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

AUTOMATED INSULIN DELIVERY (AID) OR INSULIN PUMP THERAPY AND DIABETES IN SCHOOL SETTING

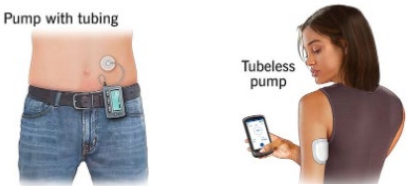
I. GENERAL GUIDELINES

Purpose: Automated Insulin Delivery (AID), also referred to as insulin pump therapy, is a comprehensive method of intensive diabetes management. It is designed to closely mimic natural insulin release, reduce glycemic variability, prevent severe hypoglycemia and diabetic ketoacidosis (DKA), and promote optimal long-term health outcomes.

These guidelines are aligned with the American Diabetes Association (ADA) Standards of Care in Diabetes, the National Association of School Nurses (NASN) recommendations, and key guidance from the Centers for Disease Control and Prevention (CDC).

Overview:

1. Insulin pumps deliver insulin via a basal-bolus system:
    - Basal: Continuous delivery of insulin to maintain metabolic needs.
    - Bolus: Administered to manage meals or correct hyperglycemia.
2. Pumps may be:
    - Tubed (e.g., Medtronic, Tandem, iLet Bionics)
    - Tubeless (e.g., Omnipod 5)



3. Modern pumps often integrate with Continuous Glucose Monitor (CGM) and smart algorithms-AID systems.
4. Students should have an up-to-date Diabetes Medical Management Plan (DMMP) and Individualized Healthcare Plan (IHP). Backup protocols must be detailed.
5. Legal Compliance:
    - Adhere to Section 504 of the Rehabilitation Act.

II. INSULIN PUMP TECHNOLOGIES

Key Devices & Features:

- Beta Bionics – iLet Bionic Pancreas
  - Adaptive algorithm, fully autonomous insulin delivery system; minimal user input required.
  - User Guide
- Medtronic MiniMed 780G
  - Advanced hybrid closed loop; Features Meal Detection technology and SmartGuard automation.
  - User Guide
- Omnipod 5
  - Tubeless, automated insulin delivery system; fully app-based with SmartAdjust algorithm.
  - User Guide
- Tandem t:slim X2 (Control-IQ)
  - Predictive algorithms for proactive adjustments.
  - User Guide

III. TRAINING

Licensed Nurse Responsibilities:

- Interpret and implement DMMP/IHP.
- Train and supervise delegated school personnel

Designated Supervising Trained School Personnel:

- Receive training in:
  - Device use, troubleshooting, and site care.
  - Hypo/hyperglycemia recognition and management.
  - Emergency procedures including DKA response.

Training should follow the LAUSD Diabetes Management Training for School Personnel.

IV. AUTHORIZED PERSONNEL

1. Licensed Nurse
2. Students monitored by designated voluntary trained school personnel as appropriate, as well as students who are capable of independently carrying out diabetes tasks outlined in their DMMP.

   May self-administer if:

- ✓ Authorized by DMMP and provider
- ✓ Determined competent by the school nurse and parent
- ✓ Age-appropriate and developmentally capable

3. Parents or Guardians (not employed by the district) may choose to:
   - ✓ Come to school and administer the insulin themselves
   - ✓ Designate a competent adult (such as a family member over the age of 18) to administer the insulin on their behalf.

This is not a substitute for school responsibility. The district cannot delegate insulin administration solely to the parent/guardian but ensure trained school personnel are available to provide this service.

V. EQUIPMENT

- Provided by Family:
  - Pump, CGM, receivers, controller, infusion sets, chargers, emergency kits, BGM and test strip, rapid insulin pen or insulin vial and syringe, alcohol wipes, ketone stix, quick-acting glucose, and glucagon emergency kit
- Provided by School:
  - Disposable gloves, secure storage, biohazard waste container, and sharps container (OSHA compliant)

VI. PROCEDURES: Licensed Nurse Responsibilities for Insulin Pump Management

A. Medical Management

1) Implement the DMMP
2) Ensure all insulin pump tasks align with the current, written DMMP orders.

B. Insulin Administration

Administer Insulin Boluses:

Deliver meal coverage and correction boluses using the insulin pump, strictly following the DMMP.

C. Activity Adjustments

Adjust for Physical Activity:

Activate or modify “Activity Mode” (or equivalent feature) on the pump prior to physical education (PE) or other physical activities, per DMMP instructions.

