

# Indian Health Diabetes Best Practice Youth and Type 2 Diabetes

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## **Best Practice Guidelines**

### **What is a youth and type 2 diabetes program?**

A youth and type 2 diabetes program includes activities that aim to treat or prevent type 2 diabetes in youth.

### **Why is a youth and type 2 diabetes program important?**

Preventing type 2 diabetes and treating overweight are critical to the future health of American Indians and Alaska Natives (AI/AN). Although the number of youth with type 2 diabetes is low, the prevalence of diabetes among youth is growing at an alarming rate. Likewise, the number of youth at risk for developing type 2 diabetes is climbing. Youth who develop type 2 diabetes will experience more years of burden from type 2 diabetes and a higher probability of developing serious type 2 diabetes-related complications.

#### **Consider these facts:**

From 1990 to 2004, American Indian and Alaska Native adolescents between the ages of fifteen and nineteen years experienced a 128% increase in type 2 diabetes prevalence (Mayer-Davis et al., 2009).

Exposure to diabetes in the intrauterine environment is associated with approximately 40% of type 2 diabetes in children between the ages of five and nineteen years (Dabelea et al., 2000).

More than 70% of people with prenatal exposure to type 2 diabetes develop it by the time they reach early adulthood; between the ages of 25 and 34 years (Dabelea et al., 2000).

Over the past three decades, the childhood obesity rate has more than doubled for preschool children between the ages of two and five years, and for adolescents between the ages of twelve and nineteen years. The childhood obesity rate has more than tripled for children between the ages of six and eleven years. At present, approximately nine million children over six years of age are considered obese, and 15% are considered at risk of becoming overweight (IOM, 2005; NHANES, 2004).

It is postulated that reduction of overweight and insulin resistance will reduce the risk for type 2 diabetes. Effective treatment for those who already have diabetes is available. New research is in progress, specifically based on populations of teenagers, not on results extrapolated from adult data, to better clarify best practices for children and teens.

There are no known potential risks if this best practice is implemented.

## Key Recommendations

Key Recommendations
Promote breastfeeding of infants for at least two months.
Reduce in utero exposure to elevated blood glucose levels.
Find cases early, make diagnoses, and make appropriate referrals.
Treat youth with type 2 diabetes.
Establish programs to increase physical activity and encourage healthy eating early in life.

## Scope and Purpose

This best practice describes recommendations for health care that serves youth with type 2 diabetes and those adolescents at risk for developing type 2 diabetes. Organizations and communities that implement these recommendations should expect to improve the glycemic control of youth with type 2 diabetes and reduce the number of new cases diagnosed each year.

This best practice addresses the following questions:

- What are the best methods used for promoting breastfeeding of infants for at least two months?
- How do you reduce in utero exposure to elevated blood glucose levels?
- What are the best ways to identify cases of type 2 diabetes in youth in clinical and community-based venues and what are the diagnostic criteria?
- What clinical services are appropriate referrals for children at risk and for those diagnosed with type 2 diabetes?
- How do you provide treatment for youth with type 2 diabetes?
- What are the most effective approaches for getting youth more active and improving their nutritional intake?

The objectives of implementing this best practice include:

- To increase the percentage of newborn infants who are exclusively breastfed for at least two months by 20% from baseline by the end of the fiscal year.
- To increase the percentage of pregnant women with diabetes who self-monitor blood glucose (SMBG) three or more times each day by 50% from baseline by the end of the fiscal year.
- To increase the percentage of youth who are either overweight or obese, have impaired glucose tolerance (IGT), or are living with diabetes, who receive education about their nutrition and physical activity needs by 50% from baseline by the end of the fiscal year.
- To develop and have in place written clinical guidelines for early identification of children and teens with impaired glucose tolerance by the end of the fiscal year.
- To develop and have in place written program guidelines for the initial assessment of child and teen patients with diabetes, including classification of the type of diabetes, and periodic follow-up assessments, by the end of the fiscal year.
- To develop and have in place written clinical guidelines for the medical, psychological, and family-based treatment of type 2 diabetes in youth, including drug therapy, diet and exercise regimens, monitoring, and treatment goals by the end of the fiscal year.

The intended users of this best practice include:

- primary health care teams
- diabetes prevention outreach teams/health promotion services
- community or school workers who provide education and/or services, and
- leaders of health care organizations.

