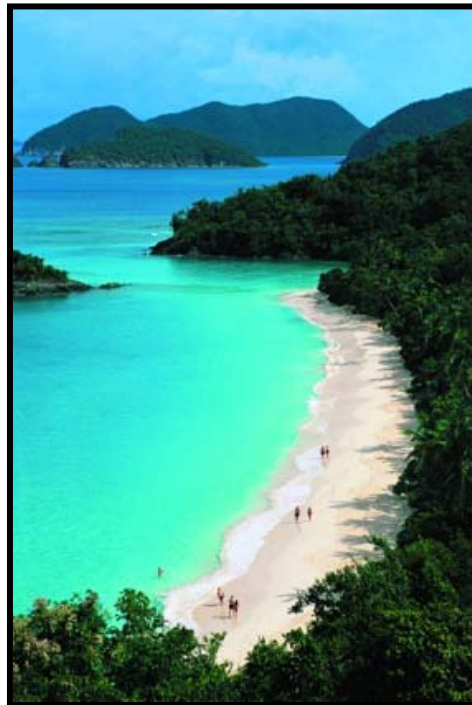




Diabetes Education Curriculum for Health Professionals in the Caribbean

**Results from a Diabetes Education Workshop
Mona Visitors Lodge
University of West Indies, Jamaica
October 25-26, 2005**

**Working Document adapted from the International Diabetes
Federation, International Curriculum**



Psychosocial and behavioural approaches

Overview: Diabetes mellitus is a chronic condition that greatly affects the lives of people with diabetes and their families. In children and adolescents, diabetes can complicate family functioning, and interfere with normal psychological and social development. People with diabetes are faced with the challenge to self-manage their diabetes in addition to carrying out the activities of day to day living. Learning to perform diabetes self-care activities and incorporating these behaviors in daily life, in the face of other responsibilities and life stresses, is psychologically complex and burdensome. Acute and chronic diabetes complications can negatively affect the person's well-being and role functioning. People differ in their ability to cope effectively with the demands of diabetes self-management. Some people with diabetes are psychologically more vulnerable and require special attention. Therefore, educators need not only teaching skills but also skills in approaches to behavioral change and motivational interviewing.

Goals:

To emphasize the psychosocial needs of the person with diabetes and their family

To provide participants with the knowledge and skills to enhance the well-being of people with diabetes using a patient centered approach

To teach behavioral approaches, motivational techniques, goal setting and emotional support in teaching patient with diabetes

Objectives: After completing this module, the participant will be able to:

- Understand the significant factors related to behavioral changes, including the importance of awareness and how to apply these in guiding individuals and groups in their effective management of diabetes.
- Identify attitudes and behaviors that are helpful and or hurtful to people with diabetes.
- To demonstrate and understand that diabetes and its management is ongoing throughout ones life.
- To be aware of the required changes to ones lifestyle and the stress involved in the management of the disease.
- To recognize that stress due to fear of short term and long term complications is common

- To discuss cognitive, emotional, behavioral and social barriers to self-care and strategies to address these barriers
 - Identify and promote appropriate emotional and behavioral support to people with diabetes and their families
 - To understand the significant factors related to behavioral changes , including the importance of nutrition in the management of diabetes
 - Develop skills in appropriate behavioral approaches to effect change in the lives of persons (individuals and groups) with diabetes
 - To be aware of psychological disorders among persons with diabetes that warrant professional care (e.g. depression, anxiety, eating disorders, and alcohol abuse)
 - To be aware of the support services and other resources available to people living with diabetes and their families
 - To understand how to manage group dynamics
 - Demonstrate active listening skills
 - Demonstrate the use of open ended questions
 - Demonstrate giving positive feedback
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Teaching Strategies:

- Interactive workshop, include role play
 - Focus discussion
 - Problem solving from case studies
 - Interactive session with person living with diabetes
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Evaluation:

- Refer to Evaluation
- Distinguish between different types of evaluation, structures, processes, content, outcomes, impact and program
- Discuss evaluation methods, including how to evaluate the program and the participant's achievement of the learning goals
- Design an instrument to evaluate participants' impressions of the program
- Discuss the barriers to conducting a program evaluation

Health education materials:

- Identify the magnitude of illiteracy or low literacy in the specific community
- Explain strategies for teaching clients with low literacy skills
- Assess educational materials for their readability and therefore appropriateness of use
- Develop health education materials for low literacy groups
- Develop health education materials for general use

Special populations:

- Describe teaching strategies for people who are either visually or hearing challenged
 - Discuss teaching materials that would be appropriate for people with disabilities or handicaps
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Teaching Strategies:

- Interactive workshop, include role play
 - Focus discussion
 - Problem solving from case studies
 - Interactive session with person living with diabetes
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Duration: 4-6 hours On the schedule- After clinical discussions and can be incorporated with self management and community awareness

Who should teach the module: Psychologists, Guidance Counselor

Self-management

Overview: Self-management is the cornerstone of overall diabetes care. Optimal outcomes can only be achieved if the person with diabetes is willing to, and capable of, self-regulating their condition on a daily basis for life. While the increase in technology gives people more tools to manage their condition, it also increases the burden on, and expectations of, people with diabetes. It is important that facilitators are aware of the psychological, emotional and economic impact when introducing technology to their patients. People with diabetes have a right to expect high-quality care from experienced, trained individuals, a patient-centered approach and access to services, equipment, medical supplies and hospitalization, if required. People with diabetes have a responsibility to manage their diabetes on a day-to-day basis, communicate with their healthcare professionals periodically throughout the year, and seek advice, when necessary.

Self-management is important in improving and extending one's quality of life.

Goals: To improve people's quality of life (the primary goal of diabetes care). To provide participants with an understanding of:

- The condition from the perspective of the person with diabetes

- Personal cost
- Economic cost
- Psychosocial cost
- Effective self-management skills from the day of diagnosis
- Ways to facilitate access to services

To provide participants with an understanding of the need to act as an advocate for people with diabetes to reduce discrimination against them at the workplace and in society in general

Objectives: After completing this module, the participant will be able to:

- Discuss the impact of living with diabetes
- Assist a person with diabetes in becoming competent with self-care behaviors appropriate to his/her needs, eg urine and blood glucose monitoring
- To provide annual medical checks
- Inform the persons with diabetes of his/her personal targets e.g., blood glucose, lipid values, blood pressure, HBA1c, albumin excretion status, meal planning and activity
- Recognize and assess barriers to self-care
- Promote self-care as integral to effective management
- Adopt a flexible approach to the education and management of individuals
- Recognize that individuals manage their diabetes in different ways
- Teach people the importance of regular contact with both the medical practitioner and other members of the diabetes healthcare team and the need for regular education updates
- Give the person the self-confidence to advocate for their rights when dealing with health professionals

Teaching strategies: Experiential learning, hands-on experience with meters and insulin delivery devices, discussion with a person with diabetes

Suggested time: 1–2 hours

Who should teach: Health educator, person with diabetes, local member organization

Community awareness and promotion

Overview The need to increase community understanding of the special needs of people with diabetes is important. Diabetes facilitators should promote the importance of primary care and secondary prevention. Many of the strategies used to meet the goals can bring about positive change in an individual's behavior and to increase community understanding that will dispel myths surrounding diabetes. Change occurs more readily and lasts longer when there is a supportive environment in the home, work, and areas of recreation.

