
Safe at School®: Insulin Dose Correction Case Study

Case: Ivy is a third-grade girl on multiple daily injections of insulin. Her diabetes health care provider has written orders in the **Diabetes Medical Management Plan (DMMP)** for correction dosing other than at mealtime. Specifically, the DMMP says to give a “correction dose every three hours for glucose levels over 300 mg/dL.” The school nurse is concerned about stacking insulin and causing hypoglycemia (low blood glucose, also called low blood sugar). How can this correction dosing be administered safely?

Discussion: The school nurse’s concern for insulin stacking and the possibility of causing hypoglycemia is appreciated. Giving correction dosing every three hours other than at mealtime can be administered safely either by injection or an insulin pump. Here are important considerations to keep in mind:

- Rapid-acting insulins such as Humalog and Novolog’s action time is only three to four hours, which means the majority of insulin given three hours prior is out of the body at the time a correction dose is indicated, per the DMMP.
- When a student’s glucose level is over 300 mg/dL, this impacts the way they feel, their ability to concentrate and learn, and increases their chance of developing diabetic ketoacidosis (DKA). Therefore, giving a correction dose when glucose levels are over 300 mg/dL is appropriate! In fact, it may be harmful to make the student wait to receive a correction dose.
- Remember to assess for any symptoms of DKA, check ketones, and give water per the DMMP.
- Notify the parents/guardians, per the communication plan, of the correction dose that was given.
- The school nurse should follow up with the student and recheck the glucose level two hours (or as indicated on DMMP) after administering a correction dose. The continuous glucose monitor (CGM) levels may be used if available.
- Insulin pumps and smart insulin pens such as the I-pen, track insulin onboard (insulin still working in the body) and will adjust correction dosing based on the insulin onboard. This decreases any chance for stacking insulin.
- Keep in mind that if a student receives a correction dose before mealtime, they would not get another correction dose unless it has been three or more hours since the last correction dose. In the case when the student has received a correction dose in less than three hours, the student would only receive insulin for the carbohydrates they are eating per the insulin-to-carb ratio indicated on the DMMP.

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- It is appropriate to give a correction dose when the glucose level is greater than 300 mg/dL, even if the student is going to recess or physical education. The student should have the glucose level rechecked (CGM level can be used) after physical activity.
- If a student is on a sliding scale for insulin and does not have a correction dose indicated on the DMMP, the school nurse will need to contact the provider for one-time orders to give a correction.
- Correction dosing may be given by school nurse or trained unlicensed school staff as per state law. It is appropriate for trained non-clinical staff to contact the school nurse before giving correction dosing at times than mealtime.
- It is appropriate for the school nurse to notify parents/guardians and the provider if they notice a pattern of hyperglycemia (high blood glucose). If so, the student's insulin doses can be adjusted to avoid persistent hyperglycemia.