



# **Pediatric Diabetes Management: Nursing Interventions and Family Support**

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## **Introduction**

Worldwide healthcare professionals together with researchers demonstrate growing concern about pediatric diabetes due to its significantly increasing prevalence rates. The recent decades have brought about a significant rise in new diagnoses of Type 1 and Type 2 diabetes in children even though Type 1 diabetes continues to be the dominant form in pediatric populations. Medical statistics demonstrate that diabetes affects one child out of 400 in adolescent populations although ethnic differences emerge in different geographic areas. Treatments for pediatric patients with diabetes rely on a proper recognition of their diagnosis type. A person with Type 1 diabetes who experiences an autoimmune destruction of pancreatic beta cells needs immediate care because this condition appears suddenly. Doctors now detect Type 2 diabetes more frequently in children because of weight gain and inactive lifestyles although this condition used to affect only adults in the past. Diabetes in children exists in different uncommon types including monogenic diabetes and cystic fibrosis-related diabetes whose occurrence remains low relative to other forms.

The effects diabetes produces on child progress together with family interactions represent crucial concerns in pediatric healthcare. Diagnosis transforms daily operations because victims need to modify every aspect of their lifestyle together with their eating behaviors and daily movements. Children with diabetes face unique challenges in their physical, emotional, and social development. Diabetes restricts the kid from performing regular childhood pursuits while affecting schoolwork and social bonds with peers. The duty to manage ongoing health issues together with a chronic condition creates increased anxiety for children along with impacts on the psychological well-being of all family members.

## **Assessment and Monitoring Protocols**

To effectively manage diabetes in pediatric patients healthcare teams should implement thorough monitoring procedures which examine different health indicators of these children consistently. The fundamental pillar of diabetes management starts with blood glucose monitoring. Yet, these techniques should be selected based on the age and cognitive development level of the child alongside their family resources. The introduction of continuous glucose monitoring (CGM) systems through modern technology enables healthcare providers to achieve precise management decisions by offering real-time data and trending information. Healthcare providers need to create customized testing routines that align correct glucose data assessment with the actual limitations faced by pediatric patients together with their family circumstances (Cho & Kim, 2021). Patients continue to need finger-stick blood glucose tests both for CGM device calibration and whenever they become unwell with hardware problems. Proper training about blood glucose reading methods and their appropriate timing and documentation should be provided directly to both adult caregivers of children and children who are ready for self-care tasks.

Pediatric patients require specific attention toward detecting hyperglycemia and hypoglycemia because children below a certain age cannot effectively communicate their bodily symptoms. Healthcare teams need to instruct family members about detecting clear as well as ambiguous signs of blood glucose

changes. The signs of hyperglycemia include excessive thirst and urinary frequency along with irritability whereas hypoglycemia usually results in trembling muscles and a confused mental state as well as behavioral changes. The unique symptoms of these conditions need to be completely examined and explained to caregivers according to their child's age. The process of monitoring growth together with physical development becomes vital when managing diabetes in children because this illness affects their natural physical growth process. Periodic checks of child growth data through height, weight, and body mass index measurements enable early detection of development issues and disease-related complications (Cangelosi et al., 2024).

The assessment of vital measurements requires healthcare providers to use proper growth charts for plotting while evaluating them based on the child's health condition pubertal development and diabetes management. The required physical assessment goes above standard growth measurements to perform an extensive examination of every body system. Early detection of diabetes complications requires regular screenings which should be performed frequently despite pediatric patients experiencing fewer occurrences. The assessment examines both injection sites and skin condition together with assessments of cardiovascular health and neurological system. These evaluations occur at different frequency levels depending on the child's age alongside their duration with diabetes and general health conditions.

### **Medication Management and Administration**

Pediatric diabetes treatment starts with insulin therapy because it ensures life-support in Type 1 patients. A proper insulin protocol needs to consider four major child-related factors as well as weight measurements pubertal development daily routines and blood sugar fluctuation patterns. The contemporary treatment of insulin requires long-acting basal insulin together with rapid-acting bolus insulin which patients receive either through daily multiple injections or through insulin pump therapy. The selection and training of proper techniques for medication delivery must match the age of the patient to achieve optimal results without complications. The precise dosing capabilities of insulin pens with half-unit functions make them the most suitable option for children under the age of 13. The specialized approach of insulin pump therapy provides better flexibility together with enhanced glucose control benefits to pediatric patients who need extra monitoring and training aspects. Healthcare providers should focus on picking suitable injection sites as well as developing rotation strategies because this helps stop lipothrophy and keeps insulin absorption steady.

The correct storage and handling procedures for insulin together with related supplies stand as key considerations when caring for pediatric diabetes patients. Family members need to learn the correct methods for temperature management and expiration tracking as well as methods of keeping backup supplies easily accessible. All personnel at schools along with caregivers and children of appropriate age require training about correct insulin handling practices and identification of compromised insulin caused by inadequate storage or handling (Braune et al., 2021).

The principles of dose adjustment for pediatric diabetes treatment demand healthcare providers to analyze various factors that include existing blood glucose levels together with projected food consumption and active plans and established insulin response patterns. Healthcare providers need to instruct families about suitable modification techniques that guarantee safety throughout. Caregivers need appropriate explanations about insulin sensitivity factors and insulin-to-carbohydrate ratios which should be reassessed throughout a young person's physical development.

