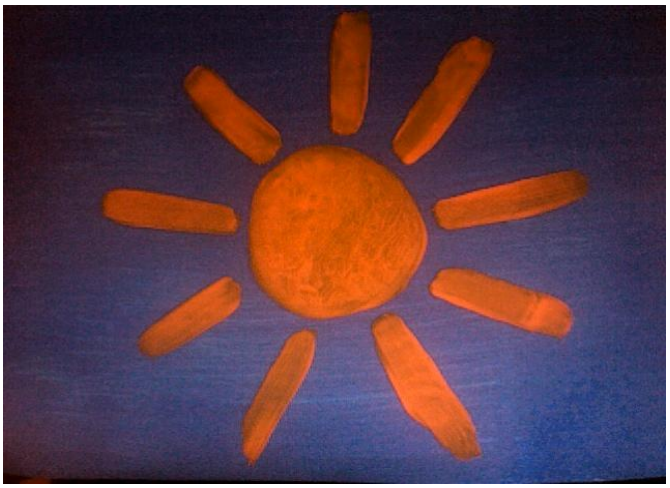
DIABETES AND DEPRESSION:

Why treating depression and maintaining positive mental health matters when you have diabetes



An educational booklet on the importance of managing your mental health to live better with diabetes

An International Awareness Packet from the WORLD FEDERATION FOR MENTAL HEALTH
12940 Harbor Drive
Suite 101
Woodbridge VA 22192 USA
<www.wfmh.org>

Additional copies of the CD may be requested from:

World Federation for Mental Health
12940 Harbor Drive
Suite 101
Woodbridge VA 22192 USA
Info@wfmh.com
1-703-494-6515

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Introduction and Acknowledgements

Throughout this packet, the term "depression in diabetes" is used to refer to the presence of depression in people with diabetes.

A growing body of scientific evidence has shown that untreated depression – in combination with diabetes – causes significant adverse outcomes. Untreated, depression in diabetes can increase the risk for diabetes-related complications, such as heart disease, blindness, limb amputations, stroke, and kidney disease. By getting early treatment for depression, people with diabetes can often avoid these serious complications.

Over the past decade, researchers have gained ground in their efforts to more clearly elucidate the links between diabetes and depression. Current research suggests that each disease is a risk factor for developing the other, that the two disorders may share similar patho-physiological mechanisms (Ajilore et al 2007), and that depression may indicate particularly severe underlying diabetic illness (Black et al 2003).

Researchers continue to study why those with diabetes are at least twice as likely to be depressed as those without diabetes (Anderson et al 2001; Gavard et al 1993; Knol et al 2006), and why the presence of depression appears to significantly increase the likelihood of later developing Type 2 diabetes (Carnethon et al 2003; Mezuk et al 2008).

Most importantly, there is now evidence that the prevalence of diabetes is **increasing** in both the general and psychiatric populations (Katon et al 2009), a disturbing trend that must be halted for those at risk of developing either disorder. Scientists worldwide are now more intensely exploring the relationship between depression and diabetes, with new work focusing on developing effective treatments for those with both disorders.

On the heels of this emerging set of research, a number of significant, collaborative – and most importantly – ***global efforts*** are underway to further examine the co-morbidity of diabetes and depression, and to develop programmes for improving outcomes and the quality of life for those with this costly co-morbid disorder. Included in this educational packet is a brief overview of some of these programmes; click here for a brief overview of these efforts. One of the newest programmes is the Dialogue on Diabetes and Depression (DDD), of which the World Federation for Mental Health is a part.

The Dialogue on Diabetes and Depression (DDD) is a global programme created to study and assess the pathogenesis, clinical problems and public health consequences of co-morbid depression and diabetes. The groups' international membership insures that culture and country are considered as they study the

co-morbidity of depression and diabetes, and the various factors affecting the development of this co-morbid condition. DDD researchers are focused on studying the epidemiology and pathogenesis of this co-morbidity, treatments (and their evaluation), the delivery of proven interventions in the wide range of health care systems around the globe, including those aimed at improving public health, and the health economics of treating these co-morbid conditions.

This international mental health awareness packet was supported through an unrestricted educational grant from Eli Lilly USA, LLC. WFMH expresses appreciation to Eli Lilly for its interest in getting useful, accurate and evidence-based information and awareness materials into the hands of grassroots mental health consumer/patient, family/caregiver, and citizen advocacy organizations worldwide.

The World Federation for Mental Health is pleased to make this awareness packet available to you, and hopes that you find it of value in your local community-based efforts to improve the outcomes for those with depression in diabetes.

Tony Fowke, AM
President
World Federation for Mental Health

The Dialogue on Diabetes and Depression Initiative

The Dialogue on Diabetes and Depression (DDD) is a global programme created to study and assess the pathogenesis, clinical problems and public health consequences of co-morbidity of depressive disorders and diabetes.

The programme is taking stock of available knowledge – both scientific evidence and clinical experience – in many countries of the world. Members of the program are working to define areas of intervention as well as priorities for research concerning the co-morbidity of depression and diabetes. They will also define areas in which the organizations that participate in the programme can work together in the future.

Chaired by Professor Norman Sartorious, MD, PhD, a psychiatrist previously responsible for the programme of mental health at the World Health Organization and past President of the World Psychiatric Association, the Dialogue on Diabetes and Depression is being jointly developed by the organizations listed below. For more information on the DDD, see www.diabetesanddepression.org.

Participating Organizations

Action for Mental Health - Association for the Improvement of Mental Health Programmes
American Association of Clinical Endocrinologists
American Diabetes Association
European Association for the Study of Diabetes / Psychosocial Aspects of Diabetes
Global Alliance of Mental Illness Advocacy Networks
International Council of Nurses
International Society for Affective Disorders
International Society of Behavioral Medicine
World Federation for Mental Health
World Organization of Family Doctors
World Psychiatric Association

Collaborating Institutions

Lilly Research Laboratories
Lundbeck Institute
Novo Nordisk
Pfizer
Takeda
Trimbos Instituut

The World Federation for Mental Health (WFMH) is pleased to be a participant in the Dialogue on Diabetes and Depression initiative, and deeply appreciates the excellent work that is being done to raise awareness and action in regard to the interrelationship between these two major public health issues.

This information packet will make available solid evidence-based information that can be used by organizations around the world to inform the general public on this important public health issue.

Complete Care for Diabetes and Depression – An Overview

Diabetes and depression: all around the globe, these two words are now more often paired together, regardless of culture or country.

Diabetes is one of the most *common chronic conditions* in the world; over 285 million people have diabetes worldwide (Diabetes Atlas 2009). The greatest relative increases in diabetes (by 2030) are estimated to occur in the Middle Eastern Crescent, sub-Saharan Africa, and India (Wild et al 2004). There are two Types of diabetes, Type 1 and 2 (click here for definition of Type 1 and Type 2 diabetes). Left untreated, **diabetes** can lead to complications and even death (Richardson et al 2008).

There is abundant evidence that depression in diabetic patients is:

- more **frequent**
- more apt to be **severe**
- more apt to be **recurrent**
- **difficult to treat**
- strongly correlated with **diabetes complications**

(Hellman 2008)

Depression is also a common and serious medical condition all around the globe (click here for definition of depression). It is more than just feeling the 'blues' or having a 'down' day. Depression matters because it can affect all parts of your life, including changing your appetite, sleep patterns, interest in everyday activities, work productivity, and your relationships with others.

If you have diabetes, you have an **increased risk of developing depression** (Anderson et al 2001; Hellman 2008); and, if you have depression, you have a greater chance of developing Type 2 diabetes (Rubin et al 2008). There is now evidence that the prevalence of depression together with diabetes is **increasing** (Katon et al 2009).

Many factors influence the diagnosis of depression in diabetes. Some of these include cultural and economic factors, social and family influences, as well as psychological and behavioral influences. In addition, biological mechanisms, like the 'hard-wiring' of your brain, will also determine whether or not you may get both disorders (Fisher & Chan 2008).

If you are newly diagnosed with diabetes and learning about the disorder when depression strikes, you may feel overwhelmed by trying to manage both disorders day-to-day. Or perhaps you have lived with diabetes for awhile, and you have been struggling to maintain needed lifestyle changes when depression hits.

Whether newly diagnosed, or someone who has had diabetes for a long time, the burden of managing the disorder on a daily basis can be stressful, and the

addition of depression can make managing each day more daunting. If you have diabetes and think you might have depression, seek help immediately. Depression in diabetes has been associated with poor medication adherence (Kilbourne et al 2005), poor glycemic control (McKellar et al 2004) and an increased prevalence of complications in Type 2 diabetes (Bruce et al 2005).

Untreated depression in diabetes can increase the risk for diabetes-related complications – such as heart disease, blindness, amputations, stroke, kidney disease, and sexual dysfunction (de Groot et al 2001). By getting early treatment for depression, you can often avoid these serious complications.

Though many questions remain about the relationship between diabetes and depression, we know a lot about how depression in diabetes affects the day-to-day lives of those with the disorders (Mayo Clinic 2009):

- The rigors of managing diabetes can be **stressful** and lead to symptoms of depression.
- Diabetes can cause **complications and health problems** that may worsen symptoms of depression.
- Depression can lead to **poor lifestyle decisions**, such as unhealthy eating, less exercise, smoking and weight gain — all of which are risk factors for diabetes.
- Depression affects your **ability to perform tasks, communicate and think clearly**. This can interfere with your ability to successfully manage diabetes.

If you have depression and diabetes, you are not alone. There is help to lessen your symptoms of depression and improve your day-to-day life.

Treating your Diabetes and Depression
Today, depression in diabetes is treated several ways. Treatment includes medication (often called antidepressants), therapy (also called psychotherapy), or a flexible combination both with relatively good results, comparable to those for patients who have depression but not diabetes (Petrak & Herpetz 2009).
If you have diabetes and depression, treating your depression is both necessary and beneficial.

Depression can be treated with antidepressants, psychotherapy, or a flexible combination of both with relatively good results (comparable to those for patients who have depression but not diabetes), according to a recent large meta-analysis (Petrak & Herpertz 2009). While some single past studies had shown that depression treatment could improve glycemic control (Lustman et

al 1997), a recent meta-analysis found that while most anti-depressant treatments effectively treated depression, they failed to help improve diabetes-related outcomes (e.g. improved glycemic control). Treatments are needed that effectively improve both depression and diabetes-related outcomes.

Diabetes and Depression: Differences in Countries and Cultures
Though the adverse consequences of untreated depression in diabetes are now clear, many people in countries across the globe remain undiagnosed and untreated. For some, this is because depression or other mental disorders are seen as a sign of weakness or shame. Cultural attitudes often influence whether and how depression (in diabetics or others) is diagnosed and determines the acceptability of treatment(s).

Adding to this difficulty is the high prevalence of depression and diabetes among young people, especially in developing areas undergoing significant lifestyle and socio-economic-cultural changes. Societal changes, including rapid changes from an energy-scarce to an energy-abundant lifestyles, and failure to meet cultural norms in communities undergoing rapid 'westernization,' may lead to changes both in body and in mind, or exacerbate problems already present (Fisher & Chan 2008).

This booklet attempts to be mindful of the cultural differences in discussions about the diagnosis and treatment of depression in diabetes, with the realization that every culture views depression and mental health disorders uniquely.

Therefore, the WFMH is committed to working steadfastly with international partners to disseminate this important information about diabetes and depression. From a public health perspective, it is important to distribute this growing knowledge on the adverse consequences of depression and diabetes and effective treatments. With appropriate awareness, information, and resources, depression in diabetes can be more often recognized and effectively treated.

This packet contains several fact sheets, each of which can be detached and reproduced separately. These include:

- Diabetes and Depression: An Overview of International Efforts
- The Epidemiology of Diabetes and Depression
- The Diagnosis and Treatment of Depression in Diabetes
- The Role of Self-Care in Managing your Depression and Diabetes
- The Role of Family Members in Helping to Manage Your Diabetes and Depression
- Summary: What we Know about Diabetes and Depression

Diabetes and Depression – An Overview of International Efforts

Over the last two decades, the evidence base on the relationship between depression and diabetes has been accumulating. A brief review of the international literature on this topic during the last half-century reveals almost 4,500 scientific articles. This section contains a review of some of this literature, including (1) a description of the scope of this global problem; (2) the adverse outcomes of untreated depression in diabetes; and (3) treatments to improve the outcomes of those with depression in diabetes. More detailed information on the epidemiology of depression in diabetes, as well as treatment options, immediately follows this section.

