining a top down-bottom up approach can assist in achieving the best possible results.

Focus of the Document

Regardless of cultural context or level of available resources and technology, all health systems are essentially composed of people with health care needs, health care providers, places or facilities from which care is provided, and health care policy and programmes. By *making whatever is there work better*, all countries can achieve improved health outcomes for diabetes and related NCDs by focusing on:

▼
People

Communities and individuals with or at risk of diabetes and their families and carers are the primary focus of the Plan. Their needs for healthier environments, awareness of health risks and how to reduce them, access to specific and affordable health care and supplies, and education for people with identified health problems such as diabetes is paramount

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Providers

An aware, skilled and well informed workforce is the most valuable asset of any health system and is a highly effective weapon against diabetes. Enhancing the capacity of medical and non-medical health professionals and health workers and other 'providers' such as funders, insurers, health departments, non government organizations, pharmaceutical industry, community groups has unlimited potential to achieve and sustain improvements to diabetes care and outcomes

▼
Places

Health facilities are ‘places’ from which prevention and health care services are provided. They may be major tertiary hospitals or small village health centres. Increasing the capacity of ‘places’ to deliver a consistent, appropriate and timely quality of diabetes care and education at the local level is central to improving access to better care

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Policy and Programmes

Relevant, integrated, intersectoral policy and programmes covering the continuum of care and which are evidence based and focused on outcomes form the critical foundation from which service provision can achieve its full potential for meeting the needs of communities and people with or at risk of diabetes

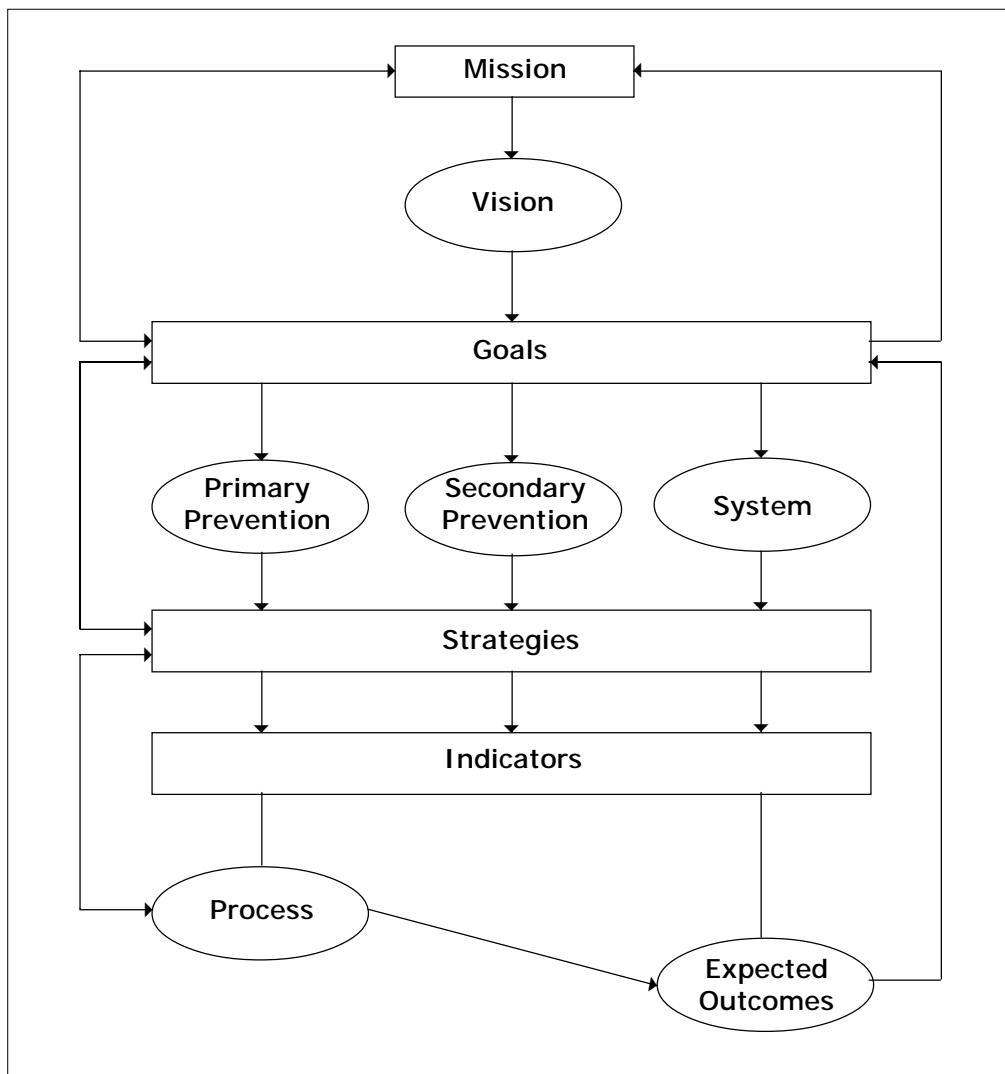
Key Elements of the Framework

The key elements of the framework are illustrated in Figure 1. The Mission and Vision reflect the spirit and components of the WP Declaration on Diabetes. To focus attention on what needs to be achieved, there are three broad goals covering primary and secondary prevention and the systems which support them.

In Section 3 of the document the goals are further broken down into objectives or ‘mini goals’. Also in this Section, key strategies and regional and country process indicators are linked to the goals.

An expected outcome is identified for each goal. The expected outcomes are regional outcomes against which progress towards achievement of each goal can be measured.

Figure 1: Key elements of the Framework



Section 2:

The Rationale for Intervening

Profile of the Western Pacific Region

For the purposes of this document, the Western Pacific Region is defined as the 37 countries and areas which make up the WHO/WPR plus two additional countries (Indonesia and Thailand) with diabetes associations which are members of the IDF/WPR. A total of 16 diabetes associations are members of the IDF, and 22 Pacific island countries and territories in the Region are member states of the Secretariat of the Pacific Community (SPC). These 39 countries and areas are listed in Table 1, and the overlap between the three organizations is illustrated in Figure 2.

The countries of the WPR represent the full spectrum of stages of industrialization. Relatively few have fully completed the transition, many are in varying stages of development, and some have barely begun the journey. Many countries in the Region are caught between unacceptably high levels of the infectious diseases which have historically affected less developed societies and rapidly increasing chronic diseases of the developed western world such as diabetes, cardiovascular disease, cancer and asthma. Rapid westernization and the concomitant disruption of traditional religious, cultural, social and family structures and support system has also brought an increased burden of mental illness. Even in countries which currently have relatively low diabetes prevalence there are early signs that rapid urbanization will exponentially increase the prevalence of diabetes and related NCDs.

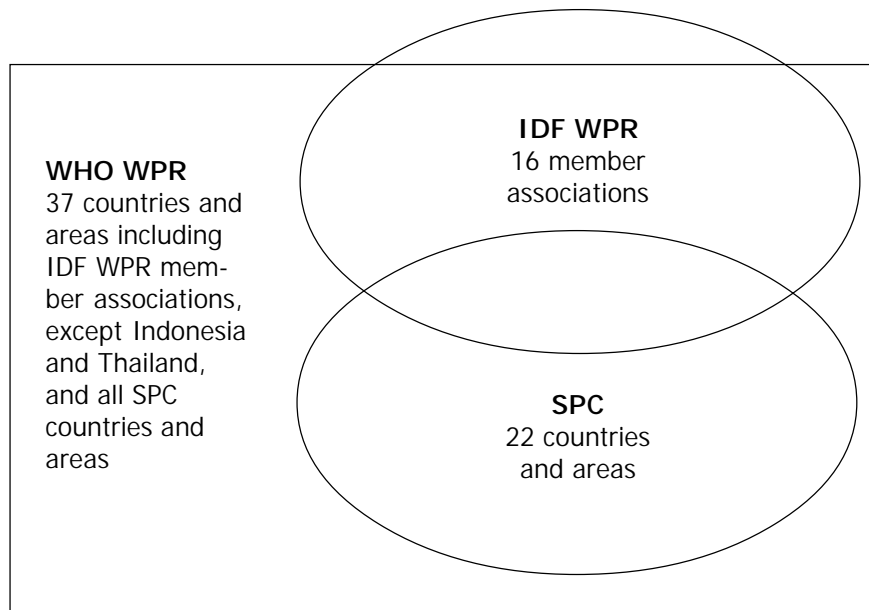
Political and health care systems and contexts, ethnic composition, socio-cultural norms, and economic models and resources vary enormously across the Region. In many countries low literacy and poverty impact severely on the ability of individuals to understand and afford requirements for successful self care, and to access health services. Universal health insurance is uncommon and the cost burden on families affected by diabetes is high. For those who live in poverty and social and educational disadvantage, diabetes is often a low priority in the daily struggle to survive.

Table 1: WHO and SPC Member States and IDF Member Associations included in the Western Pacific Region

WHO Member States	IDF Member Associations	SPC Pacific Island Member Countries
American Samoa Australia Brunei Darussalam Cambodia China (People's Republic of) Cook Islands Fiji French Polynesia Guam Hong Kong, China Japan Kiribati Lao People's Democratic Republic Macao, China Malaysia Marshall Islands Micronesia, Federated States of Mongolia Nauru New Caledonia New Zealand Niue Northern Mariana Islands Palau (Republic of) Papua New Guinea Philippines Pitcairn Island Republic of Korea Samoa Singapore Solomon Islands Tokelau Tonga Tuvalu Vanuatu Viet Nam Wallis and Futuna	Australia China (People's Republic of) Fiji Hong Kong, China Indonesia Japan Korea (Republic of) Macao, China Malaysia New Zealand Papua New Guinea Philippines Singapore Chinese Taipei Thailand Tonga	American Samoa Cook Islands Fiji French Polynesia Guam Kiribati Marshall Islands Micronesia, Federated States of Nauru New Caledonia Niue Northern Mariana Islands Palau (Republic of) Papua New Guinea Pitcairn Islands Samoa Solomon Islands Tokelau Tonga Tuvalu Vanuatu Wallis and Futuna

Few countries have national diabetes plans and many do not have highly developed specialist diabetes and related services and have little means of training and supporting primary health care workers to provide the required levels and quality of diabetes care. Nonetheless, all countries in the Region have basic healthcare structures such as hospitals and community or village health centres, and doctors, nurses, pharmacists, midwives, and semi-skilled health workers. It is this workforce, particularly primary care, which should be the focus of efforts to improve the quality and accessibility of primary and secondary prevention of diabetes.

Figure 2: WPR countries/areas and organizations



Burden of Diabetes in the Region

Prevalence

Globally, there were an estimated 135 million people with diabetes in 1995 with a projected increase to 300 million by 2025. The greater majority of this increase is expected to occur in developing countries. The *Regional Plan for Integrated Prevention and Control of Cardiovascular Diseases and Diabetes for the Western Pacific Region 1998-2003* (WHO,1998a) states that there are over 30 million people in the Region with diabetes and predicts that these alarming numbers may double by the year 2025 with a potential 38 million people in China alone, and a further 9 million in Japan. In addition:

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- cardiovascular diseases are a leading cause of death in 32 of the 37 WHO countries and areas in the WPR accounting for approximately 3 million deaths each year (WHO, 1999b)
 - the prevalence of hypertension, a contributor to stroke and heart and renal failure, exceeds 10% in 19 countries (WHO, 1999b)

The prevalence of diabetes in adult populations, exceeds 8% in 12 WPR countries and areas. In 1993, the prevalence of diabetes was 8.2% in urban, 6.7 % in rural areas in Malaysia; 8.9% in the adult population in Singapore and 10.9% in the adult population of Japan. In some Pacific islands and Australian aboriginal communities prevalence rates exceed 20%, for example, 28.1% in the adult population of Nauru in 1994. Increasingly sedentary lifestyles, increasing obesity and aging populations are a feature of at least some sectors of all societies in the Region. As a result, not only is the overall prevalence of Type 2 diabetes rising rapidly, but increasing numbers of young people are being affected, including children and adolescents.

Risk Factors for Diabetes

Risk factors for Type 2 diabetes are increasing across the WPR. Although most of the major studies linking diabetes risk to physical inactivity have been conducted in caucasians, several studies among Fijian Indians, Micronesians, Polynesians and Mauritians suggest that the relationship of exercise to the development of Type 2 diabetes is likely to be consistent across different ethnic populations. Overweight and obesity in the WPR is increasing (WHO, 2000) and the increasing prevalence of hypertension and cardiovascular disease in the WPR are of central importance as these conditions are implicated in the development of Type 2 diabetes.

