



COMMONWEALTH of VIRGINIA

DEPARTMENT OF BEHAVIORAL HEALTH AND DEVELOPMENTAL SERVICES

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Office of Integrated Health Health & Safety Alert/Information

Part 2: Diabetes Management Health & Safety Alert

Diabetes Management Introduction

Diabetes is a chronic long-term disease which, at this time, has no known cure. Diabetic individuals require regular management to maintain a balance between blood sugar (glucose) and insulin levels within their bodies to ensure wellbeing. When glucose and insulin are out of balance for any length of time other health complications occur within the body (41) (23).

Diabetes Complications

Diabetes may lead to other serious medical conditions over time. When diabetes goes untreated, the risk for life-long medical complications increases (Mayo Clinic, 2018b). Other health conditions commonly associated with diabetes are:

- **Heart Disease**- diabetics are at an increased risk for stroke, atherosclerosis, heart attack, and coronary artery disease (59) (41).
- **Neuropathy**- damage to blood vessels to nerves cause tingling, numbness, and burning pain. Left untreated can lead to permanent loss of sensation (59) (41).
- **Kidney Disease**- damage to blood vessels associated with the kidney filtration system can lead to kidney failure, end stage kidney disease. Dialysis or transplant may be the result (59) (41).
- **Eye Damage**- damage to blood vessels of the retina can lead to blindness; also, there is a greater risk for cataracts and glaucoma (59).
- **Foot Complications**- neuropathy and decreased blood flow to the lower extremities increases the risk for infection and poor wound healing. May lead to amputation (59).
- **Skin Complications**- diabetics are at higher risk of developing skin infections (fungal) (41).
- **Alzheimer's Disease**- diabetics are at increased risk for dementia (41).
- **Depression**- common among Type 1 and Type 2 diabetics (59).

Diabetes and Intellectual Disability

Individuals with Intellectual and developmentally disabilities are diagnosed with diabetes at an estimated 2 to 3 times higher rate than the general population. Due to cognitive limitations, many individuals with IDD are not included in general diabetes research studies, so the true prevalence of diabetes within the IDD population may be skewed (31).

Specific groups of children with intellectual and developmental disabilities, such as individuals with Down syndrome, autism, and spina bifida, are 2 to 3 times more likely to be obese which increases their risk of developing Type 2 diabetes (22). IDD individuals with Type 2 diabetes are at an increased risk for ongoing weight problems, due to diets high in fats and inactivity, which is partially associated with the administration of anti-psychotic medications.

For children with disabilities ages 10-17, the prevalence for obesity is 20%, compared to 15% among children without disabilities of the same age group (CDC, 2019d). The evidence reveals individuals with IDD receive inadequate education on weight management, self-care management, and or healthcare support for the diagnosis (3) (31).

Type 1 diabetes in childhood, adolescence and adulthood is well known to be associated with certain genetic conditions such as Down syndrome (DS), Turner syndrome (TS), Prader-Willi syndrome (PWS), Friedreich ataxia (FA), Klinefelter syndrome (KS), Bardet-Biedl syndrome (BBS), Alström syndrome (AS), and Berardinelli-Seip syndrome (BSS), (also known as congenital generalized lipodystrophy), among others (55).

A systematic review by McVilly et al. (43) reported the prevalence of diabetes among individuals with Down syndrome (DS) as being four to ten times higher than in the general population (43) (55). Individuals with DS are also at a higher risk of autoimmune diseases (57) (44) as well as premature birth (before 38 weeks of gestation), which are both known to increase risk for Type 1 diabetes (55) (44).

There are several other health conditions (commonly associated with DS), which also increase the risk for diabetes complications: heart defects, dementia, leukemia, sleep apnea, autoimmune conditions, hypothyroidism, infections at a young age and obesity. (55) (44), among others.

The Health Impact of Diabetes on Individuals with IDD

- The development of secondary health complications.
- Increased hospitalizations.
- Increased length of hospital stays.
- Reduced quality of life.
- Increased health expenditures.
- Complications related to the detection of pain (43).

The Emotional Impact of Diabetes on Individuals with IDD

- Feelings of loss relating to not being able to eat and drink what they liked, when they liked.
- Feelings of being different due to the comparison between what they were eating, and what others were eating, especially in group settings.
- Feelings of being punished or negatively impacted or controlled.
- Concern and worry about the future. These feelings were especially apparent among those in community housing situations.
- A lack of full understanding of the dietary changes and care need to manage their diabetes (43) (31).

The Impact on Caregivers

- Caregivers felt they did not receive sufficient information from the individual's healthcare professionals to support their clients at the time of diagnosis.
- Caregivers did not understand where to get the support required for diabetes care.
- Caregivers expressed a lack of communication skills, which would enable them to care-related issues to the individual's PCP and/or medical specialists (43) (31).

The Caregiver's Role in the Management of Diabetes

The caregiver's role is to coordinate with the medical personnel ordering the treatment plan. A caregiver's attitude can play a major role in assisting an individual with diabetes management and life style changes. It is vital for direct care providers to be educated about diabetes and the importance of lifestyle management, in order to better assist individuals with their daily choices (31).

Caregivers should also receive training on how to support individuals to make informed decisions; how those decisions affect future outcomes; and how to provide continued education to individuals with cognitive limitations (52) (31). Individuals have a right to choose what they want to eat, even if their choice does not comply with dietary parameters. The key to success involves training for the caregiver (as well as the individual), to support and enable both to make educated decisions. Education needs to be tailored to the individual's capacity for learning (52) (31). However, there is a fine line in complying with physician orders and infringing on an individual's rights related to decision making. If you are unsure if a plan of care is infringing on an individual's rights, please contact the [Office of Human Right's in your Region](#) for help and guidance.

The Individual's Role in Self-Management of Diabetes

Self-management of diabetes among individuals with IDD is often a struggle, due to a lack of training which is both supportive and encourages independence. McVilly et al.

