# Diabetes Education Methods And Counseling Techniques

## **The Medical Writing Institute**

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% prevalence and number of adults with diabetes by WHO region in 1980 and 2014\*



Globally, persons living with diabetes increased from 108 million to 422 million between 1980 and 2014<sup>1</sup>. This large increase has particularly affected the UAE<sup>2</sup>. It has become a global issue of concern. <u>http://www.forbes.com</u>

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#### Possible Reasons For Increase In Diabetes Prevalence

- Limited patient engagement
- Unhealthy lifestyle habits such as poor diet, lack of exercise, smoking
- Greater prevalence of risk factors for diabetes, such as obesity
- Patients unprepared and cannot manage the disease
- High insurance costs
- Medication non-adherence
- Patient is too busy, overburdened, and stressed

#### The Setbacks Of Uninformed Patient Self-Care

Medication is expensive (47%)

Does not understand instructions (25%)

Medication not available (13%)

Prefers not to take (9%)

Forgets to take (6%)

Mende et al. Ethiopia. Journal of Diabetes & Metabolism. 2016; 7: 1-11<sup>3</sup>



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#### Hyperglycemia And Hypoglycemia Are Consequences of Mismanagement

- Hyperglycemia Blood sugar is too high
- Hypoglycemia Blood sugar is too low

Diabetes hyperglycemia and hypoglycemia without immediate attention can be debilitating, leading to:

- Several complications, such as cardiovascular disease (CVD), hypertension (HP), kidney failure, foot ulcers, blur vision
- Diabetic coma
- Death (1.5 million in 2012, globally, before the age of 70 years)<sup>4</sup>

## **Diabetes Is Not In Check**

#### **Causes of hyperglycemia**

- Too little insulin
- No efficient use of insulin
- Uncontrolled carb intake<sup>4</sup>

#### **Causes of Hypoglycemia**

- Misuse of insulin or other diabetes pills
- Skipping meal
- Too much exercise
- Too much alcohol<sup>5</sup>





Type 1 and Type 2 Diabetes

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## **Chronic Disease Management Is Not Easy**

Having diabetes is a problem for patients:

- They become overwhelmed and ready to give up
- They stop being conscious about management
- Without proper <u>educational</u> and <u>counseling</u> support, long term effect can be disabling. Examples are the symptomatic hypoglycemia episodes shown in the graphs below:

Plots from patients who experienced mild or severe episodes of hypoglycemia during 12 years of several hospital admissions.

The consequences were:

- Associated cardiovascular diseases (CVDs)
- Increased mortality<sup>6</sup>



https://doi.org/10.2337/dc12-0916

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#### Benefits From Educational And Counseling Support

Diabetes Educators (CDE) help prevent and manage diabetes.

- For example, let us consider a patient who is admitted into hospital for an episode of hypoglycemia
- The table below summarizes how the CDE can help the patient to recover<sup>6</sup>

Hypoglycemia	Expectation and Management		
Cause	Missing meal, misuse of medication, too much activity		
Symptoms	Sweating, weakness, confusion, losing consciousness		
*CDE in management	Counsel patients to drink fruit juice, sport drink, eat chocolate, or have glucose tablets		
*CDE in prevention	Counsel patients on well-spaced eating times, regular blood glucose check, and medication use points		

## Other Benefits From Educational And Counseling Support

Hyperglycemia is also a challenging experience for individuals living with diabetes<sup>7</sup>. In such conditions:

- CDEs will teach you how to monitor your blood sugar
- They teach you how to work out your insulin dosage
- They will teach you how to spread out your meal times

If patients listen to a CDEs. Their chance of developing complications like:

- Heart diseases, eye disorders, kidney disorders, nerve damage, and amputation of the lower leg will be minimized
- They also help families to find information for their loved ones<sup>6,7</sup>

## Who Are Diabetes Educators And Counselors?

CDEs are healthcare professionals- doctors, pharmacists, nurses, dieticians, clinical psychologists and social workers and have Certified Diabetes Educator (CDE) license to educate and counsel-prediabetes and diabetes The health professional must have at least 2 years of full-time practice experience<sup>7</sup>.