Undiagnosed Diabetes

Preliminary findings from the current Australian national diabetes prevalence survey, AUSDIAB, confirm that in people aged 25 years or older, there is one undiagnosed for every diagnosed person with Type 2 diabetes (Zimmet et al, personal communication, 1999). In many non caucasian populations, especially in the younger age groups,

the rate of undiagnosed to diagnosed diabetes is even higher (Dowse et al, 1990). These observations are supported by reports from China, Hong Kong, Japan and Singapore.

Complications

Short term complications

The short term complications of diabetes usually result from delayed diagnosis, lack of or inappropriate treatment, or acute intercurrent illness or infection and may be life threatening and are likely to be common in the WPR. With careful overall management and specific patient and carer education to recognize early warning signs and initiate treatment or seek professionals help, these complications can be minimized. Short term complications include:

- ketoacidosis
- hypoglycaemia
- hyperosmolar coma
- infections, eg pneumonia, tuberculosis

Long term complications

Long term complications of diabetes account for the major proportion of both its personal and public health costs. Because of the role of chronic hyperglycaemia in the development of complications, people with Type 1 diabetes and Type 2 diabetes are equally susceptible to:

- large vessel disease such as heart disease, stroke
- foot ulceration, gangrene and lower limb amputation
- renal failure
- visual impairment and blindness
- erectile dysfunction and other manifestations of neuropathy

Heart diseases and stroke account for 75% of all deaths among people with diabetes in developed countries. The risk of death for those conditions is increased about three-fold in the presence of

diabetes. Although heart disease is increasing among Asian populations, in many Asian countries stroke and renal failure are currently rated as the commonest cause of death in people with diabetes. In the WPR, diabetes is listed among the highest 10 causes of death in several countries (WHO, 1998b). Several additional countries rate endocrine and nutritional disorders, which would undoubtedly include a high diabetes component, among the 10 most common causes of death and diabetes would also be a strong contributing factor in the many countries which list cardiovascular diseases as a common cause of mortality.

In many developing countries, diabetic foot sepsis is the commonest reason for lower limb amputation. In developed countries, diabetes is second only to traumatic amputation from motor cycle, car and industrial accidents as a cause of amputation. The technology and other resources for making limb prostheses available to amputees are not available in many countries, making amputation a sentence to be housebound and completely dependent on others for even the most minor forms of mobility.

With regard to microvascular disease, diabetic retinopathy is the leading cause of blindness and visual disability in adults over 60 years in most economically developed societies. After 15 years of diabetes, approximately 2% of people become blind while 10% develop severe visual handicap.

Diabetic nephropathy is the commonest or second commonest cause of end stage renal failure, but its frequency varies between population and is related to the severity and duration of the disease. By the age of 50, about 40% of people with Type 1 diabetes develop severe kidney disease that may require dialysis and/or a kidney transplant.

Diabetes in pregnancy may give rise to several adverse outcomes, including congenital malformations, increased birth weight and an elevated risk of prenatal mortality.

Diabetes complication rates are available for some countries in the Region (Amos et al, 1997). Approximately 35% of people with diabetes in the Region have retinopathy, 20% diabetic nephropathy (with rates of 40% in the Pacific islands), neuropathy 25%, peripheral vascular disease 10% and variable rates of amputations ranging from 1% in the Asian part of the Region to 7% in the Pacific Islands.

The Cost of Diabetes

Studies from some developed countries indicate that 5%-10% of the total health care budget can be attributed to the care of diabetes and its complications. For example, in Australia, at least US\$720 million was spent on diabetes health care in 1995 compared with US\$550 million in 1990. It is projected that by 2010 these costs will rise by approximately 50%. In New Zealand, 5% of the health budget is spent on direct diabetes care and a further 5% on diabetes-related disability allowances making 10% in all. In Japan, the direct cost of diabetes to the health care sector is about US\$16.94 billion and accounted for 6% of total health budget in 1998. It is clear that people with diabetes consume a greater proportion of health care costs than people without diabetes. This is primarily due to the cost of complications but includes the ongoing requirement for medications, supplies, laboratory assessments, and relatively frequent visits to health professionals. Diabetes Health Economics (IDF, 1999) illustrates the key components and contributors to diabetes care costs and presents a framework for exploring costing issues.

Comprehensive, detailed information on the direct and indirect cost of diabetes in the WPR is not readily available. However, international data indicate that the costs are considerably higher than for people without diabetes. Some examples are:

- 4% of the population with diagnosed diabetes accounted for 12% of the total health care expenditure (Rubin et al, 1994)
- 1.4% of people with identified diabetes accounted for 5.5% of hospital admissions and 6.4% of outpatient attendances (Currie et al, 1997)
- health care costs for people with diabetes were 2.4 times higher than for nondiabetic subjects (Selby et al, 1997)
- poor diabetes control leads to increased health care costs eg costs for the adult diabetic members of a health maintenance organization increased progressively over a three year period by 5%, 11%, 21%, and 36% respectively for each 1% increase in glycated haemoglobin (HbA_{1c}) from 6-10%. The same study found that decreasing HbA_{1c} led to a decrease in the subsequent cost of care (Gilmer et al 1997)

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- disability was three times higher in diabetic men over 40 and twice as high in women over 50 compared to age matched non diabetic men and women (Olsson et al, 1994).
 - even in the preclinical phase leading up to Type 2 diabetes health care costs are increased eg people who develop diabetes access health services more frequently and incur significantly greater health care costs during their preclinical phase than their counterparts who do not develop diabetes (Brown et al, 1999).

The prediction that the greatest rise in the number of people with diabetes in developing countries will occur in the productive years between 20-64 has substantial implications for the WPR with regard to indirect diabetes costs as well the increased demands on health services.

Social Impact of Diabetes

The impact of early mortality and morbidity from diabetes on productivity, and financial and social cost to the community are immense. The role and position of men as providers of family resources and women as family carers can be severely affected by diabetes complications. Public provision of disability and palliative care is non-existent in many developing countries causing additional financial, physical, and emotional strain on families, particularly the women.

Personal Impact of Diabetes

For the individual, the impact of a diagnosis of diabetes has substantial social and lifestyle implications including the planning and timing of meals, frequent self-measurement of blood glucose, the administration of insulin or oral medications, adjustments and precautions for physical activity, and avoidance of short term complications such as hypoglycaemic episodes. An ordinary intercurrent infection or illness such as vomiting and diarrhoea can

become life threatening to a person with diabetes and the threat of long-term complications is ever present. Quality of life and personal confidence are inevitably compromised by:

- concerns about obtaining/affording regular, adequate supplies of essential medications
- lack of sufficient information on which to base self care decisions
- difficulties in accessing appropriate health care services
- additional costs incurred for medical care
- requiring time away from work for medical visits
- public and provider misconceptions about causes ('self inflicted', 'by eating too much sugar'), and different causes and treatment for Type 1 diabetes and Type 2 diabetes
- deciding 'who to tell' about having diabetes, eg, family, friends, co-workers, employers
- feelings of loss of control and embarrassment associated with 'hypos'
- social stigma and potential or real disadvantage in the workplace, in marriage prospects, sporting and social situations, and the misconception that diabetes is 'catching'
- inflexible self care requirements eg self injecting, having to eat at regular intervals

The Rationale for Intervening

If not halted, the epidemic increases in the incidence of diabetes over the next decade or two will render even the best resourced health systems unable to meet future demands unless primary and secondary prevention measures are systematically and promptly applied. There is a sound rationale for intervening:

- the health and cost burden of diabetes is high

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- there is increasing evidence for the effectiveness of activities which reduce obesity, increase physical activity, and improve the quality and appropriateness of dietary intake in preventing or delaying the onset of Type 2 diabetes
 - people with diabetes who receive a high quality of diabetes care appropriate to their needs and who adhere to recommendations for self-care and the adoption of healthy lifestyles can live full, active, independent lives with minimal complications and general health outcomes approximating those of people without diabetes
 - diabetes is relatively easy to diagnose and has distinct stages across the disease process where successful intervention is possible (Table 2)
 - safe interventions based on evidence of effectiveness are available
 - there is conclusive evidence that diabetes is amenable to these interventions
 - these interventions do not require high technology, high cost equipment and, with adequate training of the health workforce, most aspects of diabetes prevention and care can be successfully managed in primary care.
 - the benefits of intervening include significant reduction of personal suffering and direct and indirect health care costs

Examples of Successful Intervention

Primary prevention

The most striking example of primary prevention is illustrated in the DaQing study (Pan et al, 1997) which showed a 46% decrease in progression from IGT to diabetes over a six year period as a result of a programme of dietary modification and increased physical activity, and consequent reduction of weight, supported by a continuous education programme .

Diabetes management - secondary prevention

The discovery and initial use of insulin in the early 1920s is undoubtedly among the most exciting and dramatic developments in the history of medicine and it is well to remember that if deprived of this life saving medication people with Type 1 diabetes will die. Subsequent developments in laboratory assessment of glycaemic and other parameters of metabolic control, and self blood glucose measurement, have afforded reliable bases for adjusting therapy. In recent years, several landmark studies have provided benchmarks and irrefutable proof of the success of secondary care interventions in reducing diabetes related complications.

1. *The Diabetes Control and Complications Trial Research Group* (DCCT, 1993) clearly illustrated a significant reduction in microvascular complications for people with Type 1 diabetes. In people without retinopathy, intensive therapy reduced the risk of developing microvascular complications by 65% compared with conventional therapy and in people with retinopathy, complications were reduced by approximately 50%.
2. *The Kumamoto Study* showed a similar reduction in microvascular complications with intensive therapy in Japanese people with Type 2 diabetes (Ohkubo et al, 1995).
3. *The United Kingdom Prospective Diabetes Study* (UKPDS 33, 1998), a randomized study in 5102 people with newly diagnosed Type 2 diabetes, demonstrated a 25% reduction in microvascular complications with comprehensive intensive management compared to conventional treatment.
4. *Reducing Blindness.* In Stockholm County, Sweden, blindness has been reduced by one third over a 5 year period by a programme of routine screening for diabetes eye disease and treatment of people found to have retinopathy (Backlund et al, 1997).
5. *Reducing amputations and foot ulcers.* Several studies demonstrate the success of screening and education programmes, and specialist foot clinics in reducing amputation rates and foot ulcers by 30-65% (Edmonds et al, 1986; Larson et al, 1995; Carrington et al, 1996).

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6. *Early Detection of Type 2 diabetes.* People with Type 2 diabetes detected through a screening programme have fewer diabetes complications. Treatment commenced at this stage should result in better outcomes and less long term complications.
 7. *Management of other risks factors.* The UKPDS and other studies such as the HOT Study have also emphasized the importance of treating coexisting hypertension. In addition lipid-lowering trials such as 4S and CARE have shown that the benefit of treating hyperlipidaemia may be greater in people with diabetes compared to those without. These issues appear particularly important in the prevention of macrovascular complications such as stroke and heart disease.
 8. *Patient education.* Education is clearly integral to the successful management of diabetes. Patient education and dietary advice were a core component of intensive therapy in the DCCT and early studies on diabetes education illustrated its potential in reducing amputation (Miller and Goldstein, 1972). There are many subsequent studies confirming the role of education in promoting more effective self care and reducing the number and duration of diabetes related hospital admissions.

Key Intervention Points

Key intervention points for diabetes were identified in the Australian National Diabetes Strategy and Implementation Plan (Colagiuri et al, 1998). These stages include:

- no diabetes
- pre diabetes
- at diagnosis
- diabetes with no complications
- diabetes with complications

Table 2 highlights the various stages of the disease process at which diabetes is amenable to primary and secondary preventative strategies and suggests the types of services required to adequately address the particular requirements of each stage. The success of certain interventions across these stages is well documented and a number of current consensus and evidence based guidelines describe recommended processes, care standards, and targets to assist clinical decision making. The availability of the laboratory assessments and pharmacological therapies recommended in such guidelines may vary from country to country. However, even in the absence of certain resources, these guidelines provide a valuable tool which can be adapted by local content and public health experts to form relevant local policies and clinical protocols.