(43) reported that individual's felt better supported at healthcare visits if caregivers or family members attended with them, so the information could be explained again later at home. In addition, there is a lack of educational resources written specifically for individuals with intellectual disability. For individuals to be successful with self-management, repeated education, caregiver involvement, and consistency to promote lifestyle changes to ensure improved outcomes is a vital part of success (43) (31).

Diabetes Management

Healthy eating and exercise are the cornerstones for successful management of diabetes. Making healthier eating choices and increasing daily physical activity helps keep blood sugar levels within normal limits, helps to maintain a healthy body weight, prevents or delays diabetic complications, and improves energy levels (46) (28).

Excessive body weight increases insulin resistance. Abdominal obesity associated with waist size or waist-hip ratio can increase risk for Type 2 diabetes. Reducing abdominal fat aides in reducing the risk for the development of prediabetes and Type 2 diabetes (59).

Dietary Strategies

A balanced, person-centered nutrition plan is essential in the management of diabetes. There are many great resources, which can help someone choose foods which both satisfy hunger and fulfill their cravings. A diagnosis of diabetes does not mean a person must give up their favorite foods. Good nutrition requires a diet of vegetables, fruits, grains, protein, dairy and healthy fats; with limits put on sugars, trans fats, and sodium (46) (28).

The digestive process breaks down food into glucose for the body to use as energy. Different foods effect blood sugar levels differently. Eating large amounts of carbohydrates can raise blood sugar levels too high, too quickly (46) (28). The focus should be on adding more fresh vegetables and fruits (Figure 2), while limiting processed foods, fatty meats, breads and sweets (38).

There are several common dietary strategies, which can be used to help individuals balance their nutritional needs.

- Healthful eating includes fruits, vegetables, whole grains, lean protein and low-fat dairy to create well-balanced meal plans and snacks.
- Portion control focuses on serving sizes, calorie intake, and the nutritional content of foods to manage the amount of food consumed.

- The plate method (Figure 1) divides a plate into three sections. Half (1/2) of the plate (Section 1) is for non-starchy vegetables; a quarter (1/4) of the plate (Section 2) is for lean proteins; and the last quarter (1/4) of the plate (Section 3) is for carbohydrates and or starches. The last section (Section 4) is devoted to a no calorie beverage. A good resource for the plate method is <https://www.choosemyplate.gov/>
- The Exchange diet consists of carbohydrate counting involves tracking the total number of sugars, starches and fiber (carbohydrates), consumed in a given day by calculating portion size and using nutrition labels or other resources published on the web or in books. (28).

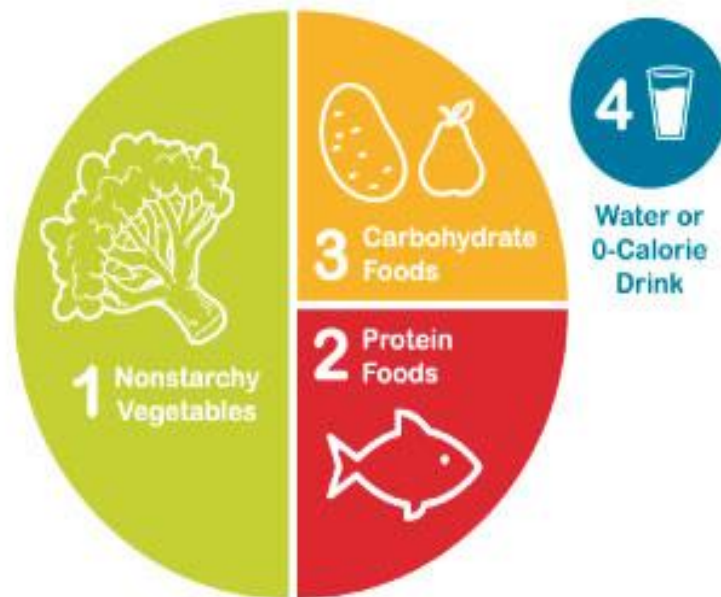


Figure 1 – One plate method, (53).

Other nutritional recommendations from the USDA are:

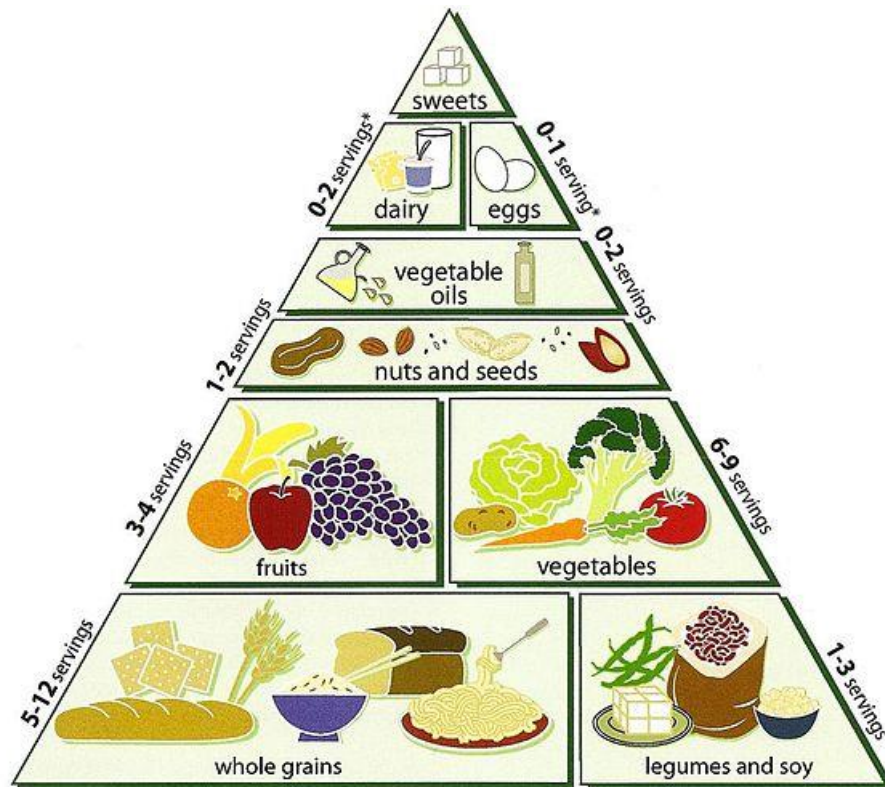
- Incorporate non-starchier, high fiber vegetables such as asparagus, broccoli, cauliflower, green beans, carrots, and eggplant, into one's diet.
- Limit added sugars via foods such as breakfast cereal, flavored yogurt, cookies, juices, ice cream, and sugar-sweetened beverages like soda pop.
- Replace sugar sweetened beverages with flavored carbonated zero calorie waters. Sugar sweetened beverages increase risk for Type 2 diabetes, weight gain, cardiovascular disease, renal disease, fatty liver disease and tooth decay.

