

LOS ANGELES UNIFIED SCHOOL DISTRICT
Medical Services Division
District Nursing Services Branch

Guidelines for Licensed Nursing Provider

**CARBOHYDRATE COUNTING AND INSULIN COVERAGE CALCULATION
IN SCHOOL SETTING**

I. GENERAL GUIDELINES

A. PURPOSE

Individuals with diabetes manage their glucose levels by closely monitoring their carbohydrate intake, commonly referred to as "carbs." Carbohydrate counting is very important for optimizing glucose control. This method gives children with diabetes the freedom to choose foods they enjoy while controlling glucose levels.

B. GENERAL INFORMATION

1. Carbohydrates contain natural or added sugars. In the body, carbs turn into glucose, and insulin then moves the glucose from the bloodstream into cells for energy.
2. To manage glucose levels, insulin is administered to match the amount of carbs consumed during snacks and meals.
3. To help manage diabetes, a Healthcare Provider (HCP) orders either a fixed carbohydrate diet or an insulin-to-carb ratio to determine the necessary rapid-acting insulin dose for a meal or snack.
4. Carbohydrate counting is outlined in the Diabetes Medical Management Plan (DMMP).

C. PERSONNEL

1. Licensed Nursing Provider
2. Designated and trained school personnel under the direct or indirect supervision of the school nurse.
3. Parent (for foods sent from home)

D. CARBOHYDRATE INFORMATION

1. Provided by Parent - Written carbs value for foods prepared from home
2. Provided by School
 - a. Computer device and internet to access digital menu app
<https://lausd.yummy.com/>.
 - b. Print out of Café LA Nutritional value chart.

II. PROCEDURE

A. CARBOHYDRATE COUNTING

1. At its most basic level, it involves counting the number of grams of carbohydrates in a meal and matching that to the insulin dose as ordered by the HCP.
2. Individuals with diabetes who require mealtime insulin must first determine the quantity of carbohydrates they plan to consume and then administer the insulin dosage based on this calculation.
3. They will utilize an insulin-to-carbohydrate ratio. This advanced method of measuring carbohydrates is recommended for people who require intensive insulin therapy, such as those with Type 1 diabetes, and some people with Type 2 diabetes use insulin injections or an insulin pump.

B. WAYS TO COUNT CARBOHYDRATES

1. Reading food labels, you can find total carb grams on the [Nutrition Facts label](#). It is based on [dietary recommendations](#) for Americans. The US Food and Drug Administration (FDA) regulates what goes on the Nutrition Facts Label. A label is required on all packaged foods made in the United States and imported from other countries.
2. Yum Yummi-LAUDS (<https://lausd.yumyummi.com>) is a digital school menu app that features an easy-to-navigate weekly calendar with holiday notifications and a daily menu that shows a list of allergens and nutritional data.
3. LAUSD Food Services: Menu [Nutritional Information and Special Diets: Nutrition, Carbohydrate, and Allergen Information](#)

C. CARBOHYDRATES INSULIN COVERAGE

1. The insulin bolus dose for carbohydrate coverage is determined by student's HCP either by fixed dosing for a specific amount of carbs or an insulin-to-carbohydrate ratio.
2. This ratio indicates how many grams of carbohydrates can be managed by 1 unit of insulin. Typically, 1 unit of rapid-acting insulin can manage 12-15 grams of carbohydrate. However, this can vary from 6-30 grams or more based on an individual's insulin sensitivity, which can change throughout the day, vary from person to person and be influenced by physical activity and stress.
3. Verify carbohydrate insulin coverage dosing in DMMP

D. FORMULA

Carbs insulin dose = Total grams of carbs in the meal ÷ grams of CHO disposed by 1 unit of Insulin (*the grams of CHO disposed of by 1 unit of insulin is the bottom number or denominator of the Insulin : CHO ratio*).

For Example, assume:

You are going to eat 60 grams of carbohydrate for lunch

Your Insulin: carbs ratio is 1:10

To get the CHO insulin dose, plug the numbers into the formula:

CHO insulin dose = Total grams of carbs in the meal (60 g) ÷ grams of carbs disposed of by 1 unit of insulin (10) = 6 units

You will need 6 units of rapid-acting insulin to cover the carbohydrate.

E. ROUNDING RULE

Rounding to the nearest half unit: If using a syringe (whole or half unit markings) or an insulin pen with half (0.5) unit ability: **0.0 -0.24 round down; 0.25 -0.74 round half; 0.75 -0.99 round up to the nearest whole number.**

Rounding to the nearest whole number: If using a syringe or an insulin pen with whole dose unit ability: **0.0 – 0.49 round down; 0.50 – 0.99 round up to the next whole number**

REFERENCES:

Carb Counting and Diabetes

<https://diabetes.org/food-nutrition/understanding-carbs/carb-counting-and-diabetes>

Carb Counting

<https://www.cdc.gov/diabetes/healthy-eating/carb-counting-manage-blood-sugar.html>