

Teaching Diabetes to Middle-School Students with the www.2aida.net AIDA Online Diabetes Software Simulator

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Abstract

Introduction:

The lifetime risk of developing diabetes for students born in the new millennium in the United States is estimated to be 27% to 52%. Many students need to learn about diabetes for their personal care, or desire to learn about diabetes to develop a career in healthcare. Most teenagers are adept at learning through Web-based computer tools.

Methods:

Twenty-one students entering 8th and 9th grades (aged 12 to 14 years old) enrolled in a Biotechnology Summer Camp focused on diabetes. Lectures on pathophysiology and clinical aspects of diabetes were followed by simulated cases using the AIDA online diabetes software simulator accessed via the internet at www.2aida.net. Two cases demonstrated glycemic effects and pharmacokinetics of insulin administration, diet, and exercise in insulin-dependent (Type 1) diabetes and non-insulin-dependent (Type 2) diabetes. Students filled out standardized evaluations at the end of the session to assess receptiveness to this type of learning; opinions on the utility, information, and ease of use; and perceived risks of using the online simulator to understand diabetes.

Results:

All students were receptive to this educational tool. The majority found AIDA online useful (17/21 [81%]), educational (21/21 [100%]), worthy of wider distribution (20/21 [95%]), and would recommend the program to others with diabetes or wanting to learn about diabetes (18/21 [86%]). A minority (2/21 [9.5%]) found the program risky regarding the information given to the students. Positive comments included the ability to visualize concepts being taught in earlier lectures, and recognized the rigors required to manage diabetes. Fewer negative comments reflected frustration with the web-based user interface, the course materials, or difficulty in achieving good simulated glycemic control.

Discussion:

Teaching pathophysiology of diabetes and pharmacology of insulin to middle school students is enhanced with the AIDA online diabetes simulator. Future versions of this program, and development of similar programs, could be useful in teaching adolescents who have diabetes, and might help stimulate interested students to learn more about the care of people with diabetes.

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Abbreviations: (BG) blood glucose, (PC) personal computer

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