### **Nutritional Management and Meal Planning**

The management of nutrition in pediatric diabetes demands healthcare professionals to achieve two goals which include appropriate blood sugar regulation and normal growth patterns. The fundamental practice of carbohydrate counting needs comprehensive teaching along with persistent aid for caregivers and children as it forms the core function of connecting insulin supply to food consumption. Learning about handling portion sizes interpreting food labels and estimating carbohydrates in standard foods becomes critical competence for families sustaining children with pediatric diabetes (Meek & Noble, 2022).

Planners should dedicate attention to dietary needs that change according to age when creating menu plans. Young children display irregular eating behaviors alongside unpredictable food choices so medicine planning must be adaptable for meals and insulin delivery. The adolescent population confronts specific obstacles resulting from physical development and changes in physical activity levels together with evolving decision-making freedom regarding dietary choices. The recommendations about nutrition need to match the specific development stages of individuals to achieve positive health habits and diabetes management.

The timing and amounts of eaten meals serve as essential methods for maintaining day-long stability in blood glucose levels. The combination of organized meal times allows better insulin management and prevents dangerous glucose instability. Such diabetes management plans should be adapted to accommodate children's normal appetite variations and physical movements. The consumption of snacks serves a vital function for children managing diabetes especially during times of physical activity or for young diabetics (Younis et al., 2025). The oversight of food events together with school meal coordination requires distinctive approaches in pediatric diabetes management. Children need detailed planning before they can take part in social activities during birthdays, holidays, or other events centered on food so they can manage their glucose levels properly. The planning of school meals demands collaboration between parents healthcare providers and school personnel to synchronize the availability of suitable food options also requires monitoring the distribution of insulin administration.

### **Family Education and Psychosocial Support**

Children with diabetes as well as their families need targeted education about self-management skills that both grow their confidence and develop their abilities progressively with age. The education curriculum must include lessons about blood glucose testing procedures together with insulin injection instruction along with problem-solving techniques for dealing with common day-to-day circumstances. The educational procedure needs to have an incremental approach while testing student comprehension and verifying their skill maintenance at periodic intervals (Sundberg et al., 2022). The management of diabetes requires successful treatment of emotional together with social issues for long-term success. Young diabetics face numerous challenges such as peer-separation feelings and worry about their health condition alongside denial of necessary care responsibilities.

Each family unit experiences elevated stress levels and fear and burnout as permanent elements of managing diabetes continuously. Healthcare providers need to both evaluate psychological health status and supply proper assistance combined with appropriate treatment references through patient need.

Achieving proper diabetes management at school and daycare facilities requires thorough coordination because it affects safe medical operations from morning until evening. Care facilities must create written plans with trained staff alongside emergency response guides that need regular updates. Healthcare professionals act as supporters of diabetic children to guide their families into educational institutions while protecting their rights to necessary accommodations (Meek et al., 2022). The process of building family confidence in care delivery incorporates continuous educational support while addressing problems as well as providing assistance. Families need to acquire competencies and understanding to manage their diabetes daily but should also achieve the best possible blood sugar control without compromising their well-being. Long-term confidence development occurs through support groups work with diabetes education programs as well as regular healthcare team interactions.

### **Emergency Management and Prevention**

Emergency management in pediatric diabetes should implement an integrated strategy that utilizes preventive procedures with detailed and applicable response protocols. Appropriate emergency management depends on families receiving all-encompassing education about recognizing appropriate responses to hypoglycemia along with diabetic ketoacidosis (DKA). Training in glucagon administration methods and clear awareness about frequent ketone testing must be provided as standard practice to families during every stage including illness and stress periods. The sick day management guidelines are

essential because sickness can modify blood glucose levels and insulin needs (Perry et al., 2022). Close monitoring and proper hydration assessment along with possible insulin dosage modifications become essential for patients under these conditions. Healthcare providers need to explain threshold measures that need medical help along with establishing access to emergency resources for family members. Each emergency action plan should reflect individual patient needs together with usual routines and risk conditions and provide a complete list of healthcare contacts and step-by-step emergency instructions.

A prevention strategy for acute and long-term complications should focus on supportive self-care behaviors together with an understanding of dangerous outcomes. Professional medical screening should commence around childhood span even though most diabetes complications show up during adulthood. Medical check-ups for eyes as well as kidney tests and objective assessments of physical growth must remain a part of consistent medical care. Intensive collaboration between healthcare providers and families allows the achievement of optimal glucose control through suitable insulin treatment combined with regular blood glucose testing and healthy life practices (Neyra Marklund et al., 2022). Children and families need to receive the empowerment tools and knowledge they need to decide their healthcare choices instead of receiving scare tactics about disease complications. Emergency action plans need periodic review and update as the child progresses developmentally since this ensures that all caregivers including school personnel and extended family members understand updated protocols and feel capable of executing them as needed.

## Conclusion

Pediatric diabetes management depends on having systematic coordination between the healthcare team patients' families and their support system. The management plans receive continuous adjustments through follow-up appointments combined with ongoing educational supports which ensure children maintain optimal health outcomes during their development period. Solid relationships between healthcare providers and families work together to make diabetes management continuous and achieve enduring positive results in diabetes care.

Clinical outcomes along with quality of life measures need to be checked through consistent monitoring. Healthcare providers need to measure patient hemoglobin A1C levels along with recording growth indicators and complications status and they must assess psychological states and family coordination. A thorough monitoring process allows healthcare providers to detect specific domains that need supplemental help throughout care. Moving patients from pediatric to adolescent healthcare presents an essential phase for the diabetes treatment of children. The transition plan for responsibility should start early between parents and young diabetes patients by following a step-by-step approach. Healthcare providers need to assist families and adolescent patients by providing the essential knowledge and skills needed for independent diabetes management success.

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