

ENHANCING DIABETES MANAGEMENT IN SCHOOLS:

Policy, Protocol, and Collaboration

May 30, 2014



Housekeeping

- ▣ All participant lines are muted
- ▣ Type questions into the Questions box
- ▣ Technical difficulties? Use the Questions box



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National Association of Chronic Disease Directors (NACDD) is comprised of over 3,600 specialized chronic disease practitioners working in public health departments across all 50 States and US Jurisdictions to prevent and control chronic disease.

The School Health Project assists Chronic Disease Directors and their staff to make informed decisions about a variety of school health issues.



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The AAP is dedicated to attaining optimal physical, mental, and social health for all infants, children, adolescents, and young adults

The Enhancing School Health Services through Training, Education, Assistance, Mentorship and Support (TEAMS) project assists school districts in making improvements to their school health services

Learning Objectives

- At the end of this presentation, participants will be able to:
 - ▣ Articulate the importance of a school diabetes management program
 - ▣ Identify key elements of a comprehensive diabetes management program, including policy and protocol
 - ▣ Apply strategies for improving coordination and communication between the school and students' healthcare team



Structuring a School Diabetes Management Program



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Disclosures

- Juvenile Diabetes Research Foundation
 - ▣ National Outreach Committee
- Advisory Boards
 - ▣ Quest Diagnostics
 - ▣ Roche Diagnostics
 - ▣ Sanofi
- Grant support
 - ▣ Bristol Myers-Squibb
 - ▣ Daiichi Sankyo
 - ▣ Novartis
 - ▣ Novo Nordisk
- American Diabetes Association
 - ▣ National Board Member
 - ▣ Research Grant Review Committee
 - ▣ Scientific and Medical Programs Oversight Committee
- Life for a Child
 - ▣ Board Member
- Data Safety Monitoring Boards
 - ▣ Merck
 - ▣ Novartis

Background

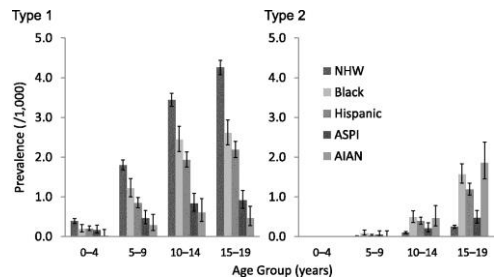
SEARCH for Diabetes in Youth

(2009 data)

- Prevalence of type 1 diabetes in youth- 1.93/1,000
 - ▣ 21% increase since 2001
- Prevalence of type 2 diabetes in youth- 0.24/1,000
 - ▣ 30.5% increase since 2001
- Racial and ethnic disparities
 - ▣ Non-Hispanic white youth had the highest prevalence of new cases of type 1 diabetes
 - ▣ Native American and Black youth had highest prevalence of new cases of type 2 diabetes



Prevalence of Diabetes in SEARCH/1,000 by Type, Age Group, and Race/Ethnicity



Pettitt D J et al. Dia Care 2014;37:402-408

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NHW=Non-Hispanic Whites; ASPI=Asians/Pacific Islanders; AIAN=American Indians/Alaska Native

Management Goals in Children

- Promote normal growth and development
 - ▣ Meal plan: enables optimum nutrition & metabolic control
 - ▣ Treatment: matches the normal physiology as closely as possible
 - ▣ Support: addresses specific chronic disease-related stressors and promotes social/emotional development
- Minimize risk for long-term complications
 - ▣ Requires frequent monitoring of blood glucose as part of intensive management

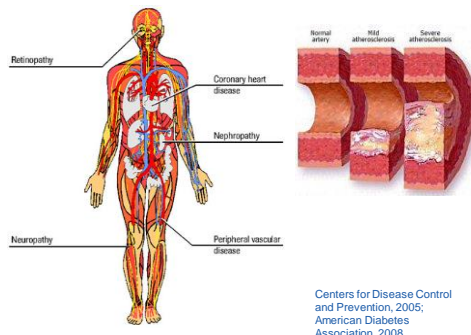


Treatment Regimens

- Diet/Lifestyle, Metformin, insulin for type 2
- Conventional insulin therapy: usually 2-3 shots/day
- Multiple daily injections (MDI): sometimes 4 or more shots/day
- Continuous subcutaneous insulin infusion (CSII)