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- Limit refined grains found in cookies, cakes, breakfast cereals, white bread, crackers, and white rice.
- Add more whole grains such as barley, oats, quinoa, wild rice and whole grain breads.
- Reduce the use of highly processed foods (such as nonperishable prepackaged meals and snacks) and replace them with whole foods such as fruits, vegetables, beans, and nuts whenever possible.

Never adjust an individual's diet without consulting a dietitian and/or the individual's primary care physician (PCP) who is prescribing their meal plan and calorie intake requirements. Diet orders must be obtained from the medical personnel ordering the treatment plan and or a Dietician. A consultation with a Registered Dietitian is one way to become informed on how to guide food combinations, calorie requirements, and portion sizes. A nutritionist can also help educate individuals on how to choose nutrient-dense foods, which are rich in fiber, help balance blood sugar levels and satisfy hunger (28).



* A reliable source of vitamin B12 should be included if no dairy or eggs are consumed.





Figure 2

Physical Activity

Regular and consistent activity is essential to postpone the onset of peripheral neuropathy, peripheral vascular disease and lower risk for infection in the lower extremities (feet and legs). When the body is active, cells become more sensitive to insulin regulation and blood sugar levels are lowered. Both aerobic and resistance training exercises are recommended physical activities for diabetics.

There are four types of exercise, which improves health and physical wellbeing.

- Endurance and or aerobic exercise is defined as consistent rhythmic movement of the large muscle groups lasting at least 30 minutes per day; to be done 3 to 7 days a week. Putting on some good music and dancing around in the house is good fun aerobic endurance exercise.
- Strength and or resistance training is accomplished by using free weights, weight machines, body weight exercises, or elastic resistance bands. Weight lifting soup cans in the kitchen is a fun way to strength training.
- Balance training exercise involves strengthen the muscles of the legs and core which help keep a body upright. Holding onto a high-backed chair and lifting one foot is a good balance activity.
- Flexibility exercises, range-of-motion or stretching keeps muscles elastic and joints moving freely. Flexibility exercises should feel good to the body, and should never be painful. Yoga is an example of a flexibility exercise and can be done with all age groups and body types (27) (56) (45).

All exercise plans should be reviewed by the individual's PCP before beginning. An individualized exercise protocol should be written and signed by the individual's PCP to ensure consistent delivery of care. Begin increasing activity levels slowly, and build up to a consistent level that can be easily maintained. Begin with just a stroll around the block, and build up to a longer endurance walking routine. Small steps lead to bigger ones. Losing just 10 pounds can make a huge difference in managing diabetes and improving an individual's overall health (46) (59).

Exercising can be lots of fun and something to look forward too. There are numerous activities specially adapted and designed for the IDD population to include those who are non-ambulatory. The National Institute on Aging at the U.S. Department of Health and Human Services (NIH) is a good resource for exercise information, which can be accomplished by everyone. There are numerous ways to exercise without a gym.

The following barriers to physical exercise among individuals with IDD have been identified:

- Difficulty with being motivated.
- Difficulty with instructions.

- The use of psychotropic medications, which interferes with motor control.
- Generally having shorter attention spans.
- Discontinuing exercise when there is physical discomfort.

Individuals with IDD can and do benefit from physical exercise when given the opportunity (27) (56). However, based on the evidence, many barriers exist including: lack of understanding related to diet, consequences of choices, expense of adaptive exercise equipment, transportation to facilities, lack of access to professionals with experience working with the IDD population, lack of inclusion in activities with age-appropriate peers, and knowledge deficits among caregivers (22) (56).

Regular Testing and Monitoring

Managing diabetes requires diagnostic and ongoing blood tests to provide data for physicians in order to develop and modify treatment planning. The following tests are examples of those required for diagnosing and/or ongoing treatment (34).

- **Hemoglobin A1C (HbA1c) tests** - are used to test levels of blood sugar. This test is often used to diagnose Type 1, Type 2, and Prediabetes, and determine how well diabetes is being managed (40). This test measures the number of glucose molecules attached to the hemoglobin of the red blood cells, expressed as a percentage, over a period of about 2–3 months. A result of 4–6% is considered normal (40).
- **Fasting Plasma Glucose** - performed after 8 hours of fasting (first thing in the morning). This test is helpful in diagnosing diabetes when two tests, taken on different days, show results greater than 126mg/dl (32).
- **Oral Glucose Tolerance (OGT)** - used to measure the body's reaction to glucose administered orally while in the office. Commonly used to screen for Type 2 diabetes. A modified OGT is typically used to detect gestational diabetes (34).
- **Random Plasma Glucose (Blood Sugar Check)** - A blood sample taken at a random time (regardless of when you last ate). A blood sugar level of 200 milligrams per deciliter (mg/dL) — 11.1 millimoles per liter (mmol/L) — or higher suggests diabetes (34).
- **Finger stick tests** - are an important aspect to managing diabetes. Individuals who can perform tests independently may require minimal oversight. Others may need total assistance with management of finger stick testing (34).