Table 2: Key intervention points and associated action required

KEY INTERVENTION POINTS	ACTION - KEY TASKS
No diabetes*	<ul style="list-style-type: none"> • Prevent the healthy population from developing risk factors • Increase public awareness of risk factors, the significance of risk factors, and risk reduction strategies
Pre diabetes	<ul style="list-style-type: none"> • Reduce risk factors in the 'at risk' population * • Support goal directed research into causes and preventative interventions
Undiagnosed diabetes*	<ul style="list-style-type: none"> • Increase public awareness of symptoms, risk factors and where to go for screening • Implement programmes for: <ul style="list-style-type: none"> - active identification and screening of people with risk factors - opportunistic screening of people with risk factors - population screening for high-risk groups
Known diabetes <ul style="list-style-type: none"> • At diagnosis • Established uncomplicated diabetes • Diabetes with complications 	<ul style="list-style-type: none"> • Provide services for: <ul style="list-style-type: none"> - clinical care according to guidelines - education in self-care - information about recommendations for clinical care • Provide services for: <ul style="list-style-type: none"> - routine monitoring of diabetic and general health status - regular screening for complications - management of problems as they arise - reinforcement of self-care education - affordable therapies and supplies • Implement programmes for: <ul style="list-style-type: none"> - identification and reduction of risks for diabetes complications - self-care education and psychosocial support • Support goal directed research aimed at curing diabetes • Provide services for: <ul style="list-style-type: none"> - prevention of the progression of complications - self-care education and psychosocial support - rehabilitation of people with disabilities - palliation for people with end stage complications • Support goal directed research aimed at the reversal of complications

* Until modifiable risk factors are identifiable and effective interventions available, these interventions cannot be applied to Type 1 diabetes

Adapted from the Australian *National Diabetes Strategy and Implementation Plan, 1998*

Section 3:

From Goals to Results

GOALS

The goals of the WPR Diabetes Plan of action cover primary prevention, secondary prevention or the management and care of diagnosed diabetes and its complications, and systems which support the delivery of primary prevention and health care services. They are to:

1. Prevent or delay the onset of diabetes in susceptible communities and individuals
2. Prevent or delay the development and progression of diabetes complications
3. Strengthen the capacity of national health systems to deliver and monitor equitable, affordable and effective services for the prevention and care of diabetes and its complications

It should be noted that these goals are of equivalent importance in addressing the burden of diabetes in the WPR. However, given the current prevalence of diabetes and the stronger evidence for the known effectiveness of clinical processes and self care education as secondary prevention measures, particular attention to improving the health outcomes of those already diagnosed with diabetes may be warranted. Nonetheless, primary prevention activities are vital if the predicted increases in diabetes are to be reduced, and significant health gain in either primary prevention or the management of diabetes is unlikely to be achieved and sustained unless the planning, organization, delivery systems and monitoring of prevention and care interventions is improved.

It also needs to be recognized that the burden imposed by diabetes complications will continue to increase in the short term, and will probably accelerate further, even if prevention measures are successful. Thus delivery of care at the tertiary level cannot be neglected and requires continued emphasis

Goal 1: Primary Prevention

Prevent or delay the onset of diabetes in susceptible communities and individuals

The feasibility of this goal is supported by increasingly convincing evidence of effective intervention in people with identified risk factors for diabetes. One widely recognized example is the Da Qing study (Pan et al, 1997).

Objectives

- Reduce the prevalence of modifiable risk factors for Type 2 diabetes.

Key Strategies

- Develop and implement national diabetes plans or integrated NCD prevention plans in which diabetes is identified as a priority component. Processes for implementation should include:
 - identifying what is in place and undertaking a national needs assessment
 - increasing public awareness of healthy lifestyle and behaviours, and risk factors and risk reduction strategies for Type 2 diabetes such as obesity, unhealthy nutrition and physical inactivity
 - adopting or adapting and implementing evidence based standards of integrated prevention with specific attention to community groups known to be at high risk of Type 2 diabetes and cardiovascular disease
- Train primary care workers (ie, primary care physicians, public health, community and maternal and child health nurses and dietitians, and all categories of skilled and semi skilled primary care health workers) in prevention principles

and practices and integrate primary care and public health preventative action

- Involve all relevant partners at regional, national and local levels in developing supportive public policies and creating health promoting environments

**Note: Prevention of Type 1 diabetes*
Although there are currently no sufficiently proven interventions on which strategies for the prevention of Type 1 diabetes can be based, it is recommended that:

- countries with adequate resources support research on prevention of Type 1 diabetes, and

- countries which do not have such resources make provision for implementing Type 1 diabetes prevention strategies as they become available

Regional Indicator

The proportion of countries in the Region developing and implementing programmes linked to a national primary prevention strategy focusing on diabetes and related NCD risk reduction

Country Indicators

- Evidence of recognition of the personal, public and economic burden of diabetes as a priority health issue
- The existence, and evidence of implementation, of national policy, strategies and programmes to prevent Type 2 diabetes and reduce diabetes and associated NCDs risk factors, eg, community awareness campaigns
- The encouragement of research and/or evaluation of interventions and service delivery methods and models to advance and apply knowledge about effective prevention and risk factor reduction for diabetes
- The national incidence and prevalence of Type 2 diabetes or evidence of progress towards establishing mechanisms to measure this

Expected Results by 2005

A significant majority (75%) of countries in the Region with active integrated prevention plans of which diabetes is a key component or demonstrating evidence of putting structures and processes in place to achieve this

Goal 2: Secondary Prevention

Prevent or delay the development and progression of diabetes complications

The DCCT (1994), UKPDS (1998), HOPE (2000), and many other studies demonstrate the now undeniable evidence that with appropriate management of diabetes this goal is eminently achievable.

Objectives:

1. Achieve earlier diagnosis of diabetes and earlier initiation of secondary prevention measures*
2. Improve the quality and effectiveness of clinical diabetes care, particularly at community and district level**
3. Improve the quality and effectiveness of the management of existing diabetes complications, ie, rehabilitation services and palliative care
4. Improve the quality and effectiveness of diabetes education

Key Strategies

* Note: Raised awareness and case finding for Type 2 diabetes

With increased community awareness and active case seeking by primary care workers, the incidence and prevalence of Type 2 diabetes will automatically increase in the short term before reducing in response to sustained prevention activity

**Note: Access to essential medications and supplies is discussed under Goal 3

- Implement recommended standards for the management of diabetes and associated risk factors including:
 - case detection, diagnosis and initial management
 - ongoing clinical care and patient education to prevent the development of complications
 - management of established complications, ie, amelioration, rehabilitation, palliation
- Target primary health care providers to enhance their awareness and knowledge of diabetes and its management

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- Inform, educate and develop enabling mechanisms to assist people with diabetes to participate actively in their health care and seek appropriate and timely diabetes care and education
 - Emphasize the role of dedicated diabetes centres and institutes in providing clinical leadership and expertise, and acting as a focal point for introducing and coordinating these strategies

Regional Indicators

- The proportion of countries in the Region developing and implementing national programmes and guidelines to improve the quality of diabetes care and reduce diabetes and related complications
- The proportion of countries with dedicated multidisciplinary diabetes centres functioning in a clinical and training expert leadership role

Country Indicators

- Evidence of adopting national guidelines and establishing best practice models on diabetes care or integrated NCD care, particularly in community and district health services
- The collection of information on clinical outcomes or evidence of progress toward the development and implementation of systems to monitor clinical outcomes of diabetes care including parameters such as:
 - the proportion of people with newly-diagnosed Type 2 diabetes with one or more diabetes complication/s at diagnosis
 - the incidence of:
 - blindness and severe visual impairment due to diabetes
 - end-stage renal failure due to diabetes

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- lower extremity amputations due to diabetes
 - cardiovascular disease in people with diabetes, or
 - surrogate outcomes such as HbA_{1c}, micro-albuminuria, retinal screening
 - the proportion of adverse outcomes of diabetic pregnancies compared to non-diabetic pregnancies
 - the number, reason and duration of hospital admissions for diabetes

Expected Results by 2005

A reduction in surrogate endpoints such as HbA_{1c} in flagship centres in at least 10% of countries

Goal 3: Systems

Strengthen the capacity of national health systems to deliver and monitor equitable, affordable and effective services for the prevention and care of diabetes

It is increasingly apparent that improving the quality and outcomes of prevention and health care is substantially dependent on the systems that underpin the delivery of prevention and care ie policy, planning, integration, coordination, communication, training, role delineation, and monitoring and evaluation. Recent reports on the evaluation of policy implementation and service models clearly demonstrate the benefits of well-organized systems.

Objectives

1. Develop and introduce national diabetes plans or integrated NCD control plans in which diabetes is identified as a priority component
2. Establish the baseline burden of diabetes and major NCD risk factors and monitor the effectiveness of interventions
3. Establish mechanisms for improving the planning and organization of diabetes prevention and care
4. Increase access to affordable, high quality health services, essential medications and supplies to meet the care requirements of people with diabetes
5. Resources permitting, undertake research to advance and apply knowledge about effective prevention, delivery of care, and management of diabetes

Key strategies

- Develop and apply systematic and consistent evidence based plans and strategies for diabetes and related NCDs

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- Develop and apply nationally-agreed integration principles and models for policy, planning, health promotion and education and service provision across the continuum of diabetes care and between related noncommunicable diseases
 - Adopt an integrated and intersectoral approach to refocusing health services on integrated chronic disease care at community and district levels
 - Collect relevant information on diabetes processes and outcomes and disseminate to service providers, planners and providers
 - Establish national and local mechanisms for improving the availability of essential diabetes and related medications and supplies
 - Build the capacity of primary health care and devolve routine aspects of care to community and district levels
 - Identify research priorities and training needs in order to develop and support a prioritized research agenda
 - Encourage and enhance the development of national diabetes associations or groups to represent the interests of people affected by diabetes and to act as advocates on their behalf

Regional Indicators

- The proportion of countries in the Region applying an organized and integrated approach to the planning and provision of diabetes prevention and care, and systematically monitoring and evaluating its effectiveness
- The proportion of countries in the Region with national diabetes associations
- The proportion of countries with active diabetes research programmes

Country Indicators

- The existence of national diabetes programmes and/or integrated NCD control programmes in which diabetes is identified as a priority component
- The existence of a national group with responsibility for overseeing, reporting and evaluating on implementation of such plans
- Evidence of intersectoral partnerships addressing diabetes prevention and care issues
- Evidence of integrated diabetes and related disease policy, planning and programmes
- Evidence of integration of diabetes and related NCD into national primary health care strategies
- Evidence of the collection of data to monitor the impact of intervention programmes (this may include endpoints such as amputation rates, surrogate outcomes such as HbA_{1c} levels within an acceptable range, or process outcomes such as services demonstrating adherence to recommended clinical practices and standards, or cost-effectiveness data)
- The availability and accessibility of essential medications and supplies
- The existence of an active national diabetes association with links to the regional diabetes network ie the IDF/WPR

Expected results by 2005

•30% of countries with active national diabetes plans or integrated health plans that are addressing and improving the planning, organization, integration, delivery and monitoring of diabetes prevention and care

•60% of countries with national diabetes associations

Section 4:

The Plan of Action

The Plan of Action

Putting the WP Declaration on Diabetes and Plan of Action into practice is a major undertaking requiring a concerted, cohesive and systematic approach throughout the Region. To facilitate this and aid communication and networking, an understanding of existing structures and infrastructures, who are the players, possible partners and allies, what are their potential roles, and who owns this initiative, is essential.

If an impact is to be made on the diabetes problem in the WPR, action is needed at all levels and it must be recognized that each level is equally important in contributing to reductions in the burden of diabetes and related disease. It is therefore useful to consider these levels separately whilst ensuring that communication and coordinating mechanisms are integral to implementation at all three levels

- the regional level
- the country level
- the local (within-country) level

The Regional Level

The WP Declaration on Diabetes and Plan of Action has been made by the member countries and areas of the Region and the member associations of the WHO/WPR, the IDF/WPR and the SPC and other partner organizations. However, for successful implementation it is vital that lead agencies are identified to take responsibility for driving action and involving and negotiating with other partners and collaborators.

As initiators of the Western Pacific Region Diabetes Declaration and the Plan of Action, the IDF/WPR and the WHO/WPRO will take joint responsibility for seeking endorsement and support for the Declaration and Plan of Action, encouraging the involvement of all 'owners' at an individual country/area level. This also includes a joint commitment to developing the most efficient mechanisms for coordination and monitoring of implementation at regional level.

This indicates a strong message of collaboration and the precedent of the IDF/WHO partnership in the European St Vincent Declaration and the Declaration of the Americas predicts a high rate of success for a similar approach in the WPR.