The Scope of the Problem: A Global Disease

Some 285 million people, worldwide, will live with **diabetes** in 2010 (Diabetes Atlas, 2009). There are two types of diabetes, Type 1 and Type 2. Type 1, once known as juvenile diabetes or insulin-dependent diabetes, is a chronic condition in which the pancreas produces little or no insulin, a hormone needed to allow sugar (glucose) to enter cells to produce energy. Type 2 diabetes, which is far more common, occurs when the body becomes resistant to the effects of insulin or doesn't make enough insulin (Mayo Clinic 2010).

According to recent published studies, between 9 and 11% of patients (and more recently, a reported 18%; Katon et al 2009) of people with Type 2 diabetes are affected by depressive disorders; that number rises significantly to 26% when lesser forms of depression are included (Anderson et al 2001; Petrak & Herpertz 2009).

Worldwide estimates of the prevalence of ***depression*** among people with diabetes appear to vary by nation (Egede & Ellis 2008), with prevalence rates ranging from roughly 15 to 40 percent.

Though data is scarce from developing countries, studies from India report prevalence rates of 30% in rural Bangladesh (Asghar et al 2007), among the first data to suggest that depressive symptoms in this culture are common, particularly among women and those with diabetes. Similarly high rates were reported in Greece at 33.45 (Sotiropoulos et al 2008). Click here for a sample of prevalence rates in other countries.

A recent large, nationally-representative Hungarian Population Survey documented that those with diabetes are two times as likely to have depression (than those without diabetes).

The study also reiterated the association between depression and health resource utilization and lost productivity in people with diabetes.
(Vamos et al 2009).

Around the globe, depression in diabetes exists, regardless of culture or country. As the number of people with diabetes is expected to rapidly escalate – from 285 million in 1010 to 438 million in 2030 (Diabetes Atlas 2009) – it is imperative that research is expanded to better understand to whom, how, and why depression in diabetes is happening so that better prevention and treatment programs can be developed.

The Complex Relationship between Diabetes and Depression. Across the globe, researchers continue to research and debate the complex relationship between diabetes and depression. Recent research has confirmed the bi-directional nature of this co-morbid disorder (Lustman et al 2007; Ajilore et al 2007). For persons with diabetes (Type 1 or Type 2), the prevalence of depression is increased significantly, compared to those without diabetes (Gavard et al 1993; Knol et al 2006); those with diabetes are at least twice as likely to be depressed as those without diabetes (Anderson et al 2001). And, oppositely, depression appears to significantly increase the likelihood of developing Type 2 diabetes (Knol et al 2006; Kinder et al 2002; Carnethon et al 2003; Mezuk et al 2008).

Adverse Outcomes Linked to Untreated Depression in Diabetes
If you have depression and diabetes that remains untreated, you may have difficulty managing your diabetes. Depression and diabetes has been associated with poor medication adherence (Kilbourne et al 2005), poor glycemic control (McKellar et al 2004) and with an increased prevalence of complications in Type 2 diabetes (Bruce et al 2005).

Untreated depression will make it less likely that you will be able to care for yourself and properly manage your diabetes. Those with untreated depression are less likely to take care of themselves. This poor self care – which includes non-adherence to diet, less exercise, smoking, and not taking medications as directed – results in poor overall health and complications (Lin et al 2004).

Untreated depression in diabetes can increase your odds of getting diabetes complications, such as heart, kidney, and nerve disorders, as well as eye and foot problems.

In people diagnosed with Type 1 or Type 2 diabetes, depression increases the risk for complications such as persistent hyperglycemia, microvascular and macrovascular complications (Black et al 2003), and in some cases, even death (Richardson et al 2008; Petrak & Herpertz 2009; Katon et al 2005; Black et al 2003). It is important to note that these associations with complications and mortality exist even for those with mild depression, particularly for elderly patients, who have a five-fold increase in mortality (Petrak & Herpertz 2009).

In summary, those with **untreated** depression in diabetes face a more difficult road than those without depression. They have an overall reduced quality of life with respect to psychological, physical, and social functioning (Schram et al 2009). Those with untreated depression in diabetes also report a higher diabetes-related symptom burden (Hermanns et al 2006) and lower satisfaction with diabetes treatment.

Due to the poor health outcomes associated with co-morbid diabetes and depression, including the increased risk of diabetes complications, such as heart, kidney, nerve, eye and foot problems, **both conditions should be optimally treated** to help reduce symptoms of depression and allow for the good diabetes management.

Treatment for Depression in Diabetes
With the adverse consequences of untreated depression in diabetes firmly established, recent research has turned toward figuring out who gets the dual disorders, and why, in order to develop better treatments.

A recently-conducted meta-analysis has verified the relationship between diabetes and depression and reviewed the potential treatments (Petrak & Herpetz 2009). A meta-analysis is a systematic procedure for statistically combining the results of many different studies. This meta-analysis included studies conducted in China, Germany, Finland, Switzerland and the USA. The analysis showed that depression can be treated with antidepressants, psychotherapy, or a flexible combination of both with relatively good results (comparable to those for patients who have depression but not diabetes). The review also found that most anti-depressant treatments effectively treated depression, but failed to help improve diabetes-related outcomes (e.g. improved glycemic control). More research is also needed to clarify the interaction of medications treating depression and diabetes.

Future research should be directed toward developing culturally-appropriate treatments to reduce depression and insure good diabetes outcomes, including improvement in glycemic control and a reduction in the risk for short- and long-term complications and premature death.

Summary. The increasing interest in the complex relationship between diabetes and depression is resulting in world-wide efforts to better define who gets depression in diabetes, develop treatments to reduce depression and improve diabetes outcomes, and improve the overall quality of life for those with both disorders. Strategies are being tested across the globe to reduce the burden of these illnesses. A snapshot of several global efforts to do just that is included below.

International Programmes on Diabetes and Depression

The Dialogue on Diabetes and Depression. The Dialogue on Diabetes and Depression is a global programme created to study and assess the pathogenesis, clinical problems and public health consequences of co-morbidity of depressive disorders and diabetes. The programme is taking stock of available knowledge – both scientific evidence and clinical experience – in many countries of the world. Members of the program are working to define areas of intervention as well as priorities for research concerning the co-morbidity of depression and diabetes. For more information on the efforts of the DDD, see www.diabetesanddepression.org.

The DAWN Programme. The Diabetes Attitudes, Wishes, and Needs (DAWN) programme is an international collaborative programme initiated in 2001 by Novo Nordisk in partnership with the International Diabetes Federation (IDF). The DAWN Programme seeks to improve outcomes of diabetes care by increasing the focus on the person behind the disease, especially the *psychosocial and behavioral barriers* to effective disease management. The DAWN study showed that better outcomes are possible for diabetes patients if there is: (1) better active self-management; (2) enhanced psychological care; (3) enhanced communications between people with diabetes and health care providers; (4) better coordination between health care professionals or a team approach; and (5) reduced barriers to effective therapy, including making information available about treatment options (Skovlund et al 2005). For more information about the DAWN Programme, see www.dawnstudy.com/

The European Depression in Diabetes (EDID) Research Consortium. The EDID comprises multidisciplinary groups of European scientists who, under the auspices of the Psychosocial Aspects of Diabetes (PSAD) Study Group of the European Association for the Study of Diabetes (EASD), have joined forces to explore issues in the assessment, treatment and management of depression in diabetes, to help optimise clinical outcomes for patients. EDID research groups are currently active in the UK, Netherlands, Germany, Slovenia, Croatia and Denmark; click here for more information on these research efforts. For more information about the European Depression in Diabetes Research Consortium, see: http://webapp.uvt.nl/fsw/spits.ws.frmShowpage?v_page_id=7840016642395123.

The Epidemiology of Diabetes and Depression

Approximately 43 million people with diabetes worldwide have symptoms of depression (Wild et al 2003). According to a recent study, 9% of patients with diabetes are affected by depressive disorders; that number rises significantly to 26% when lesser forms of depression are included (Petrak & Herpertz 2009).

Diabetes doubles the odds of depression (independent of study design, source of patients, and method of assessing depression; Anderson et al 2001). There is also evidence to suggest a higher *recurrence rate* of major depression in diabetes patients (Peyrot & Rubin 1999). These increased rates of depression among people with diabetes have been confirmed in multiple studies, as well as across different cultural and ethnic groups (Pibernik-Okanovic 2005; Stahl et al 2008)).

Having diabetes doubles the odds of being diagnosed with depression

Diabetes and Depression – Who is Likely to get this Dual Diagnosis?
Who is getting this dual diagnosis of diabetes and depression across the globe? The rates of depression in diabetes vary widely from country to country. A snapshot of depression in diabetes around the world reveals:

- In **India,** data from one of the few published studies of co-morbid depression in the developing world, nearly one third (29% males, 30% females) of those with diabetes reported clinically significant levels of depression, compared with 6% of males and 15% of females without diabetes (Asghar et al 2007).

- In **Pakistan**, prevalence was 14.7% (6.6-22.8) amongst those with diabetes as opposed to 4.9 (3.7-6.1) amongst those without diabetes [Zahid et al., 2008].

- In **Spain,** prevalence rates of 15.4% are reported in older people (over 55) with diabetes, compared with 11% in those without diabetes (De Jonge et al 2006).

- There are higher reported rates of the dual diagnosis in **Croatian** males, compared with **Dutch or English** men (39% vs 19% and 19%), but similar rates in Croatian and English women (34% vs 39%) which were lower in Dutch women (21%) (Pouwer et al 2005 cited in Lloyd et al 2009).

- Indigenous **American Indians** have higher rates of diabetes and depression compared to the general population (Singh et al 2004). Co-morbid

depression is more common in **Native Americans** with Type 2 diabetes – a threefold increased risk of depression (Asghar et al 2007).

- In **Iran,** depression was diagnosed in 41.9% of patients in a cross-sectional study of 375 diabetic patients; (Larijani et al 2004).

- A nationally-representative sample of older Chinese in **Hong Kong** found that amongst older persons with diabetes, 26% of them reported elevated levels of depressive symptoms (Chou et al 2005).

Why do Some people and Not Others get Diabetes and Depression?
A broad array of social, cultural, and economic factors determines who may get depression in diabetes. While much more study is needed to best determine who will get diabetes and depression, researchers have identified several risk factors. There are diabetes-specific risk factors, as well as non-diabetes specific risk factors, for depression in diabetes.

Some **non-diabetes** risk factors include female gender, lack of social support, low socioeconomic status, younger age and occurrence of critical life events. **Diabetes-specific** risk factors include the occurrence of late or acute complications, persistent poor glycemic control, the need for insulin therapy in Type 2 diabetes, and hypoglycemia problems (Lloyd et al 2009).

In summary, the rates of depression in those with diabetes vary widely, as evidenced in reports from various countries. These varying rates may be due to differences in measurement methods, or 'real' differences in terms of country, gender, socio-economic factors etc. These variations in *who* gets depression in diabetes need to be fully examined in future studies.

Why does it Matter Who Gets Diabetes and Depression?
Diabetes is already the single most costly health care problem in Westernized countries, where at least half of those treated still do not achieve satisfactory glycemic control, despite the availability of effective treatments (Skovlund et al 2005). The economic burden of diabetes alone is significant, but when depression is present along with diabetes, there is an **additional increase** in health-service costs by 50-75% (Petrak & Herpertz 2009). In the U.S., healthcare expenditures were even larger – costs were 4.5 times greater among those who were depressed than those who were not (Egede and Ellis 2008).

The increasing dual diagnoses of diabetes and depression are likely to burden healthcare systems globally. Knowing **who** is susceptible to getting this dual diagnosis can help governments plan for better diagnosing, preventing, and treating those with the costly co-morbid disorder.

The Diagnosis and Treatment of Depression in Diabetes

While scientists are still researching the links between diabetes and depression we now know for sure that depression can worsen diabetes outcomes (Lustman et al 2000). Depression can be successfully treated, so the first step to feeling better is diagnosing your depression.

A Diagnosis of Depression

Studies suggest that the recognition and treatment of depression is less than optimal, with only 25% of depressed diabetics receiving care (Rubin et al 2004). One barrier to properly diagnosing depression among those with diabetes is the fact that the symptoms of depression (e.g. fatigue, gain or loss of weight) are similar to those stemming from the poor management of diabetes. Indeed, studies have shown that it is difficult to distinguish diabetes-related symptoms from depression (Ludman et al 2004). Often, too-brief doctor visits or a lack of physician training can also result in a missed depression diagnosis.