An Interdisciplinary Team Approach

The most effective management of diabetes starts with a team approach. Many healthcare professionals may be involved with treatment planning and will ensure the individual has consistent medication administration, a diabetic friendly diet, and follow-up with healthcare appointments. Making sure follow up appointments are scheduled and kept is an important part of management and advocacy for IDD individuals who have diabetes. Individual Support Plans (ISP's) require the last date of vision, dental, physicals, and hearing exams. Due to cognitive limitations, it is important to spend time helping individuals understand their diagnosis and the reasons behind good self-care as well as keeping routine appointments (3) (47) (31).

Care Team Members May Include

- **Primary Care physician (PCP)** – a physician who provides routine monitoring of medical diagnoses, treatment and planning. Works to develop a plan of care depending on the progression of diabetes and other health issues. Makes referrals to other members of the diabetes health care team (3) (47) (31).
- **Endocrinologist (Diabetes and hormone doctor)** – A physician who specializes in glands and the hormones they make (47).
- **Diabetes Nurse Educator** – a dietitian, or other health care professional who specializes in diabetes education (3) (47) (31).
- **Dietitian** - A specialist in nutrition assists to make a meal plans specific to individual needs (47).
- **Cardiologist (Heart doctor)** - A specialist in treatment and prevention of diseases involving the heart and blood vessels (47).
- **Podiatrist (Foot doctor)** - A physician who assess feet for wounds and infections. Provides nail care. If untreated, diabetic wounds can become serious. With diabetes, there is increased risk to have poor blood flow and nerve damage in the legs and feet (47).
- **Ophthalmologist/optometrist (Eye doctor)** - Examines eyes about once a year for diabetes-related eye changes and problems (47).
- **Nephrologist (Kidney doctor)** - A specialist in the treatment and prevention of kidney disease and kidney damage (47).
- **Dentist** - A physician who treats teeth, gums, and the oral cavity. Regular dental exams are important because diabetes may leave you prone to more serious gum infections (3) (47) (31).
- **Pharmacist** - A physician licensed to prepare, dispense, and provide medication education (47).

Management of Diabetes via Medication Administration

Unlicensed care staff assisting individuals with diabetes medication administration require a state approved Medication Aide Training.

Go to the link below for approved curriculum and guidelines:

<https://www.dhp.virginia.gov/Boards/Nursing/EducationPrograms/EstablishingMaintaininEducationPrograms/MedicationAideEducationPrograms/>

Oral Medications

For some people it is possible to control Type 2 diabetes with a combination of diet, and exercise, but treatments vary from person to person. If these life style changes are ineffective, the PCP may prescribe oral medications to assist with management of blood glucose levels. There are numerous oral medications on the market to help regulate Type 2 diabetes. Metformin is often the first medication prescribed. A side effect of Metformin is diarrhea, which may reduce over time. If this side effect does not reduce after taking the medication for several days, contact the prescribing physician for a change in oral medication. The physician may try a combination of drugs before finding the right fit.

A discussion on weight loss, physical activity, and healthy eating should occur. It is important to note that seeing a Registered Dietitian or Nutritionist can benefit the treatment of diabetes greatly. For individuals receiving oversight for diabetes by the PCP, request a referral to Registered Dietitian or Nutritionist. For those individuals established with an endocrinologist, ask for a consultation with a Registered Dietitian who can help assist with caregiver education aimed at meal preparation (46).

Below are some oral medications, which may be prescribed to manage diabetes (not all-inclusive):

- Metformin.
- Glucotrol.
- Prandin.
- Avandia.
- Januvia.
- Victoza.
- Jardiance (39).



Insulin

For Type 1 diabetic's insulin administration is a lifelong requirement. There are many different types of insulin:

- Rapid-acting insulin (Example: Apidra) which becomes active within the body in 15 minutes, and is available for use for 1 hour after administration.
- Short-acting (regular) insulin (Example: Humulin R) which becomes active within the body in 30 minutes to 1 hour, and is available for use up to 3 hours after administration.
- Intermediate-acting (NPH) insulin (Example: Novolin N) which becomes active within the body in 1 to 2 hours, and is available for use up to 15 hours after administration.
- Long-acting insulin (Lantus) which becomes active within the body in 8 hours, and is available for use up to 30 hours after administration.

Insulin requires administration through a needle, insulin pen, or by an insulin pump (Mayo, 2017). Staff are required to take an approved Medication Aide Training Course to support individuals with insulin injections. Aspects of this training cover signs and symptoms of hyperglycemia and hypoglycemia, diabetic diet and nutrition requirements, the importance of rotating injection sites around the body, (in fatty tissue locations, such as the abdomen, the back of the arms, and the inside of the thighs); proper handling of needles and sharps (to reduce blood borne pathogens contamination); and what to do in an emergency diabetic situation.

A recent study (26) determined that Type 1 diabetics had better control of blood sugar levels throughout the day if a continuous glucose monitoring (CGM) system was available, as opposed to self-finger sticks. Participants in the study showed a reduction in A1C, hypoglycemic and hyperglycemic episodes by implementing a CGM system (26).



Closed Loop Insulin Delivery System

In 2016, the FDA approved the first artificial pancreas (or closed loop insulin delivery system) for Type 1 diabetics age 14 and older. This device has an implant connected to a continuous glucose monitoring system. It delivers insulin immediately upon detection of need. With this system, blood sugar checks are checked every 5 minutes. Blood sugar levels are kept within normal limits, with little chance of extreme lows and highs since blood sugar is checked every five minutes (Figure 3) (54).