D. Monitoring & Troubleshooting

1) Blood Glucose and Ketone Monitoring:
   Perform routine monitoring as ordered, and ensure appropriate action is taken for abnormal values.
2) Respond to Pump Malfunctions:
   Follow established LAUSD protocols for insulin pump malfunctions, dislodgement, or occlusions.
3) Manage Insulin Supply:
   Monitor for low insulin reservoir warnings and ensure timely communication with parents/guardians.
4) Respond to CGM and Pump Alerts or DKA Signs:
   Take immediate action based on CGM/Pump alerts or symptoms of diabetic ketoacidosis (DKA), following the DMMP.

Troubleshooting Events:

Event	Action
Infusion site shows signs of infection, redness, or leakage	Call parent/guardian to remove and replace the infusion set and select a new location per DMMP. If unavailable, notify healthcare providers and Region Nursing Services. Follow DMMP and Insulin Pump Malfunction Protocol.
Kinked or disconnected tubing	Check for delivery interruption. Call parent/guardian to replace the infusion set. If unavailable, notify healthcare providers and Region Nursing Services. Follow DMMP and Insulin Pump Malfunction Protocol.
Pump stops working or part is broken	Call parent/guardian to replace or troubleshoot the pump. If unavailable, notify healthcare providers and Region Nursing Services. Follow DMMP and Insulin Pump Malfunction Protocol.
Dislodged pump	If >2 hours remain in the school day, parent/designee should reinsert site. Follow DMMP and Insulin Pump Malfunction Protocol. Give insulin corrections every 2 hours as directed.
No CGM-to-pump communication	Perform BG check using a glucometer and input into pump. Refer to the device specific manual.
CGM vs. Blood Glucose Monitoring (BGM) result is out of range	Do not calibrate. Use BGM result for intervention.

Max bolus dose exceeded	Do not override setting. Adjust carb intake to match pump's allowable dose.
Insufficient insulin remaining for a full bolus	Do not administer a partial dose. Call parent/guardian to replace the pump or infusion set immediately. If parents are unreachable, follow DMMP and Insulin Pump Malfunction Protocol Document the situation and all actions taken.
Small/trace ketones with hyperglycemia	Administer correction insulin per DMMP. Monitor closely.
Moderate/large ketones present	Indicates malfunction. Follow DMMP and insulin pump malfunction protocol. Administer insulin via injection.
Temporary disconnection (from infusion set connector) of insulin pump before PE	To maintain sterility and prevent contamination, always place a sterile protective cap provided by the parent/guardian at the end of the infusion tubing when disconnected. Use a sterile cap whenever the tubing or infusion set connection is exposed to air.
Pump settings do not align with the insulin regimen written in DMMP	Do not alter insulin pump settings. Contact the parent/guardian to confirm any concerns and request that any setting changes be submitted in writing by the healthcare provider.

Insulin Pump Malfunction Protocol:

1. Signs of Malfunction:
    - Persistent hyperglycemia despite correction boluses
    - Moderate to large ketones present
    - Visible damage or error messages on the device
    - Pump alert sounds or notifications
    - Skin irritation or signs of infusion site displacement
2. Immediate Actions:
    - Check tubing and cannula for kinks, leaks, or dislodgement
    - If identified, contact parent/guardian to replace the infusion set or pod
    - If parents are unreachable or unavailable:
        - Contact healthcare provider and Region Nursing Services
        - Discontinue insulin delivery via the pump as a precaution following the manufacturer's manual

        - Turn off the pump or deactivate the pod per manufacturer's instructions. Do not disconnect infusion set or pull-out device.
        - Administer insulin via injection per DMMP
        - Monitor ketones and treat based on DMMP guidance
3. Documentation Requirements:
    - Record incident in student's electronic health record and protocol log
    - Document:
        - Blood glucose and ketone results
        - Time and nature of malfunction
        - Specific pump issues and solutions
        - All actions taken
        - Communication with parent/guardian and healthcare provider
        - Insulin administered (type, dose, route/site)
        - Student response and outcome
    - Any emergency interventions and insulin administered
    - Activity Adjustments:
- Plan for physical education or sports.
- Adjustments guided by DMMP and manufacturer manuals.

VII. LEGAL AND DOCUMENTATION REQUIREMENTS

- Maintain detailed health records and protocol logs.
- Secure written consent for all care.
- Ensure students access diabetes care under Section 504.

RESOURCES

- American Diabetes Association – Standards of Care in Diabetes – 2024
  https://diabetesjournals.org/care/article/47/Supplement_1/S258/147845
- CDC – Diabetes School Guidelines
  https://www.cdc.gov/diabetes/management/school.htm
- Manufacturer Guides (see links above)
- NASN – Diabetes Management in the School Set
  https://www.nasn.org/nasn-resources/practice-topics/diabetes