The SPC has agreed to collaborate closely with the IDF/WPR and WHO/WPR on working towards achievement of the goals

The most important partners are the countries and areas represented in the WPR. Other potential partners and allies may include consumer and professional associations, and international donor agencies, and pharmaceutical and food companies.

Action Required at the Regional Level

A number of critical actions are required at the regional level in order for the WP Declaration on Diabetes and Plan of Action to progress. These include:

- obtaining regional formal endorsement of the Declaration and Plan of Action
- involving and negotiating with partners and potential partners and disseminating information about the Declaration and Plan of Action
- establishing a regional coordinating body
- encouraging and supporting the efforts of individual countries
- seeking an appropriate level of funding to implement coordinate and monitor the progress of the Declaration and Plan of Action throughout the Region
- supporting the formation and functioning of national diabetes associations
- facilitating integration and linkages between complementary regional programmes
- implementing and monitoring the Declaration and Plan of Action

1. Obtaining Endorsement

Processes for endorsing the WP Declaration on Diabetes and Plan of Action

The IDF/WPR and the WHO/WPRO have identified processes and pathways to obtain the endorsement of regional stakeholders and other partners (Figure 3). A preparatory meeting was held in Hong Kong in March 2000 to review the Declaration, determine a framework and key components of the Plan and steps to be taken for wider consultation. A WHO/WPRO and IDF/WPR Joint Meeting also hosted a joint meeting in Kuala Lumpur, 2-4 June 2000, to inform and involve representatives from WHO, IDF, SPC, countries, industry and other organizations in finalizing and endorsing the WPR Declaration on Diabetes and Plan of Action. In September 2000, the WHO/WPRO Regional Committee meeting will consider the Declaration and Plan of Action which will later be presented to a meeting for Ministers and Directors of Health in March 2001 for support.

Figure 3: Processes for endorsing the WP Declaration on Diabetes and Plan of Action

August 1998	- WPR Declaration proposed by Diabetes New Zealand, IDF/WPR Regional Council meeting in Singapore (at which WHO was represented)
August 1999	- Call to Action IDF/WPR Congress, Sydney, Australia
March 2000	- Joint IDF/WPR and WHO/WPRO Preparatory Meeting, Hong Kong
June 2000	- Joint WHO/WPRO and IDF/WPR Meeting, Kuala Lumpur
September 2000	- WHO/WPRO Regional Committee Meeting
March 2001	- Pacific Health Ministers Meeting

2. Involving and Negotiating with Potential Partners

The SPC has been identified as a major partner and pharmaceutical companies are already assisting with the nurturing of company support. Additional partners will be sought through the combined efforts of IDF/WPR and WHO/WPRO under their joint banner as coordinators in implementing the WP Declaration on Diabetes and Plan of Action.

Potential partners to be approached should include:

- governments of countries comprising the WPR
- diabetes organizations involved in the WPR
- professional organizations
- international development and donor organizations
- industry (eg, pharmaceutical and food)

Potential partners will be:

- informed of the rationale and purpose of the Declaration and Plan and proposed pathways for its implementation
- invited to join the initiative
- invited to sign a formal agreement to participate if appropriate

3. Exploring Funding Opportunities

Significant gains can be made in the prevention and care of diabetes and its complications within existing resources, through the training of health professionals and re-organization of services. This is a matter of internal resource allocation and prioritization of needs at the country level. Expensive and high technology equipment only become an issue when dealing with advanced complications (eg. end-stage renal failure) and, in itself, this provides an additional argument for investing in prevention.

However, additional financial resources are required at both regional and country levels to support initial re-organization, the development and implementation of new models and monitoring systems, the development and dissemination of information, protocols and guidelines and appropriate structures to oversee them.

The IDF/WPR and the WHO/WPRO will assume joint responsibility for exploring funding opportunities with international donor agencies and other potential funding sources.

4. Establishing a Regional Co-ordinating Mechanism

Steering Committee

The establishment of a regional structure to coordinate the implementation of the WP Declaration on Diabetes and Plan of Action is vital to successful implementation.

During the joint WHO/WPRO and IDF/WPR meeting in Malaysia 2-4 June 2000, this concept was thoroughly endorsed and it was agreed to establish a provisional Steering Committee to undertake the initial and very important task of determining requirements for and the composition of a final organisational structure. Figure 4 illustrates the endorsed structure for the implementation of the WP Declaration on Diabetes and Plan of Action.

The Steering Committee will consist of representatives appointed by WHO/WPRO, IDF/WPR, and the SPC and is accountable to these organizations. Chairmanship of the Steering Committee would rotate between the primary partners on a two-yearly basis.

Secretariat

The IDF/WPR and WHO/WPRO will each maintain a Secretariat with specifically delegated functions which are jointly agreed by the organizations in question and the Steering Committee. Terms of reference for the Steering Committee would need to be developed and endorsed by WHO/WPRO and IDF/WPR.

International Advisory Group

To assist the Steering Committee with implementation, one suggestion for harnessing the experience of other major international diabetes initiatives is to appoint an International Advisory Group of senior, suitably-experienced individuals from relevant major organizations outside the WPR. This group would feed into the Steering Committee in an advisory capacity only and would not have executive powers.

Regional Coordinator

Consideration was also given to the need for a senior, suitably qualified and experienced individual to work under the direction of the Steering Committee to liaise between the regional and national levels on implementation, programme management, and reporting issues. This will be further considered by the Steering Committee in the light of available resources.

Key Working Groups

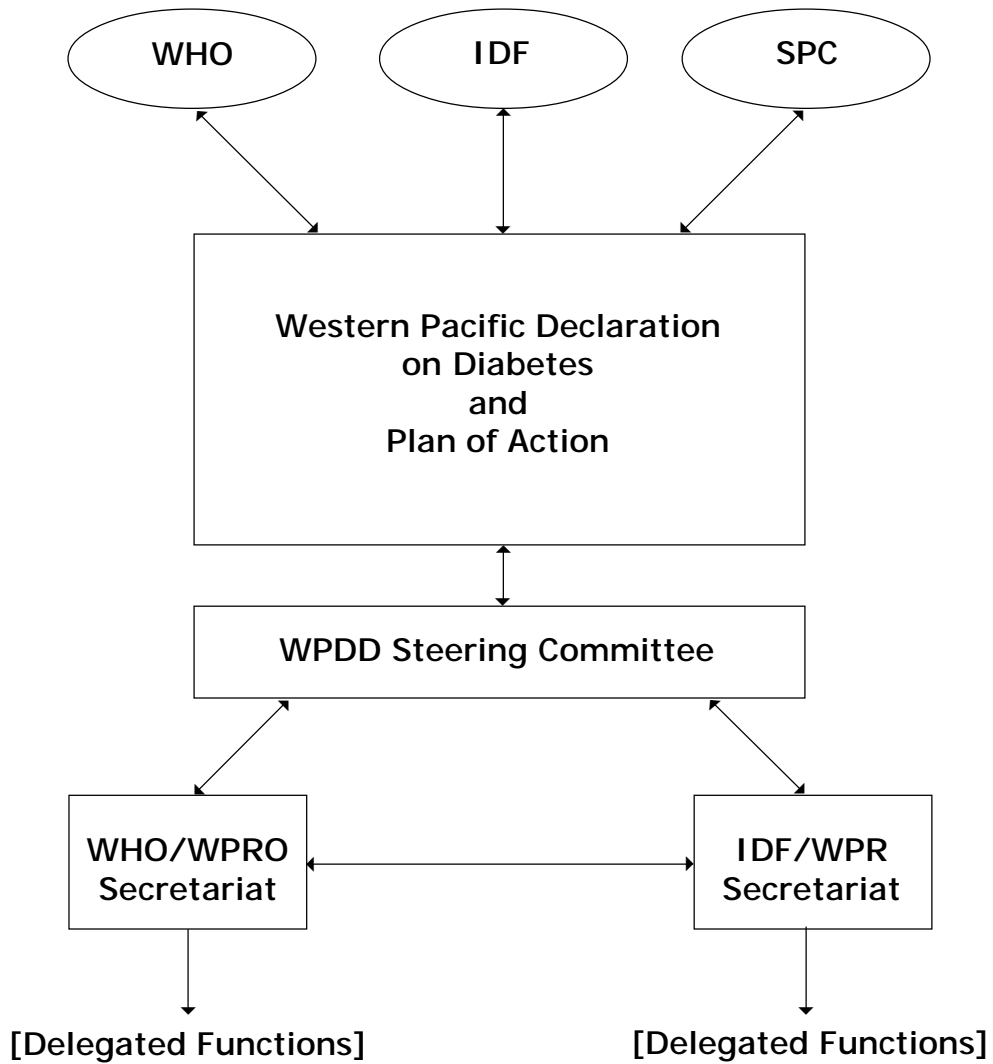
A principal and early task of the the Steering Committee should be the identification and appointment of key working groups or specific purpose subcommittees and the development of specific and finite terms of reference for them. Examples of working groups may include but not necessarily be limited to:

- a governance working group
- an implementation working group
- a finance working group and/or a fundraising working group

National - Regional Liaison

Ideally, each country should appoint an appropriately qualified and experienced person to take responsibility for country liaison as the key national contact with the regional structure. This may be an existing NCD or diabetes focal point or may be newly designated.

Figure 4: Endorsed structure for the implementation of the Western Pacific Declaration on Diabetes and Plan of Action



5. Supporting the Formation and Functioning of National Diabetes Associations

National diabetes associations are a vital means of providing organized advocacy for the needs of people with diabetes and for ensuring incorporation of their perspectives into health policy, planning, and service delivery.

Almost half of the countries and areas in the WPR have national diabetes organizations which are members of the regional diabetes network, the IDF/WPR. This link affords national diabetes associations with a voice in international diabetes affairs, access to information, peer support and a multiplicity of other benefits.

Part of the function of the WP Declaration on Diabetes coordinating body should be to assist and nurture the establishment and maintenance of national diabetes associations, particularly in developing countries where infrastructure and role models for such developments may be limited. One possible model for fostering the viability of national diabetes associations in developing countries might be the establishment of a 'twinning' or mentoring relationship between well-established national diabetes organizations and those which are developing or newly developed.

6. Facilitating Integration and Linkages Between Programmes

To make the best use of scarce resources and maximize the effectiveness of related primary prevention and care initiatives and their health benefits, integration and linkages between complementary programmes at the regional level is essential.

The IDF WPR and WHO/WPRO are currently working on a number of active or developing programmes, plans and guidelines including:

- Implementing Regional Plan for Integrated Prevention of Cardiovascular Diseases and Diabetes for the Western Pacific Region 1998-2003

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- The IDF/WHO WPR guidelines (second edition): *Type 2 diabetes: practical targets and treatments* published in August 1999.
 - WHO/WPRO guide *Development of Food-Based Dietary Guidelines for the Western Pacific Region* in collaboration with the International association on Nutrition published in September 1999
 - *Asian Pacific Perspectives: Redefining Obesity and its treatment* by IDF in collaboration with WHO/WPRO, International Obesity Task Force and the International Association for the Study of Obesity in February 2000.
 - An SPC/WHO report *Improving diabetes outcomes through structured information* during a joint SPC/WHO meeting in Canberra, April 1999
 - A simplified and standardized instrument for the conduct of national surveys for the NCD and associated risk factors by WHO review group on NCD surveillance in November 1999
 - National plans of action for nutrition (NPAN) developed, implemented and monitored since the adoption of strategies outlined during the International Conference on Nutrition in 1992. Linkages to diabetes can be made where strategies and activities for the control of overweight and subsequent prevention of nutrition related noncommunicable diseases are being outlined.
 - Healthy Cities and Healthy Islands programmes, and health-promoting communities seek to develop supportive environments for health using the special features of the settings, and involving the local authorities and communities in developing the solution. These projects hold strong promise for application to community-based prevention and control of diabetes
 - Regional Action Plan on Tobacco or Health 2000-2004. Tobacco is firmly associated with the causation of cardiovascular disease and tobacco control thus becomes an essential component of secondary prevention of diabetes

and its complications. The current global effort of the Tobacco-Free Initiative is to set up a Framework Convention for Tobacco Control, to study trends in youth smoking in the Global Youth Tobacco Survey, and to support non-smoking lifestyles through communication and life skills programmes

- The essential drugs programme provides a rational basis for drug procurement at national level as well as the establishment of drug requirements at various levels within the health care system, including diabetes drug
- Regional Internet Network for Diabetes and other NCDs

Networks

There are 16 diabetes associations which are members of the IDF/WPR. Thirty seven countries and areas are associated with the WHO/WPRO and 22 member states of the SPC in the WPR. There are a number of important regional and in country networks which provide ready made mechanisms to promote and support effective regional linkages and communication. For example, there are 11 WHO Collaborating Centres for diabetes and CVD, and national coordinating bodies or national focal points for prevention and control of NCDs have been appointed in 29 countries and areas.