Chronic Complications of Diabetes



Accommodations for the Student with Diabetes

- Appropriate accommodations must be made in order to provide adequate safeguards and enable success in school
 - ▣ Provision of trained personnel
 - ▣ Access to glucose monitor, insulin injection supplies, water, restroom, sugar-containing snacks
 - ▣ Extra time for completion of exams/work assignments
 - ▣ Excused absences for diabetes care appointments



Legal Rights

- Family Educational Rights and Privacy Act-1974
 - ▣ Protects the privacy of student education records
- Section 504 of the Rehabilitation Act - 1973
 - ▣ Forbids organizations from excluding or denying individuals with disabilities an equal opportunity to receive program benefits and services



Legal Rights

- Individuals with Disabilities Education Act (IDEA)—1975—2011
 - ▣ Two key components:
 - Due process provisions detailing parental rights
 - Permanently authorized grant program providing federal funding to the states
 - ▣ Part B: focused on services to school-aged children with disabilities
 - Every child who receives special education services under IDEA must have an IEP—Individualized Education Plan



State Regulations

- Become familiar with policies/regulations in your state and be sure to follow all legal requirements
 - ▣ Check the National Association of Chronic Disease Directors' [State School Health Policy Matrix](#) for relevant legislation
 - ▣ Contact your state school nurse organization with any questions



Key Components of School Diabetes Management Program

- Policy
- Protocol
- Implementation
- Coordination



Team Members

- Student
- Family
- School nurse
- Other school personnel
- Medical team



Policy and Protocol

Definitions

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| <ul style="list-style-type: none"> □ Policy <ul style="list-style-type: none"> ▣ A guide for decision-making or rule for action ▣ Broad outline of what should be done ▣ May include protocols/procedures ▣ Typically approved by school board | <ul style="list-style-type: none"> □ Protocol/procedure <ul style="list-style-type: none"> ▣ Formal direction as to how policy will be implemented ▣ Specific and detailed instructions on how to do something ▣ Sequence of steps to be followed ▣ Typically approved by health services leadership |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Importance of Policy and Protocol

- Provide optimal care and avoid problems
 - ▣ Anticipate needs and avert crises
 - ▣ Define structure of program
 - ▣ Provide direction for services and guide practice
 - ▣ Reflect laws and regulations
 - ▣ Provide legal protection
 - ▣ Prevent controversy
 - ▣ Provide consistency and continuity



Recommended Policy Components

- Purpose and background
- Legal requirements
- Staffing
- Development of Individualized Education Plan (IEP) or 504 plan, Individualized Healthcare Plan (IHP) and emergency plan for each student with diabetes
- Annual training for school personnel
- Support for self-management
- Roles and responsibilities
- Emergency response



Recommended Protocol Components

- Identification and tracking of students with diabetes
- Identification and monitoring of students with poorly controlled diabetes
- Obtaining and using written plans for each student with diabetes
- Care procedures
- Provisions for self-management



Recommended Protocol Components

- Emergencies
- Training of school personnel
- Coordination with families, primary care provider, and endocrinologist
- Field trips, transportation, and after-school activities
- Meals and carbohydrate counting



Implementation

Family Responsibilities

- Provide the school with medical orders
- Participate in a care planning conference
- Provide all relevant diabetes medications, equipment, and supplies
- Maintain communication with school and medical team



Role of the School Nurse

- Maintain communication and coordinate with family and diabetes care providers
- Assure implementation of policy and protocol
- Perform or assist with diabetes management tasks at school
- Maintain and update necessary diabetes knowledge and skills
- Develop management plan with student, family, & medical team



Role of the School Nurse

- Identify staff roles and provide appropriate training
 - Two or more individuals trained at each school to assure adequate coverage in the event of the nurse's absence
- Assist student in goal-setting
- Assist in identification of obstacles to optimal care
- Implement and periodically review the diabetes care plan to tailor it to the student's evolving technical competence and maturity



Medical Team Responsibilities

- Provide clear and complete medical orders and updates pertaining to the student's diabetes care plan
- Assist in developing the student's individualized health plan
 - In accordance with the state regulations
 - Consistent with appropriate resources available at the school
- Maintain communication with school and medical team with timely response to urgent concerns



Most Immediate Concerns in Managing Diabetes

- Hypoglycemia = low blood glucose
- Hyperglycemia = high blood glucose
- Ketoacidosis
 - Ketone (acid) build up in the blood because there is not enough insulin in the body



Causes of Hypoglycemia

- Administering too much insulin
- Skipping or delaying meals/snacks
- Too much insulin for the amount of food eaten
- Exercising longer or harder than planned
- Combination of the above factors
- More likely to occur before lunch, at end of school day or during/after PE

Never leave a student alone or send them away when experiencing hypoglycemia. Treat on the spot.