- The goal is for them to be highly skilled in the specialty of diabetes care
- Competent CDEs will provide comprehensive management and counseling plan for prevention of prediabetes and for diabetes care<sup>7</sup>





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## **Materials For Education And Patients' Supply**

The American Diabetes Association has patient education materials<sup>7</sup>. These include videos and articles on:

- Medication counseling
- Healthy meal recipes and Fitness
- Affordable health insurance with medication and teaching plans
- Patients' information handouts
- Enrollment in Living with Diabetes Program
- Support Groups





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Use the code provided with your membership materials. If you have misplaced your code, or would like to learn more about becoming a professional member, call 1-800-232-3472.

#### Highlights On Diabetes Education And Counseling

- The United Arab Emirates Diabetes Society was established in 1996
- The society serves as a backbone to specialist physicians and healthcare
- Providers and licensed (CDEs) to manage diabetes
- CDEs educate, provide diabetes management information in healthcare facilities
- CDEs teach, counsel and provide diabetes information to the medical and non-medical community
- The goal is to decrease the prevalence of Type-2 Diabetes risk factors to minimize catastrophe in the near future

1) PTO

## Highlights On Diabetes Education And Counseling Contd

 The primary clinical setting strategies are to prevent prediabetes from development into diabetes and manage diabetes patients to minimize complications

In communities, the aim is to decrease the prevalence of:

- Overweight and obesity by at least 10%
- Increase the percentage of individuals to become physically active by 20%
- Reduce the rates of tobacco use among adults by 5%
- Reduce the rate of exposure to passive smoking by 100%

2) PTO

#### CDE Preparation For Effective Diabetes Education And Counseling

#### A. <u>Steps in relationship building</u><sup>7</sup>

- 1. Introduce yourself.
- 2. Ask group or patient to sit and feel comfortable, making eye contact, smile, nice gesture.
- 3. Learn group or patients' names and address them by name(s). You can prepare name tags for a group.
- 4. Reduce nervousness by spending a few minutes inviting patients to share.
- 5. Be observant and watch individual's emotional state.

### CDE Preparation For Effective Diabetes Education And Counseling Contd

#### A. Steps in relationship building contd

- 6. Ask people why they attended the class or every patient why he/she came.
- 7. Ask open-ended questions:
- What medication are you taking?
- How were you told to take it?
- What are the side effects?
- 8. Give them time to respond.
- 9. Be there in their best interest.
- 10. Offer necessary help.
- 11. Perceive each member or patient as unique and be honest with them about their condition.

## CDE Preparation For Effective Diabetes Education And Counseling Contd

#### **B.** Counseling techniques<sup>7</sup>

- 1. Basic counseling: interactive, prime questions
- **2. Counseling in challenging situations**: PAR technique-Prepare, Access, Respond; be prepared to educate and counsel, have access to patient and respond to their needs without offending them
- 3. Counseling for compliance: The RIM technique-

Recognize, Identify, Manage; you have to recognize if the patient has a problem, identify what it is, and know how to help in dealing with it

#### **C.** Communication

#### 1. Convey Message Effectively



\* Make sure you heard the doctor right and conveyed message accurately to the receiver

## CDE Preparation For Effective Diabetes Education And Counseling Contd

#### **C.** Communication contd

2. Communication is much more than verbal Verbal-actual words (10%)

Body language-gestures

(50%)

→ Non-verbal-how it was said (40%)

-facial expression

-physical contact

-eye contact

- 3. Pay attention to needy individuals:
- Confused patients/caregivers
- Sight and hearing impaired
- Poor literacy
- When medication changes or dosage changes
- Special medication storage requirement
- Elderly who may learn slowly

## Age-Related Guidelines For Diabetes Management

Age (Years)	Diabetes-Child Development/Maintenance	Potential Family Issues
0-1	Child is bonding with parents or caregiver. Parents and caregivers perform all tasks; prevent and treat hypoglycemia, meal times well -spaced, give insulin right after meals.	Coping with stress, avoid burnout by sharing tasks with caregivers, accept the challenge, tell daycare what to do.
1-3	Learning sense of self, speech, motor skills. Prevent and treat hypoglycemia, avoid large swings in blood sugar by well-spaced meal times, give insulin right after meals.	Coping with stress, avoid burnout by sharing tasks with caregivers, accept the challenge, manage picky eaters, tell daycare what to do.
3-7	Speech development continues, self-centered, cannot solve problems by themselves. Prevent and treat hypoglycemia, learning how to experience low blood sugar symptoms, allow them to have finger options for taking blood sugar measurements, let them participate in recording numbers on the equipment.	Coping with stress, avoid burnout by sharing tasks with caregivers, accept the challenge, remind child that having diabetes is not his/her fault.