Types of Depression

- Major Depression
- Minor Depression
- Dysthymia

There are several types of depression, known broadly as depressive disorders. These include major depression, minor depression and dysthymia. Research has shown that even mild depression will interfere with your ability to care for yourself and your diabetes (Petrak & Herpertz 2009).

Signs of Depression

There are several symptoms of depression; the symptoms listed below are based on the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM-IV). Symptoms include:

- Depressed mood for most of the day
- Decreased pleasure in normal activities
- Difficulty sleeping or significantly increased need to sleep
- Weight loss or weight gain.
- Feelings of guilt or worthlessness
- Low energy level
- Difficulty making decisions of concentrating
- Suicidal thoughts

To distinguish your condition as major depression, one of your symptoms must be either depressed mood or loss of interest; five or more of the above

symptoms must be present for most of the day every day or nearly every day for at least two weeks.

Minor depression is similar to major depression, except that you experience fewer than five of the listed symptoms. Remember that research shows that even minor depression can affect how you care for your diabetes, and should be treated (Petrak & Herpertz 2009).

Dysthymia is a more chronic form of depression, characterized by depressed mood for most of the day, for more days than not, for at least two years. Dysthymia is thought to be related to brain changes that involve serotonin, a chemical or neurotransmitter that aids your brain in coping with emotions. Major life stressors, chronic illness, medications, and relationship or work problems may also increase the chances of dysthymia.

The most important starting point for those with diabetes who suspect that they are depressed – is to get an accurate diagnosis.

How can I get a Diagnosis?
Talk to your primary care doctor if you think you may be depressed. He or she can properly diagnose you, or can find someone qualified to make the diagnosis. If you do not feel comfortable talking to your doctor, are unsure where to go for help, or just want to talk more about depression, others who can help you include:

- Primary care doctors
- Non-governmental organizations, often referred to as NGO's
- Regional or community mental health centers
- Hospital psychiatry departments and outpatient clinics
- Mental health programs at universities or medical schools
- Psychiatrists, psychologists, licensed social workers or mental health counselors
- State hospital outpatient clinics
- Family services, social agencies or clergy
- Peer support groups
- Private clinics and facilities
- Employee assistance programs in the workplace
- Local medical and/or psychiatric societies

In countries where internet access is available, a search of the local area may locate the help you need. In addition, where available, an emergency room doctor also can provide temporary help and can tell you where and how to get further assistance.

In some countries, public and private insurance plans pay for treatment for depression. Check with your insurance company to find out what treatments are covered. If you don't have insurance, local city or county governments may offer treatment at a clinic or health center, where the cost is based on income. Government-sponsored programs (e.g. Medicaid in the U.S.) often pay for depression treatment; utilize these insurance benefits if you have them.

The Importance of Treating your Depression

Though depression and diabetes are frequent co-travelers, depression in diabetes is unrecognized and untreated in approximately **two-thirds of patients**. For those with diabetes, the course of depression is chronic and severe; up to 80% of patients with both conditions will experience a relapse of depressive symptoms in a five-year period (Katon et al 2008).

Therefore, treating your depression is **very important** because those with diabetes and depression often have poorer outcomes. Depression and diabetes has been associated with **poor medication adherence** (Kilbourne et al 2005), **poor glycemic control** (McKellar et al 2004) and with an increased prevalence of **complications** in Type 2 diabetes (Bruce et al 2005). Successful treatment of depression in pre-diabetes is also associated with improved adherence to life-style changes and adherence to medication.

Depression can be treated with antidepressants, psychotherapy, or a flexible combination of both with relatively good results (comparable to those for patients who have depression but not diabetes), according to a recent large meta-analysis (Petrak & Herpertz 2009). While some single past studies had shown that depression treatment could improve glycemic control (Lustman et al 1997), this new meta-analysis found that while most anti-depressant treatments effectively treated depression, they failed to help improve diabetes-related outcomes (e.g. improved glycemic control). Treatments are needed that effectively improve *both* depression and diabetes-related outcomes.

> "The absence of the use of evidence-based treatments for depression in many developing countries could lead to the mistaken view that the likelihood of recovery from depression is worse than in resource-rich regions. In fact, the evidence suggests that recovery rates are no worse and may even be better in these areas" (Crawford 2004). These findings show that further study is needed to determine the factors that promote recovery from depression in these contexts.

Treatment for Depression in Diabetes

Because the odds of getting depression are at least double if you have diabetes, those with diabetes need to take care of themselves and look carefully for signs of depression. Depression is generally treated with **medication,** known as

antidepressants, **psychotherapy** (known as talk therapy) or a flexible combination of both with relatively good results, comparable to those for patients who have depression but not diabetes (Petrak et al 2009). Treatment may also include traditional or alternative therapies or herbal remedies. Note that there are also various brain stimulation therapies for *major* depression. Successful treatment of your depression in diabetes will lead to a remission, or absence of depressive symptoms.
The following section will summarize some of the current treatments available for depression, and touch on some of the other treatments being researched for the future. The next section will provide resources for getting the help you need.

Medications for Depression
There are many different kinds of medications used to treat depression. They are often called antidepressants. Some of these have been around for decades; some are newer medications, or different formulations of previous medications (such as extended release tablets); and some medicines are currently being researched and tested.

The primary medications used to treat depression include selective serotonin-reuptake inhibitors (SSRIs), trycyclic antidepressants (TCAs), and monomamine oxidase inhibitors (MAOIs). Each of these medications acts on chemicals in the brain, known as neurotransmitters, related to moods and behavior. These medications can be prescribed by a primary healthcare practitioner or a psychiatrist.

Depression Medications – Which Medication is Right for You?

Overall, the use of antidepressants is associated with disturbances in blood glucose levels.

Be sure to talk to your healthcare professional about which medication is right for you.

If you are considering medication treatment for depression, be aware that once you begin treatment, it may take a few weeks, or up to 6 weeks, to notice improvements in your mood. You should take your medication regularly for full therapeutic effect. In some cases, the dose of the medication may need to be changed, or an alternate medication considered. It can take some time to determine the right medication and the right dose for you.

Some people taking these medications experience side effects that are often temporary. These include dry mouth, bladder problems, constipation, blurred vision, sexual functioning problems, dizziness, drowsiness, increased heart rate, nausea, nervousness or insomnia, and agitation. Talking to your healthcare provider is important. Be sure to pay attention and discuss how the

medication is making you feel throughout your body, and any changes you are experiencing.

Several years ago, increased suicidal risk was indicated in connection with some antidepressant medications. Many drug makers were required by the US Food and Drug Administration to include a warning on their packaging to monitor for increased suicidal behavior in children, adolescents, and young adults. Since then, studies have indicated that the benefits of these medications in treating depression and anxiety in this population far outweigh the risks (NIMH 2009a). Studies in adults show no increase in suicide risk. (Khan et al 2003). Regardless, careful monitoring for suicidal behavior should be part of any treatment plan for depression. Suicidal behavior is an important risk factor for people with untreated depression.

For more information on the medications used to treat depression, the National Institute of Mental Health in the United States maintains a publication that may be helpful, http://www.nimh.nih.gov/health/publications/mental-health-medications/complete-index.shtml.

Psychotherapy for Depression

Psychotherapy, also known as talk therapy or counseling, can take many forms, many of which can be very helpful and therapeutic for someone with depression. Therapy can be done on an individual level, or with a group, or with a spouse or other family members. It can be done in person, or over the phone or the internet. It can be delivered by a wide range of healthcare professionals: psychiatrists, psychologists, primary care doctors, social workers, psychiatric nurses, therapists, and counselors.

There are many other types of talk therapy across the world, and new therapies being developed and studied. Some of these may be very effective for you. The two types of therapy that have proven to be especially effective in treating depression are:

- Cognitive behavioral therapy (CBT), which works to change negative styles of thinking and behaving that may contribute to depression. It combines cognitive therapy, which helps patients develop healthier thought patterns and behavior therapy, which helps patients respond in new ways to difficult life situations.

- Interpersonal therapy (IPT), which works to change relationships that cause or exacerbate depression.

Talk therapy can be hard work. It is important that you go to all of your scheduled appointments on time and keep actively involved in the process.

Internet- or telephone-based Psychotherapy Programs
Researchers are looking into various forms of Internet- or telephone-based psychotherapy programs for depression. These programs could be particularly helpful to people living in rural areas or other places with limited access to other forms of therapy. In addition, they could be a cost-effective way to treat depression. One recent study found significant benefits for people receiving cognitive behavioral therapy (CBT) over the phone, reporting more depression-free days than those who did not receive CBT (Simon et al 2009).

Some caution should be taken when considering this form of care. This is a relatively new area of treatment, and it is very hard to know the effectiveness or safety of a program on the Internet. Researching any group promoting this kind of treatment would be necessary. This would include asking your healthcare provider about the group and/or the treatment plan, consulting a local depression support group (click here for Resources) to see if they have any additional information, and asking to talk with someone who has participated in this particular treatment. These are all critical steps to take before committing to this kind of treatment plan.

Traditional or Alternative Healing Methods
In addition to therapy and medications, traditional or alternative healing methods and self-help techniques are used in many parts of the world to help reduce the symptoms of depression. Many of these methods are currently under study, and include:

- Establishing **regular exercise patterns**. Exercise can affect the physiological factors that underlie depression, and can increase the levels of certain chemicals in the brain that can make you feel better. Research studies have found regular exercise at a dose level consistent with public health recommendations to be an effective treatment for people with mild to moderate depression (Dunn et al 2005).
- Increasing **exposure to light** is a therapy often used for seasonal affective disorder, or what some call winter depression.
- **Nutritional supplements**. Studies have shown that daily supplements of vital nutrients can reduce symptoms of depression. For example, supplements that contain amino acids are converted to neurotransmitters that alleviate depression and other mental disorders (Lakhan & Nieira 2008).
- **Relaxation exercises and meditation**. Deep relaxation or meditation, a state of concentrated attention on some object of thought or awareness, can also be considered for some of the symptoms of depression, such as difficulty sleeping.
- **Acupuncture** has been used for depression across many cultures. Research has not proven it be an effective treatment alone. However, one

recent study acknowledged that the research setting of the treatment, as compared to traditional settings, may influence these findings (Allen et al 2006).

Researchers are studying many of these traditional and alternative methods for treating depression. Current studies indicate many may be useful, not alone, but in concert with more conventional treatments (Manber et al 2002). Relying on these methods alone in treating depression is not recommended.

Herbal Remedies

For generations, people have used herbal remedies to help with mood disorders. In the past few decades, researchers have begun to examine some of these historic remedies, particularly one called Hypericum perforatum, or St. John's Wort, a bushy herb with yellow flowers. St John's Wort has been used to treat depression since the 1500s. Currently, in Germany, it is the most common treatment (Baruch 2009).

The herb works in a similar way to some prescription antidepressants by increasing the brain chemical serotonin, involved in controlling mood. A recent scientific review analysed 29 studies that together included 5,489 men and women with symptoms of major depression. The researchers found that St. John's Wort extracts were not only effective but that fewer people taking them dropped out of the trials due to adverse side effects of the treatment (Linde et al 2008).

A recently-conducted Chinese study suggests that fermented fungus of *C. sinensis,* a fungus similar to mushrooms, rich in vanadium may be beneficial in preventing depression in diabetes and warrants further study (Guo et al 2009)

If you are considering or currently taking St. John's Wort for your depression, please be aware that research has found that St. John's Wort can cause other medications not to work, or not to work as effectively (U.S. Food and Drug Administration 2000). It is always important to talk with your healthcare provider about anything you are taking, including herbal supplements or vitamins, in treating depression or other disorders.

Brain Stimulation Therapies

Brain stimulation therapies are medical procedures that involve activating or touching the brain directly with electricity, magnets, or implants to treat depression and other disorders (NIMH 2009b). The Types of brain stimulation therapies include electroconvulsive therapy (ECT), one of the most studied neurostimulation therapies for depression, repetitive transcranial magnetic stimulation, vagus nerve stimulation and deep brain stimulation (DBS).

Research on Better Treatments for Depression in Diabetes

There are many existing treatments for depression, many of which have been proven effective. There are still patients, however, who do not get better even with treatment, especially those with depression in diabetes, for whom depression is a chronic and recurring disease (Lustman et al 2000). Others have difficulty with the side effects or risks involved in some of the treatments. Researchers are continuing to seek better and safer treatments for depression.