Goals:

- To provide participants with an understanding of the community's knowledge and attitudes towards diabetes.
 - To provide participants with an understanding that community strategies need to reflect the differences between Type 1 and Type 2 diabetes.
 - To provide participants with strategies for primary care and secondary prevention of Type 2 diabetes.
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Objectives: After completing this module, the participant will be able to explain the different types of prevention related to diabetes

- Explain the different types of prevention measures related to diabetes
 - Describe educational methods to be used for individuals, communities, and in different settings
 - Apply principles of behavior change in helping individuals to manage diabetes and prevent complications
 - Describe common beliefs held by the public towards diabetes
 - Identify areas of priority, community groups and the resources relevant to diabetes education
 - Demonstrate skills in advocacy and effective communication on the subject of diabetes
 - Use simple data to explain the need for and results of change
 - Teaching strategy, suggested time, who should teach this module, and evaluation of learning were left unchanged
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Teaching strategy: Interactive workshop and discussion

Suggested time: 2 hours

Who should teach this module: Health promotion professional, diabetes educator, member association personnel

Evaluation of 15-minute presentation of a proposed health promotion activity

Diagnosis, classification and presentation of diabetes

Overview: In the past, diabetes was considered to be a single condition. However, it is now clear that diabetes is a heterogeneous metabolic condition caused by many different mechanisms. Diabetes is now categorized based on differences in the cause, natural history and clinical characteristics.

Goal: To provide participants with a sound knowledge of the different metabolic disorders of glucose metabolism, pathogenesis, clinical characteristics and diagnostic criteria.

Objectives: After completing this module, the participant will be able to:

- Define diabetes mellitus
- Discuss the incidence and prevalence of diabetes both globally and locally
- Classify the different disorders of glycemia: Type 1 diabetes, Type 2 diabetes, other specific types (such as maturity onset diabetes of the young [MODY], latent autoimmune diabetes in adults [LADA] and steroid-induced diabetes), gestational diabetes, impaired glucose tolerance and impaired fasting glucose, secondary to chronic disease in childhood, e.g. cystic fibrosis, hemoglobinopathies
- Understand the difference between Type 1 and Type 2 diabetes in relation to the clinical presentation, patient characteristics and pathogenesis
- Describe the role of genetic and environmental factors and immunology in the development of Type 1 diabetes
- Describe the role of genetic and environmental factors, obesity, insulin deficiency and resistance in the development of Type 2 diabetes

- Describe the emerging trend of Type 2 diabetes in young people
- Describe the signs and symptoms of Type 1 and Type 2 diabetes
- Identify the laboratory investigations used to diagnose diabetes and their appropriate use (fasting blood glucose, post-prandial blood glucose, oral glucose tolerance test)
- Describe factors that can affect the accuracy of laboratory investigations
- Discuss the appropriate use of the following tests: C-peptide, insulin antibodies, islet cell antibodies and GAD antibodies assays, as well as urinalysis (urine glucose and ketones) and HbA1c estimation
- Explain the World Health Organization diagnostic criteria for the different disorders of glycemia

The clinical diagnosis of diabetes is often prompted by symptoms such as increased thirst and urine volume, recurrent infections, unexplained weight loss and, in severe cases, drowsiness and coma; high levels of glycosuria are usually present. (WHO, 1999)

It is recommended that the terms insulin-dependent diabetes mellitus” and non-independent diabetes mellitus” and their acronyms “IDDM” and “NIDDM” no longer be used. (WHO, 1999)

- Identify appropriate treatment options for the different disorders of glycemia, including early discussion about the likely need for insulin therapy in the future for Type 2 diabetes
- Expand on the sign and symptoms of Type 1 and type 2

Teaching strategies: Case studies, lecture

Suggested time: Lecture: 1–2 hours
Case studies: 1–2 hours

Who should teach this module: Diabetes educator, endocrinologist

Evaluation of learning: MCQ-Exam

Pathophysiology

Overview: Diabetes is a chronic condition characterized by hyperglycemia. It is caused by deficient insulin production, resistance to insulin action or a combination of both. Knowledge of the relationship between glucose, insulin and counter-regulatory hormones and glucose homeostasis is important in understanding these defects and how they result in abnormal glucose and fat metabolism.

Goal: To provide participants with an understanding of pathophysiology and the defects that lead to abnormal glucose metabolism.

Objectives:

After completing this module, the participant will be able to:

- Describe the structure and function of key organs such as the pancreas, liver, muscle, adipose tissue, kidney, etc
 - Describe the relationship between blood glucose and insulin in healthy people including gluconeogenesis, glycogenolysis, lipolysis and ketogenesis
 - Describe normal insulin synthesis and secretion
 - Understand the hormonal, metabolic and neural control of insulin production and secretion
 - Discuss insulin action
 - Explain the role of insulin receptors
 - Discuss the effect of insulin and counter-regulatory hormones on fuel homeostasis (carbohydrate, fat, and protein)
 - Describe the results of insulin deficiency, its effects on lipid and protein metabolism as well as carbohydrate metabolism
 - Discuss how increased blood glucose levels lead to diabetes-related complications including polyol pathway, oxidative stress, glycation and protein kinase C
 - Describe the effect of defective insulin action or 'insulin resistance' in terms of genes, adioposity, gender, diet, exercise, hyperglycemia, drugs, and infection
 - Describe the basic physiology of digestion and absorption of nutrients
 - Discuss the characteristics of the metabolic syndrome
 - Describe the microvasculature and the macrovasculature
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Teaching strategies: Lectures, self-directed learning

Suggested time: Lecture: 2 hours

Who should teach this module: Endocrinologist, diabetes educator

Evaluation of learning: Written examination or assignment

Glucose Lowering Medication

Overview: Diet and exercise are the first line of treatment for all people with Type 2 diabetes, including the young. However, due to the natural history of Type 2 diabetes, 50–75% are unlikely to achieve normoglycemia through these measures alone. The microvascular complications of diabetes are associated with the duration of diabetes and poor control. Therefore, it is now well accepted that oral agents should be commenced earlier when they are most effective, rather than later in the treatment of people with Type 2 diabetes.

Goal: To provide the participant with an understanding of the different oral agents used to treat Type 2 diabetes and why particular agents are chosen in preference to others.