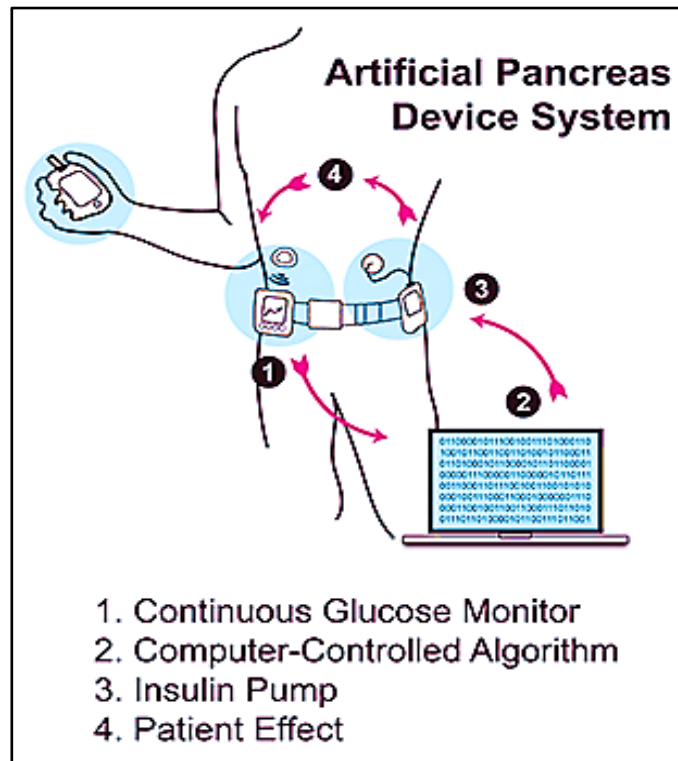
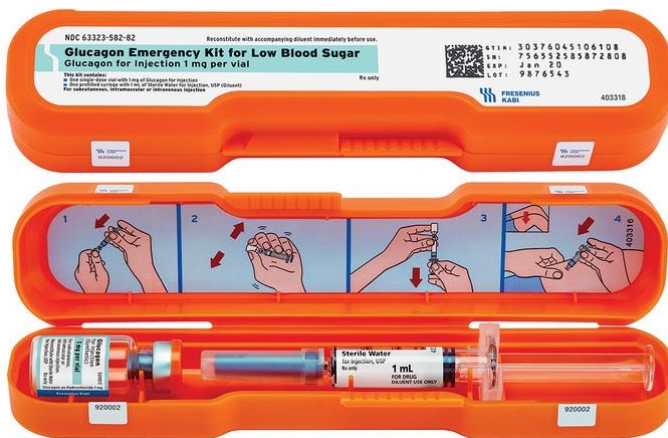


Figure 3 - Closed Loop Insulin Delivery System (54).

Glucagon

A glucagon emergency medication kit may be required during hypoglycemia episodes in cases where the individual experiences severe low blood sugar. Glucagon kits are available for situations when the individual cannot safely eat or drink carbohydrates to increase blood sugar levels, is unconscious due to low blood sugar level, is unable to follow direct to eat or drink, or has taken oral glucose and blood sugar level is not increasing (37). An approved curriculum to teach unlicensed staff to administer glucagon is required along with competency checks. Although glucagon is an IM injection

administered into the muscle of the buttock, thigh, or arm, unlicensed staff can receive additional training in Virginia to administer. An individual specific protocol for staff to follow along with training helps to ensure individuals with orders have trained staff to administer. As with any medication given by staff, physician orders for glucagon are required. Glucagon kits have an expiration date that will require monitoring. Training kits are available through the pharmacy or manufacturer.



Requires mixing of saline and powder before administration

Glucagon Kit

Pre-Mixed Auto Injectors

Gvoke is the first pre-mixed auto injector approved for use in the U.S. As with any medication, an order from the physician is required on file. Staff and caregivers will require training to use this product. Trainers are available through the website along with printable color instructions. Since Gvoke is premixed, time is saved when responding to an emergency (58).



Pre-filled ready to administer

Foot Care

Care for diabetic feet is extremely important to obtain a referral for a Podiatry evaluation. Several issues commonly present for diabetics that require monitoring:

1. Neuropathy is the loss of feeling in the feet due to nerve damage. Diabetics may not feel pain associated with stepping on sharp objects or when shoes are wearing blisters. Peripheral neuropathy may present as burning pain, tingling, or stinging (13) (21).
2. Skin - Diabetes can cause skin to become dry. Nerves, (which control the oils in the skin), are negatively affected by neuropathy. Feet are notorious for becoming dry and cracked. Diabetes can also change the shape of feet and toes due to nerve damage (13) (21).
3. Calluses build up due to dry skin. Callus build up is faster on those with diabetes. Calluses can lead to foot ulcers if the thick skin breaks down and becomes infected (13).
4. Foot ulcers usually occur around the great toe or at the ball of the foot. Diabetics should examine their feet daily and contact their healthcare professionals immediately if there are any sores found on their feet. Untreated, they can lead to serious infections and possibly amputation (Figure 4) (13) (21).
5. Peripheral vascular disease occurs when blood vessels in the legs and feet become narrow and harden. This restricts blood flow and causes feet to heal slowly. Smoking complicates poor circulation further by causing the arteries to harden faster (13) (21).

DIABETIC FOOT



Figure 4 (13).

Diabetic Foot Care Tips

- ✓ Inspect feet everyday
- ✓ Inspect feet after purchasing new shoes until broken in
- ✓ Wash feet daily, dry well between toes
- ✓ Lotion feet, **DO NOT APPLY BETWEEN TOES**
- ✓ Avoid going barefoot
- ✓ Trim nails straight across; use a file to smooth edges. Each individual should have a dedicated pair of nail clippers. Clean after each use.
- ✓ **DO NOT ATTEMPT** to cut out ingrown nails- see a podiatrist
- ✓ Corns, bunions, and calluses should be addressed by the podiatrist
- ✓ Good blood flow is essential: encourage wiggling toes. Walking promotes blood flow to the lower extremities. (CDC, 2019)

***Call a podiatrist or the individual's PCP for an evaluation if there is redness and swelling of foot or toes, cracked skin that is bleeding or has discharge, change in color or temperature of feet, fungus, blisters or sores, in-grown nails (13).
Untreated areas can lead to serious infections!***

Skin Care

Skin is important to the body's ability to protect the internal organs since it is our first line of defense. Diabetic skin is more vulnerable to breakdown, which is associated with glucose control and diabetic maintenance including diet and exercise. Unbalance blood sugar levels effect protein use in the skin structure leading to increased infections along with reduced ability for skin to repair itself normally (48).