Hypoglycemia

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| <ul style="list-style-type: none"> □ Symptoms of mild hypoglycemia: <ul style="list-style-type: none"> ■ Sudden change in behavior (lethargic, confused, uncoordinated, irritable, nervous) ■ Sudden change in appearance (shaky, sweaty, pale or sleepy) ■ Complaints of headache or weakness | | <ul style="list-style-type: none"> □ Response: <ul style="list-style-type: none"> ■ Give the student a quick-acting sugar equivalent to 15 grams of carbohydrate: <ul style="list-style-type: none"> ■ Examples: 4 oz. of juice, ½ can regular soda, 3-4 glucose tablets ■ Ask parents to provide you with what works best for their child ■ Check blood glucose level 10 to 15 minutes later ■ Repeat treatment if blood glucose is below student's target range |
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Severe Hypoglycemia

- | | |
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| <ul style="list-style-type: none"> □ Symptoms: <ul style="list-style-type: none"> ■ Inability to swallow ■ Seizure or convulsion ■ Unconsciousness <p>This is the most immediate danger to kids with diabetes.</p> | <ul style="list-style-type: none"> □ Response: <ul style="list-style-type: none"> ■ Position student on side ■ Contact school nurse or trained diabetes staff ■ Administer prescribed glucagon ■ Call 911 ■ Call student's parents |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

GLUCAGON IS A HORMONE THAT RAISES BLOOD GLUCOSE LEVELS. It is administered when hypoglycemic symptoms are SEVERE. Glucagon may cause nausea or vomiting, but...

GLUCAGON IS A LIFE-SAVING TREATMENT THAT CANNOT HARM A STUDENT!

Enhancing Collaboration between School Districts, Primary Care and Diabetes Clinicians: State Perspective



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Director of School Health Services
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Background

- Increase in Type 1 diabetes: 2.5/1000 FY08 to 3.0/1000 FY12*
- 2007-8 Continuous Quality Improvement Project of Massachusetts Schools findings:
 - Extensive amount of nursing time to care for a child with diabetes, especially during the first three months after diagnosis
 - No insulin pumps for children in low economic versus middle and high income schools

*Massachusetts Department of Public Health. Essential health services data report, 2007-2008 school year. Spring, 2009.
Massachusetts Department of Public Health. 2012 Program update: essential school health services. Spring, 2013.



Background

- November, 2009: Massachusetts legislature allocated \$200,000 to Massachusetts Dept. of Public Health (MDPH) to “fix” disparities by 6/30/2010
- Unique opportunity to engage the endocrine practices in a collaborative approach
- Enlisted interest of three endocrine practices and three school districts in low economic areas



Goals

- To identify and begin to overcome barriers to optimal care
- To improve the diabetes management of a minimum of 20 students in each school district
- To promote the ongoing collaboration between school nursing services and the endocrinology groups



Collaboration Agreement Requirements

- Identify up to 20 students with poorly controlled diabetes jointly managed by the hospital and school district with parent consent



Collaboration Agreement Requirements

- Hospital endocrinology group
 - Appoint a clinical liaison to the project
 - Provide a minimum of one day per week on site in the school district
 - Provide services
 - Provide educational sessions for school nurses in the region on diabetes care
 - Collect data as determined by the MDPH



Collaboration Agreement Requirements

- School district
 - ▣ Appoint a school nurse liaison to the project
 - ▣ Identify a school nurse(s) who will provide services/teaching/collaboration/case management
 - ▣ Collaborate with the endocrine practice
 - ▣ Collaborate to address keeping endocrine appointments



Collaboration Agreement Requirements

- Funding: MDPH allocated to the school district
 - ▣ Invoices from hospitals
 - ▣ Funding for endocrinology staff time, per diem nurses to cover for school nurses visiting clinic, travel, etc.
- Total of \$200,000 placed in the Essential School Health Services grants line item in the state budget



What We Learned

- Rapid development of enthusiastic sharing between endocrine staff and school nurses
- Unrealistic expectations by the school nurses and parents to move students to independence
- Students' frequently inaccurate reporting of "normal" blood glucose levels
- Better understanding and respect for each specialty's environment, challenges and potential



What We Learned

- Different strategies worked well in different locations
- As school nurses' expertise grew, they had more knowledgeable questions to endocrine specialists
 - ▣ Prompt discussion and resolution of issues resulted
- Need to change the current practice of asking parents or student-patients to liaise between the diabetes clinicians and the school nurse
 - ▣ Direct, timely provider-school nurse communication reduces risk