Childhood diabetes and education

The IDF has Consultative Sections dealing with Childhood and Adolescent Diabetes and Diabetes Education. In conjunction with the IDF/WPR, these Consultative Sections maintain important active programmes in the Region, including:

- IDF Consultative Section on Childhood and Adolescent Diabetes
 - Regional Leadership Workshops and Needs Assessment
 - Sponsor a Child with Diabetes (in conjunction with ISPAD)

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- IDF Consultative Section on Diabetes Education
 - Regional Leadership Workshops and Needs Assessment

Models of community-based prevention and care

A regional demonstration project on community-based NCD intervention was initiated in 1999. This currently includes China, Fiji, and the Philippines, and will be extended to Tonga. The model in China covers 22 provinces and major cities which have integrated NCD prevention and control. Community-based diabetes control programmes are being promoted in China, Fiji, Micronesia, Tuvalu, Samoa and others. Several countries, including Australia, China, Malaysia, Singapore and Tonga, already have active national diabetes strategies.

7. Implementation

Following regional endorsement of the WP Declaration on Diabetes and Plan of Action and the establishment of a regional coordination body, initial implementation should include the following two broad streams (Figure 5):

- regional activities
- Encouragement of country activities

Regional activities

Regional activities will need to focus on obtaining financial, intellectual and ‘good will’ support for the Declaration and Plan. It should also include negotiation and activities with member countries and associations as well as assistance and advocacy for countries that wish to participate but do not have adequate means to do so. In addition, the Declaration and Plan should be a focal point of regional meetings and conferences.

Country activities

To encourage activity at an individual country level and identify the current status of diabetes and CVD efforts within countries around the WPR, the WHO/WPRO and IDF/WPR should jointly:

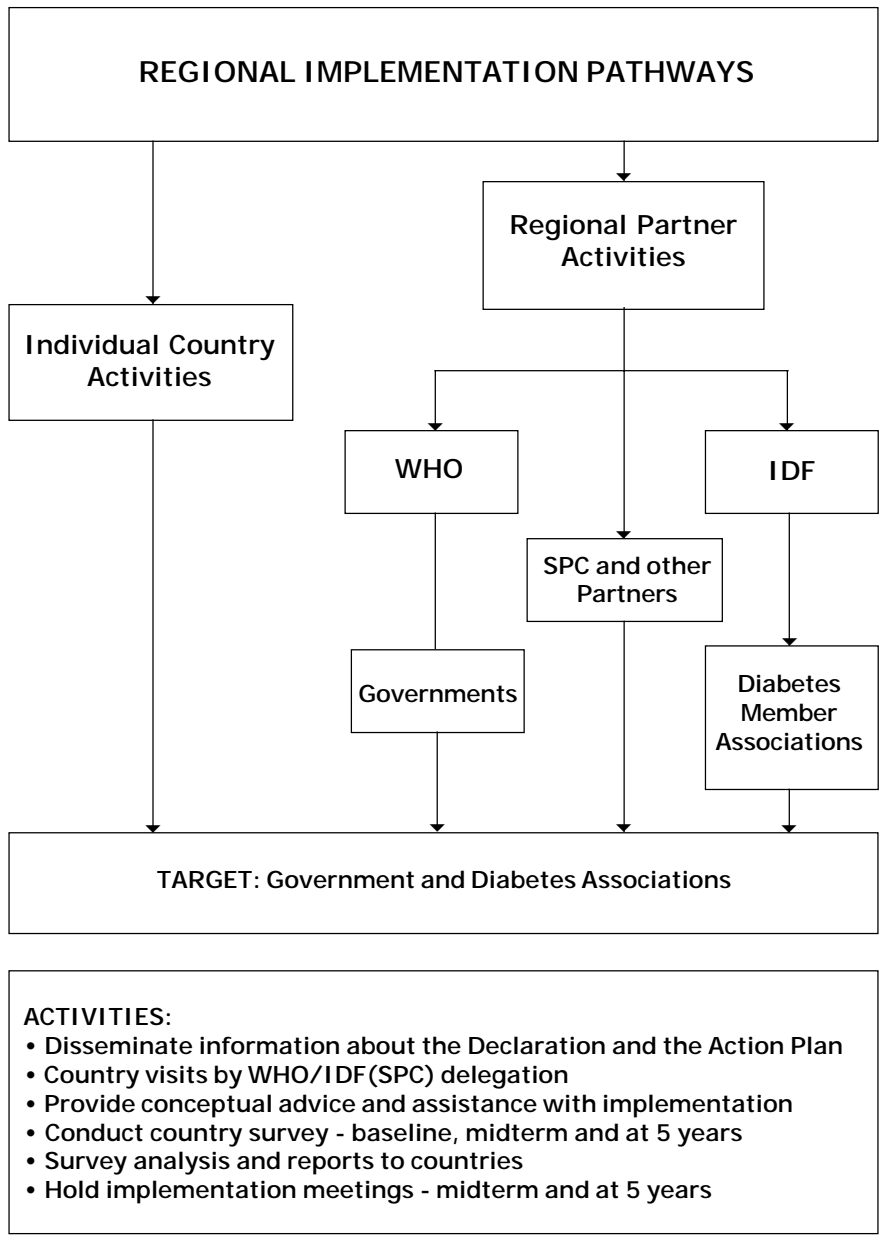
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- contact all countries in the Region to inform them of the Declaration and Plan and proposed implementation pathways and invite their input and involvement
 - visit the health departments and diabetes associations of the WPR countries where possible to discuss barriers and solutions to implementation
 - survey health departments and diabetes associations of the WPR countries to identify the current status of diabetes and related initiatives and existing programmes and networks with potential to assist in implementation of the Declaration and Plan
 - identify the current status of diabetes and related initiatives and existing programmes and networks with potential to assist implementation of the Declaration and Plan
 - conduct country surveys to secure feedback on internal reviews
 - collate and analyse country feedback and report back to countries concerned
 - hold regular meetings to discuss implementation progress

8. Monitoring

Establishing standards and mechanisms for sharing information within the Region and for monitoring and reporting on progress towards achieving the ideals of the WP Declaration on Diabetes and the three goals of the Plan of Action will be a key function of the regional coordinating body and its relevant working groups. Work in this area should include:

- Consulting with WPR countries about:
 - what information is it feasible to collect within countries
 - options for general information gathering and data collection
 - what information should be made available to the Region

Figure 5: Proposed Regional Implementation Pathway



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- how this information should be formatted and communicated
 - frequency of reporting of this information
 - principles and guidelines governing the use of general and clinical data
 - Establishing timelines for reporting, eg:
 - baseline
 - midterm (2-3 years)
 - 5 years
 - Negotiating the development of a regionally standardized clinical process and outcomes core minimum dataset. *This should:
 - reflect current evidence about diabetes recommendations and clinical targets.
 - include a facility for linking processes to outcomes
 - Developing and circulating survey criteria based on the above at agreed intervals
 - Establishing and maintaining a regional database and network of participating countries
 - Providing aggregated and individual feedback to participating countries
 - Making provision to assist countries that want to participate but to not have the means to manage large scale data locally eg submission of completed data forms via the Internet

This information can be used regionally and nationally to measure progress, provide examples of the benefits of good care, guide policy and resource allocation, provide feedback to clinicians, funders, and health care planners.

**Note: The WHO/WPRO has already made substantial progress in this area and a number of countries have developed excellent minimum datasets for diabetes which also include lifestyle and CVD parameters*

The National Level

All WPR countries are encouraged to participate in adopting and implementing the WP Declaration on Diabetes and Plan of Action at whatever level is practical.

Several WPR countries already have active national diabetes plans and programmes or similar initiatives for nutrition, cardiovascular disease and other related conditions. For those who have not, there are a range of approaches which could be used. The following suggestions outline some options and are intended as a guide or checklist for consideration of the issues involved in implementation and the development of diabetes action plans at the country level. Examples of suggested activities relating to the three goals of the Plan are outlined at the end of the document.

Developing and Implementing National Diabetes Plans or Integrated Health Plans

Ideally these should be comprehensive plans addressing a wide variety of aspects of diabetes prevention and management. However, if resources do not permit this, it may be advisable to prioritize action and address one element of the diabetes problem at a time. This could focus on:

- an integrated Type 2 diabetes and CVD prevention programme
- a community awareness programme
- a blindness prevention programme
- national foot care and amputation prevention programme

There are important factors to be considered in deciding to implement individual 'stand alone' programmes. For example, screening programmes to detect undiagnosed diabetes should not be conducted unless there are adequate facilities and health professionals to provide appropriate treatment to these new cases.

Whether national diabetes programmes or integrated health plans are comprehensive or involve 'stand alone' aspects of prevention and management, the principles and implementation pathways are

similar. These are summarized in Figure 6 and outlined below. These ‘steps’ are not necessarily sequential and many will need to be repeated or reviewed and revised throughout the implementation process.

Involve key partners

Early involvement of partners is an important consultation point and may reduce or avoid potential anxieties about proposed changes thus leaving the way clear to obtain realistic and meaningful input. Early involvement should include:

- professional and consumer associations for diabetes
- central and state or within country regional health departments/administrations
- policy makers ie legislative and executive
- nongovernmental organizations
- pharmaceutical and other industries
- national diabetes organizations and institutions
- primary care workers

Appoint a National Task Force/Steering or Advisory Committee

Individual countries will need to determine the extent of the organizational structure they require to guide and drive implementation. If there is a need and sufficient resources a system of expert working groups may be established for specific purposes. If this is done, care should be taken to ensure links and communication between groups and a single ultimate reporting point for all groups. Whether or not working groups are established, this high level committee will be needed to oversee and report on implementation to the responsible health authority. This National Task Force/Steering or Advisory Committee:

- should be kept as small as possible and should include representation from major interest organizations or groups and must include consumer representation.

-
- will require a mix of skills including primary prevention and health promotion, clinical care, population health, programme management, financial management, information systems.
 - will require the development criteria for the selection of committee members, eg, individuals appointed should have experience, expertise and leadership qualities which are recognized and respected by their peers.
 - should be governed by time limited terms of reference which specify the brief of the committee, its mode and scope of operation, the limit and extent of its authority, and clearly indicate lines of reporting and responsibility.
 - may be an existing national functional body such as a national health promotion committee, Healthy Islands Committee as, in some small countries and areas, it may not be feasible to establish separate committee exclusively for diabetes.

Consult about and plan the process

Extensive consultation with other government sectors, specialist and primary care workers, public health experts, and consumers is essential and can assist greatly with:

- ensuring wide support for the initiative
- obtain information about the current status of systems and services
- gathering information to assist planning

Planning the process should include:

- analyzing the current situation
- identifying the availability of resources and the potential to mobilize them
- considerations of criteria for prioritization and the allocation of responsibilities

-
- feasibility of time frames
 - actions required
 - professional and consumer associations for diabetes
 - government sectors in addition to health ie education, food and agriculture, transport
 - public health experts
 - expert clinicians (including nursing and allied health clinicians)
 - relevant nongovernmental organizations

Determine needs, core principles, and components

From the consultation and from available data needs should be identified and core principles to govern efforts to address these needs should be adopted to ensure that those involved are consistent in their approach.

Identifying components of the needs may assist in making the task more manageable and assist subsequent prioritization.

Set the goals

National goals and targets should be established for each country. While these need to reflect the three regional goals, national goals may focus on particular aspects of these goals or may include additional goals. Targets, at the national level should be realistic but can be considerably more detailed and specific than regional targets.

The goals should be consulted about widely and communicated to all stakeholders.

Identify priorities, strategies, approaches and interventions

Priorities will need to be identified on the basis of the consultation undertaken, the extent and nature of the national burden of diabetes, an analysis of the current situation with regard to national systems, and prevention and care services and programme

Approaches should include:

- an intersectoral approach ie across relevant government department, the community and business sectors
- an integrated approach which links policy, planning, primary prevention, health promotion and clinical care across related disease areas, eg, diabetes and CVD
- a partnership approach to diabetes prevention, care and education, between government, national diabetes associations, professional associations, universities and research centres, NGOs such as Lions and Rotary, and Industry

Interventions should include:

- training the health workforce and ensuring an appropriate skills mix
- building and supporting the capacity of primary prevention and care
- streamlining and refocusing services eg delineating service roles
- providing an appropriate balance of routine services, semi specialized services and highly specialized services
- creating equitable access to health services, medications and self care supplies according to the needs of communities and individuals
- basing planning, policy, programmes and services on evidence of effectiveness

Assign responsibilities

Key responsibilities will need to be assigned to identified lead agencies or individuals accompanied by clear specifications of the task to be done and accountability channels.