Good hygiene and maintenance to avoid complications is imperative. Some common diagnosis of skin complications associated with diabetes are folliculitis, fungal infections such as yeast, diabetic blisters, pruritus (itching), diabetic dermopathy, thick skin, sclerosis, and yellow skin and nail beds (48) (13). Some basic tips for keeping the largest organ of the body healthy:

- Manage blood sugar to within normal levels to reduce damage to blood vessels.
- Skin should be kept clean and dry and regular bathing is recommended.
- Avoid showering or bathing in extremely hot water, as it tends to dry the skin.

-
- Moisturize after bathing with a non-perfumed lotion.
 - Address rashes immediately to reduce itching and scratching of dry skin.
 - Wash cuts and scratches with mild soap and water. Watch for signs of infection (redness, skin warm to touch, edema), and have them assessed by a healthcare professional.
 - Use mild non-perfumed soaps and shampoos when bathing.
 - Check feet daily for cracks, redness, swelling daily (48) (13).
 - Individuals with diabetes should never walk barefoot, especially outside.
 - Wearing protective footwear can also lower the risk of injury to the feet.
 - Coverage for extra-depth or custom-molded therapeutic shoes and inserts for individuals with diabetes has been an approved Medicare benefit since 1993 (2).
 - To qualify for footwear coverage, Medicare beneficiaries must have diabetes plus one of the following conditions: neuropathy with evidence of callus, previous or current ulcer, previous or current pre-ulcerative callus, previous amputation, foot deformities, or poor circulation (2).
 - The Centers for Medicare & Medicaid Services requires that the treating physician (MD or DO) must be managing the patient's diabetes under a comprehensive plan of care and must certify that the patient has diabetes and needs therapeutic shoes. Physicians must provide documentation, which states they personally examined a patient's feet or verify that another care provider performed the exam. This documentation must be kept in the managing physician's patient chart and must be made available to the footwear provider. This practice is sanctioned as a compliant release of information under the federal Health Insurance Portability and Accountability Act (2).
 - You can read more about Medicare funding of therapeutic shoes at these links:
<https://www.medicare.gov/coverage/therapeutic-shoes-inserts>

Eye Care

The eyes have some of the smallest blood vessels in the body (17) (51). The effects of diabetes on the eyes are painless. Many people do not realize there are problems until complications are advanced. Vision problems such as glaucoma, cataracts, retinopathy, macular edema, non-proliferative retinopathy, and proliferative retinopathy can lead to blindness if left untreated. Regular vision screenings are essential to detect risk before

they occur. Yearly vision examinations and early treatment have been shown to prevent up to 90% of blindness in diabetics (51).

Remember a Diabetic should:

Keep A1C and blood glucose levels within normal limits.

Have vision examined yearly, including having eyes dilated.

Keep a check on blood pressure and cholesterol levels (51).

Recommendations for Caregivers

Diabetes treatment, care, and management for the IDD individual is in a large part is dependent on their caregiver's involvement. It is imperative that all caregiver's providing care for the diabetic individual receive training and education related to diabetes (31).

Healthcare professionals (physicians, nurses, dieticians, nutritionists, pharmacists, etc.) should provide additional education for family members and caregivers to ensure they feel confident in reinforcing education within the individual's community and at home (1).

Caregiving staff should have ongoing training to ensure consistency of dietary needs and diabetes management (1). Healthcare providers should provide extended clinic appointment times to give individuals and caregivers time to ask questions and learn at their own pace.

Person-Centered Care

Involving the individual in ongoing healthcare decisions is essential. Diabetes care plans should be tailored to the wants and needs of the individual, but they should also address improvements for self-management. Individuals with diabetes should have a person - centered plan of care to include protocols for diet, exercise, episodes of hyper and hypoglycemia, and skin care at a minimum.

Protocols should always be reviewed and signed by a physician on the healthcare team involved in the management of the individual's diabetes. Providing continuity of care starts with clear protocols to ensure caregivers are promoting empowerment and being supportive (1). The consequences of mismanagement and long-term implications of diabetes should be stressed (43) (31).

Improved Access to Resources for Individuals

It is the caregiver's responsibility to make sure the individual receives appropriate education materials related to the diagnoses of diabetes. There are materials developed specifically for individuals with intellectual disabilities. The educational materials should include pictures, symbols, and language, which is easy to understand.

Caregivers need to help individuals learn and accept that diabetes is not just a diagnosis; it requires life-style changes (31). Educational materials aimed at teaching caregivers, individuals and family members the signs of low and or high blood sugar "feels like" are especially helpful to understanding diabetes. Numerous videos explaining hypoglycemia & hyperglycemia symptoms for both caregivers and individuals are available on the internet.

Improved Education Materials for Caregivers

Caregivers should be taught to ask the individual if they are feeling any of the symptoms of hypoglycemia and or hyperglycemia, then observe individuals for any signs of either. Increased behaviors among individuals with diabetes may occur around mealtime. Sometimes, an individual's blood sugar levels may be getting low, but they may be unable to communicate what they are experiencing.

Caregivers should be mindful of these behavioral changes at mealtimes and document them to observe patterns in behavior, which may be related to their diabetes diagnosis. If any hyperglycemia or hypoglycemia symptoms are noticed, the caregiver should explain what is happening to the individual so if they are feeling sweaty, shaky, etc. again, they will know to tell someone immediately. Pictures like the ones on page 6 & 7 may be helpful to explain signs and symptoms to individuals, especially if the individual is non-verbal and/or has any difficulty communicating (31).

American Sign Language (ASL) for Blood Sugar

If you are caring for someone who is non-verbal or deaf, but is capable of learning ASL, you can teach him or her how to sign "blood sugar" There is a good video at this link: <https://www.handspeak.com/word/search/index.php?id=7436>

Medical Alert Bracelets

If an individual is unable to communicate and/or has had dangerous episodes of hypo and or hyperglycemia, the individual (and/or their legal guardian) may want to consider a Medical Alert type bracelet. However, (before implementing), make sure the individual wants to wear one and their legal guardian or authorized representative agrees.