Recommendations: Endocrinologists

- Communicate with school nurses at the following times:
 - ▣ Discharge for new onset diabetes or re-hospitalization
 - ▣ Following emergency room visits
 - ▣ At the close of diabetes clinic visits
- Share HbA1c levels
- Ensure that the school nurse has current orders at the beginning of each school year



Recommendations: School Nurses

- Observe actual glucometer reading of all students with diabetes at least once a day
- Explore ways to transmit blood glucose data electronically
- Implement a ketone correction sheet in collaboration with endocrinologists



Other Recommendations

- *Guidelines for Managing the Care of the Child with Diabetes in the School Setting* modified as follows:
 - Changed the emphasis from encouraging independence in self-management to interdependence
 - Reinforced that the student needs ongoing school nurse monitoring/review of glucose levels and insulin administration



Enhancing Collaboration between School Districts, Primary Care and Diabetes Clinicians: A Local Perspective



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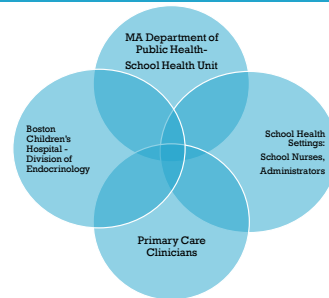
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Disclosures

- No disclosures



Partnerships



Lawrence, Massachusetts: Special Population Data

Special Population	% of District	% of State
First Language not English	72.5	17.3
English Language Learner	24.5	7.7
Low-income	84.0	24.0
Students with Disabilities	21.2	17.0
Free Lunch	79.3	32.1
Reduced Lunch	5.5	4.9
High Needs	91.6	47.9

13,145 students in 2012-2013

4 Early Childhood Centers, 3 Elementary, 3 Elementary/Middle, 2 Middle, 3 Partnership, 1 School for Exceptional Students, 6 High Schools, and 1 Adult Learning Center



Challenges to Providing Comprehensive Type 1 Diabetes Care In the School Setting

- Flexibility and staffing patterns of school nursing coverage
- Identifying the primary school nurse for each student
- Health office management
- Documentation processes and procedures



Challenges

- Continuing education needs of school nurses
 - ▣ Knowledge of basal/bolus regimens, carbohydrate counting, correction/sensitivity factors
 - ▣ Level of skills using new technology, i.e., insulin pens, insulin pumps and continuous glucose monitors
 - ▣ Familiarity with dietary programs to access carbohydrate data online or in school



Challenges

- Collaboration with academic medical center
 - ▣ Identifying endocrinology team
 - ▣ Sharing of information, including obtaining updated medical orders for school and supplies
 - ▣ Accessing endocrinology team for management of crisis situations
 - ▣ Comfort with accessing endocrinology team



School Nurses: Poised for Public Health Impact

- Primary health professionals in the school setting
- School health meets requisites for medical home:
 - ▣ Culturally effective, sensitive and compassionate
 - ▣ Accessible on site and have 24/7 on-call access via Boston Children's Hospital (BCH) Diabetes Team
 - ▣ Continuous, comprehensive, coordinated, and family-centered:
 - Primary Care ↔ School ↔ BCH Diabetes Team



Shared Goals to Address Disparities of Care in School-age Children with Type 1 Diabetes

- Goal 1. Build network of communication between school health and diabetes professionals at academic medical centers
- Goal 2: In the student/patient's community, exchange blood glucose data and teaching materials amongst student and family, school health and diabetes teams