Objectives:

- After completing this module, the participant will be able to:
 - identify appropriate treatment aims when using glucose-lowering medication
- Discuss the role of these medications in the management of Type 2 diabetes
- Describe the different oral medications available, their mechanisms of action and maximum dosage of secretagogues, biguanides, thiazolidinediones and alpha-glucosidase inhibitors
- Describe the potential side effects when using oral medication
- Describe the need for caution when using long-acting sulphonylureas in the elderly
- Describe the specific contraindications for the use of each type of oral medication
- Discuss how and when to take the different oral medications
- Identify the appropriate time to commence treatment and type of drug to use in different clinical situations
- Discuss strategies for improving tablet compliance
- Discuss the need for titration of dosage to help avoid potential side effects
- Describe adjustment of glucose-lowering medications and the use of combination therapy, ie using insulin and oral medications together
- Discuss the use of oral medication in children with Type 2 diabetes

- Discuss the care of insulin and strategies for storing insulin in the Caribbean
- I wanted to note that while I was in Jamaica, I had difficulty using my glucometer. Marianne
- Discuss management of insulin for pump users

Teaching strategies: Case studies with discussion and feedback, self-directed learning and lectures

Suggested time: Case studies: 2 hours
Lecture: 1 hour

Who should teach this module: Endocrinologist, diabetes educator, pharmacologist

Evaluation of learning: Successful completion of case studies

Insulin therapy

Overview: People with Type 1 diabetes require daily insulin therapy for life. The majority of children and adolescents who have diabetes have Type 1 diabetes (at the present time). As the move to intensify diabetes management to reduce or delay the onset of complications continues, more and more people with Type 2 diabetes will have insulin added to their oral glucose-lowering medication regimen or given in lieu of oral medication. The United Kingdom Prospective Diabetes Study (UKPDS) demonstrated that more than 50% of people with Type 2 diabetes require insulin therapy after 5 years to achieve better control. Therefore, insulin therapy should never be used as a threat in the context of poor control. Insulin regimens are varied and should be tailored to the goals and lifestyle of the person with diabetes.

Goals: To provide participants with an understanding of insulin therapy in Type 1 diabetes, Type 2 diabetes, gestational diabetes and other specific types of diabetes, such as steroid-induced diabetes.

Objectives: After completing this module, the participant will be able to:

- Differentiate between the various types of insulin
- Describe the role of insulin buffers
- Discuss the duration of action of different types of insulin
- Identify the source of insulin available within the participant's healthcare setting, ie. porcine, bovine, human recombinant DNA, analogues
- Identify factors affecting insulin requirements and absorption
- Describe side effects of insulin treatment including hypoglycemia, insulin edema, weight gain, lipohypertrophy and lipoatrophy
- Explain different insulin regimens, including intensive insulin therapy and combination therapy with oral agents
- Identify the appropriate type of insulin and regimen to use in different clinical situations
- Identify individualized treatment goals in terms of blood glucose levels, HbA1c, weight management and lipids
- Identify strategies that could assist the person to overcome fears associated with commencing insulin therapy
- Demonstrate preparation and administration of insulin using different methods, ie syringe, pens, Innovo®, pumps
- Understand the principles of insulin dosage adjustment
- Teach people how to adjust their own insulin dosages in order to achieve their targets for blood glucose control
- Discuss adjustment of insulin for special events, ie sick days, travel, physical activity, surgery, religious and cultural events
- Discuss the care of insulin and strategies for storing insulin in the Caribbean
- Discuss management of insulin for pump users

Teaching strategy: Lecture and Case studies (may include a person with Type 2 diabetes switching to insulin, a person with newly diagnosed Type 1 diabetes, intensive insulin therapy, adjusting insulin according to blood glucose records)

Suggested time: Case studies: 2 hours
Lecture: 1 hour

Who should teach this module: Endocrinologist, Pharmacologist, or diabetes educator

Evaluation of learning: Successful completion of case studies and MCQs

Nutrition Therapy

Overview: Effective nutrition therapy in diabetes has major benefits for both short and long-term diabetes outcomes. Both hypo- and hyperglycemia have devastating effects on the individual with diabetes and changes in eating habits can be difficult, especially in some cultural settings. The aim of this module is to provide both a theoretical framework and direct links with effective practical nutrition management and positive diabetes outcomes. A key component of the success of its delivery by diabetes educators is sensitivity to, and awareness of, cultural and religious backgrounds.

Nutrition management should be based upon individual nutritional assessment, optimal glycemic control and reduction of cardiovascular risk.

Nutrition education needs not only to include satisfactory methods to achieve optimum glycemic control, but also provide guidance on recommended daily intake for protein, carbohydrate, fat, saturated fat, poly- and monounsaturated fat, n-3 and n-6 fatty acids, fiber and antioxidant intakes. Nutrition changes are often difficult to achieve, therefore, diabetes educators should possess skills to facilitate positive nutritional changes in people with diabetes that allow them to maintain a good quality of life.

Goals: To provide a basis for nutritional therapy for people with diabetes that:

- Provides appropriate energy and nutrients for optimal growth, development and health
- Maintains or achieves ideal body weight
- Achieves and maintains optimal glycemic control for the individual by balancing food intake with insulin, metabolic requirements and physical activity
- Reduces the risk of microvascular complications through optimal glycemic control
- Assists in the prevention and treatment of the acute complications of insulin therapy, such as hypoglycemia, hyperglycemia, illness- and exercise-related problems
- Reduces the risk of macrovascular complications by achieving diabetes nutritional recommendations
- Preserves social and psychological well-being
- Provides the diabetes educator with basic strategies to assist people with diabetes to meet their nutritional needs

Objectives: At the end of this module, participants will be able to:

- Define the basic principles of a healthy diet
- State the essential nutrients for healthy eating
- Identify the cultural influences and eating styles of the population, taking into consideration ethnic minority groups
- Identify the social and psychological influences on food choice
- Identify the availability of healthy food choices
- List the indigenous staple foods
- List the carbohydrate content of common foods
- Identify the glycemic index of foods and its importance in the postprandial effect on blood glucose levels

Perform a food/nutrition assessment on a person with diabetes: (to be done by a nutritionist)

- List the problems that may be encountered when taking food/nutrition histories and assessing results (to be done by a nutritionist)
- Assess body mass index (BMI), waist-to-hip ratio and biochemical indices, e.g. glycemic control, lipids, renal function (to be done by a nutritionist)
- Identify the nutritional priorities for the individual, considering age, diet, medical, biochemical and anthropometric parameters

Provide effective nutrition information:

- Set realistic nutrition-related goals that are based on present dietary habits of the person with diabetes and are easy to achieve (to be done by a nutritionist)
- Consider socio-economic issues (to be done by a nutritionist)
- Address common dietary beliefs and misconceptions about food, nutrition and diabetes, and identify examples
- Culture, ethnicity, age and lifestyle should be considered when providing nutritional information
- When providing effective nutrition information, issues of a person and their family and careers should be included
- The amount of physical activity and working patterns are important considerations when providing nutritional information

Define the nutritional aims and principles for diabetes

- Identify protein, fat, carbohydrate, sucrose, alcohol, vitamins and antioxidants, minerals and trace elements and sodium recommendations,

