

## Changing the Face of Diabetes Education at Lehigh Valley Health Network—Creation of a New Resource for Late Adolescents and Young Adults with Type 1 Diabetes

Jacob R. Blount MS4  
USF MCOM- LVHN Campus, [Jacob.Blount@lvhn.org](mailto:Jacob.Blount@lvhn.org)

Linda M. Schwartz MDE, AHIP, CM  
Lehigh Valley Health Network, [linda\\_m.schwartz@lvhn.org](mailto:linda_m.schwartz@lvhn.org)

Laura Harstine  
Lehigh Valley Health Network, [laura.harstine@lvhn.org](mailto:laura.harstine@lvhn.org)

Joyce Najarian MSN, RN, CDE  
Lehigh Valley Health Network, [Joyce.Najarian@lvhn.org](mailto:Joyce.Najarian@lvhn.org)

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# Changing the Face of Diabetes Education at Lehigh Valley Health Network—Creation of a New Resource for Late Adolescents and Young Adults with Type 1 Diabetes

Jacob Blount MS4, Linda Schwartz MDE, AHIP, CM, Laura Harstine and Joyce Najarian MSN, RN, CDE  
Lehigh Valley Health Network, Allentown, PA

## Introduction

The incidence of Type 1 Diabetes (formerly called IDDM) is steadily increasing and while most commonly diagnosed in early childhood and adolescence, many more patients are being diagnosed as young adults.<sup>1,2</sup> Many patient education resources exist for children and families of children with Type 1 diabetes (DM) however, there are few designed for young adults. It is reasonable to assume the educational needs of young children are very different from the needs of the young adult. Effective education has been shown to improve outcomes and prevent complications leading to a better quality of life for patients living with diabetes.<sup>3</sup>

## Problem Statement

LVHN currently lacks a comprehensive educational resource for late adolescents and young adults (16- 30) with Type 1 DM, so a new resource was created to meet this need for this special population.

## Methods

A team including diabetes educators, patient education specialists, and young adults with diabetes determined the most important aspects of daily life with Type 1 DM. These were used to plan the contents of each chapter. A comprehensive literature review since 2010 was performed to ensure any monitoring and treatment guidelines were in alignment with current clinical practice guidelines. After drafting each chapter it is reviewed by diabetes educators and patient education specialists and sent for simultaneous graphic design and layout. Additionally, each revision is tested for readability with a target of an eighth grade reading level. Once laid out, the team meets and thoroughly reviews the chapter for publication.

## Results

A total of seven chapters were created (Appendix 1: Table of contents). Readability was assessed using the Flesch Reading Ease method. A network determined score of 70 or greater was the established requirement to be acceptable for the 16-30 age range. Over the course of the year all text was written. Two chapters are set for final publication, two are in the process of formatting layout and graphics, and the text of the final three is in review/revision prior to initial publication.

Table of contents	
Forward: From the author	
Chapter 1: What is diabetes?	Chapter 5: Daily Life with Diabetes
• What is diabetes?	• Who do I tell? And what do I tell them?
• History of diabetes	• Becoming independent
• Do I have Type 1, Type 2, or some other type of diabetes?	• Health insurance
• How did I get Type 1?	• Identification
Chapter 2: Taking Care of your Type 1 Diabetes	• Driving
• Treatment: Insulin	• Air travel
• How do I take insulin?	• Sick days
• Monitoring	• Emotional Stress
• So what do I need everyday?	• Intimacy
• Long term monitoring	Chapter 6: Diabetes in Social Situations
Chapter 3: Diabetes Emergencies and Complications	• Physical activities
• Hypoglycemia (Low Blood Sugar)	• Dining out
• Hypoglycemia (High Blood Sugar)	• Alcohol
• Diabetic Ketoacidosis (DKA)	• Drugs
• Complications	Chapter 7: Special populations
Chapter 4: Nutrition and Exercise	• Women with diabetes
• Nutrition	• Insulin pumps
• Physical activity and Exercise	Appendix: Resources
	Glossary

Table 1: Readability scores of each chapter from first draft submitted and most recent versions of chapters to date in various stages of production.