Goals

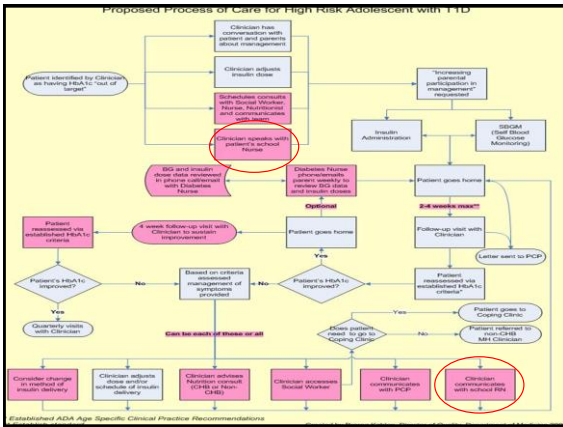
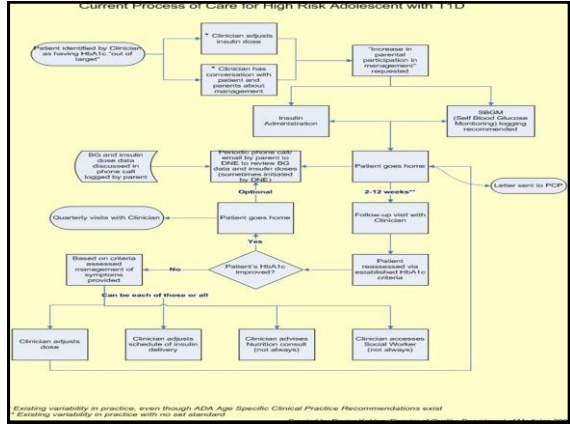
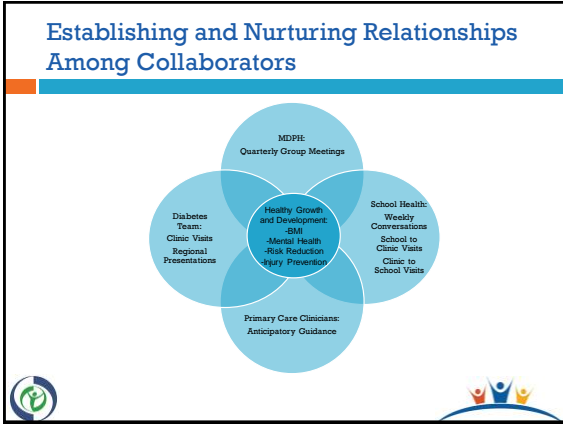
- Goal 3: Improve type 1 diabetes care and clinical outcomes
- Goal 4: Improve school attendance
- Goal 5: Reduce health care costs by sharing blood glucose and ketone data and managing hypoglycemic and hyperglycemic events in school



Goals

- Goal 6: Improve standards of nursing care at the school nurse level
- Goal 7: Improve population health by spreading the initiative across Massachusetts school districts





What Made the Project Work at Boston Children's Hospital

- Investment of Endocrine Division Chief, Director of Diabetes Program and Department of Medicine
- Team approach with nutritionist and social worker input
- Enhanced management with Diabetes Nurse Educators and school nurses

What Made the Project Work in Lawrence

- School Nurse Leader who valued the role of the school nurse
- Philosophy of care that mirrored the primary care nursing model
- Collaboration between IT and nursing departments
- Access to continuing education was supported and encouraged
- Access to student endocrinology visits was supported and encouraged

Homework Assignments

- Make school orders more comprehensive to address school health needs: HbA1c, estimated average glucose, nutrition recommendations
- Exchange clinic and emergency department visit and discharge summary documentation with school RN
- Communicate regarding who needs referral(s) to mental health resources
- Develop financial support
 - Billing for school nurse health care delivery and communication
 - Medical and nursing provider care delivery at school
- Implement data tracking system

School Nurse Lessons Learned

- Information from schools is vitally important to the endocrine providers
- Electronic sharing of blood glucose and ketone data can be facilitated through technology support and education
- School nurses are pivotal to proficient diabetes management in school



School Nurse Lessons Learned

- Middle and high school students cannot be fully “independent” with glucose monitoring and insulin administration
- School nurses need support to attend continuing education programs and endocrine clinic visits
- It’s not just “T1D”



School Nurse Lessons Learned

- The neediest families do not always take advantage of educational and social support activities in the school setting
- The project had a beneficial effect on students with type 1 diabetes who were not formally enrolled in the project
- The project had a ripple effect on approaches for students diagnosed with other chronic illnesses



Academic Medical Centers Lessons Learned

- School-based mental health issues can be triaged through school nurses and mental health providers
- School nurses are “First Responders” to student’s diabetes and other needs
- School transitions demand school nurse and medical team begin new systems of communication yearly to every few years



Academic Medical Centers Lessons Learned

- A physician or nurse practitioner seeing a patient in a school can bill for the visit
- With persistence, we were able to get a full time school nurse placed in one of the charter schools in Lawrence
- School nurses were receptive to having us come to school but were not as comfortable asking parents if they could attend student’s clinic visit



Academic Medical Centers Lessons Learned

- Need to take a top down look at maternal depression and its impact on the student’s glycemic control
- Pulling the professional diabetes resources out of a city are devastating to the most vulnerable families
- School orders need to change to include HbA1c, dietary recommendations and “call medical providers if glucose >400 or ketones present”
- Technology in schools is variable and requires additional layers of teamwork and IT support



Questions?

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