Consulting the individual's PCP for recommendations, may be a good place to start. Having an agency policy and a protocol in place for Medical Alert type bracelets is recommended.

Diabetes Resources

If you have any questions about the information contained in this Health & Safety Alert, or need additional resources or support, please email your questions to the Office of Integrated Health's nursing team at:

communitynursing@dbhds.virginia.gov

The National Diabetes Education Program, The Centers for Disease Control and Prevention - <https://www.cdc.gov/diabetes/ndep/index.html>

Gvoke auto injection glucagon - <https://www.gvokeglucagon.com/hcp>

U.S. Department of Health and Human Services and U.S. Department of Agriculture. *2020-2025 Dietary Guidelines for Americans*. 9th Edition. December 2020.

https://www.dietaryguidelines.gov/sites/default/files/2020-12/Dietary_Guidelines_for_Americans_2020-2025.pdf

The American Diabetes Association - <https://www.diabetes.org/>

The Centers for Disease Control and Prevention – Diabetes

<https://www.cdc.gov/diabetes/library/factsheets.html>

My Plate.gov - <https://www.choosemyplate.gov/>

References

1. [Brown, M., Taggart, L., Karatzias, T., Truesdale-Kennedy, M., Walley, R., Northway, R., Macrae, S., Carey, M., & Davies, M. \(2017\). Improving diabetes care for people with intellectual disabilities: A qualitative study exploring the perceptions and experiences of professionals in diabetes and intellectual disability services. *Journal of Intellectual Disability Research*, 61\(5\), 435-449.](#)
2. [Brunner J. E. \(2015\). Does your patient need diabetic therapeutic footwear? \(Where benefit, evidence, and bureaucracy collide\). *Clinical diabetes: a publication of the American Diabetes Association*, 33\(2\), 51–53.](#)
3. [Bryant, L., Russell, A., Walwyn, R., Farrin, A., Wright-Hughes, A., Graham, E., Nagi, D., Stansfield, A., Birtwistle, A., Meer, S., Ajjan, R., & House, A. \(2017\). Characterizing adults with type 2 diabetes mellitus and intellectual disability: Outcomes of a case-finding study. *Diabetic Medicine*. Doi: 10.1111/dme.13510](#)
4. [Centers for Disease Control and Prevention \(CDC\). \(2020a\). What is Diabetes?](#)
5. [Centers for Disease Control and Prevention \(CDC\). \(2020b\). Diabetes risk factors.](#)

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6. [Centers for Disease Control and Prevention \(CDC\). \(2020c\). Prediabetes: Your chance to prevent type 2 diabetes.](#)
7. [Centers for Disease Control and Prevention \(CDC\). \(2020d\). How is smoking related to diabetes.](#)
8. [Centers for Disease Control and Prevention \(CDC\). \(2020e\). Type 1 diabetes.](#)
9. [Centers for Disease Control and Prevention \(CDC\). \(2020f\). National Diabetes Statistics Report, 2020.](#)
10. [CDC \(2020g\). Manage blood sugar.](#)
11. [Centers for Disease Control and Prevention \(CDC\). \(2019a\). Cigarette smoking among adults with disabilities.](#)
12. [Centers for Disease Control and Prevention \(CDC\). \(2019b\). Data and statistics on Down syndrome.](#)
13. [Centers for Disease Control and Prevention \(CDC\). \(2019c\). Diabetes and your feet.](#)
14. [Centers for Disease Control and Prevention \(CDC\). \(2019d\). Disability and obesity.](#)
15. [Centers for Disease Control and Prevention \(CDC\). \(2017\). Diabetes Report Card 2017.](#)
16. [Centers for Disease Control and Prevention \(CDC\). \(2018a\). Reproductive health: Diabetes during pregnancy.](#)
17. [Centers for Disease Control and Prevention \(CDC\). \(2018b\). Watch out for diabetic retinopathy.](#)
18. [Diabetes Dietetic Practice Group \(DDPG\) \(2020\). Patient education handouts.](#)
19. [Diabetic foot \[Image\]. \(2020\). All Care Foot and Ankle.](#)
20. [Diniz, I. V., Oliveria, P. S., Santos, I. C. R. V., Matos, S. D. O., Costa, I. K. F., Costa, M. M. L., and Soares, M. J. G. O. \(2019\). Factors associated with non-traumatic amputation in people with Diabetes Mellitus: a cross-sectional study. *Revista Electronica de Enfermagem.*, 21\(52484\), 1-9.](#)
21. [Ellis, S., Patel, M., Kashchak, E., & Lantis, J. Jr. \(2020\). Location of lower-extremity diabetic foot ulcers with concomitant arterial or venous disease. *Wounds International*, 11\(3\), 20-23.](#)
22. [Grumstrup, B., and Demchak, M. \(2017\). Obesity, nutrition, and physical activity for people with significant disabilities. *Physical Disabilities: Education and Related Services*, 36\(1\), 13-28. Doi: 10.14434/pders.v36il.23144](#)
23. [Hill-Briggs, F. \(2019\). 2018 Health care & education presidential address: The American diabetes association in the era of health care transformation. *Diabetes Care*, 42, 352-358.](#)
24. [Insulin \[Image\]. \(2016\). Cornerstones4care.](#)
25. [Inzucchi, S., Bergenstal, r., Fonseca, V., Gregg, E., Mayer-Davis, B., Spollett, G., & Wender, R. \(2010\). Diagnosis and Classification of Diabetes Mellitus. *American Diabetes Association*. 33\(1\). 562-569. Doi: 10:2337/dc10-5062](#)
26. [Joslin Diabetes Center. \(2020\). Continuous glucose monitoring helps young people with type 1 diabetes achieve better glycemic control.](#)
27. [Kirwan, J. P. \(2017\). The essential role of exercise in the management of type 2 diabetes. *Cleve Clin J Med*. 84\(7\). 15-21. Doi: 10.3949/ccjm.84.s1.03.](#)
28. [Kloss, K., A., Funnell, M. M., Piatt, G. A., & Nwankwo, R. \(2020\). One size does not fit all: Nutrition strategies for people with diabetes. *Nursing 2020*, 50\(8\), 33-38. Doi: 10.1097/01.NURSE.0000684176.14404.ff](#)