Improved understanding of the brain and how it works is leading to new possibilities for treatment, and specifically new areas to target in developing new medications (Kennedy et al 2009). Scientists are looking at the role that genes play in influencing the way a patient responds to treatment (Rudorfer et al 2003).

Researchers are also seeking treatments that work more quickly to reduce the symptoms of depression, particularly severe and treatment-resistant depression.

The Future: Targeted Research

New research is advancing treatment for those with depression in diabetes.

Researchers have developed and are testing unique **diabetes-specfic** cognitive behavioral treatments aimed at treating subthreshold depression.

This is important, because even those with **lesser forms** of depression have a similar, poor diabetic prognosis as those with **clinical** depression.

Click here for more information on this study, conducted by Forschungsinstitut der Diabetes Akademie Mergentheim.

Summary: Diagnosing and Treating your Depression in Diabetes

If you have diabetes and think you might have depression, you are not alone. Having diabetes doubles the odds of your getting depression. Many others with diabetes, just like you, are also struggling with depression.

If you have diabetes, be sure to talk to your healthcare professional immediately. He or she can test you for depression. And, while we may not know for sure if depression causes or triggers diabetes, or whether diabetes causes depression, we do know for sure that depression can make diabetes a lot worse, and vice versa.

If a screening reveals you do have depression, depression can be treated with both antidepressants and talk therapy. As researchers continue to test treatments, a treatment plan that includes both medication and therapy is recommended. In addition, a good self-care program is extremely important in managing your diabetes day-to-day, and has benefits for improving depression. The role of self-care in your treatment plan is described in the next section.

The Role of Self-Care in Managing your Depression and Diabetes

Untreated depression in diabetes leads to poor self care. This means that those with untreated depression do not follow their prescribed diets, do not exercise, smoke, do not take medications as directed, and do not monitor blood glucose levels as they should. This poor self-care results in a decline in overall health and leads to complications (Lin et al 2004).

If you have diabetes, it might be that most visits to your doctor are limited to managing the *medical aspects* of the disease. Often, visits are focused on getting just the "right" number (e.g. optimal glycemic level). A critical component of your treatment that may be overlooked is **self-empowerment**, which improves your ability to care for yourself.

The United Kingdom Prospective Diabetes Study (UKPDS) has shown that **taking control of diabetes** can make a difference for type 2 diabetes patients (Rappaport et al 2000).

Self-empowerment – an important tool in managing depression in diabetes – is a process through which people gain greater *control* over decisions and actions affecting their health (WHO 1998).

If you have been diagnosed with diabetes, you may feel like you have no power or control over your disease or even your life; the addition of depression can intensify that feeling of powerlessness.

Self-empowerment and education are important in improving the physical, psychological, and social well-being of every person with diabetes. Self-empowerment can improve patient outcomes, including glycemic control and quality of life (Anderson et al., 1995). If you have depression and diabetes, there are things you can do right now to better care for yourself.

Actively Managing your Diabetes and Depression: Make a Plan

To educate yourself about diabetes and depression, seek out an educational program to help you learn more. Educational programs that help you to successfully manage diabetes and depression should have several components, most importantly, information on *managing* your depression and *maintaining* good mental health.

Diabetes education programs that will effectively educate and empower you will provide information on (Funnell et al 2008):

- the *diabetes disease process* and *treatment options;*
- *nutritional management*;
- incorporating *physical activity* into lifestyle;

- using *medication(s*) safely and for maximum therapeutic effectiveness;
- *monitoring blood glucose* and other parameters and interpreting and using the results for self-management decision making;
- preventing, detecting, and treating *acute complications;*
- preventing detecting, and treating *chronic complications;*
- developing *personal strategies* to address psychosocial issues and concerns, such as stress, anxiety and depression; and
- developing *personal strategies* to promote health and behavior change.

There is no one "best" education program or approach; however, good programs will educate you on all of the subjects outlined above. Importantly, the program should also provide you with information on how to manage your mental health in a culturally-appropriate manner (Funnell et al 2008).

You can find these educational programs by asking your healthcare professional or contacting your local diabetes association (click here for a list of Resources that may be in your area).

Rosa's Story

My name is Rosa, and I am 17. My first thought when I was diagnosed with diabetes, was – why me? I became really depressed. But now, after a year of struggling with this new diagnosis, I found that empowerment is definitely the answer to treat depression, and to help me with my diabetes. Others in my family have diabetes, and I guess always, in the back of my head, I thought I might get it too since it runs in my family. But when the diagnosis, hit, it hit me hard. I didn't know what to do. My doctor let me know about a diabetes support group. And he told me about information that was available on the Internet. I moped for days, so mad, and so sad.

But then I decided that I needed to learn what I could if I was going to live with this disease. I searched the Internet, printed and saved so many documents, so many I didn't have time to read them all. There is so much information out there. I also talked to everyone I could about it. Now I read box labels, and I subscribe to a gazillion newsletters and magazines. I'm learning more about the disorder, and now know things that I can do. My body isn't in control when it comes to the diabetes, I am. I'm the one controlling my blood sugar. Knowing that gives me a sense of power and that makes me feel good. I still have my moments, but I no longer feel so sorry for myself and depressed – at least not like I did before I started reading and learning.

The Role of Family Members in Helping to Manage Your Diabetes and Depression

Family members are a large part of successful diabetes treatment. Family members, and close friends, make you feel like you are not alone in dealing with your diabetes. They are an especially important support system if you have depression in diabetes.

When you are newly diagnosed, you rely on them to help you navigate the diabetes treatment world and learn all you can about the disease. If you are a longtime diabetic, you need them to help you maintain a healthy lifestyle every day. Family and close friends play such an important role in your life in managing your diabetes.

Specifically, they can help with three things:

- gathering information and knowledge;
- providing support and caring, especially if you have depression;
- taking the lead in helping to implement your lifelong diabetes treatment plan.

The **support of family and friends** is important. They can help you to:

- eat healthy meals;
- stay physically active;
- maintain your medication regimen; and
- attend doctor's appointments with you to hear about your progress or areas where you need help.

Information and Knowledge
As revealed in Brenda' story to the right, it is very important that family members and friends learn all they can about diabetes.

One of the best ways to get this information is to take a class from your local diabetes education association or non-governmental organization (**click here** for a listing of NGO's in your area).

Diabetes education classes can provide basic information on the disorder. One example of a family education program is the Diabetes UK Family Support Weekends (click here for more information). During the course of this weekend, parents get important information about the disease and get the chance to connect with others who are trying to help their child/young adult cope with the disorder – while their children are being cared for by trained diabetes professionals.

Support and Caring
As Brenda described in her story (see box), you need support and caring to help manage your diabetes each and every day. You can outline the specific things that family and friends can do to support you each day. They can support you in your efforts to (1) eat healthy meals; (2) stay physically active; (3) maintain your medication regimen; and (4) attend doctor's appointments with you to hear about your progress or areas where you need help.

Most importantly, the support and caring of family and friends is essential when you are going through frustrating times with the disorder. It can frustrating when you are newly diagnosed and are finding it difficult to manage – or perhaps when you have "diabetes burnout" from dealing with your diabetes diagnosis for a long time. During these times, family and friends are very important.

The support of family and friends is especially critical if you are depressed. Be sure to talk to your spouse or family about **specific** ways that they can help during these especially frustrating times. Perhaps you can ask for their help in maintaining your exercise routine, or sharing a healthy dinner together. Having depression and diabetes can be difficult– but having a family member or friend there by your side can make all the difference.

Your Diabetes Treatment Team

- family member or close friend(s)
- family doctor and nurses
- endocrinologist
- diabetes educator
- dietitian
- pharmacist
- mental health provider
- podiatrist
- eye care specialist
- primary healthcare provider

Family and Friends: Leading your Treatment Team
Family and friends should be an essential part of your treatment team. In addition to learning all that they can about the disease and providing support and caring, they can help lead up your treatment team, especially during periods of crisis, especially when you are depressed.

If you are depressed, you are less likely to care for yourself, including taking medications, eating healthy and exercising.

It is important to designate a family member or friend who is willing to lead your treatment team, either every day if they are willing and able, or especially

during times when you are unable, like when you are suffering from serious depression.

When Family and Friends aren't Helping
Sometimes, the help of well-meaning family and friends isn't helpful at all. In some cases, family relationships may be fraught with difficulty and unresolved issues spill over into their "help."

In some cases, their "help" can feel like criticism and blame. For example, they might blame you for a high sugar reading, when in reality it is more than just one factor that controls your sugar levels. But they might insist it is what they saw you eat for lunch. If these disruptive family relationships and patterns of blame persist, seek family counseling. Having your spouse, or other family and friends around is important. They can help you establish and maintain the necessary life changes needed to successfully live with depression and diabetes. Most importantly, they can help you if you are having a down day and need the motivation to stay on track. Their help and support each day can be invaluable in helping you make and maintain needed lifestyle changes to manage both your depression and diabetes.

Diabetes and My Family

My name is Brenda, I am 34 years old and from the UK. I have had diabetes for one year now. It is really hard to get my new husband to understand this disease, and how I have to deal with it each and every day. Sometimes, when my husband wants to do something, I have no energy, like last week. We had planned to make a day of shopping High Street. I woke up, and had very low blood glucose levels. I was scared. I have had this low several times, and when I get like this, I am exhausted, and really just don't want to do anything.

My husband got impatient, insisting we just get going. He just didn't understand what I felt like. But I went ahead anyway, and we left home. A few hours later, I really needed to rest and eat something, and he just wanted to keep going to finish up to get home rather than stop at the chip shop. By the time we got home, it was almost too late. I felt very, very weak, and tested myself. I was really low. I immediately rushed to get a sugary drink, wasting no time with a shot.

My husband didn't understand – why didn't I just give myself a shot? He just doesn't understand, and doesn't want to accept that our life is different now than when we met a few years ago. He needs to get educated about the disease – to understand the warning signs of highs and lows, maybe take a class about diabetes. Most of all, he needs to understand that this disease can't be ignored. I can't do this without his support. I count on him to be there, especially to help when my sugar gets dangerously high or low.

Summary – What we Know about Diabetes and Depression

Mounting scientific evidence now suggests that people with diabetes are at least twice as likely to have depression as those in the general population (Nichols et al 2007; Anderson et al 2001). These increased rates of depression among people with diabetes have been confirmed in multiple studies, as well as across different cultural and ethnic groups (Pibernik-Okanovic 2005; Stahl et al 2008).

While there is a close relationship between depression and diabetes, there is a lack of **public awareness** about this relationship.

It is important that people with diabetes, depression – or both disorders – know these facts:

- The relationship between diabetes and depression is **complex**. Current research suggests that each disease is a risk factor for developing the other, that the two disorders may share similar patho-physiological mechanisms (Ajilore et al 2007), and that depression may indicate particularly severe underlying diabetic illness (Black et al 2003).

- Even symptoms of **mild depression** (not just a clinical diagnosis of depression) can impair your ability to manage your own health (Hu et al 2007), and lower your quality of life (Kilbourne et al 2005).

- Depression and diabetes has been associated with **poor medication adherence** (Kilbourne et al 2005), **poor glycemic control** (McKellar et al 2004) and with an increased prevalence of **complications** in Type 2 diabetes (Bruce et al 2005).

- Patients with depression in diabetes have 50-70% **higher healthcare costs** (Simon et al 2005)

- Those with depression in diabetes have a **higher risk of mortality** than non-depressed patients (Richardson et al 2008), particularly the elderly (Bogner et al 2007).

- Depression can be treated with antidepressants, psychotherapy, or a flexible combination of both with relatively good results. While treatment improves depression symptoms, no treatment has been clearly identified that improves glycemic control (Petrak & Herpertz 2009).

While the scientific knowledge base on depression and diabetes has grown in the last decade, depression remains unrecognized and untreated in this

population. Studies estimate that appropriate treatment is provided to less than 25% of depressed diabetes patients (Rubin et al 2004).

Therefore, the WFMH is committed to working with international partners to disseminate the available scientific knowledge on diabetes and depression. With appropriate awareness, information, and resources, depression can be more often recognized and effectively treated – both for its own sake in improving quality of life, and for the improvement such treatment can bring in diabetes outcomes.

To improve the recognition of depression in diabetes patients, an international diabetes advisory group recommends **periodic assessment** and **monitoring** of depression (and other mental health conditions) in the management of patients with diabetes (IDF 2005).