Develop enabling, support mechanisms

Enabling and support mechanisms are those which encourage, make realistic and/or promote desired behaviours. They may involve the provision of useful and meaningful information tailored to the needs of the recipient, information, prompts and/or recall systems for clinicians, data systems, guidelines, referral criteria, links to professional support or training or may take other forms.

Implement initiatives

Put the plans into action according to identified priorities

Monitor and communicate the results

- establish a nationally standardized minimum core dataset for diabetes with key elements consistent with regional indicators
- determine or estimate the national baseline prevalence of diabetes
- develop and implement information systems to monitor
- identify key contact people at the local level throughout the country to assist with gathering information locally

Figure 6: Key steps for developing national action plans



The Local Level

Small improvements in the organization and quality of diabetes prevention and care delivered at the local level have substantial potential to achieve significant gains at the country and regional level. If national diabetes plans and programmes are not implemented locally they will fail at the national and regional level. The following suggestions may be useful in considering local approaches to implementation and specific activities to address the three goals of the Plan are listed on the following pages.

- **Form a local broadly representative advisory group** of relevant personnel with recognized skills and experience including:
 - specialist and primary care workers
 - public health practitioners
 - health educators
 - personnel with particular technical skills, such as nutritionists
 - consumers
- **Seek and involve local partners**
 - local government
 - professional and community leaders
 - local media
 - business, and community associations
- **Identify local needs and priorities** seeking input from
 - local clinical and public health practitioners
 - health administrators
 - community groups
 - local government
 - consumers

-
- **Review and analyze the current status** of systems, facilities, services and programmes against the identified needs
 - **Set local goals and targets**
 - these do not have to be outcome oriented and may focus on the establishment of specific processes and services eg, making an essential laboratory assay locally available, or structures, eg, upgrading health care facilities
 - **Refocus current systems, services and programmes** to meet the identified needs, eg:
 - identify levels of prevention and care required and assign responsibilities
 - review the roles of community health workers and re-skill if necessary
 - identify local diabetes resource people from key locations for additional training
 - review and, if necessary, refocus the functions of local health care facilities
 - integrate diabetes and related NCD prevention and care activities
 - adapt existing guidelines and protocols to local circumstances and needs
 - align local policy and plans to reflect national priorities
 - **Introduce systems to support and build the capacity of primary prevention and care**
 - encourage a multidisciplinary approach between primary care workers, nurses, dietitians and others, to the planning and delivery of primary prevention and care
 - establish links and referral mechanisms and criteria between primary care and specialist services/ health

care facilities

- assess major risk factors of diabetes and other NCDs, and their environmental determinants, identify and establish programmes targeted at modification of those risk factors and environment.
- where no specialist services are available identify local personnel for additional training to provide a semi-specialized level of care and establish links with specialist services in major centres and/or consider attracting a specialist outreach service from these centres
- consult with primary care workers about what is required to improve the efficiency and effectiveness of their practice systems
- introduce effective practice systems including health promotion and education, registers, recall systems, clinical prompts, annual diabetes complications screening assessment or integrated diabetes and CVD health check
- where resources are limited, prioritize treatment to people with the greatest need
- **Assign overall responsibilities**
 - identify relevant groups, organizations, or individuals to lead specific aspects of local implementation
 - develop functional, time limited terms of reference defining the scope of their activities and responsibilities, and reporting lines
- **Monitoring and evaluation**
 - identify desired outcomes based on the local goals and targets and where relevant on national indicators
 - where resources permit establish an appropriate system to collect and collate epidemiological and clinical data
 - determine the frequency of local data review
 - assign responsibility for collating information and preparing a local report

Note: Local reports can be extremely useful in documenting and measuring progress, providing feedback to local practitioners and stakeholders, informing local and national health authorities of local needs, activities and progress, and contributing to the wider pool of national and regional information about diabetes .

Suggested Activities to Contribute to Achievement of the Goals

The following pages provide example of activities which have potential to contribute to achievement of the three goals identified in the Plan. They are accompanied by process indicators and/or outputs for measuring progress. These examples are optional and are not intended to be exhaustive or prescriptive. Nor are they prioritized since priorities will need to be determined by individual countries and local areas according to identified needs and available resources. The example activities are simply designed to demonstrate and generate discussion and ideas which can be used or adapted to suit local needs and constraints. Their purpose is to provide a ‘menu’ of activities which can either be undertaken through a systematically planned process identified at the individual country level, or in an opportunistic fashion that takes advantages of local events and positive fluctuations in local human and financial resources.

Where issues have already been addressed under another heading they have not been repeated, eg, raising community awareness of symptoms and risk factors is an important strategy for promoting earlier diagnosis of diabetes (Objective 1 - Goal 2) but has been already discussed under the activities for Goal 1.

The majority of activities listed are applicable at the national and local levels. However, regional involvement in initiatives such as standardizing indicators and core datasets for monitoring the results of implementing the Plan of Action is essential. The regional organizational structure also has an important role in fostering research by assisting in identifying research priorities and attracting grant funding for distribution at a regional level.

For all categories of the suggested activities, each country or

area will need to prioritize action according identified local needs and available resources.

It is anticipated that all countries wishing to participate and develop national diabetes programmes will appoint a national body such as National Diabetes task Force or National Diabetes Advisory Group to guide and oversee implementation and subsequent monitoring. Where the activities below suggest appointing an expert group for a specific purpose, the document is not necessarily advocating the establishment of an extensive system of expert groups in each country and such activities may well be undertaken by the a National Diabetes Task. The extent of the organizational and coordinating structures will undoubtedly differ across countries depending on needs, priorities and available human resources.

Examples of Primary Prevention Activities for Type 2 Diabetes

Goal 1- Objective: Reduce the prevalence of modifiable risk factors

Activity	Indicators/Outputs
<ul style="list-style-type: none"> Identify public health, expert clinicians and relevant government and non government sector representatives to form a national diabetes and related NCD Prevention Working Group 	<ul style="list-style-type: none"> an established and active intersectoral national Prevention Working Group
<ul style="list-style-type: none"> Identify local health promotion and clinical personnel from a range of disciplines, and local business and community organizations to form local diabetes and related NCD Prevention Action Groups 	<ul style="list-style-type: none"> established and active local Prevention Action Groups
<ul style="list-style-type: none"> Use the expertise of these structures to identify priorities, adopt or adapt best practice guidelines to develop realistic protocols and implementation pathways 	<ul style="list-style-type: none"> priorities for action identified and documented protocols developed and available implementation pathways identified and agreed
<ul style="list-style-type: none"> Use expert clinicians from these groups to develop locally appropriate clinical and education protocols for risk reduction in people identified with IGT and/or a history of GDM 	<ul style="list-style-type: none"> protocols are developed protocols are implemented locally
<ul style="list-style-type: none"> Identify and follow up women and children of GDM pregnancies for targeted risk reduction strategies 	<ul style="list-style-type: none"> the existence of registers and recall systems for women and children of GDM pregnancies (these can be paper or computer based) the register and recall system is used to follow the target group with risk reduction strategies
<ul style="list-style-type: none"> Incorporate the policies and protocols for all of the above into undergraduate training for all health disciplines and into continuing education for primary health care personnel 	<ul style="list-style-type: none"> the policies and protocols are part of the curriculum for undergraduate training for all health disciplines continuing education for primary health personnel reflects the content of the policies and protocols
<ul style="list-style-type: none"> Adopt and implement national and local policies to ensure that government department, university and school cafeterias adopt canteens set a health promoting example by serving healthy low fat, high fibre foods 	<ul style="list-style-type: none"> a healthy food policy is developed the proportion of government department, school and university canteens serving healthy food
<ul style="list-style-type: none"> Negotiate with local businesses which have staff cafeterias to do the same 	<ul style="list-style-type: none"> the proportion of non government workplace cafeterias serving healthy food

<ul style="list-style-type: none"> Develop and implement an annual 'Healthy Lifestyle and Diabetes Awareness' visits to primary and secondary schools in collaboration with the national education authority and local school authorities* 	<ul style="list-style-type: none"> collaboration of local schools secured programme developed personnel identified to conduct it schedule of school visits arranged
<ul style="list-style-type: none"> Local primary care staff to develop a protocol for the clinical management, education and periodic review of people with impaired glucose tolerance and disseminate to, and ensure continuing education support for all team members 	<ul style="list-style-type: none"> protocol developed and disseminated occasions of service for people with impaired glucose tolerance
<ul style="list-style-type: none"> Target people with Type 2 diabetes to give risk reduction messages to their non-diabetic relatives who are automatically 'at risk' by having 1st degree relative with diabetes 	<ul style="list-style-type: none"> simple risk reduction messages agreed and routinely included in patient education for Type 2 diabetes
<ul style="list-style-type: none"> Negotiate with local government and business and community organizations to ensure accessible, safe and suitable places for people to engage in outdoor activities 	<ul style="list-style-type: none"> the proportion of accessible, safe and suitable community sporting, walking, cycling venues
<ul style="list-style-type: none"> Conduct an annual national or local car free day to encourage the experience of walking 	<ul style="list-style-type: none"> a 'car free' day is agreed by the relevant authorities and community leaders and is implemented annually
<ul style="list-style-type: none"> Develop and enact anti smoking policy and legislation 	<ul style="list-style-type: none"> number of smoke free work places, public facility number of places or media mechanisms where advertising smoking is prohibited restrictions and taxation levies on the sale of cigarettes
<ul style="list-style-type: none"> Provide incentives for businesses which conduct fitness programmes and diabetes and related NCD assessment services 	<ul style="list-style-type: none"> a policy is developed and action taken to provide concessions or support for business which implement and sustain health promoting activities
<ul style="list-style-type: none"> Review and revise food and agriculture legislation to encourage and make healthy food choices available 	<ul style="list-style-type: none"> taxation levies on healthy versus unhealthy foods
<ul style="list-style-type: none"> Develop and implement national community awareness campaigns 	<ul style="list-style-type: none"> a programme is developed and implemented
<ul style="list-style-type: none"> Where there are inadequate resources for the above, Implement opportunistic media campaigns nationally and locally to take advantage of international diabetes news items and human interest stories as means of raising community awareness 	<ul style="list-style-type: none"> the number and frequency of news media items about diabetes

* These should make a clear distinction between the cause and nature of Type 1 diabetes and Type 2 diabetes

Examples of Activities to Prevent or Delay Complications

Goal 2 - Objective 1: Earlier diagnosis and management of diabetes

Activity	Indicators/Outputs
<ul style="list-style-type: none"> Identify risk factors for Type 2 diabetes from the existing evidence and disseminate to hospital and community health facilities 	<ul style="list-style-type: none"> risk factors documented and disseminated
<ul style="list-style-type: none"> Document signs and symptoms of diabetes which distinguish the differences between Type 1 diabetes and Type 2 diabetes and disseminate to hospital and community health facilities 	<ul style="list-style-type: none"> signs and symptoms documented and disseminated
<ul style="list-style-type: none"> Adopt or adapt and implement existing evidence based diagnostic criteria and protocols throughout the health system, particularly in community and district health services 	<ul style="list-style-type: none"> protocols developed and disseminated to clinicians and pathology services
<ul style="list-style-type: none"> Conduct national and local health professional awareness campaigns based on the above and supported by information on the benefits of earlier diagnosis eg: a local diabetes awareness day or seminar, organize presentations by respected expert clinical or public health personnel, print diagnostic criteria on pathology report forms, insert information lists in staff pay packets, negotiate with pharmaceutical companies to distribute information on their visits to health professionals and in their product support literature where relevant 	<ul style="list-style-type: none"> campaigns developed, agreed and implemented the proportion of health professionals receiving information
<ul style="list-style-type: none"> Train and encourage primary health staff to assess Type 2 diabetes and cardiovascular disease risk factors in all susceptible adults 	<ul style="list-style-type: none"> evidence of risk factor assessment training in continuing education programmes for primary care staff
<ul style="list-style-type: none"> Provide primary care workers with Type 2 diabetes risk factor checklists and screening criteria to encourage opportunistic screening 	<ul style="list-style-type: none"> risk factor checklists developed and disseminated the proportion of primary care physicians screening people with identifiable risk factors
<ul style="list-style-type: none"> Provide hospital general medical clinics, and specialist cardiovascular, hypertension and renal clinics with Type 2 diabetes risk factor checklists and screening criteria to encourage opportunistic screening 	<ul style="list-style-type: none"> risk factor checklists developed and disseminated the proportion of relevant hospital clinics screening people with identifiable risk factors
<ul style="list-style-type: none"> Provide hospital and community pharmacists with tick test cards listing risk factors for Type 2 diabetes and ask them to advise 'at risk' individuals to attend a medical practitioner for diagnostic testing for diabetes 	<ul style="list-style-type: none"> risk factor checklists developed and disseminated the proportion of primary care physicians screening people with identifiable risk factors