- and the reasons behind the recommendations
- Identify the role of alternative sweeteners, sugar and diabetic foods in healthy eating and identify the acceptable daily intake of each sweetener
- Describe how to read food labels

Discuss different educational models used for teaching:

- Explain the importance of the Caribbean food group model and use portion sized models to demonstrate the size of servings
- Explain the various methods to teach carbohydrate assessment, e.g. carbohydrate counting levels 1, 2 and 3; glycemic index; qualitative diet, meal-planning approach and appropriate diet (For this objective, the group decided that more information from the field was necessary to define objective)
- Discuss the benefits and negative aspects of each type of system and their relationship to glycemic control

Identify specific nutrition-related needs of children, adolescents and adults with Type 1 diabetes:

Adult:

- Discuss quality-of-life issues and how to maintain psychosocial well-being
- Describe how to prevent hypo- and hyperglycemia
- Describe how to tailor the insulin profile to the individual's nutrition therapy (should be addressed by a medical professional)
- Appreciate and understand blood glucose monitoring in relation to nutrition/meal plan and insulin profile
- Discuss the effects of alcohol on blood glucose levels and offer appropriate advice

Children:

- Describe the constantly changing need for adequate insulin and energy in relation to growth and development
- Describe the reasons why nutrition goals are based on an individual's diabetes management goals
- Appreciate age-related problems, such as toddler food refusal, peer pressure, omission of insulin by teenagers, religious and cultural influences, insulin omission and hypoglycemia, fast food (eg burgers), which will differ between countries
- Appreciate the problems encountered by teenagers, which will differ between countries
- Appreciate the importance of behavior and other psychosocial issues in children and adolescents that may influence compliance — refer to Module I-4, Psychosocial and behavioral approaches

Identify specific nutrition-related needs of people with Type 2 diabetes:

Adult:

- Achieve and maintain realistic weight loss through a weight management program, if necessary, and support it by liaison with other programs, e.g. exercise programs
- Prevent obesity
- Prevent hypo- and hyperglycemia
- Manage dyslipidemia
- Promote psychosocial well-being, self-esteem and encourage physical exercise and changing lifestyle advice, if necessary
- Identify the relationship between weight loss and energy restrictions, insulin resistance and insulin requirements
- Identify the effects of meal spacing on obesity in Type 2 diabetes
- Identify the relationship between nutritional intake and micro- and macrovascular complications
- Reduce hypertension by effective weight management
- Appreciate the cultural meaning of obesity in some societies

Children:

- Identify the increasing incidence of Type 2 diabetes in children
- Identify ethnic minority groups that have a high prevalence of Type 2 diabetes in childhood
- Describe the importance of healthy eating for weight loss in children
- Design a suitable weight-reducing program for a growing child, to include adequate nutrients and lifestyle change*
- Identify other agencies to facilitate healthy food options and increased physical activities, ie schools
- Identify the various genetic types, eg maturity-onset diabetes of the young (MODY), and give appropriate healthy eating advice if not overweight

Identify the nutritional needs in dyslipidemia in diabetes*:

- Explain the links with Type 1 and Type 2 diabetes
- Describe the importance of 'total fat', 'saturated fat', monounsaturated, polyunsaturated and 'trans fatty acids' to cardiovascular risk
- Describe the importance of fish oils to cardiovascular risk
- Describe the relationship between fats and obesity

Identify specific nutrition-related needs of gestational diabetes, and during and after pregnancy (refer to Module IV–2, Gestational diabetes):

- List the important nutrients in meal planning for pre-conception
- advice and during pregnancy

- Discuss the importance of good glycemic control prior to and during pregnancy
- Identify the outcomes for the child and mother if glycemic control is poor
- Give nutritional advice post-pregnancy
- Stress the importance of avoiding hypoglycemia for the breastfeeding Mother
- Give nutritional advice for gestational diabetes considering the above objectives and national opinion
- Identify post partum regime for ideal weight

Identify food and medicine myths for treating diabetes that adversely affects the patient

- Identify local conceptions of what constitutes food, i.e. tea and crackers are food, though not considered a meal
- Identify particular herbs or foods that are thought to be helpful in treating diabetes, but are actually ineffective or harmful, such as string bean juice

Identify specific nutrition-related needs of the older adult, including those living in aged-care facilities (refer to Module IV-4, The older adult

- Recognize that the older adult may have other nutritional problems
- Recognize that people in institutions and homes do not have direct control over their eating patterns and the availability of food
- Discuss other factors, such as poor eyesight or dementia, that can affect diabetes management
- Recognize that poor glycemic control will result in high complication rates in the older adult and surveillance of complications may be poor compared with younger people
- Discuss the fact that more social care and practical help may be necessary and liaison with other agencies is important

Identify specific nutrition-related needs of people of an ethnic minority:

- Discuss the eating patterns of all cultures within the given population
- Discuss particular barriers that affect diabetes, such as the influence of culture and religion on eating patterns and myths about various foods
- Identify local foods/medicines that may be taken as alternative forms of medication and be able to give appropriate advice
- Produce information and leaflets that are culturally sensitive and suitable for the population. For example, photographs of goods may be more appropriate if literacy is an issue
- Identify whether other nutritional problems exist in the given

population

Identify nutritional information during cultural festivals according to religion:

- Identify the religious and cultural festivals in the region and quantify the implications for diabetes, eg fasting
- Give guidance on adjusting the timing of meals/drinks and medication
Recognition of eating disorders in diabetes*:
- Identify the higher incidence and prevalence of abnormal eating habits and eating disorders (anorexia nervosa, bulimia nervosa and binge eating) in younger people with diabetes (The group was unsure if this should be included)
- Appreciate the antecedents to eating disorders and the prevalence within the given country and population
- Give guidance on strategies when eating disorders are diagnosed
- Identify diagnostic tools suitable for identifying eating disorders, e.g. questionnaires

Produce suitable resources and information for the needs of the particular diabetic population served:

- Identify availability of and use local/national/international support organizations and networks

Teaching strategies: Lectures, demonstrations, label reading practice, BMI measurements, identification of local resources
Problem solving through case studies, discussion groups (with adults, children and adolescents with diabetes)

Suggested time: 10 hours

Who should teach this module: Dieticians who specialize in both adult and pediatric diabetes

Evaluation of learning:

- Collection of nutritional information from a person with diabetes and then advise, adapt and negotiate nutritional goals
- Development of suitable resources and information for the needs of the particular diabetic population served
- Identification of the different cultures within the population and produce literature and teaching aids that are suitable. These may include translated leaflets, videos, food models and audiotapes
- Identification and facilitation of local, national and international support organizations, facilitating patient contact with them and advising on the credibility of recommended organizations

-Awareness of the networks that exist to communicate with other health professionals who are involved with the nutritional management of diabetes

Physical Activity

Overview: Regular physical activity is important for everyone. It is particularly beneficial in the management of Type 2 diabetes. While exercise is important to improve general well-being in Type 1 diabetes, it does mean that the person needs to be more proactive in adjusting his/her daily management regimen. The potential benefits of a physically active lifestyle for people with diabetes include increased physical fitness, improved glycemic control, reduced risk of cardiovascular disease, decreased adiposity and enhanced psychological well-being. However, exercise is not without risks, and the recommendation that people with diabetes participate in an exercise program is based on the premise that the benefits must outweigh the risks.