• Diabetes maintenance responsibilities increase with age<sup>8</sup>

https://www.childrensal.org

## Age-Related Guidelines For Diabetes Management-contd

Age (Years)	Diabetes-Child Development /Maintenance	Potential Family Issues
8-11	Thinking is more concentrated and in the present; parents and caregivers perform all tasks. Child can begin testing their blood sugar with adult supervision, can make some independent food choices. If using an insulin pump, can do their boluses but adult supervision is needed.	Family must learn to cope with stress, accept the challenge, parent/caregiver stay involved in all diabetes related tasks; share diabetes supervision with caregivers to avoid burnout.
12-15	Puberty begins, body image, self-identity, have some responsibility. Parents /caregivers monitor task; child take up some diabetic care responsibilities. Responsible child is allowed certain self-care duties with monitoring/ supervision.	Family must learn to cope with stress, accept the challenge, Parent/caregiver/child are involved in all diabetes related tasks; child is coping with new responsibility.
16-19	Developing identity and making decisions about college, becoming independent, better problem solving skills. Parents/caregiver monitor self- management and offer support when needed. Observe signs of depression, any eating disorder.	Coping with stress and/or Parent/caregiver/teen continue to adapt to new roles as teen assumes more self care. There may be management conflicts.

 The parents and caregivers need to be educated and counseled about what is to designate to a child at specific ages<sup>8</sup> <u>https://www.childrensal.org</u>

# **Education On Prediabetes Management**

#### Prediabetes

• When blood sugar is higher than normal but not as high to be diagnosed as diabetes

#### Risk factors

- Over <u>></u>45 years old
- Overweight
- Have a parent or sibling with diabetes
- Had diabetes while pregnant
- Sedentary lifestyle
- Prevention-this involves lifestyle changes such as:
- Slight weight loss (10-15 Lb.)
- Healthy diet
- Regular exercise (3-5 times/week)

Proper management can bring about cure or prevention from living with diabetes, or delay the diabetes process.

#### Education And Counseling Points For Insulin Administration



## Education And Counseling Points For Insulin Administration-Contd



## **Counseling On Diabetes Drug Information**

Patients need to know and have accurate information regarding:

- Drug administration time
- Dose schedule (Dosage, route of administration, special direction)
- Possible side effects (or adverse events)
- Drug interaction comments
- Action to take upon missing dosage, examples:

Drug	Administration Time	Dosing Schedule	Possible Side Effects	Drug Interaction
Metformin	Take during or immediately after meal to minimize GI side effects	Take in 3 doses	GI disturbance	Don't take before surgery or radio imaging test requiring contrast
Acarbose	Swallow whole with fluid or chew with first few mouthsfull of meal.	Usually 1-3 doses	GI disturbance	In hypoglycemia experience, do not take sucrose.

## **Diabetes Education And Healthy Eating**

What to eat can be seen in the Food Pyramid and must be whole food, not processed food<sup>10,11</sup>.

- Plenty of vegetables
- Fresh fruits with low sugar contents
- Low-fat proteins
- High fiber intake
- Nuts are good because of their high in protein
- Counting carbohydrates (CBH)
- Well-spaced out and consistent eating schedule
- \* These facts help with maintenance and keep diabetes in check.



http://realhealthykids.com/foodpyramid-feed-chil



#### **Good Meal Plan**



<u>Medium plate size<sup>12</sup></u> <sup>1</sup>/<sub>2</sub> vegetables and fruits <sup>1</sup>/<sub>4</sub> Proteins <sup>1</sup>/<sub>4</sub> Carbohydrates and fats