<ul style="list-style-type: none"> • Screen pregnant women for GDM 	<ul style="list-style-type: none"> - agreement to introduce GDM screening
<ul style="list-style-type: none"> • Adopt and/or adapt existing GDM screening protocols <i>Note - the cost of screening can be reduced by using powdered glucose</i> 	<ul style="list-style-type: none"> - protocols developed - screening methods and material identified - screening criteria identified
<ul style="list-style-type: none"> • Involve expert diabetes and obstetric clinicians in the above and in implementing the GDM policy 	<ul style="list-style-type: none"> - expert group convened and working on implementation - the proportion of pregnant women being screened
<ul style="list-style-type: none"> • Involve antenatal clinics, MCH nurses 	<ul style="list-style-type: none"> - the proportion of women referred for screening
<ul style="list-style-type: none"> • Enlist the help of family planning and women's community groups in raising the awareness of women about the need for GDM screening 	<ul style="list-style-type: none"> - the proportion of women of child bearing age who are aware of the need for screening

Examples of Activities to Prevent or Delay Complications

Goal 2 - Objective 2: Improve the quality of diabetes care

Activity	Indicators/Outputs
<ul style="list-style-type: none"> Convene a multidisciplinary expert group to identify locally appropriate clinical standards and protocols from existing evidence based guidelines 	<ul style="list-style-type: none"> expert group convened existing guidelines reviewed and adapted
<ul style="list-style-type: none"> Simplify these guidelines and present in formats which are easy to access for busy clinicians and disseminate 	<ul style="list-style-type: none"> standards and protocols formatted appropriately the proportion of clinicians aware of and using them
<ul style="list-style-type: none"> Define the level of care required ie routine care, intermediate care, specialized care 	<ul style="list-style-type: none"> levels of care and what is required at each level identified
<ul style="list-style-type: none"> Identify facilities and providers to deliver the various levels of care 	<ul style="list-style-type: none"> facilities and providers designated to provide the various levels of care
<ul style="list-style-type: none"> Develop and implement referral criteria taking account of available local resources 	<ul style="list-style-type: none"> local referral pathways identified
<ul style="list-style-type: none"> Develop and implement training programmes based on the above 	<ul style="list-style-type: none"> training programmes identified the proportion of staff trained
<ul style="list-style-type: none"> Integrate diabetes and NCD training 	<ul style="list-style-type: none"> training programmes include principles and strategies for chronic disease care as well as specific diabetes training
<ul style="list-style-type: none"> Introduce nationally consistent mechanisms to certify or accredit health professionals who have undertaken additional diabetes and NCD training according to the level of care they are trained to deliver 	<ul style="list-style-type: none"> nationally consistent certification/accreditation systems developed and implemented the proportion of relevant staff certified/accredited
<ul style="list-style-type: none"> Target primary care providers for training in routine diabetes and NCD care and secondary prevention 	<ul style="list-style-type: none"> the proportion of primary health care staff trained
<ul style="list-style-type: none"> Provide specialized outreach services to augment local primary care services in locations where specialist services are required but are unavailable 	<ul style="list-style-type: none"> locations in need of specialist service identified specialist teams identified and allocated
<ul style="list-style-type: none"> Provide primary care workers with diabetes and NCD kits containing basic assessment tools and referral checklists 	<ul style="list-style-type: none"> the proportion of primary health care staff using diabetes and NCD kits

<ul style="list-style-type: none"> • Develop and implement clinical record documentation systems which include checklists and prompts to promote clinician compliance with recommended clinical processes 	<ul style="list-style-type: none"> - standardized patient record documentation systems highlighting essential care points developed - the proportion of relevant facilities and services using the above
<ul style="list-style-type: none"> • Provide locally relevant in-service training to hospital emergency department and ward staff on basic diabetes management skills and the identification of problems 	<ul style="list-style-type: none"> - in-service programmes developed - staff to deliver the programmes identified - proportion of staff attending the programmes
<ul style="list-style-type: none"> • Feedback and use information from monitoring of patient outcomes to clinicians as a learning and quality improvement strategy to demonstrate the benefits of adherence to recommended care standards and processes 	<ul style="list-style-type: none"> - feedback programme developed - feedback report provided to clinicians - annual monitoring of standards of care
<ul style="list-style-type: none"> • Develop incentive programmes to encourage clinical services to implement recommended standards and practices, eg, provider incentive awards 	<ul style="list-style-type: none"> - provider recognition programme developed and implemented
<ul style="list-style-type: none"> • Disseminate simplified recommendations for clinical care standards to consumers eg recommended times for blood glucose, eye, foot, blood pressure checks 	<ul style="list-style-type: none"> - consumer information on clinical care recommendations developed and disseminated

Examples of Activities to Manage Existing Complications

Goal 2-Objective 3: Improve the quality of rehabilitation and palliative care

Activity	Indicators/Outputs
<ul style="list-style-type: none"> • Introduce or adopt existing standards for defining and categorizing the various diabetes complications and their stages 	<ul style="list-style-type: none"> - nationally and regionally consistent definitions of diabetes complications are available
<ul style="list-style-type: none"> • Assess the need for diabetes complications and rehabilitation services by canvassing information and opinion from leading health facilities, clinical experts, and consumer groups/organizations 	<ul style="list-style-type: none"> - a needs assessment is conducted and the results documented
<ul style="list-style-type: none"> • Develop or adopt or adapt existing standards and Protocols for the management of existing complications 	<ul style="list-style-type: none"> - nationally consistent standards and protocols are available
<ul style="list-style-type: none"> • Designate specific health facilities or services to provide advanced rehabilitation and palliative care 	<ul style="list-style-type: none"> - specific health facilities or services are designated to provide rehabilitation and palliative services
<ul style="list-style-type: none"> • Provide additional training in the management of diabetes complications (including rehabilitation and palliation) for relevant health care personnel 	<ul style="list-style-type: none"> - the proportion of health care staff with specific training in the management of established diabetes complications
<ul style="list-style-type: none"> • Develop a national mechanism to coordinate the input of donor agencies and associations which contribute personnel and equipment for treating existing diabetes complications 	<ul style="list-style-type: none"> - a national mechanism for coordinating services and equipment for treating diabetes complications is developed and implemented
<ul style="list-style-type: none"> • Develop a regional mechanism to assist developing countries to link with developed countries for rehabilitation expertise, mentoring and networks 	<ul style="list-style-type: none"> - a regional mechanism is developed and operating
<ul style="list-style-type: none"> • Explore the possibility of groups of countries improving the availability of supplies and equipment through group purchasing 	<ul style="list-style-type: none"> - the possibility is investigated and the results documented and acted on accordingly
<ul style="list-style-type: none"> • Where limb prostheses are unavailable, explore mechanisms for improving their availability eg: training local staff in making and fitting prostheses, attracting outreach prosthetic services from more developed countries enlisting the assistance of NGOs such as Rotary and Lions Clubs to improve resources and training opportunities for local staff 	<ul style="list-style-type: none"> - mechanisms for improving the availability of limb prostheses are identified and acted on

<ul style="list-style-type: none">• Developing countries to review the cost effectiveness of sending people with advanced complications to developed countries for treatment compared to the cost of investing in local expertise and equipment and adapt current policy as indicated	<ul style="list-style-type: none">- current policy on sending people with advanced complications out-of -country for treatment is reviewed and revised according to the results of the review
<ul style="list-style-type: none">• Establish a regional mechanism to ensure availability of a minimum level of equipment to detect and treat complications early in all countries. Developed countries may wish to donate or loan equipment on a rotating basis to less developed countries (eg laser machines for treating retinopathy, dialysis equipment/supplies)	<ul style="list-style-type: none">- a regional mechanism is developed and operating

Examples of Activities to Prevent or Delay Complications

Goal 2 - Objective 4: Improve the quality of diabetes education

Activity	Indicators/Outputs
<ul style="list-style-type: none"> Adopt and/or adapt existing guidelines for patient education and disseminate to relevant health professionals 	<ul style="list-style-type: none"> existing guidelines identified adapted national guidelines developed proportion of relevant health professionals receiving the guidelines
<ul style="list-style-type: none"> Integrate education on the principles and practice of health education into all diabetes and chronic disease training programmes for health professionals and other health workers 	<ul style="list-style-type: none"> proportion of diabetes and chronic disease training programmes incorporating a patient education component
<ul style="list-style-type: none"> Identify key non medical personnel locally for specialized or semi-specialized training in diabetes education <i>Note: Where this training cannot be provided in-country, consider selecting a small number of nurses and or dietitians for advanced external training to establish an in-country infrastructure for future local training</i> 	<ul style="list-style-type: none"> key personnel identified and trained patient education training infrastructure established
<ul style="list-style-type: none"> Define the role of the above personnel and use them to provide training in education to non-specialist health workers as well as providing direct patient education services 	<ul style="list-style-type: none"> the proportion of non-specialist health workers receiving training in patient education
<ul style="list-style-type: none"> Provide basic education on the self care knowledge and skills, where to obtain essential medications and supplies, when to seek professional help, recommendations for type and frequency of diabetes checks for all people with newly diagnosed diabetes 	<ul style="list-style-type: none"> the proportion of people with newly diagnosed diabetes receiving appropriate diabetes education
<ul style="list-style-type: none"> Identify and provide education to all people with diabetes at key points in the progression of their diabetes eg changing from diet only to oral medication, changing form oral medication to insulin, poor diabetes control, the identification of complications 	<ul style="list-style-type: none"> the proportion of people with diabetes receiving education at key points in the progression of their diabetes
<ul style="list-style-type: none"> Include information on the need for good glycaemic control prior to conception as well as during pregnancy in diabetes education for all diabetic women of child bearing age 	<ul style="list-style-type: none"> policies and practice for patient education reflect this
<ul style="list-style-type: none"> Include information on managing acute episodes of intercurrent illness in patient education for all people with diabetes 	<ul style="list-style-type: none"> policies and practice for patient education reflect this

<ul style="list-style-type: none"> • Include information on avoiding and managing short term complications in patient education for all patients who are susceptible to hypoglycaemia and ketoacidosis 	<ul style="list-style-type: none"> - policies and practice for patient education reflect this
<ul style="list-style-type: none"> • Include information on the need for comprehensive complications screening for all people newly diagnosed with Type 2 diabetes 	<ul style="list-style-type: none"> - policies and practice for patient education reflect this
<ul style="list-style-type: none"> • Adapt education for children with diabetes and their families to include information on adult self care, changes in physical activity, alcohol, conception and pregnancy, 	<ul style="list-style-type: none"> - policies and practice for patient education reflect this
<ul style="list-style-type: none"> • Provide education on foot care, foot hygiene, and identification of potential problems to all adults with diabetes 	<ul style="list-style-type: none"> - policies and practice for patient education reflect this
<ul style="list-style-type: none"> • Include a facility for referral for education in patient record documentation for diabetes to raise awareness of medical practitioners of the need for patient education 	<ul style="list-style-type: none"> - patient record documentation includes a prompt for referral for patient education