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29. [Kordi, M., and Heravan, M. B. \(2020\). Prediction of self-efficacy and self-care behaviors among diabetic women based on their attitude towards gestational diabetes. *Journal of Midwifery & Reproductive Health*, 8\(4\), 2486-2493. Doi: 10.22038/jmrh.2020.45863.1558](#)
30. [MacRae, S., Brown, M., Karatzias, T., Taggart, L., Truesdale-Kennedy, M., Walley, R., Sierka, A., Northway, R., Carey, M., & Davies, M. \(2015\). Diabetes in people with intellectual disabilities: A systemic review of the literature. \[file:///C:/Users/dbk75942/Downloads/Diabetes/Diabetes%20in%20IDD%202015.pdf\]\(#\)](#)
31. [Maine, A., Brown, M. and Truesdale, M. \(2020\). Diabetes and people with learning disabilities: Issues for policy, practice, and education. *Tizard Learning Disability Review*, 25\(1\), 26-34. Doi: 10.1108/TLDR-05-2019-0020.](#)
32. [Mayo Clinic \(2020a\). Hypoglycemia.](#)
33. [Mayo Clinic \(2020b\). Hyperglycemia in diabetes.](#)
34. [Mayo Clinic. \(2020c\). Diabetes: Diagnosis and tests.](#)
35. [Mayo Clinic. \(2020d\). Fasting plasma glucose.](#)
36. [Mayo Clinic. \(2020e\). Gestational diabetes: Overview.](#)
37. [Mayo Clinic. \(2020f\). Oral glucose tolerance test.](#)
38. [Mayo Clinic. \(2019a\). Diabetes diet: Create your healthy-eating plan.](#)
39. [Mayo Clinic. \(2019b\). Type 2 diabetes: Diagnosis and treatment.](#)
40. [Mayo Clinic. \(2018a\). A1C tests.](#)
41. [Mayo Clinic. \(2018b\). Diabetes: Symptoms and causes.](#)
42. [Mayo Clinic. \(2017\). Type 1 diabetes: Diagnosis and treatment.](#)
43. [McVilly, K., McGillivray, J., Curtis, A., Lehmann, J., Morrish, L., & Speight, J. \(2014\). Diabetes in people with an intellectual disability: A systematic review of prevalence, incidence and impact. *Diabetic Medicine*, 897-904. Doi:10.111/dme.12494](#)
44. [Mortimer, G., & Gillespie, K. \(2020\). Early onset of autoimmune diabetes in children with Down syndrome-Two separate etiologies or an immune system pre-programmed for autoimmunity. *Current Diabetes Reports*, 20\(47\).](#)
45. [National Institute of Aging. \(2020\). Four types of exercise can improve your health and physical ability. *U.S. Department of Health and Human Services*.](#)
46. [National Institute of Diabetes and Digestive and Kidney Diseases \(NIDDK\). \(2016\). Diabetes diet, eating, & physical activity. *U.S. National Institutes of Health*.](#)
47. [Nagelkerka, J., Thompson, M. E., Bouthillier, M., Tompkins, A., Baere, L. J., Trytkof, J., Booth, A., Stevens, A. & Groeneveld, K. \(2018\). Improving outcomes in adults with diabetes through an inter-professional collaborative practice program. *Journal of Inter-professional Care*. 32\(1\), 4–13.](#)
48. [Phillips, A. \(2011\). Diabetes evidence-based management: Working in partnership to treat skin complications of diabetes. *Practice Nursing*. 22\(7\). 362-369.](#)
49. [Precision Nutrition Inc. \[Image\]. \(2020\). Figure 3 & 4: Diabetes Type 1 & Type 2.](#)
50. [Saint Luke's Health System \[Image\]. \(2020\). Figure 1 & 2: Type 1 Diabetes.](#)
51. [Thomas, M. T., and Owens, C. R. \(2020\). Diabetic retinopathy. *Diabetes & Primary Care*, 22, 79-81.](#)
52. [Trip, H., Conder, J., Hale, L., & Whitehead, L. \(2015\). The role of key workers in supporting people with intellectual disability in the self-management of their diabetes: A qualitative New Zealand study. *Health & Social Care*. Doi: 10.1111/hsc12262](#)
53. [U.S. Department of Health and Human Services and U.S. Department of Agriculture. \(2015\). *2015-2020 Dietary Guidelines for Americans*. 8th Edition.](#)
54. [U.S. Food and Drug Administration. \(2018\). What is an artificial pancreas device system.](#)

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55. [Wallen, E. F., Ljungren, G., Calsson, A. C., Pettersson, D., & Wandell, P. \(207\). High prevalence of diabetes mellitus, hypertension and obesity among persons with a recorded diagnosis of intellectual disability or autism spectrum disorder. *Journal of Intellectual Disability Research*, 62\(4\), 269-280. Doi: 10.1111/jir.12462](#)
 56. [Weterings, S., Oppewal, A., & Hilgenkamp, T. I. M. \(2019\). The feasibility of vigorous resistance exercise training in adults with intellectual disabilities with cardiovascular disease risk factors. *Journal of Applied Research in Intellectual Disabilities*, 33. 488-495. Doi: 10.1111/jar.12690.](#)
 57. [Whooten, R., Schmitt, J., & Schwartz, A. \(2018\). Endocrine manifestations of Down syndrome. *Curr Opin Endocrinol Diabetes Obes*, 25\(1\), 61-66. Doi: 10.1097/MED](#)
 58. [Xeris Pharmaceuticals. \(2020\). What is Gvoke glucagon injection.](#)
 59. [Zheng, Y., Ley, S. H., & Hu., F.B. \(2018\). Global etiology and epidemiology of type 2 diabetes mellitus and its complications. *Macmillan Publishers Limited, part of Springer Nature*. 2\(14\). 88-98. Doi:10.1038/nrendo.2017.151](#)

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