Goal: To provide participants with knowledge regarding methods and conditions that can optimize the benefits and minimize the risks of regular exercise for people with diabetes.

Objectives: After completing this module, the participant will be able to:

- Differentiate between aerobic and anaerobic exercise metabolism
- Describe the characteristics of aerobic physical activity and resistance training and give examples of each
- List the beneficial effects of regular exercise in both Type 1 and Type 2 diabetes, including lower blood glucose concentrations during and after exercise; improved insulin sensitivity; improved lipid profile; lower blood pressure; increased energy expenditure and increased cardiovascular conditioning
- Describe physiological consequences of exercise training in Type 1 and Type 2 diabetes
- Discuss the effects of exercise in relation to insufficient and excessive circulating insulin
- Identify suitable recommendations for the intensity, duration and frequency of exercise for individuals
- Understand the differences between metabolic and cardiovascular fitness targets
- Describe the nutritional management around low, medium and intense forms of exercise

- Discuss the importance of correctly adjusting energy expenditure (e.g. frequency, intensity and duration of exercise) with the individual's clinical status and personal preferences
 - Describe alternatives to exercise for people with micro- or macrovascular complications of diabetes
 - Describe alternatives to exercise in people with current or previous foot disease, ulceration, Charcot's arthropathy
 - Describe alternatives for exercise in people with physical limitations, eg arthritis, amputation
 - Identify the appropriate investigations to complete prior to starting an exercise program for people at risk
 - Discuss the risk, prevention and treatment of exercise-induced hypoglycemia in people taking insulin or glucose-lowering medication
 - Recognize the prolonged effect of exercise in Type 1 diabetes and the subsequent risk of hypoglycemia many hours after exercise
 - Recognize that individuals have real and perceived barriers to exercise
 - Describe alternatives to outdoor exercise in areas where safety may be an issue
 - Recognize the cultural context of the area where exercise programs are created and plan accordingly
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Teaching strategies: Lecture, interactive groups

Suggested time Lecture: 1–1 1/2 hours

Who should teach this module: Physicians, nurses, exercise physiologists or physical therapists

Evaluation of learning: Short assignment, development of an exercise plan

Complimentary Therapies

Overview: Globally, there is increasing use of complementary therapies by the general population and health professionals. In some countries, a complementary therapy practitioner could be the first contact for healthcare assessment. The frequency of use of complementary therapies by people with diabetes is largely unknown, but probably mirrors that of the general population. Therefore, there is a need for diabetes educators to have some knowledge about

the issues surrounding the use of complementary therapies by people with diabetes.

Complementary therapies are known by a variety of terms such as 'alternative', 'natural', and 'traditional'. The varied terminology can be applied differently in different countries, or even in regions of the same country. Importantly, although complementary therapies have a common philosophical basis, they are very heterogeneous in their approach and each therapy is different from the others.

Goal: To explore the place of complementary therapies in the management of people with diabetes.

Objectives:

After completing this module, participants will be able to:

- Discuss the philosophical basis of complementary therapies
 - Identify the different complementary therapies available within their region
 - Describe the types of therapies and frequency of use by people with diabetes in their region
 - Discuss the role of complementary therapies in diabetes management
 - Describe issues related to the safety and efficacy of complementary therapies, including the knowledge and competence of therapists, potential for allergies, drug–drug interactions and adverse events, fragmented care and the issue of untested and unregulated substances
 - Provide advice to people with diabetes about the use of complementary therapies that is non-judgmental and relevant to the particular country
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Teaching strategies: Lectures, group discussion, visit to a complementary therapist, debate, seminar

Suggested time: 1–2 hours

Who should teach this module: Joint teaching between a complementary therapist and knowledgeable conventional practitioners

Evaluation: Short assignment on the implications of the increasing use of complementary therapies that is non-judgmental and relevant to the particular country

Diabetic Retinopathy

Objectives: Upon completing this module, the participant will be able to:

- Counsel children, adolescents and adults about the risks of developing retinopathy associated with poor glycemic control
- Reassure the person that blurred vision associated with poor metabolic control is likely to be transient and will resolve itself with improved control
- Describe the epidemiology of diabetic retinopathy, including incidence and prevalence rates
- Describe predictors of the development of retinopathy and the natural history of the condition
- Describe the different grades of retinopathy and the characteristic clinical features of each grade*
- Understand that vision can be normal in the presence of serious retinopathy
- Discuss the importance of testing visual acuity
- Describe the need for regular screening
- Reassure the person that not all retinopathy is vision-threatening
- Understand that, apart from intensive glycemic and blood pressure control and laser therapy, no other therapy has been shown to influence the development or progression of retinopathy
- Discuss the rationale for laser therapy and the clinical trials that provided evidence for this form of therapy, i.e. the Early Treatment
- Understand that early treatment with laser therapy is more effective in preserving vision if visual acuity is better than 6/24*
- Describe the different patterns of laser therapy
- Describe the information required to inform a person with diabetes about the benefits and side effects of laser therapy, ie loss of night vision, decreased ability to accommodate quickly, some deterioration in visual acuity if laser therapy is given for macular edema
- Discuss the consequences of vitreous hemorrhage and the role of vitrectomy (Refer to ophthalmologist)
- Discuss the increased risk of exacerbating retinopathy in special circumstances such as following cataract surgery or with some forms of strenuous exercise (Refer to ophthalmologist)
- Describe the increased frequency in the development of cataracts at an earlier age in people with diabetes (Refer to ophthalmologist)
- Describe the psychosocial impact of visual loss on a person with diabetes and their relatives — refer to Module I-4, Psychosocial and behavioral approaches (Refer to ophthalmologist)
- Investigate the resources available in the community for the visually impaired (Refer to ophthalmologist)

Teaching strategies: Lecture, experiential learning

Suggested time: Formal session involving a case study: 1–2 hours
Visit eye clinic, if possible

Who should teach this module: Doctor, diabetes educator, ophthalmologist, Society for the Blind representative

Evaluation of learning: Role play discussing the implications for a person with newly diagnosed retinopathy; name at least one community resource for the visually impaired

Diabetic nephropathy

Objectives: At the completion of this module, the participant will be able to:

- Counsel children, adolescents and adults about the risks of developing nephropathy associated with poor glycemic control
- Describe the epidemiology of diabetic nephropathy, including incidence and prevalence rates
- Describe predictors of the development of nephropathy and the natural history of the condition
- Describe the various levels of renal involvement, including micro and macro-albuminuria
- Understand the transient nature of microalbuminuria and the causes of transient increases in albumin excretion
- Discuss the impact of microalbuminuria in both Type 1 and Type 2 diabetes
- Understand that microalbuminuria is a marker for vascular disease
- Describe the various intervention studies demonstrating the benefits of improving glycemic control (Diabetes Control and Complications Trial [DCCT], UK Prospective Diabetes Study [UKPDS])
- Describe the relationship between hypertension and the progression of renal disease in diabetes
- Describe the importance of blood pressure control in managing

diabetic renal disease and often the need for more than one blood pressure medication used concurrently

- Describe the clinical features of end-stage renal failure
- Describe the dietary changes necessary with the progression of renal failure
- Understand the need for reducing insulin requirement in end-stage renal failure
- Describe the differences between peritoneal and hemodialysis*
- Understand that renal transplantation is a treatment option for some people
- Describe the psychosocial impact of end-stage renal failure on the person with diabetes and their relatives — refer to Module I-4, Psychosocial and behavioral approaches
- Investigate the resources available in the community

Teaching strategies: Lecture, experiential learning

Suggested time: Formal session involving a case study: 1–2 hours

Who should teach: Endocrinologist, diabetes educator, renal nurse, nephrologist this module

Evaluation of learning: Role play discussing the implications for a person with newly diagnosed kidney disease and the management required

Diabetic neuropathy

Objectives: At the end of this module, the participant will be able to:

- Counsel children, adolescents and adults about the risks of developing neuropathy associated with poor glycemic control
- Define the different types of poly- and mononeuropathies associated with diabetes, e.g. motor, sensory, autonomic, truncal and cranial nerve
- Describe the impact of autonomic neuropathy on various organs
- Describe the impact of autonomic neuropathy on quality of life — refer to Module I-4, Psychosocial and behavioral approaches and Module III-9, Diabetes and sexual health
- Describe the impact of gastroparesis on metabolic control and the management of gastroparesis
- Identify the most common form of diabetic neuropathy

- Describe the role and function of the sensory and motor nerves
- Describe the metabolic and structural abnormalities that occur in diabetic peripheral neuropathy and the suggested physiological pathways of those abnormalities
- Describe the signs and symptoms of diabetic peripheral neuropathy
- Demonstrate the clinical assessment for peripheral neuropathy and understand the significance of the findings
- Describe the features of painful diabetic neuropathy
- Differentiate between painful diabetic neuropathy and other causes of peripheral pain
- Explain the significance of the asymptomatic insensate foot
-

Assess the diabetic foot:

- Describe the effect of diabetes on blood vessels, nerves and joints
- Define those factors that place the foot at risk of ulceration
- Define the 'high-risk foot' using the foot screening protocol using the foot screening protocol (appendix)
- Describe how these factors can lead to amputation
- Perform and understand the results of non-invasive tests such as biothesiometer or monofilament, obtain a history of the associated symptoms and observe clinical signs of peripheral neuropathy
- Perform routine assessment of mechanical factors, such as foot deformity
- Assess nail and skin integrity
- Assess the presence of claudication and rest pain
- Assess a person's ability to care for his/her feet
- Interpret the results of patient assessment to determine a management plan

Provide preventative foot care:

- Define the appropriate self-care practices to be taught to a person with diabetes and vascular disease and/or loss of sensation:
 - selecting and wearing appropriate footwear
 - first aid for minor skin breaks, tinea, dry skin, etc
 - safe exercise
 - daily foot inspection
 - where and when to seek appropriate medical attention
- Describe the treatment of common foot problems, such as tinea, skin fissures, dry skin, calluses, corns and ingrown toenails

Assess foot problems:

- Describe the presentation and pathophysiology of Charcot's arthropathy*
- Assess and monitor the Charcot's foot to determine the stage of the condition as acute or chronic*

- Describe the treatment for acute and chronic Charcot's arthropathy*
- Describe the etiology of:
 - neuropathic foot ulceration
 - ischemic foot ulceration
 - mixed etiology (neuroischemic) foot ulcers
- Identify the features of each type of ulcer
- Describe the treatment goals for each type of ulcer
- Understand the principles of moist wound healing and the stages of normal wound healing
- Understand the factors that delay wound healing in a person with diabetes
- Understand the indications for, and application of, locally available wound dressing
- Identify the signs and symptoms of infection in a diabetic foot
- Understand the importance of appropriate control of infection
- Employ simple strategies to reduce the pressure on the wound to facilitate healing
- Understand the safe indications for wound debridement
- Describe the role of relevant investigations, such as wound swabs and X-rays in the management of foot ulceration
- Describe how optimum nutritional intake facilitates wound healing
- Describe local referral pathways for wound management
- Understand the impact on quality of life for people with insensate feet, foot problems or amputation — refer to Module I-4, Psychosocial and behavioral approaches

Teaching strategies: Lecture, theory, practical demonstration and group participation for clinical assessment of neuropathy
Visit multidisciplinary foot clinic, if possible

Who should teach this module: Podiatrist, surgeon, chiropodist, diabetes educator, public health nurse

Evaluation of learning: Role play demonstrating neurological assessment
Student-facilitated teaching of foot care for high-risk feet

Cardiovascular Disease

Overview: Although microvascular and neuropathic complications can impede the quality of life of a person with diabetes, macrovascular disease is responsible for considerably higher morbidity and mortality. Every study in this area has found that people with diabetes are at least 2–4 times more likely to develop macrovascular disease compared to the general population. This increased risk is particularly striking in women, especially for coronary heart disease. The increase in vascular disease in diabetes occurs in all major vascular systems: cardiovascular, cerebrovascular and peripheral vascular systems.

Goals: To understand the significant impact of morbidity and mortality due to macrovascular disease in people with diabetes.
To understand that diabetes is more than a 'blood glucose' disease, it is also a condition with significant macrovascular risk.

Objectives: At the end of this module, the participant will be able to:

- Understand that manifestations of macrovascular disease vary between different ethnic groups
- Understand that macrovascular disease can be divided into three types: coronary heart disease, cerebrovascular disease and peripheral vascular disease
- Describe silent ischemia, angina, transient ischemic attack (TIA), claudication and rest pain
- Understand what a macrovascular event is, including stroke and myocardial infarction
- Discuss the increased risk of a macrovascular event in people with diabetes, ie strokes occur twice as often in people with diabetes and hypertension than in those with hypertension alone, TIAs occur 2–6 times more frequently in people with diabetes; people with diabetes are 15–40 times more likely to have an amputation; and those over 70 years of age have a 70-fold increase in lower limb gangrene
- Describe how diabetes increases the risk of cardiac failure
- Discuss the relationship or lack of evidence for the relationship between hyperglycemia and increased macrovascular risk
- Recognize central obesity as a marker for increased vascular risk
- Describe risk factors and the additive effect of multiple risk factors
- Describe the different types of cholesterol and targets for treatment
- Discuss the role of nutrition in primary and secondary prevention
- Discuss the role of lifestyle factors in therapy (regular exercise, smoking cessation, sustained weight loss for those who are overweight)
- Discuss the role of HMG-CoA reductase inhibitors in reducing the

chance of a macrovascular event within 6 months of beginning therapy in a person with established heart disease