Basic training in the **identification** and **management of depression** in patients with diabetes is also needed for healthcare workers across the globe. In addition, healthcare workers need **communication, interviewing,** and **counseling skills,** as well as the latest **motivational techniques,** to better assist those with diabetes and depression (IDF 2005).

Improving the Recognition of Depression and Diabetes

To better recognize depression in diabetes, the International Diabetes Federation (2005) recommends:

- **periodic assessment and monitoring** for depression is needed for diabetes patients;
- **basic training** for healthcare workers in the identification and management of depression;
- training in **communication, interviewing, counseling, and motivational** skills and techniques is needed for healthcare workers.

Various treatments – medication and therapy – can be successful in managing depression symptoms. Treatment should be delivered collaboratively between diabetes and mental health service providers, or by primary healthcare providers trained to treat both diabetes and depression. Education and self-empowerment are also critical; empowerment can improve outcomes, including control over diabetes and the quality of life (Anderson et al 1995).

While researchers work to improve our understanding of the unresolved questions regarding diabetes and depression, it is the hope of the World Federation for Mental Health (WFMH) that the information and resources provided in this packet can help you, someone you know, and those in your community dealing with diabetes and depression.

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International Resources for Diabetes and Depression Information*

Albania
Shoqata Shqipëtare Diabetike Albanian Diabetes Association Klinika Endokrinologji Rs Dibres No 370 Tirana Albania Tel +355-42-63644 Fax +355-42-63644 E-mail drspit@sanx.net

Anguilla
Anguilla Diabetes Association PO Box 1202 The Valley Anguilla Tel +1-264-4972426/3763 Fax +1-264-4975486

Antigua and Barbuda
Antigua and Barbuda Diabetes Association PO Box 469 St John's Antigua & Barbuda Tel +1-268-4639084 Fax +1-268-4622461

Argentina
Liga Argentina de Protección al Diabético Argentine League for the Protection of Diabetics Tucumán 1584 - PB "A" 1050 Buenos Aires Argentina Tel/Fax: 54-11/4371-81-85 E-mail llapdi@ciudad.com.ar Website www.diabetesaldia.com/banners/lapdi.htm

Sociedad Argentina de Diabetes Argentinian Diabetes Society Calle Paraguay 1307 Piso 8, Dpto 74 1057 Buenos Aires Argentina Tel: 54-1/4815-1379 Fax: 54-1/4813-8419 E-mail sad@diabetes.org.ar Website http://www.diabetes.org.ar

Mutual Provincial de Ayuda al Diabético – MIPADI Zarate 246 5500 Mendoza Argentina Tel: 54-261/4258388 Fax: 54-261/4201292 E-mail MIPADI@infovia.com.ar

Aruba
Diabetes Foundation of Aruba # 242 - A Santa Cruz Aruba Tel: 297/585017 Fax: 297/5851912 E-mail diabetesaruba@usa.net

Australia
Diabetes Australia 5th Floor, 39 London Circuit ACT 2600 Canberra City Tel: 61-2/62323800 Fax: 61-2/62301535 E-mail admin@diabetesaustralia.com.au Website http://www.diabetesaustralia.com.au

Beyond Blue (Bipartisan Initiative of the Australian state and territory governments) PO Box 6100 HawthornWest 3122 AUSTRALIA http://www.beyondblue.org.au

The Black Dog Institute Hospital Road Prince of Wales Hospital Randwick NSW 2031 AUSTRALIA http://www.blackdoginstitute.org.au/

Mental Health Foundation of Australia
270 Church Street Richmond, Vic 3121 AUSTRALIA
www.mhfa.org.au

The Australian Psychological Society
PO Box 38
Finders Lane
Vic 8009 AUSTRALIA
www.psychology.org.au

Austria
Österreichische Diabetes Gesellschaft Austrian Diabetes Society Währingerstrasse 76/ 13 1090 Vienna Austria Tel 43- 650/7703378 Fax 43-1/2645229 Wesite www.oedg.org

Azerbaijan
Azerbaijan Diabetes Society 40 Uz. Hajibeyov Str Room 221 Government House 370016 Baku Azerbaijan Tel 994-12/985765 Fax 994-12/938488 E-mail root@womcom.baku.az

Bahamas
Bahamas Diabetic Association Rosetta Street SS-19932 Nassau Bahamas Tel: 242-356-2349 Fax: 242-356-2306 E-mail bda@netbahamas.com

Bahrain
College of Health Sciences PO Box 20321 Manama Bahrain Tel +973-279664 Fax +973-251360 E-mail chs@health.gov.bh Website www.chs.edu.bh

Bangladesh
Diabetic Association of Bangladesh BIRDEM-DAB 122 Kazi Nazrul Islam Avenue 1000 Dhaka Bangladesh Tel +880-8616641/50 Fax +880-2-9677772/2-8613004 E-mail sg_dab@dab-bd.org

Barbados
Diabetes Association of Barbados Flat 1 Ramsgate Apartments Woodside Gardens Bay Street Barbados Tel/Fax: 1-246/427-9338

Belarus
Belarussian Humanitarian Organisation Bagrationa Str 70-25 220037 Minsk Belarus Tel +375-17-2356797 Fax +375-17-2102949

Belgium

Vlaamse Diabetes Vereniging Flemish Diabetes Association Ottergemsesteenweg 456 9000 Gent Belgium Tel: 32-9/220-05-20 Fax: 32-9/221-00-82 E-mail vdv@diabetes-vdv.be Wesite http://www.diabetes-vdv.be

Association Belge du Diabète ABD Belgian Diabetes Association Place Homere Gossens 1 1180 Brussels Belgium Tel: 32-2/374-3195 Fax: 32-2/374-8174 E-mail abd.diabete@swing.be Wesite www.diabete-adb.be

European Federation of Associations of Families of People with Mental Illness (EUFAMI) Diestsevest 100 B-3000 Leuven BELGIUM www.eufami.org

Global Alliance of Mental Illness Advocacy Networks (GAMIAN-Europe) c/p FIAB, rue Washington 60 B-1050 Brussels BELGIUM www.gamian.eu

Mental Health Europe (MHE)
Boulevard Clovis 7 B-1000
Brussels BELGIUM
www.mhe-sme.org

Belize
Belize Diabetes Association PO Box 2054 Belize City Belize Tel: 501-147-145 Fax: 501/212-166 E-mail swas@btl.net

Bermuda
Bermuda Diabetes Association PO Box DV506 CR04 Devonshire Bermuda Tel: 441/2392027 Fax: 441/2396338 E-mail diabetescentre@bermudahosptals.bm Website http://www.bermudahospitals.bm

Bolivia
Bolivian Society of Endocrinology, Metabolism and Nutrition Po Box 3804 Santa Cruz Bolivia Tel: 591-3/3378485 Fax: 591-4/4485948 E-mail douglastucan@cotas.com.bo Website www.sbmn.org

Brazil
Associacao de Diabetes Juvenil Rue Padre Antonio Tomas, 213 CEP 05003-010 Sao Paulo Brazil Tel +55-11-36753266 Fax +55-11-36753266 E-mail adj@adj.org.br Website www.adj.org.br

Federation of National Diabetes Association - FENAD Rua Eça de Queiróz 198 Vila Mariana CEP 04011-031 Sao Paulo Brazil Tel: 55-11/5572-6179 Fax: 55-11/5572-6179 E-mail fenad@fenad.org.br Website www.fenad.org.br

Sociedade Brasiliera de Diabetes (SBD) Brazilian Diabetes Society Rua Afonso Brás 579, salas 72/74 Vila Nova Conceição 04511-011 São Paulo - SP Brazil

Tel +55-11-38424931 Fax +55-11-38460729 E-mail info@diabetes.org.br
Website www.diabetes.org.br

The Brazilian Association of Families, Friends and Sufferers from Affective Disorders (ABRATA) Av. Paulista, 2644-7 andar - Conj. 71 01310-300 - Sao Paulo - SP, BRAZIL
55 11 256.4831 / 55 11 256.4698 (phone)
Email: apoio@abrata.org.br
Website: http://www.abrata.org.br

British Virgin Islands
British Virgin Islands Diabetes Association Diabetes Resource Centre PO Box 31 Road Town, Tortola British Virgin Islands Tel: 1-284/494-4125 Fax: 1-284/494-7057 E-mail bvidiabetesassociation@surfbvi.com

Bulgaria
Bulgarian Diabetes Association Sevastokrator Kaloyan Str 24 Boyana 1616 Sofia Bulgaria

Bulgarian Society of Endocrinology Damian Gruev Street 6 1303 Sofia Bulgaria Tel +359-2-9871497 or 9877201 Fax +359-2-9874145 E-mail dimitar.tcharaktiev@hop.egp.ap-hop-paris.fr

Cambodia
Cambodian Diabetes Association 4, Street 55 Sangkat Chak tomuk Khan Daun Penh, Phnom Penh Cambodia Tel +855-12787170 Fax +855-42941499

Cameroon
Cameroon Diabetes Association (ACADIA) ACADIA Faculty of Medicine & Biomedical Science University of Yaounde 1 BP 8046 Yaounde 8 Cameroon Tel +237-9868190

Canada
Canadian Diabetes Association National Live Building 522 University Avenue, Suite 1400 M5G 2R5 Toronto, Ontario Canada Tel +1-416-4087020 Fax +1-416-4087015 E-mail info@diabetes.ca Website www.diabetes.ca

Diabète Québec Quebec Diabetes Association 8550 Boulevard Pie-IX Bureau 300 H1Z 4G2 Montreal, Québec Canada Tel +1-514-2593422 ext 231 Fax +1-514-2599286 E-mail direction@diabete.qc.ca Website www.diabete.qc.ca

Breaking Through Barriers Resource
Canadian Mental Health Association
National Office

Phenix Professional Building 595 Montreal Road, Suite 303 Ottawa, Ontario K1K 4L3 CANADA http://www.breaking-through-barriers.com/ www.cmha.ca

Mood Disorder Association of Manitoba
4 Fort Street, Suite 100
Winnipeg, Manitoba R3C1C4 CANADA
www.depression.mb.ca

Cayman Islands
Cayman Islands Diabetic Association PO Box 2063 GT Grand Cayman Cayman Islands Tel: 1-345/914-2663 Fax: 1-345/949-2998 E-mail svperry@candw.ky

Central African Republic
Association des Diabétiques en Centrafrique Central Africa Diabetes Association BP 1984 Bangui Central African Republic Tel +236-610200 Fax +236-614494 E-mail asdiaca@yahoo.fr

Chad
Association Tchadienne de Lutte Contre le Diabète Chad Association for the Fight Against Diabetes BP 703 N'Djamena Chad Tel +235-534008 E-mail cssiitsn@intnet.td

Chile
Fundación Diabetes Juvenil de Chile Juvenile Diabetes Foundation of Chile La Concepción 80, local 1 Providencia Santiago de Chile Chile Tel +56-2-2366110 Fax +56-2-2366240 E-mail contacto@diabeteschile.cl Website www.diabeteschile.cl

Sociedad Chilena de Endocrinología y Metabolismo Chilean Society of Endocrinology and Metabolism Bernarda Morín 488 Segundo Piso Providencia Santiago 9 Chile Tel +56-2-2230386 Fax +56-2-3412909 E-mail sochem@sochem.cl Website www.sochem.cl

China
Associaçao de Apoio aos Diabéticos de Macau Macau Diabetes Association PO Box 729 Macau China Tel +853-785834 Fax +853-785834

Chinese Diabetes Society of the Chinese Dept of Endocrinology Peking Union Medical College 100730 Beijing China Tel +86-10-65295084 Fax +86-10-65233582 E-mail xianghd@public.bta.net.cn

Colombia
Asociación Colombiana de Diabetes Calle 39A, No. 14-78 Santafé de Bogotá Colombia Tel +57-1-2880777 or 2883420 Fax +57-1-3231582 E-mail

adiabete@cable.net.co

Federación Diabetológica Colombiana FDC Calle 94 no. 15-32 Oficina 101 Bogotá D.C. Colombia Tel +57-1-6359710/11/12 Fax +57-1-6359711 E-mail fediacol@cable.net.co Website www.fdc.org.co

Costa Rica
Asoc. Costarricense de Endocrinología, Diabetes ACEDYN Col. de Médicos y Cirujanos Costa Rica PO Box 548 1000 San José Costa Rica Tel +506-2327891 Fax +506-2315727 E-mail mkdpon@sol.racsa.co.cr