Examples of Activities to Improve Systems

Goal 3 - Objective 1: National diabetes plans or integrated health plans

Activity	Indicators/Outputs
<ul style="list-style-type: none"> Involve key stakeholders and intersectoral partners 	<ul style="list-style-type: none"> meetings of stakeholders and partners arranged and held
<ul style="list-style-type: none"> Identify a group to take responsibility for developing/overseeing the national diabetes plan 	<ul style="list-style-type: none"> a national plan development group appointed
<ul style="list-style-type: none"> Use available epidemiological and service data, and consult with clinical experts and consumers nationally and locally to identify a rational basis and priorities 	<ul style="list-style-type: none"> epidemiological data identified and a summary report prepared consultation with clinicians and consumers draft list of priorities prepared
<ul style="list-style-type: none"> Determine the scope of the plan - is it to be comprehensive or limited to one or more aspects of diabetes care eg a prevention programme , a foot care programme , and eye programme , a GDM programme 	<ul style="list-style-type: none"> scope of plan determined and documented
<ul style="list-style-type: none"> Define national diabetes and related goals and targets 	<ul style="list-style-type: none"> national diabetes and related goals and targets defined
<ul style="list-style-type: none"> Identify timelines 	<ul style="list-style-type: none"> timelines identified
<ul style="list-style-type: none"> Develop specific strategies and implementation pathways 	<ul style="list-style-type: none"> specific strategies and implementation plan developed
<ul style="list-style-type: none"> Negotiate with stakeholders and partners to support the programme 	<ul style="list-style-type: none"> plan for informing stakeholders and partners about the national plan developed meetings with stakeholders and partners held and level of support agreed and documented
<ul style="list-style-type: none"> Allocate appropriate financial resources 	<ul style="list-style-type: none"> mechanisms identified to financially resource the implementation of the plan
<ul style="list-style-type: none"> Identify an appropriate organizational structure to oversee and report on implementation 	<ul style="list-style-type: none"> an organizational structure developed and a management group to oversee and report on the plan appointed
<ul style="list-style-type: none"> Link and integrate the programme with relevant existing initiatives 	<ul style="list-style-type: none"> links established and reflected in the policy, and organisational structures and operational processes
<ul style="list-style-type: none"> Involve all relevant government sectors eg transport, education, agriculture, environmental etc in implementation 	<ul style="list-style-type: none"> all relevant government sectors have input and contribute to national diabetes plans

<ul style="list-style-type: none"> • Identify key local personnel to form local implementation advisory/reporting groups 	<ul style="list-style-type: none"> - local implementation/advisory groups identified and appointed
<ul style="list-style-type: none"> • Determine appropriate methods and mechanisms for monitoring progress 	<ul style="list-style-type: none"> - a monitoring process identified and implemented
<ul style="list-style-type: none"> • Establish a national diabetes association (if none already exists). This should represent both consumers and health professionals. 	<ul style="list-style-type: none"> - a national diabetes association is established and active
<ul style="list-style-type: none"> • Encourage the national diabetes association to seek IDF membership in order to have a voice in international diabetes affairs and to access the benefits of membership 	<ul style="list-style-type: none"> - the national diabetes association is a member of IDF

Examples of Activities to Improve Systems

Goal 3 - Objective 2: Monitor the burden of diabetes and outcomes of care

Activity	Indicators/Outputs
<ul style="list-style-type: none"> Appoint a multidisciplinary group of epidemiology, clinical and technical experts to form a national diabetes and related NCD information advisory group 	<ul style="list-style-type: none"> national Information Advisory Group convened terms of reference documented
<ul style="list-style-type: none"> Develop, adopt, or adapt a set of core indicators and a core minimum diabetes data set <i>Note this should:</i> <ul style="list-style-type: none"> be nationally standardized have core elements consistent with regional indicators include parameters on CVD and lifestyle such as smoking, diet, physical activity, obesity etc 	<ul style="list-style-type: none"> existing relevant diabetes and related information systems explored locally relevant national core minimum dataset agreed
<ul style="list-style-type: none"> Establish the baseline prevalence of diabetes nationally/locally 	<ul style="list-style-type: none"> existing prevalence data obtained and documented deficiencies identified and a plan developed to address these data deficiencies
<ul style="list-style-type: none"> Establish the prevalence of various diabetes and related complications 	<ul style="list-style-type: none"> minimum dataset utilized to collect diabetes complications data
<ul style="list-style-type: none"> Report regularly on national/regional/local prevalence of diabetes and related complications 	<ul style="list-style-type: none"> report prepared and distributed on findings of data collection using minimum dataset
<ul style="list-style-type: none"> Develop and implement a national diabetes register <i>Note: this could initially be a simple list of demographic details of people newly diagnosed with diabetes</i> 	<ul style="list-style-type: none"> Register agreed scope determined management body identified ascertainment processes decided
<ul style="list-style-type: none"> GDM register as above 	<ul style="list-style-type: none"> as above
<ul style="list-style-type: none"> Establish mechanisms for epidemiology and technical training for relevant staff in designing, using, and maintaining data systems 	<ul style="list-style-type: none"> proportion of relevant staff trained

Note: Outcomes data should include endpoints such as blindness, amputation, end stage renal failure etc. Surrogate outcomes data such as HbA^{1c}, microalbuminuria etc should also be collected along with blood pressure, weight and lifestyle habits, particularly tobacco and alcohol consumption.

Examples of Activities to Improve Systems

Goal 3 - Objective 3: Improve the organization of diabetes care

Activity	Indicators/Outputs
<ul style="list-style-type: none"> Appoint a multidisciplinary group of clinical, education and health experts to form a diabetes care advisory group 	<ul style="list-style-type: none"> national Diabetes Care Advisory Group convened terms of reference documented
<ul style="list-style-type: none"> Review the current organization of diabetes care 	<ul style="list-style-type: none"> review of current diabetes care performed and recommendations prepared
<ul style="list-style-type: none"> Develop or adopt appropriate models of care to address identified deficiencies 	<ul style="list-style-type: none"> appropriate models of diabetes care developed
<ul style="list-style-type: none"> Establish links between diabetes and related disease programmes 	<ul style="list-style-type: none"> models of diabetes care linked with related disease programmes
<ul style="list-style-type: none"> Review and revise existing policy to be consistent with available evidence 	<ul style="list-style-type: none"> policy reflects available evidence of effectiveness
<ul style="list-style-type: none"> Integrate policy and planning of diabetes care with related NCD areas 	<ul style="list-style-type: none"> policy and planning are undertaken across related NCD areas
<ul style="list-style-type: none"> Identify levels of care required and assign responsibilities for its provision to the various facilities <i>Note: this may necessitate reviewing and refocussing the current function of some health facilities</i> 	<ul style="list-style-type: none"> facilities to provide primary, semi-specialized and highly specialized prevention and care services are identified
<ul style="list-style-type: none"> Identify the human skills mix required and develop an appropriately skilled workforce <i>Note: this may necessitate reviewing and refocusing current roles</i> 	<ul style="list-style-type: none"> skills mix required is identified a workforce training and allocation policy is in place
<ul style="list-style-type: none"> Develop evidence based resource allocation formulas to ensure the strategic and effective use of resources 	<ul style="list-style-type: none"> resource allocation formulas support evidence based processes and practices
<ul style="list-style-type: none"> Adopt an intersectoral approach to improving the organization of all aspects of health systems and services 	<ul style="list-style-type: none"> relevant government department actively integrate policy, planning, training, and strategies for diabetes and related NCD prevention and care
<ul style="list-style-type: none"> Integrate health promotion and clinical care eg assign a local health promotion practitioner or health educator to work with local clinical diabetes and NCD teams 	<ul style="list-style-type: none"> local integration mechanisms identified and implemented
<ul style="list-style-type: none"> Involve corporate partners ie pharmaceutical industry, food industry in devising and implementing diabetes care plans 	<ul style="list-style-type: none"> corporate partners consulted

Examples of Activities to Improve Systems

Goal 3 - Objective 4: Access to essential medications and supplies

Activity	Indicators/Outputs
<ul style="list-style-type: none"> Appoint a group with appropriate clinical, pharmacological and purchasing expertise to review and document the availability, cost and use of essential diabetes medications and self care supplies 	<ul style="list-style-type: none"> Advisory group convened report on the results of the review available
<ul style="list-style-type: none"> Prioritize needs eg, insulin, syringes/needles, medications - high priority. Self blood glucose monitoring equipment and supplies – desirable for all but only high priority in certain groups or certain circumstances 	<ul style="list-style-type: none"> priorities identified
<ul style="list-style-type: none"> Introduce nationally consistent purchasing policies in line with national formularies 	<ul style="list-style-type: none"> standardized national purchasing policies based on the above are agreed and approved
<ul style="list-style-type: none"> Rationalize medications based on evidence and consensus guidelines and/or convene a panel of expert clinicians to identify the most appropriate medication on a safety and effectiveness versus cost basis eg, purchasing power may be enhanced by reducing the number of equivalent medications purchased 	<ul style="list-style-type: none"> opportunities for rationalizing medication use identified and acted on
<ul style="list-style-type: none"> Investigate the potential to reduce costs through group purchasing on a national or group of countries/areas basis 	<ul style="list-style-type: none"> group purchasing systems agreed and implemented where warranted by potential cost savings
<ul style="list-style-type: none"> Introduce quality assurance mechanisms to eliminate or reduce counterfeit drugs 	<ul style="list-style-type: none"> quality assurance mechanisms developed and implemented reductions in the availability of counterfeit drugs
<ul style="list-style-type: none"> Review ordering, storage, and distribution method and introduce mechanisms to improve efficiency of supply and reduce stockpiling, damage, waste, and other forms of stock loss 	<ul style="list-style-type: none"> review completed efficiency/waste reduction strategies introduced
<ul style="list-style-type: none"> Develop and implement a national policy for coordinating the input of donors 	<ul style="list-style-type: none"> policy developed and implemented
<ul style="list-style-type: none"> Involve and negotiate with relevant pharmaceutical companies to improve cost, availability and distribution of essential medications and self care supplies 	<ul style="list-style-type: none"> industry partners consulted results implemented where appropriate

<ul style="list-style-type: none"> • Explore means of subsidizing costs to the consumer, eg, increase tobacco taxes and use the proceeds to augment the cost of essential medications and self care supplies 	<ul style="list-style-type: none"> - systems for subsidizing cost to the consumer identified and implemented
<ul style="list-style-type: none"> • Encourage clinicians to prescribe exercise, no smoking, low fat foods, low alcohol intake instead of medication where appropriate <i>Note: the written prescription of lifestyle changes instead of medication must be within the bounds of patient safety but may be effective for weight loss, smoking cessation, minor lipid and blood pressure problems as a first line of management</i> 	<ul style="list-style-type: none"> - criteria for prescribing lifestyle modification in place of medication agreed and disseminated to relevant clinicians

Examples of Activities to Improve Systems

Goal 3 - Objective 5: Research on prevention, care, and service delivery

Activity	Indicators/Outputs
<ul style="list-style-type: none"> • Develop a nationally prioritized research agenda to address deficiencies in current knowledge about diabetes prevention, care and service delivery <i>Note: this should include consumer needs and perspectives</i> 	<ul style="list-style-type: none"> - national research agenda developed
<ul style="list-style-type: none"> • Integrate diabetes research activities with other relevant NCD area e.g. CVD, nutrition, renal etc to maximize effects and reduce duplication of effort 	<ul style="list-style-type: none"> - NCD research policy and programmes reflect links between related disease areas
<ul style="list-style-type: none"> • Develop a research policy to ensure an appropriate funding balance between research into diabetes prevention, care, and service delivery 	<ul style="list-style-type: none"> - an appropriately balanced research funding formula is developed and applied
<ul style="list-style-type: none"> • Identify appropriate methods and models of research to address identified deficiencies 	<ul style="list-style-type: none"> - appropriate methods and models identified and applied
<ul style="list-style-type: none"> • Influence research funding bodies to give priority to proposals for diabetes and related NCD research 	<ul style="list-style-type: none"> - diabetes research has priority funding commensurate with its national disease burden
<ul style="list-style-type: none"> • Seek/identify partners to foster and fund a cohesive approach to diabetes research, eg. pharmaceutical and food industries 	<ul style="list-style-type: none"> - partners identified and involved
<ul style="list-style-type: none"> • Include a research component in all health professional undergraduate training programmes which reflects an appropriate balance between prevention, care, and service delivery 	<ul style="list-style-type: none"> - undergraduate training programmes include a balanced research component
<ul style="list-style-type: none"> • Provide research methods training to relevant health personnel including doctors, nurses, dietitians, health promotion practitioners, health educators etc 	<ul style="list-style-type: none"> - research training mechanisms developed and implemented - the proportion of relevant staff trained
<ul style="list-style-type: none"> • Establish and maintain local systems for communicating and sharing research findings eg journal libraries, journal clubs, Internet access, research seminars 	<ul style="list-style-type: none"> - the availability of opportunities to access research findings

Note: It may not be appropriate for some countries to invest scarce resources in research activities. In such cases, efforts should be made to keep abreast of current research developments and to apply relevant research findings within the limitations of local resources and circumstances.