- Describe the role of lowering blood pressure in reducing the risk of stroke and cardiac failure
- Discuss the benefits of aggressive management of dyslipidemia and hypertension, even in the elderly
- Discuss the use of aspirin in primary and secondary prevention
- Describe the increased risk of macrovascular disease in the presence of microalbuminuria/nephropathy and the need for aggressive management of macrovascular risk factors

Teaching strategy: Problem-based learning involving case studies and lectures

Suggested time: 2 hours

Who should teach this module: Endocrinologist, diabetes educator, cardiologist

Evaluation of learning: Assignment: describe the importance of risk-reduction strategies in Type 1 and Type 2 diabetes. Design a care plan for an overweight person with Type 2 diabetes who has a family history of heart disease, listing which assessments should be performed

Diabetes in Children and Adolescents

Overview:

Annually, more than 200 000 children are diagnosed with Type 1 diabetes worldwide and its incidence continues to increase by 3–5% per year. Despite recent progress in our understanding of the genetics and immunology of the condition, the cause is unknown. Although Type 2 diabetes has been considered rare in the pediatric population, there has been an increased incidence reported throughout the world associated with the increase of childhood obesity and inactivity.

As they grow, children and adolescents with diabetes have special and changing needs. These needs must be recognized and addressed by the general public and health professionals alike. Although their total dependence on insulin and their need for good and appropriate nutrition is the same as adults with Type 1

diabetes, there are major physical, emotional, psychological, social and intellectual differences and needs.

These differences arise from the stages of growth and development through which young people pass. Infants, toddlers, school children and adolescents with their developing independence must each be considered differently.

All young people with diabetes have the right to competent medical management and diabetes education by a team or individuals with expertise in, and an understanding of, the medical and psychosocial needs of young people and their families.

A child cannot fight for these rights. It is therefore the responsibility of society to provide all necessary support to the child and family. This should include medical, social, public, government and industrial resources and efforts.

Optimal management of diabetes in young people will include urine testing for glucose and ketones, monitoring blood glucose levels, food and exercise, along with taking 2–4 injections of insulin per day and/or other medications. It is essential that monitoring by the diabetes team occurs regularly.

Individualized assessment of the child's maturity level, developmental stage, family and social support, eating habits, and school and sports schedules is critical. The assessment should also be sensitive to cultural, socio-economic and environmental determinants in developing a realistic, comprehensive, individualized management plan.

Goal: To understand that children are not adults and it must be recognized that treatment of children/adults with diabetes is significantly different”

“To discuss these special and changing needs of children/adolescents with diabetes and their parents, families and other caregivers

Objectives:

- Recognize that children have special and different needs and that these needs will change over time
- To define diabetes tasks that will be required of a child
- Recognize the constantly changing insulin requirements during growth and development
- To recognize and understand the use of oral agents suitable for management of children/adolescent living with type 2 diabetes
- Discuss how to interpret blood glucose results and adjust insulin accordingly

- Recognize that children have special and different needs and that these needs will change over time
- Describe the key management components of diabetes care in children — refer to specific care topics, eg insulin, insulin adjustment, blood glucose monitoring, self-care, psychosocial
- To recognize the importance of weight management in children and adolescence with diabetes
- Recognize the practical skills and issues associated with insulin therapy in young people:
 - describe how to dilute insulin for small doses
 - describe the need for rotation of injection sites in children and adolescents
 - describe the need for short, fine needles, if available
- To recognize the importance of peer related support groups in ongoing management of children/ adolescents living with diabetes: eg. Camp Yellowbird
- To recognize regular interaction with health care providers is an integral part of appropriate management

Impact of age

- Describe the needs of children at each stage of growth and development and the impact of diabetes at each stage
- To recognize that accomplishing diabetic tasks are based more on emotional maturity and parental/caregiver support rather than on chronological age”

Nutrition

- Recognize that obesity and being overweight are the family’s problem, not just the child/adolescent
- Understand the need to organize meal plans around the child’s food preferences
- Discuss the key role that food plays in the dynamics of the family
- Describe the reasons why nutrition goals are based on needs for appropriate growth and development
- To recognize that an appropriate meal plan is designed around the individual’s diabetes management goals
- Appreciate age-related problems, for example, toddler food refusal, peer pressure, omission of insulin by teenagers, religious and cultural influences, insulin abuse and hypoglycemia, and fast food (eg burgers), which will differ between countries
- To describe the guidelines associated with meal planning to prevent hypoglycemia
- To recognize the association between insulin therapy and appropriate meal plan in preventing hypoglycemia

- Describe the importance of healthy eating and reduction in energy to stabilize weight gain
- Design a suitable weight-reduction program for a growing child (to include adequate nutrients and lifestyle changes)

Psychosocial Influence

- Recognize the emotional trauma present when the diagnosis of diabetes is made, begin education when the family is ready, and pace education accordingly to the family's needs
- Appreciate the importance of specific behavior psychological and social characteristics in children and adolescents that may influence compliance
- Discuss the psychosocial and educational impact of obesity on the management of children/adolescent with type 2 diabetes
- Discuss the need to encourage appropriate support from the extended family, caregiver, and peers
- To understand the psychological dynamics and strategies to promote sound family functioning, health beliefs and quality of life
- Discuss family dynamics and strategies to promote acceptance and agreement for sharing responsibilities for a management plan
- Discuss the need to facilitate total integration of young person with diabetes in all activities at school
- Discuss strategies for coping with insulin refusal or omission
- Understand the strategies for minimizing trauma in blood testing and coping refusal
- Recognize the fear that parents and youths have with regard to hypoglycemia and the impact this has on tightening blood glucose control
- Understand that different environmental circumstances, such as school activities, camp day trips, sleep-overs and sports days, can increase the likelihood of hypoglycemia
- Promote the special diabetic camps and other group activities for different age groups
- Promote the need for all children to be involved in all sports at all levels

Adolescents

- Discuss risk-taking behaviors in adolescents where culturally appropriate:
 - eating disorders
 - alcohol
 - drugs
 - smoking
 - unprotected sex
- Discuss safety issues concerning adolescent driving

- Discuss the strategies to educate teachers, church/religious community, and leaders on understanding needs of adolescents living with diabetes
- Assist parents in developing their own support group
- Identify behavior that might require special attention psychological help

Complications:

- Discuss in a comprehensive but positive way, the risks of developing long-term complications, strategies for prevention or reducing their progression and the need for annual assessment

Rare forms of diabetes:

- Identify the various genetic types of monogenetic diabetes of youth (MODY) and give appropriate healthy eating advice if not overweight
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Teaching Strategies: Short lectures, problem solving through case presentations, role play, presentation by parent/adolescent, attendance at camp

Suggested time: 4 hour lecture, 2 hour case presentation/role play

Who should teach this module: Educator and or/pediatrician, behavioral scientist with expertise in diabetes, or nutritionist

Evaluation of Learning: Multiple choice questionnaire. Present a case history that illustrates a problem and discuss possible alternatives to solve it from the therapeutic/psychosocial point of view

Pregnancy in pre-existing diabetes

Overview: Women with pre-existing diabetes can have successful pregnancies; however, more intensive management, both pre-conception and throughout the pregnancy, is essential. An interdisciplinary approach that includes an obstetrician and the diabetes team is ideal. Where possible, the baby should be born in a facility that has the ability to provide specialized care for neonates.