E.g. healthy breakfast

2010s

http://rhythmsuperfoods.com/wpcontent/uploads/2015/11/NewPyram id.jpg



E.g. healthy dinner

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#### Five Steps Guidelines To Adolescent Nutrition Services

#### GUIDELINES FOR ADOLESCENT NUTRITION SERVICES

TABLE 1 Stages of Change: A Model for Nutrition Counseling								
Stage	Description	Goal	Strategies					
Precontemplation	Is unaware of problem and hasn't thought	Increase awareness of need for change.	Create supportive climate for change.					
	about change. Has no intention of taking action within the	Personalize information on risks and benefits.	Discuss personal aspects and health consequences of poor eating or sedentary behavior.					
	next 6 months.		Assess knowledge, attitudes, and beliefs.					
			Build on existing knowledge.					
Contemplation	Intends to take action within the next 6 months.	Increase motivation and confidence to perform the new behavior.	Identify problematic behaviors.					
			Prioritize behaviors to change.					
			Discuss motivation. Identify barriers to change and possible solutions.					
			Suggest small, achievable steps to make a change.					
Preparation	Intends to take action within the next 30 days	Initiate change.	Assist in developing a concrete action plan.					
	and has taken some behavioral steps in this direction.		Encourage initial small steps to change.					
		Discuss earlier attempts to change and ways to succeed.						
Steps 1-3			Elicit support from family and friends.					

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#### Five Steps Guidelines To Adolescent Nutrition Services Contd

#### GUIDELINES FOR ADOLESCENT NUTRITION SERVICES

TABLE 1 Stages of Change: A Model for Nutrition Counseling						
Action	Has changed overt behavior for less than 6 months.	Commit to change.	Reinforce decision. Reinforce self-confidence. Assist with self-monitoring, feedback, problem solving, social support, and reinforcement. Discuss relapse and coping strategies.			
Maintenance	Has changed overt behavior for more than 6 months.	Reinforce commitment and continue changes/ new behaviors.	Plan follow-up to support changes. Help prevent relapse. Assist in coping, reminders, finding alternatives, and avoiding slips/relapses.			

Source: Adapted from Glanz K, Rimer T. Theory at a glance: a guide for health promotion practice. Bethesda, MD: National Institutes of Health, National Cancer Institute; 1995 and Sandoval WM, Heller KE, Wiese WH, Childs DA. Stages of change: a model for nutrition counseling. Top Clin Nutr 1994;9:65-69.

Steps 4-5

http://www.epi.umn.edu/let/pubs/adol\_book.shtm

# **Education On Carbohydrate Counting**

Carbohydrate (CBH) counting is a tool to help manage blood glucose in diabetes<sup>14</sup>.

- Plan a meal by making wise choices to avoid overboard blood glucose levels
- It helps in maintaining accurate balance between CBH intake and insulin (whether produced by the body or administered)
- This balance is needed to regulate blood glucose level
- A registered dietitians nutritionist (RDN) will show you the CBH choices to make, and how to do the counting to achieve weight management goals

## Education On Advanced Carbohydrate Counting

- In advanced insulin management, insulin-to-carb (CBH) ratio is estimated for rapid acting insulin needs (taken or injected before meals) to prevent hypoglycemia<sup>15</sup>
- Registered dieticians who are CDEs will give you guidance to rapid-acting insulin you need to cover 30 minutes before meals or show you how other diabetes medications are taken with meals

(See the proceeding slides).

## Insulin-To-Carb (CBH) Ratio For Advanced **Diabetes Maintenance**

Examples are 1 unit or 1.5 units of insulin for every 10 gram of CBH<sup>15</sup>

- You will need calculation on insulin dose needed for a mea
- You will need the nutrition facts to calculate the CBH content
- Next slide will show you the calculation



serving size listed to your actual portion.

Count the grams of carbohydrate or the number of carbohydrate choices. In this example, 10 crackers have about 15 grams of carb and equal 1 carb choice.