	First Draft of Readability Scores			Reading Scores to Date		
	Flesch Reading Ease Score	Average Age Level	Average Grade Level	Flesch Reading Ease Score	Average Level	Average Grade Level
Chapter 1	55	15	9.9	57	16	10.9
Chapter 2	58	16.4	11.2	66	14.4	9.2
Chapter 3	58	15.4	10.2	61	14.9	9.6
Chapter 4	60	16.3	11.1	65	15.1	9.8
Chapter 5	58	16.3	11.1	61	15.9	10.6
Chapter 6	53	17	11.7	54	16.7	11.3
Chapter 7	Pending			Pending		

### How did I get Type 1 diabetes?

Type 1 diabetes is an autoimmune disease, an illness in which the body's immune system attacks its own cells. The immune system helps defend the body against infections.

In the case of Type 1 diabetes, the cells in the pancreas that make insulin are destroyed. The reason the body's immune system targets its own cells is still unknown. There are many ideas as to why this occurs. Often, many people are ill with a viral infection just prior to developing Type 1 diabetes. It may be that when the immune system reacts to the virus, it also reacts against the body's own cells destroying those cells.

**without diabetes**

Glucose

Pancreas produces insulin

Insulin moves glucose to cells

**with type 1 diabetes**

Immune cells destroy beta cells in the pancreas

Pancreas cannot produce insulin

Move glucose in the blood

Another reason it is believed people develop Type 1 diabetes may be due to the traits we inherit from our parents. One of these traits may not block the immune system from targeting its own cells. In reality, the cause is still unknown, and it was likely a combination of the above factors and others that we do not know yet that leads to developing Type 1 diabetes.

### TIPS

#### Safety tips for driving:

- Always check your blood sugar before driving
- If your blood sugar is below 70 mg/dL, treat the low level and make sure it has risen before driving
- If you are going on a long drive where you will be in the car many hours, stop and check your blood sugar every few hours to make sure it is not too high or too low
- Always pull over and check your blood sugar if sugar if you start to feel like you have a low or high blood sugar.

These tips may seem annoying, but it is always safer to get where you are going a couple of minutes later than risk an accident where you may hurt or kill yourself or someone else.

It is important to remember, you not only could injure yourself or others, but should a diabetes emergency lead to a car accident, there may be legal problems as well. Every state has different laws, so if you are moving or leave for college you should know the policies of the state where you will live or travel. This is usually found on the state's department of motor vehicles website.

In the commonwealth of Pennsylvania, you may lower your license for up to 6 months if you have become unconscious or have a seizure while driving. Also, if your diabetes is poorly controlled and you have episodes of low blood sugar or lose consciousness often, this may be reported to the state and you could be denied a driver's license. This is for your safety, as you would have a high risk of hurting yourself and others.

Driving is a task that many people need to do on a daily basis. It is important to remember, if your blood sugar is well controlled while driving and stays within your target range, driving with diabetes no riskier than without diabetes. However, driving without knowing what your blood sugar is, or driving when it is too low or high is very dangerous.

### Chapter 3: Diabetic Emergencies and Complications

Managing diabetes is a constant task. It takes a great amount of focus and attention to even the smallest details in order to maintain good control of your sugar. However, people who have their A1c at their goal (see Chapter 2) will have times when their diabetes is not well controlled for short periods of time. When this happens it is important to stay calm and remember the teaching you received from providers, diabetes educators, nurses, and other members of your healthcare team.

If your blood sugar is too high or too low and you deal with it quickly and correctly, the chances of it becoming a severe emergency are much lower.

### Hypoglycemia (low Blood Sugar)

Imagine that you come home from work and it is a beautiful summer day. You want to go out for a jog in the park before it gets dark. Before you leave for your run you check your blood sugar and it is 185. That is a little high, but you know you are going running and your blood sugar will likely fall during your jog. You return home from your run and your blood sugar is 100 – perfect! Several hours later you start to feel dizzy, hungry, shaky, and weak. You stop and think for a minute and decide you need to check your blood sugar level. You check it and the reading is 58. What is going on?

## Conclusion & Future

Upon final completion, the resource will be reviewed by two or three young Type 1 DM adults, independent of the team, for feedback prior to distribution. After implementation of this new resource, future study on its potential impact on quality metrics will be feasible.

### References:

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3. Aschner P., Horton E., et. al. Practical steps to improving the management of type 1 diabetes: recommendations from the Global Partnership for effective diabetes management. *The international journal of clinical practice*. 2010 3(64):305-315.