Cote d'Ivoire (Ivory Coast)
Association des Diabétiques de Côte d'Ivoire ADIACI BP 4241 01 Abidjan Côte d'Ivoire (Ivory Coast) Tel +225-471072 E-mail lokroua@yahoo.fr

Croatia
Hrvatski Savez Dijabeticka Udurga Croatian Diabetes Association Ilica 48/2 10000 Zagreb Croatia Tel +385-1-4847807 Fax +385-1-4847807 E-mail diabetes@diabetes.hr Website www.diabetes.hr

Cuba
Sociedad Cubana de Diabetes Cuban Society of Diabetes Apartado 6275 Zona Postal 6 Habana Cuba Tel +537-8326367 Fax +537-333417 E-mail diabetes@infomed.sld.cu

Cyprus
Cyprus Diabetic Association PO Box 25354 1309 Nicosia Cyprus Tel: 357-2/669-540 Fax: 357-2/662-152 E-mail cyprusdiabeticassociation@cytanet.com.cy

Czech Republic
Ceska Diabetologicka Spolecnost Czech Diabetes Society Faculty Medicine 1 - Charles University U Nemocnice 1 128 08 Prague 2 Czech Republic Tel +420-2-24916745 Fax +420-2-24916745 E-mail jan.skrha@lf1.cuni.cz

SVAZ Diabetik ù Ceské Republiky Union of Diabetics of the Czech Republic Koperníkova 1490/11 120 00 Praha 2 Czech Republic Tel +420-2-22513327 Fax +420-2-22513381 E-mail info@diabetes.cz Website www.diazivot.cz

Denmark
Diabetesforeningen - Danish Diabetes Association Rytterkasernen 1 5000 Ödense C Denmark Tel: 45-66/12-90-06 Fax: 45-65/91-49-08 E-mail pj@diabetesforeningen.dk Website http://www.handicap.dk/diabetes.default.htm

Dominica
Sociedad Dominica de Diabetes SODODIA Dominica Diabetes Association Roseau Health Center Upper Lane Roseau Dominica Tel +1-767-4482802 Fax +1-767-4499868 E-mail clevebutler@yahoo.com

Dominican Republic
Instituto Nacional de Diabetes, Endocrinología y Nutrición INDEN Av Paseo del Yaque Los Rios 1214 Santo Domingo Dominican Republic Tel 1-809-3850451 Fax 1-809-3850550 E-mail pat.diabetes@codetel.net.do Website www.inden.org

Sociedad Dominicana de Diabetes SODODIA Dominican Diabetes Society Aptdo de Correos 61, PO Box 160 Central Office Santo Domingo Dominican Republic Tel +1-809-3850418 Fax +1-809-3853550 E-mail pat.diabete@codetel.net.do

Ecuador
Asociación Ecuatoriana de Diabetes AED Sebastian Guarderas Oe 2-52 y Manuel de la Peña Quito Ecuador Tel +11-593-9-9913544 Fax +11-593-3-2227203 E-mail njd_quito@yahoo.com

Federación Ecuatoriana de Diabetes FEDIabetes Edificio Eloy Alfaro 403 Ave. Eloy Alfar of. 355 5932 Quito Ecuador Tel +593-2-438959 Fax +593-2-436054 E-mail fediabetes@andinanet.net

Egypt
The Egyptian Diabetes Association 40 Safia Zaghloul Street 21111 Alexandria Egypt Tel +20-3-5439928 Fax +20-3-5431698 E-mail eda@diabetesegypt.org

El Salvador
Asociación Salvadoreña de Diabéticos ASADI Alameda Roosevelt, Final 53 Av Norte No. 123 2840 San Salvador El Salvador Tel +1-503-2605682 Fax +1-503-2605680

Eritrea
Eritrean Diabetes Association PO Box 5636 Asmara Eritrea Tel +291-1-188286 Fax +291-1-188285 E-mail diabetic@tse.com.er

Estonia
Estonian Diabetes Association Sütiste Road 17 13419 Tallinn Estonia Tel +372-5119001 Fax +372-5070091 E-mail eda@diabetes.ee Website www.diabetes.ee

Ethiopia
Ethiopian Diabetes Association PO Box 31840 Addis Abeba Ethiopia Tel 251-1-625808 E-mail ethiodiabetes@lycos.com

Fiji
Fiji National Diabetes Foundation Ministry of Health, PO Box 2223 Government Buildings Suva Fiji Tel +679-320844 Fax +679-320746 E-mail nchp@healthfiji.gov.fj

Finland
Finnish Diabetes Association Kirjoniementie 15 33680 Tampere Finland Tel: 358-3/2860-111 Fax: 358-3/3600-462 E-mailjorma.huttunen@diabetes.fi Website http://www.diabetes.fi

France
Association Française des Diabétiques AFD Rue Alexandre Dumas 58 75544 Paris Cedex 11 France Tel +33-1-40092425 Fax +33-1-40092030 E-mail afd@afd.asso.fr Website www.afd.asso.fr

Association France Depression
E-mail: info@france-depression.org
www.france-depression.org

Gambia
Gambian Diabetes Association PO Box 1853 Banjul Gambia Tel +220-228223 Fax +220-225909 E-mail balamere@qanet.gm

Georgia
Georgian Union of Diabetes and Endocrine Associations GUDEAS Diabetes Centre of Georgia 5 Ljubljana Str 0159 Tbilisi Georgia Tel +995-32-527010 Fax +995-32-940081 E-mail diabet@access.sanet.ge Website www.diabet.ge

Germany
Deutsche Diabetes-Union e. V. German Diabetes Union Städt Krankenhaus München III Med Abt. Kölner Platz 1 80804 München Germany Tel +49-89 / 30 68-25 23 Fax +49-89 / 30 68-39 06 E-mail info@diabetes-union.de Website www.diabetes-union.de

Deutsche Gesellschaft fur Bipolare Storungen e. V. (DBBS e.V.) Postfach 920249
21132 Hamburg GERMANY www.dgbs.de

European Foundation for the Study of Diabetes
Viktor Jorgens - M.D., Executive Director
Rheindorfer Weg 3
D-40591 Düsseldorf
Germany

Phone: 00 49 211 7584 690
Email: foundation@easd.org
Fax: 00 49 211 7584 6929

Ghana
Association Guinéenne d'Education et d'Aide aux Diabétiques Guinean Association for the Education and Help to Diabetics BP 1206 Conakry Ghana Tel +224-414336 Fax +224-414336 E-mail naby@mirinet.net.gn

Ghana Diabetes Association PO Box KB 68 Korle-Bu, Accra Ghana Tel +233-21-660702 Fax +233-21-668286

Greece
Hellenic Diabetes Association 9, Meandrou Street 11528 Athens Greece Tel +30-210-7210935 Fax +30-210-7210935 Website www.ede.gr

Hellenic Federation of Diabetics 4 Bouboulinas Str 45445 Ioannina Greece Tel/Fax: 30-651/73634 pendi@otenet.gr

Grenada
Grenada Diabetes Association St John Street St Georges Grenada Tel +1-473-4402932 Fax +1-473-4402932 E-mail bbrathwaite@sgu.edu

Guatemala
Patronato de Pacientes Diabéticos de Guatemala 11 Calle No. 1-04 Zona 1 01001 Guatemala City Guatemala Tel +502-23261616 Fax +502-23261660 E-mail info@papadigua.net Website www.papadigua.net

Guyana
Guyana Diabetic Association Guyana Nurses Association Hall Charlotte And Alexander Streets Georgetown Guyana Tel +011-592-222-4418 Fax +011-592-222-4413 E-mail dhse@sdnp.org.gy

Haiti
Fondation Haïtienne de Diabète et de Maladies Cardiovasculaires - (FHADIMAC) PO Box 48 Port-au-Prince West Indies Haïti Tel +509-456335 Fax +509-559839 E-mail info@fhadimac.org Website www.fhadimac.org

Honduras
Coordinadora Nacional de Lucha contra la Diabetes - CONALUDI 14-15 av Golle SO B Suyapa San Pedro Sula Honduras Tel: 504/552-6959 Fax: 504/557-6152

Hong Kong

Diabetes Hong Kong Unit 1802, 18/F Tung Hip Commercial Bldg 244-252 Des Voeux Road Central Hong Kong SAR Hong Kong Tel +852-2723 2087 Fax +852-2-723 2207 E-mail info@diabetes-hk.org Website www.diabetes-hk.org

Hong Kong Society of Endocrinology, Metabolism HKSEMR Queen Elizabeth Hospital c/o Department of Medicine Kowloon Hong Kong Tel +852-2958888 Fax +852-23844698 E-mail kinlchoi@hotmail.com Website www.endocrine-hk.org

Hungary
Magyar Diabetes Tarsasag Hungary Hungarian Diabetes Association Bajsy Zsilinszky Hospital Maglodi ut 89/91 1106 Budapest Hungary Tel +36-1-2607619 Fax +36-1-2607619 E-mail kempet@bel1.sote.hu

Iceland
Samtök Sykursjúkra Icelandic Diabetic Association Hátún 10B 108 Reykjavík Iceland E-mail diabetes@diabetes.is Website www.diabetes.is

India
Diabetic Association of India S.L. Raheja Hospital Raheja Rugnalaya Marg, Mahim 400016 Mumbai India Tel +91-22-56529999 Fax +91-22-24449418/24443893 E-mail info@rahejahospital.com

Indonesia
Pengurus Besar Persatuan Diabetes Indonesia Indonesian Diabetes Association FK UI/RS Dr Cipto Mangunskusumo Jl Salemba Raya No 6 Jakarta Indonesia Tel +62-21-3100075 Fax +62-21-3928658 E-mail endo_id@indo.net.id

Iraq
Iraqi Diabetes Association Al-Yarmook Hospital Al-Qadsia Province Baghdad Iraq Tel +964-15425727 Fax +964-15425727

Ireland
Diabetes Federation of Ireland 76 Lower Gardiner Street 1 Dublin Ireland Tel +353-1-8363022 Fax +353-1-8365182 E-mail info@diabetes.ie Website www.diabetes.ie

Irish Endocrine Society Mater Hospital Eccles Street Dublin 7 Ireland Tel +353-1-8093000 Fax +353-1-9828675

Islamic Republic of Iran
Iranian Diabetes Society IDS 46 Ramin Malakooti Street Patris Lomumba 14439 Tehran Islamic Republic of Iran Tel +98-21-8253113 E-mail diabetessociety@yahoo.com

Israel
Israel Diabetes Association 46 Derech Hamakabim St PO BOX 15601 75359 Rishon Lezion Israel Tel +972-3-9508222 Fax +972-3-9508111 E-mail eli7@actcom.co.il

Italy
Associazione Italiana per la Difesa degli AID Via della Scrofa 14 00186 Rome Italy Tel +39-06-68803784 Fax +39-06-68803784 E-mail assitdiab@tiscalinet.it Website www.assitdiab.it

Associazione Medici Diabetologi AMD Viale Carlo Felice 77 00185 Rome Italy Tel +39-06-7000599 Fax +39-06-7000499 E-mail amdass@tiscalinet.it Website www.aemmedi.it

FAND - Associazione Italiana Diabetici FAND Via Dracone 23 20126 Milan Italy Tel +39-02-2570453 Fax +39-02-2570176 E-mail info@fand.it Website www.fand.it

Societa Italiana di Diabetologia SID Italian Diabetology Society via Pisa 21 00162 Rome Italy Tel +39-06-44240967 Fax +39-06-44292060 E-mail siditalia@siditalia.it Website www.siditalia.it

Jamaica
Diabetes Association of Jamaica 1 Downer Avenue Kingston 5 Jamaica Tel +1-876-9785915 Fax +1-876-9781883 E-mail diabetesja@kasnet.com

Japan
Japan Diabetes Society 5-25-18 Hongo Haiteku Hongo Bldg.,3rd Fl 113-0033 Bunkyo-ku, Tokyo Japan Tel +81-3-38154364 Fax +81-33-8157985 E-mail jdstokyo@za2.so-net.ne.jp Website www.jds.or.jp

Depression Organization
Keio University Hospital 35 Shinanocho Shinjuku-ku, Tokyo 160-8582 JAPAN
Tel: 03-3353-1121 (Main)
http://www.hosp.med.keio.ac.jp/ (website in Japanese)

Umegaoka Tokyo Metropolitan Hospital 6-37-10 Matsubara, Setagaya-ku, Tokyo 156-0043 JAPAN Tel: 03-3323-1621 (Main) Free telephone consultation service: 03-3323-7621 http://www.byouin.metro.tokyo.jp/umegaoka/index.html