## **Finding Correct Insulin-To-Carb Ratio**

#### Step 1. Calculate insulin dose for food<sup>15,16</sup>

Obtain a total of grams of carbohydrates present in the food you will eat (Total CBH) and divide by insulin-to-CBH ratio:

#### <u>Total grams of CBH</u> insulin-to-CBH ratio

For example, if your total grams of CBH is 45 gram and your insulin to CBH ratio

Is 15, you divide 45 by 15

45/15 = 3 Thus 3 units of insulin is needed per the amount of CBH being taken for this particular meal.

# Step 2. Use a correction factor to get to the target blood glucose

Subtract your target blood glucose (BG) from the current and divide by the correction factor

# Current BG-Target BG - Correction glucose= CorrectionDose Correctionfactor

Step 3. Add insulin needed for CBH to correction dose for correction of high BG:

Thus from steps 1. and 2., This will be units needed (3) plus correction dose (2)

#### 3 + 2 = 5 units of insulin for this meal

\*All of these calculations are being done to prevent Hypoglycemia.

Diabetes Care and Education http://dbcms.s3.amazonaws.com/

(Assume = 2)

#### Finding Correct Insulin-To-Carb Ratio Contd

#### Your current insulin plan

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L			ч		•	~	•		ч	

Dose a.m. p.m.

Rapid-acting or short-acting:	Total units of insulin	
Dose B L D	per day	
Other		

# Calculation entry forms for your Insulin dosage plan<sup>15,16</sup>.

#### Your new insulin plan:

1. Insulin-to-carb ratio:

You will need 1 unit of rapid-acting or short-acting insulin for each \_\_\_\_\_\_ grams of carb

2. Blood glucose correction factor (insulin to correct high blood glucose\*):

1 unit of rapid-acting or short-acting insulin for each \_\_\_\_\_\_ points (mg/dl) your blood glucose level is over target of \_\_\_\_\_mg/dl

3. Your pre-meal target blood glucose:

\_\_\_\_\_ mg/dl

\* Discuss when to correct for low blood glucose with your health care provider.

Registered dietitians (RD) do not have prescriptive authority.

## **Fitness Education And Type 2 Diabetes**

Routine exercises-aerobics, strength training, and stretching are beneficial for preventing or managing type 2 diabetes<sup>17,18</sup>.

#### Which exercise?

 Walking, jogging, cycling, boxing, dancing swimming, weights lifting; sports like tennis, basketball, soccer are examples of physical activities

#### What are the benefits? Exercise:

- Increases muscle ability to uptake and use glucose
- Prevents or delays the onset of type 2 diabetes
- Helps with weight loss and maintenance
- Improves sleep
- Improves mood, decrease stress and increase energy
- Increases muscle strength

Inform your doctor about any vigorous routine exercise before you begin.

### **Reports About How Diabetes Education Is Improving Quality Of Life**

- National Health and Nutrition Examination Survey data showed that 52.7% of adults with diabetes attained A1C <7% between 2007 and 2010, compared to 43.1% obtained between 1988 and 1994.
- Additionally, diabetes complications such as heart failures, hyperglycemia crisis, stroke, and amputations, all decreased dramatically<sup>4</sup>.

Weinger K. Diabetes Spectrum 2015; 28: 146-151

#### **Reports About How Diabetes Education Is Improving Quality Of Life**

- 3. Effectiveness of diabetes foot care education in India rural areas after 5-6 minutes counseling resulted in improvement in foot care practice.
- The investigators anticipated that if the education continues and the practice is constantly reinforced, habits will change, and lower leg amputations will be at a minimum, which will prevent disability and reduce medical expenditure in the long run<sup>19</sup>.

Saurabh et al. Indian J Endocrinol Metab. 2014; 18: 106-110

## Conclusion

- Since 1980, diabetes has increased globally by about four-fold, and it is more drastic in the UAE<sup>1,2</sup>
- This rise has become an alarming global issue and awareness to control the disease: Therefore, there is the need of CDEs in health facilities to:
- Educate and counsel for proper drug usage, healthy diet, fitness, as well as, well-spread meal schedules in diabetes management
- Play crucial roles in avoiding both hyperglycemia and hypoglycemia which can lead to complications like, coma and even death
- Educate communities about diabetes by encouraging adherence to healthy lifestyles<sup>20</sup>

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