American Diabetes Association®

Practice Considerations for Automated Insulin Delivery (AID)

Initiation and Follow Up

An AID device is a smart insulin pump that connects to a continuous glucose monitor (CGM) and adjusts insulin delivery accordingly based on an embedded algorithm. Refer to this list of suggestions when discussing the use of an AID device as a potential mode for insulin delivery with an individual.

1. The American Diabetes Association® (ADA) recommends that **AID systems should be offered for diabetes management to youth and adults with type 1 diabetes and other types of insulin-deficient diabetes who are capable of using the device safely.**

Considerations include:

- **Motivation:** They should be motivated and open to using an AID device.
- **Literacy:** They should be able to use an AID device (including being able to read the language on the device screens, etc.).
- **Patience:** They should expect it to take some time to achieve glycemic goals.
- **Time:** They should not move permanently or go on vacation soon.
- **Access:** They should have access to their health care professional in-person or with telehealth visits.
- **Mental health:** No mental or psychological disabilities that may impede the use of an AID device.

2. Discuss what an AID device is and the pros and cons of AID systems.

- **Describe AID in straightforward language:** Connecting an insulin pump to CGM with a built-in algorithm to make automatic insulin dose adjustments, to minimize time in hyper- or hypoglycemia.

Pros:

- Automatic reduction or suspension of insulin delivery for actual or predicted lows (hypoglycemia protection)
- Insulin adjustment for highs (automatic correction with extra automatically delivered insulin)
- Not carrying pens/vials/syringes (though encouraged to keep them nearby in case of technical issues)
- Able to control with smartphone in many cases
- Improved ability to meet glucose targets with the same or less effort

Cons:

- Requires adjustments and user input (at this time requires pre-bolus for meals)
- Announcements of meals and exercise
- Maintaining the AID systems (site changes, CGM changes, CGM calibration for some CGMs, potential pump malfunction such as site problems, detachment, kink, etc.)
- Requires devices to be worn on body continuously
- Issues related to infusion set failures, technological malfunctions (sensor disconnects or pump breaks)
- Lipohypertrophy

3. Present the AID device options to individuals and provide additional resources describing systems. Resources may include manufacturer websites/brochures or device agnostic information, like the ADA's Consumer Guide (**consumerguide.diabetes.org**). This will allow for the individual to choose the AID device that best meets their needs.

Factors that may influence the person's selection of a particular device may include:

- **Tubing/no tubing.**
- **Smartphone control/no smartphone control.**
- **CGM choice.** Each AID system may have different CGM brand requirements or options. Choice of CGM may be important for an individual.
- **Meal management.** AID systems help more with achieving glycemic targets when meals are announced. For those who miss meal boluses, using an AID with an auto-correction bolus feature may better match their needs.
- **Simplicity.** For those patients who do not want to do discrete carbohydrate counting, using an AID device that allows for a qualitative approach (for example, based on meal size) may be preferred.
- **Risk tolerance/preference.** Some AID algorithms are less aggressive with insulin correction, some more. Set realistic expectations for the system chosen, which may include tolerance for slower gradual hyperglycemia correction (less aggressive) balanced against more rapid correction but accompanying likelihood of at least some associated hypoglycemia.
- **Size** of the AID device and/or compatible CGM.

4. Allow the person time to make a decision regarding the systems they most want to use. Currently, insurance companies have warranties for pumps that may last four to five years, making it more difficult to switch devices. However, with pharmacy benefit instead of durable medical equipment (DME), this may not be an issue. Further, some pump companies offer opportunities to try devices and create pathways for those who may be new to their system.

5. Order the AID system and CGM (if applicable). Be mindful of the difference between DME and pharmacy benefits and that if a component of the system (AID and/or CGM) is denied after ordering, it may be approved if submitted to the other benefit type. Both the health care professional team and the individual with diabetes should follow up on the order status.

6. Decide the settings for the AID initiation. Each system is different. There are also resources provided by most AID manufacturers to guide you through determining initial settings.

7. Set up the system. Usually the manufacturer will contact the patient to arrange training and system startup, which may require education on how to insert the infusion site, change the site, administer a bolus, and the basic function of the algorithm. Verify with the patient that the training is arranged. If necessary, work with the manufacturer's trainer. If you prefer training initiation by someone else (e.g., your own practice's/system's trainer, such as a local CDCES), notify your local trainer to contact the patient and notify them not to pursue training with the manufacturer.

8. To be prepared in case the AID fails, the patient should have a long-acting insulin pen/vial and know how much insulin they should take and how to contact the manufacturer to get a replacement system. Documentation of current pump settings will permit the individual to resume therapy once a new device is received.

9. Schedule near-term follow up as appropriate to the patient and the clinician (e.g., consider 3-, 7-, 14-, 30-day follow up through an in-person or telehealth visit, or by remote data monitoring by phone). To facilitate this, ensure individuals are connected to software to permit device uploads, some of which can occur automatically from a phone/app.

10. Provide positive reinforcement for achievements and discuss goals at all follow-up visits. Review if insulin doses need to be optimized or if behavioral modifications (timing of meal boluses, treatment of lows) need to be adjusted.