Jordan
Jordanian Association for the Care of Diabetes PO Box 9704 Amman 11191 - Jordan Tel: 962-6/516-0207 Fax: 962-6/515-9807 Email jorscd@next.jo

Kazakhstan
Diabetes Association of the Republic of Kazakhstan DARK Kazakstan Office 9 164 Gaidar Street 480009 Almaty Kazakhstan Tel +7-3272- 400810 Fax +7-3272-416158 E-mail diab@dark.almaty.kz

Kenya
Kenya Diabetic Association PO Box 55098 Nairobi - Kenya Tel: 254-2/336-725 E-mail kdiabass@yahoo.com

Korea Republic
Korean Diabetes Association KDA Room No 101à, Renaissance Tower Bldg 456 Gongdeuk-dong, Mapo gu 121-706 Seoul Korea, Republic of Tel +82-2-7149064 or 9080 Fax +82-2-7149084 E-mail diabetes@kams.or.kr Website www.diabetes.or.kr

Kuwait
Kuwait Diabetes Society KDS PO Box 1202 13031 Safat Kuwait Tel +965-2468874 Fax +965-5333276 E-mail kds@kma.org.kw

Kyrgyzstan
Diabetes Association of Kyrgyzstan 199 Panfilov Str 720000 Bishkek Kyrgyzstan Tel +996-312-662684 Fax +996-312-621261 E-mail diabet_kg@mail.ru

Lebanon
Lebanese Diabetes Association Centre Makassed Makassed Center - 4th Floor Mar Elias Street Beirut Lebanon Tel +961-7-300515 Fax +961-7-739424

Lesotho
Lesotho Diabetes Association PO Box 925 Maseru Lesotho Tel +266-22-327000 Fax +266-22-327555 E-mail diabetes@leo.co.ls

Libyan Arab Jamahiriya
Libyan Diabetic Association PO Box 11052 Tripoli Libyan Arab Jamahiriya Tel +218-21-4776992 Fax +218-21-3600659

Lithuania
Lithuanian Diabetes Association Gedimino Av 28/2 - 404 01104 Vilnius Lithuania Tel +370-5-2620783 Fax +370-5-2610639 E-mail info@dia.lt Website www.dia.lt

Luxembourg
Association Luxembourgeoise du Diabète ALD Luxembourg Diabetes Association 12-14 bd d'Avranches PO Box 1316 1013 Luxembourg

Luxembourg Tel +352-485361 Fax +352-220836 E-mail diabete@pt.lu Website www.ald.lu

Macedonian
Macedonian Diabetes Association Vodnjanska 17 1000 Skopje Macedonia Tel +389-2-147254 Fax +389-2-212480 E-mail info@endocrinology.org.mk

Malaysia
Persatuan Diabetis Malaysia Malaysian Diabetes Association No 2 Lorong 11/4 E 46200 Petaling Jaya Selangor Darul Ehsan Malaysia Tel +60-3-79574062 Fax +60-3-79604514

Maldives
Diabetes and Cancer Society of Maldives H Deens Villa Meheli Goalhi Male Maldives Tel +960-328987 Fax +960-316243 E-mail dcsm@dhivehinet.net.mv

Mali
Association Malienne de Lutte contre le Diabète AMLD Centre Hospitalo-Universitaire Gabriel Toure Bamako Mali Tel +223-230780 Fax +223-226090 E-mail diabete@malinet.ml

Malta
Ghaqda Kontra D-dijabete Maltese Diabetes Association British Legion Premises 111 Melita Street Valletta Malta Tel +356-21-221518 Fax +356-21-437418 E-mail info@diabetesmalta.org Website www.diabetesmalta.org

Mauritius
Mauritius Diabetes Association C/o 18 Williams Newton Street Port Louis Mauritius Tel +230-2122430/2124406 E-mail bonnemarmite@intnet.mu

Mexico
Federación Mexicana de Diabetes Mexican Diabetes Federation Tonala No. 21, 3er. Piso Col. Roma Norte 06700 Mexico City Mexico Tel +5255-55160697 Website www.fmdiabetes.org

Sociedad Mexicana de Nutrición y Endocrinología Mexican Society of Nutricion & Endocrinology Ohio no 27 Col El Rosedal, Del Coyoacán 04330 Mexico DF Mexico Tel +52-55-56105652 Fax +52-55-52115820 E-mail smne@terra.com.mx

Sociedad Mexicana de Nutrición y Endocrinología Mexican Society of Nutricion & Endocrinology Ohio 27 Col El Rosedal Mexico DF 04330 - Mexico sociedad@smne.org.mx

Morocco

Ligue Marocaine de Lutte contre le Diabète 2, Place Moulay Ali Cherif or: PO Box 6583 11100 Rabat Morocco Tel +212-7-675201 Fax +212-7-675155 E-mail chu.cc.ibnsina@sante.gov.ma

Mozambique
Associacao Mocambicana dos Diabéticos av Ho Chi Min No 1142 2167 Maputo Mozambique Tel +258-1-310389 Fax +258-1-422698 E-mail dalila@zebra.uem.mz

Nepal
Nepal Diabetes Association Tipureshwor Po Box 3245 Kathmandu - Nepal Tel: 977-1/266-540 Fax: 977-1/441-7979 mdb@ntc.net.np

The Netherlands
Diabetesvereniging Nederland DVN Dutch Diabetes Association Fokkerstraat 17 PO Box 470 3830 LD Leusden Netherlands Tel +31-33-4341952 Fax +31-33-4630930 E-mail j.gillissen@dvn.nl Website www.dvn.nl

Nederlandse Vereniging Voor Diabetesonderzoek NVDO Dutch Association for Diabetes Research Diabetes Centre VU, Medical Centre PO Box 7057 1007 MB Amsterdam Netherlands Tel +31-20-4440533 Fax +31-20-4440502 Website www.nvdo.net

Global Initiative on Psychiatry PO Box 1282 1200 BG Hilversum NETHERLANDS
www.gip-global.org

Vereniging voor Manisch Depressieven en Betrokkenen (VMDB) Kaap Hoorndreef 56-C, 3563 AV Utrecht NETHERLANDS www.nsmd.nl

Netherlands Antilles
Sociedat Kurasoleno Di Diabetiko SOKUDI Diabetic Association of Curaçao Schonegevelstraat 21 PO Box 181 Willemstad, Curaçao Netherlands Antilles Tel +599-9-8888844

New Zealand
Diabetes New Zealand 115 Molesworth street PO Box 12 441 6001 Wellington New Zealand Tel +64-4-4997145 Fax +64-4-4997146 E-mail diabetes@diabetes.org.nz Website www.diabetes.org.nz

Balance New Zealand Manic Depressive Network
76 Virginia Road
Wanganui 06 345 2264 NEW ZEALAND

Nicaragua

Fundación Pro-Ayuda a Enfermos Crónicos FUNPEC Calle 14 de Septiembre ITR Ciudad Jarin Una Cuadra Abajo Managua Nicaragua Tel +505-2-256239 Fax +505-2-491320

Nigeria
Diabetes Association of Nigeria College of Medicine University of Lagos PMB 12003 Lagos Nigeria Tel +234-01-4737253 Fax +234-015840079 E-mail efedaye@yahoo.com Website www.diabetesng.org

Norway
Norges Diabetesforbund Norwegian Diabetes Association Østenjøveien 29 PO Box 6442, Etterstad 0605 Oslo Norway Tel +47-23051800 Fax +47-23051801 E-mail norges.diabetesforbund@diabetes.no Website www.diabetes.no

Pakistan
Diabetic Association of Pakistan 5-E/3, Nazimabad 74600 Karachi Pakistan Tel +92-21-6616890 Fax +92-21-6680959

Panama
Asociación Panameña de Diabeticos Panamanian Diabetes Association Apartado 0815-00473 zona 4 Panama City Panama Tel +507-2256239 Fax +507-2256239

Papua New Guinea
Diabetic Association of Papua New Guinea HOPE worldwide (PNG) PO Box 3478 Boroko, NCD Papua New Guinea Tel +675-3256901 Fax +675-3230419 E-mail hopepng@datec.com.pg

Paraguay
Fundación Paraguaya de Diabetes Bomberos Voluntarios No. 809 esq. Celsa Speratti 221-557 Asuncion Paraguay Tel +595-21-673270 Fax +595-21-673270 E-mail fupadi@highway.com.py

Sociedad Paraguaya de Diabetología Paraguayan Society of Diabetology Cerro Cora 975 Brasil y Manuel Dominguez, Oficina 311 Asunción Paraguay Tel +595-21-204601 Fax +595-21-204801 E-mail felca@conexion.com.py

Peru
Asociación de Diabéticos Juveniles del Péru ADJ Juvenile Diabetes Association of Peru Calle Luis Pasteur 1371 Lince 14 Lima Peru Tel +51-1-2224747 Fax +511-2222922 E-mail adjperu@telefonica.net.pe

Asociación Peruana de Diabetes Peruvian Diabetes Association Avenida San Felipe 610 Jesus Maria 11 Lima Peru Tel +51-1-2614524 Fax +51-1-5782408 E-mail jbpenaloza@terra.com

Philippines
Philippine Diabetes Association Unit 25, Facilities Centre 548 Shaw Boulevard 1550 Mandaluyong City Philippines Tel +63-2-5349559 Fax +63-2-5311278 E-mail phildiab@pworld.net.ph Website www.diabetesphil.org

Poland
Polskie Stowarzyszenie Diabetyków Polish Diabetes Association ul Powstancow Wielkopolskich 33 85-090 Bydgoszcz Poland Tel +48-52-3411251 Fax +48-52-3460692 E-mail a.bauman@diabetyk.org.pl Website www.diabetyk.org.pl

Polskie Towarzystwo Diabetologiczne Polish Diabetological Association Department of of Metabolic Diseases ul Kopernika 15 Street 31-501 Krakow Poland Tel +48-12-4213972 Fax +48-12-4219786

Portugal
Associação Protectora dos Diabéticos de Portugal APDP Portuguese Diabetes Association Rua do Salitre, 118 - 120 1250-203 Lisbon Portugal Tel +351-213816100 Fax +351-213859371 E-mail diabetes@apdp.pt Website www.apdp.pt

Sociedade Portuguesa de Diabetologia Potuguese Society of Diabetology Praça Marquês Pombal 16 A 1250 - 163 Lisboa Portugal Tel +351-96-8252297 Fax +351-21-3859371 E-mail spd@diabetes.com.pt Website www.spd.pt

Puerto Rico
Asociación Puertorriqueña de Diabetes PO Box 190842 00919-0842 San Juan Puerto Rico Tel +1-787-2810617 Fax +1-787-2817175 E-mail diabetes@coqui.net Website www.diabetespr.org

Asociación Puertorriqueña de Educadores en Diabetes Puerto Rican Association of Diabetes Educators PO Box 40397 '00940 San Juan Puerto Rico Tel +1-787-2681274 Fax +1-787-2681274

Sociedad Puertorriqueña de Endocrinología y Diabetología SPED Puerto Rican Society of Endocrinology and Diabetology PO Box 364208 00936-4208 San Juan Puerto Rico Tel +1-787-7934445 Fax +1-787-7817280 E-mail info@spedpr.org Website www.spedpr.org

Qatar
Qatar Diabetes Association PO Box 752 Al Laqta 974 Doha Qatar Tel +974-4874310 or 4876084 Fax +974-4876065 E-mail qda-idf@qf.org.qa Website www.qda.org.qa

Romania

Association for Protection of Romanian Pridvorului Street 19 Bl20 ap 45 sector 4 75173 Bucharest Romania Tel +40-1-3033190 Fax +40-1-3239794 E-mail bruckner@fx.ro

Societatea Romana de Diabet, Nutritie si Romanian Society of Diabetes, Nutricion and Metabolic Disease 2 Clinicilor Street 3400 Cluj-Napoca Romania Tel +40-264-199578 Fax +40-264-194455

Russia
Russian Diabetes Federation Micluho-Muklay Str. 38-200 117279 Moscow Russian Federation Tel +70-95-2362442 Fax +70-95-2362442 E-mail mda.rdf.goustova@mail.ru

Rwanda
Association Rwandaise des Diabétiques PO Box 2238 Kigali Rwanda Tel +250-08538711 E-mail asrwdiab@yahoo.fr

Saint Lucia
St Lucia Diabetic and Hypertensive Association 15 St Louis Street PO Box 452 Castries, Western Indies Saint Lucia Tel +1-768-4527693 Fax +1-768-4536688 E-mail stluciadiabetic@candw.lc