Goal: To provide the participant with an understanding of the special needs

of women with diabetes who are pregnant.

Objectives At the completion of this module, the participant will be able to:

- Discuss the need to advise on pre-pregnancy planning including contraception and the importance of good blood glucose control before pregnancy
- Discuss the effects of diabetes on pregnancy and the effects of pregnancy on blood glucose control and diabetic complications
- Discuss the need for women to undergo a complication assessment, and to revise hypoglycemia management, glucagon and sick day management before conception
- Provide education about the risks of hypoglycemia and strategies to cope with morning sickness in early pregnancy
- Describe the team approach to management, including the educator, dietician, endocrinologist, obstetrician and ophthalmologist, and a renal physician in some cases
- Recognize that nutrition plays a role in both the management of blood glucose and nourishment for mother and child, and the need for altered dietary requirements
- Discuss the need for regular complication assessment at the beginning of the pregnancy and each trimester
- Describe the need to change to insulin before pregnancy if Type 2 diabetes is treated with glucose-lowering agents
- Discuss the need to cease treatment with an ACE inhibitor before pregnancy and change to another antihypertensive agent
- Discuss the need for frequent contact with the diabetes healthcare team and the need to increase insulin dosages as pregnancy progresses
- Discuss the need for home glucose monitoring to ensure blood glucose control
- Describe the reason for planning and encouraging delivery in a major hospital with good neonatal care
- Outline the importance of post-partum restablization, the dramatic drop in insulin requirement and greater insulin sensitivity after birth
- Recognize and educate women with regard to increased nutritional needs both during pregnancy and the increased risk of hypoglycemia —refer to nutritional module

Teaching strategy: Problem-solving through case study. Involvement of a woman with diabetes who has had a successful pregnancy

Suggested time: 2 hours

Who should teach this module: Educator and/or endocrinologist, obstetrician with relevant expertise

Evaluation of learning: Multiple-choice questionnaire
Present a case history that illustrates a problem and discuss possible alternatives to solve it from the therapeutic/psychosocial point of view

Gestational Diabetes

Overview: Gestational diabetes mellitus is a common manifestation in the later stages of pregnancy, usually diagnosed between 24 and 28 weeks' gestation. Gestational diabetes increases risks for both mother and baby and must be treated promptly, with stringent blood glucose levels to decrease these risks and improve the outcome.

Gestational diabetes increases the risk of development of Type 2 diabetes for both mother and child later in life. It is more common in certain ethnic populations.

Goal: To understand the importance of early diagnosis, and prompt and adequate treatment for women who develop gestational diabetes.

Objectives: After completing this module, the participant will be able to:

- Define gestational diabetes and recognize diagnostic criteria
- Discuss the policy for universal screening for gestational diabetes
- Describe the pathophysiology of gestational diabetes and the effects on the gestational state, including symptoms of hyperglycemia and risk to mother and baby
- Describe the woman at risk of developing gestational diabetes
- Develop a management plan taking into account obstetric status, diabetes control and culture
- Recognize the need for intensive monitoring
- Discuss strategies for deciding when insulin is needed — refer to Insulin therapy
- Recognize that nutrition plays a role in both the management of blood glucose levels and nourishment for mother and baby — refer to Nutrition therapy
- Discuss the need for frequent contact with the diabetes

- healthcare team
- Discuss the need for management of labour for women with gestational diabetes
 - Discuss post-partum follow up with the endocrinologist, obstetrician, diabetes educator and dietician
 - Discuss the potential for the mother to develop diabetes and the child to develop obesity and/or diabetes
 - Advise and educate on measures to prevent the development of diabetes, eg exercise, diet, weight loss and reduction of vascular risk factors such as smoking, hypertension and hyperlipidemia
 - Discuss the possibility of future pregnancies, arrange pre-pregnancy assessment, encourage good diet before or early in pregnancy (including carbohydrate management), repeat screening at 14–18 weeks' gestation
-

Teaching strategies: Short lectures, case presentations, role play

Suggested time: 2 hours

Who should teach this module: Diabetes educator and/or endocrinologist, obstetrician with expertise in this area

Evaluation of learning: Multiple-choice questionnaire
Present a case history that illustrates a problem and discuss possible alternatives to solve it from the therapeutic/psychosocial point of view

The Older Adult

Overview: The prevalence of diabetes increases significantly with age in many countries. As people age, their ability to cope with living, learn new information and remain independent vary greatly. Older people are not an homogeneous group and, therefore, it is important to treat them as individuals and address their individual needs.

Goal: To provide participants with the opportunity to consolidate their understanding of the special psychosocial, educational, nutritional and psychological requirements of older people with diabetes.

Objectives: After completing this module, the participant will be able to:

- Define why special consideration is required in the management of older people with diabetes

- Describe the areas that need special consideration when managing diabetes in older people
 - Recognize the singular characteristic that older people as a result of the aging process itself and the disability resulting from disease complications
 - Recognize that older people with diabetes have a higher incidence of undiagnosed depression
 - Define the issues to be considered when assessing the different treatment options and goals for older people
 - Describe the factors that need to be considered when deciding on medication for older people with diabetes
 - Recognize that older people are at increased risk of falling and consider the diabetes-specific factors that contribute to falls in the elderly
 - Recognize the specific precautions that apply to the older person with diabetes undergoing surgical procedures or investigations that involve intravenous dyes, eg radiopaque contrast media
 - Recognize that older people are an 'at-risk' group with regards to nutrition
 - Define the factors that need to be considered when assessing the exercise requirements of this group
 - Describe the strategies required to assess the educational needs of older people
 - Extrapolate this information to assist in the selection of appropriate educational methods and resources
 - Outline this information to assist in the selection of appropriate educational methods and resources
 - Outline the community resources available for older people
 - Extrapolate this information to assist in the planning of safe and appropriate diabetes care for older people
 - Discuss the management of the older person in residential agedcare Facilities
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Teaching strategy: Case study to highlight the special medical, social, nutritional and psychological requirements of an elderly person with diabetes

Suggested time: 1 hour

Who should teach this module: Diabetes educator or dietician, geriatrician

Evaluation of learning: Development of a management plan for an older person
 Assignment: Ask participants to describe the care available to older people with diabetes in their particular country