Samoa
Diabetes Association of Samoa Tupua Tamasese Meole Hospital Private Bag Apia Samoa Tel +685-21212 Fax +685-22905

Saudi Arabia
Saudi Diabetes and Endocrine Association PO Box 1498 31925 Al Khobar Saudi Arabia Tel +966-3-8974921/23 Fax +966-3-8974920 E-mail sdea@rawabiss.com

Senegal
Association Sénégalaise de Soutien aux Diabétiques ASSAD BP 28747 12023 Dakar Senegal Tel +221-8234427 Fax +221-8228187 E-mail gueye.baye.oumar@caramail.com

Serbia and Montenegro
Diabetes Association of Serbia and Montenegro Karadjordjeva 36/II st 5A 11000 Belgrade Serbia and Montenegro Tel +381-11-3283267 Fax +381-11-3283578 E-mail diabetesyu@net.yu Website www.diabeta.net

Yugoslav Association for the Study of Diabetes Diabetes and Metabolic Disease Dr Subotica 13 11000 Belgrade Serbia and Montenegro Tel +381-11-3616317 (ext 134) Fax +381-11-685357

Seychelles
Diabetic Society of Seychelles Deenu's Building, Quincy Street PO Box 88 Victoria, Mahe Seychelles Tel +248-322239 Fax +248-324028 E-mail deenu@seychelles.net

Singapore
Diabetic Society of Singapore Ang Mo Kio Hospital 17 Ang Mo Kio Avenue 9 #02-12 569766 Singapore Singapore Tel +65-64506132/6142 Fax +65-65531801 E-mail dss@diabetes.org.sg Website www.diabetes.org.sg

Slovakia
Slovenska Diabetologicka Spolocnost Slovakian Diabetes Society 1 Interna Klinika MFN a JLF UK Kollarova 2 036 59 Martin Slovakia Tel +421-43-4203485 Fax +421-43-4220261 E-mail kl1i@jfmed.uniba.sk Website www.diadays-tn.sk

ZVAZ Diabetikov Slovenska Association of Diabetic Patients of Slovakia Ustrenda rada Ustredie Presovska 39 821 08 Bratislava 2 Slovakia Tel +421-2-55422426 Fax +421-43-4134771 E-mail bukovska@mfn.sk

Slovenia
Zveza Drustev Diabetikov Slovenije SLODA Slovenian Diabetes Association
Einspielerjeva Ulica 3 1000 Ljubljana Slovenia
Tel +386-1-2362726
Fax +386-1-2362727
E-mail sloda@siol.net
Website www.diabetes-zveza.si

South Africa
Society for Endocrinology,
SEMDSA PO Box 783155
2146 Sandton South Africa
Tel +27-114898525/8500 Fax +27-117172521
E-mail semdsa@worldonline.co.za
Website www.semdsa.org.za

The South African Depression and Anxiety Group (SADAG)
E-mail: operations@anxiety.org.za
www.anxiety.org.za

Diabetes SA National Office
Office 104, The Atrium, 272 Oak Avenue, Randburg
P O Box 604, Fontainebleau, 2032

Tel : 011 886 3721 / 3765
Fax : 011 886 2735
Email : national@diabetessa.co.za
http://www.diabetessa.co.za/

Spain
Federación Española de Diabetes Spanish Federation of Diabetes D Ramon de la Cruz 88 Oficina 1 28006 Madrid Spain Tel +34-91-4013342 Fax +34-91-4020227 E-mail fedespa@arrakis.es

Sociedad Española de Diabetes Spanish Diabetes Society D Ramon de la Cruz 88 28006 Madrid Spain Tel +34-91-4013342 Fax +34-91-4020227 E-mail secretaria@sediabetes.org Website www.sediabetes.org

Sweden
Svenska Diabetes Förbundet Swedish Diabetes Association PO Box 1107 Sturegatan 4B 172 22 Sundbyberg Sweden Tel +46-8-56482100 Fax +46-8-56482139 E-mail info@diabetes.se Website www.diabetes.se

Swedish Society for Diabetology Sahlgrenska University Hospital 413 45 Göteborg Sweden

Switzerland
Schweizerische Diabetes-Gesellschaft Swiss Diabetes Association Rütistrasse 3a 5400 Baden Switzerland Tel +41-56-2001790 Fax +41-56-2001795 E-mail sekretariat@diabetesgesellschaft.ch Website www.diabetesgesellschaft.ch

World Health Organization
Division of Mental Health and Substance Abuse
Geneva CH-1211 SWITZERLAND www.who.int 40 World Federation for Mental Health

Syrian Arab Republic
Syrian Diabetes Association PO Box 6858 Damascus Syrian Arab Republic Tel +963-11-2318900 Fax +963-11-2318900 E-mail sda@mail.sy

Taiwan
Chinese Taipei Diabetes Association Dept of Internal Medicine National Taiwan University Hospital 7 Chun-Shan South Road Taipei 100 Taiwan Tel: 886-2/2375-3352 Fax: 886-2/2370-1898 ctda@ms29.hinet.net

Tanzania United Replublic
Diabetes Association of Zanzibar DAZ PO Box 1902 Zanzibar Tanzania, United Republic of E-mail dralisalum@hotmail.com

Tanzania Diabetes Association India/Nyanza Street Dar es Salaam Tanzania, United Republic of Tel +255-22-2114991 Fax +255-22-2113459 E-mail diabetes@cats-net.com

Thailand
Diabetes Association of Thailand Phra Mongkutklao Hospital Ratchawithi Road, Phaya Thai 10400 Bangkok Thailand Tel +662-2464061 Fax +662-2464061 E-mail sitvy@mahidol.ac.th

Trinidad and Tobago
Diabetes Association of Trinidad and Tobago Room 14 Fairfield Complex Bacolet Street Scarborough Trinidad & Tobago Tel +1-868-6722379 Fax +1-868-6720864 E-mail diabetesassoc_tt@yahoo.com

Turkey
Türk Diabet Cemiyeti Turkish Diabetes Association Dr Celal Öker Sokak 10 Harbiye 80230 Istanbul Turkey Tel +90-212-233 60 86-87 Fax +90-212-248 55 23 E-mail info@diabetcemiyeti.org Website www.diabetcemiyeti.org/tarihce_e.htm

Turkish Diabetes Foundation Turkiye Diyabet Vakfi Turgut Özal cad. Bati apt. no. 135 Kat 2 D 10 Capa 34280 Istanbul Turkey Tel +90-212-6335171 Fax +90-212-6335198 E-mail info@turkdiab.org Website www.turkdiab.org

Uganda
Uganda Diabetic Association PO Box 16602 Wandegeya Kampala Uganda Fax +256-41-532591

Ukraine
Ukrainian Diabetic Federation a/b #9 04114 Kiev Ukraine Tel +380-44-4310250

United Arab Emirates
Emirates Diabetes Society PO Box 6600 UAE Dubai United Arab Emirates Tel +97-14-3377377 Fax +97-14-3344082 E-mail ema@emirates.net.ae

UK - United Kingdom
Diabetes UK 10 Parkway NW1 7AA London United Kingdom Tel +44-20-74741000 Fax +44-20-74241001 E-mail info@diabetes.org.uk Website www.diabetes.org.uk

International Society for Affective Disorders Institute of Psychiatry PO72 Kings College London, Denmark Hill London SE5 84F UNITED KINGDOM Office: 020 7848 0295

Fax: 020 7848 0298 Email: caroline.holebrook@iop.kcl.ac.uk
http://www.isad.org.uk

Mental Health Foundation London Office,
Ninth Floor Sea Containers House
20 Upper Ground London
SE1 9QB UNITED KINGDOM
www.mentalhealth.org.uk

United States
American Diabetes Association
1701 North Beauregard Street
Alexandria, VA 22311
USA Tel: +1-703/549-1500
Fax: +1-703/549-1715
Email: lcann@diabetes.org
Website: http://www.diabetes.org

Juvenile Diabetes Research Foundation
120 Wall Street
New York, NY USA 10005-4001
Tel: (800)-533-CURE(2873)
Fax: +1-212/785-9595
E-mail: info@jdrf.org
Website http://www.jdrf.org

Diabetes Hands Foundation
P.O. Box 9421
Berkeley, CA 94709
USA Tel: +1-650.283.4862
http://diabeteshandsfoundation.org

Diabetes Research and Wellness Foundation Executive Offices
5151 Wisconsin Avenue, NW
Suite 420, Washington, DC 20016
USA Tel: +1- 202-298-9211 Fax: +1- 202-244-4999
E-mail kgold@diabeteswellness.net Website http://www.diabeteswellness.net

American Academy of Child & Adolescent Psychiatry
3615 Wisconsin Avenue, N.W.
Washington, DC 20016-3007 USA
www.aacap.org

American Psychiatric Association
1000 Wilson Boulevard, Suite 1825

Arlington, VA 22209-3901 USA
www.psych.org

Depression & Bipolar Support Association (DBSA)
730 North Franklin Street, Suite 501
Chicago, IL 60610-7224 USA
www.ndmda.org

International Foundation for Research & Education
on Depression (iFred)
2017-D Renard Court
Annapolis, MD 21401 USA
www.ifred.org

Mental Health America
2000 North Beauregard Street, Sixth Floor
Alexandria, VA 22311 USA
www.nmha.org

National Alliance on Mental Illness (NAMI)
2107 Wilson Blvd, Suite 300
Arlington, VA 22201-3042 USA
www.nami.org

National Institute of Mental Health (NIMH)
6001 Executive Boulevard
Bethesda, MD 20892 USA
www.nimh.nih.gov

SAMHSA Mental Health Information Center
PO Box 42557
Washington DC 20015, USA
www.mentalhealth.samhsa.gov

World Federation for Mental Health
12940 Harbor Drive
Suite 101
Woodbridge, VA 22192 USA
Phone: 703.494.6515
Fax: 703.494. 6518
Email: info@wfmh.com

Uruguay
Asociación de Diabéticos del Uruguay Paraguay 1273 11100 Montevideo Uruguay Tel +598-2-9016214 Fax +598-2-9016214 E-mail info@adu.org.uy

Website www.adu.org.uy

Sociedad de Diabetología y Nutrición del Uruguay Av Luis A de Herrera 2092 - ap 101 11300 Montevideo Uruguay Tel +598-2-4810089 Fax +598-2-9016214 E-mail sdiab@adinet.com.uy

Venezuela
Sociedad Venezolana de Endocrinología y Metabolismo Venezuelan Endocrinology and Metabolism Society Ave El Golf Quinta Setentaiseis (76) Urb El Bosque - Colegio de Medicos Estado Miranda Caracas 1050 Venezuela Tel/Fax: 58-2/731-3039 svem@cantv.net

Asociación Venezolana de Diabetes Venezuelan Diabetes Association Avenida Los Leones c/c Av Madrid Policlínica Barquisimeto Consultorio 23 Barquisimeto Edo Lara - Venezuela Tel: 58-51/53-52-73 Fax: 58-51/54-51-70 diabetes@inname.com

Federación Venezolana de Asociaciones y Unidades de Diabetes - FENADIABETES Sociedad Venezolana de Endocrinologia y Metabolismo Colegio Médico del Estado Miranda Av El Golf, Qta 76, Urb El Bosque Caracas 1050 Venezuela Tel: 58/731-30-39 Fax: 58/731-30-39

FENADIABETES Fundación de Atención al Diabético - FUNDIABETES av Cajigal - Residencias Danubio Piso 2 - Apto 2-5 San Bernardino Caracas - Venezuela Tel: 582/5528-167 Fax: 582/520-476 fad1telcel.net.ve

Zambia
Diabetes Association of Zambia PO Box 109X Ridgeway Lusaka Zambia E-mail chishimbalumbwe@yahoo.com

Zimbabwe
Zimbabwe Diabetic Association Old Central Hospital, Parirenyatwa P.O. Box 1797 Harare Zimbabwe Tel +263-4-732089 Fax +263-4-753256 E-mail melitusngoni@yahoo.com

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*The majority of diabetes-related organizations on this list were retrieved from http://www.medicalwatches.com:80/organizations.html.

THE WORLD FEDERATION FOR MENTAL HEALTH
12940 Harbor Drive, Suite 101
Woodbridge VA 22192 USA
+1-703-494-6515
+1-703-494-6518 (Fax)
info@wfmh.com
www.wfmh.org

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