Please refer to Appendix A for example answers to the following questions:

- 1. What are you trying to accomplish by implementing this best practice?**
- 2. How will you know if what you do makes things better?**
- 3. What can you do to make things better?**

## Monitoring Progress and Outcomes

The following measures can be used to monitor the effects of implementing this best practice:

- nutrition and physical activity codes from the *IHS Diabetes Care and Outcomes Audit*
- the number of health care providers who receive training on the program and clinical guidelines for the identification and management of children and teens with impaired glucose tolerance and diabetes
- A1c values from the *IHS Diabetes Care and Outcomes Audit*, and
- body-mass index (BMI) values from the *IHS Diabetes Care and Outcomes Audit*.

### Key Measures

Key Measures for Monitoring Progress and Outcomes
These measures are of primary importance:  Percentage of diabetes patients aged six to seventeen years with documented nutrition and physical activity education in the past twelve months.  Percentage of diabetes patients aged six to seventeen years with A1c less than 7.0 mg/dl in the past twelve months.

## Clinical Recommendations

### 1. Promote breastfeeding of infants for at least two months.

#### *Why?*

Exclusive breastfeeding for the first two months of life has been associated with a 40% reduction in type 2 diabetes among Pima Indians (Pettit et al., 1997).

## ***How?***

Focus on multi-disciplinary breastfeeding support in the antenatal, intrapartum, postpartum and early infancy periods to sustain breastfeeding beyond the immediate neonatal period. Breastfeeding is recommended:

A. During the prenatal care of all pregnancies

B. Birth hospitalization:

- during the immediate postpartum period, including early breastfeeding and bonding post-delivery, and
- during the period of time while mother and baby are in the hospital, including rooming-in and nursery time.
- Special support is needed for infants who are premature or ill and unable to immediately initiate breastfeeding.

C. During the first weeks postpartum at home

- home visitation or early clinic based counseling and intervention to promote breastfeeding.

D. Throughout early infancy

- school, workplace, and community support including locations for breastfeeding and services for breastfeeding mother/infant dyads.

Please refer to the Indian Health Diabetes Best Practice on Breastfeeding:

<http://www.diabetes.ihs.gov/index.cfm?module=toolsBPList>.

## **2. Reduce in utero exposure to elevated blood glucose levels.**

### ***Why?***

Exposure to diabetes in the intrauterine environment places the fetus at increased risk of future overweight and type 2 diabetes. In the Pima Indians, it also accounts for approximately 40% of type 2 diabetes in children between the ages of five and nineteen years. Furthermore, more than 70% of people who have prenatal exposure to type 2 diabetes will develop it between the ages of 25 and 34 years (Dabelea et al., 2000; Pettit and Knowler, 1998; Pettit et al., 1993). In all ethnic populations, the relative increased risk of type 2 diabetes in youth is seven-fold higher for infants born to mothers with diabetes in pregnancy (Dabelea, et al., 2008).

### **How?**

- A. Establish and maintain normal blood glucose levels in women who have diabetes during pregnancy.
- B. Target women of childbearing age with diabetes prevention activities to help reduce diabetes risk during pregnancy. Please refer to the Indian Health Diabetes Best Practice Diabetes and Pregnancy:  
<http://www.diabetes.ihs.gov/index.cfm?module=toolsBPList>
- C. Establish programs to increase physical activity and improve diet early in life.

Primary prevention programs for obesity will impact on the lifetime risk of type 2 diabetes in youth and adults:

- Physical activity programs increase caloric expenditure and decrease obesity risk.
- Early nutritional choices determine lifelong food preferences and impact on caloric intake and risk of obesity.

Please refer to *Indian Health Diabetes Best Practice Nutrition for Diabetes Prevention and Care* and *Indian Health Diabetes Best Practice Physical Activity for Diabetes Prevention and Care*:

<http://www.diabetes.ihs.gov/index.cfm?module=toolsBPList>

### **3. Find cases early, make diagnoses, and make appropriate referrals.**

#### **Why?**

Early case finding and diagnosis of youth at risk for developing or having type 2 diabetes, as well as referral of youth and parents into the health care system, may prevent type 2 diabetes and its complications (Rosenbloom and Silverstein, 2003).

#### **How?**

- A. Identify children and families at highest risk for diabetes, including those with family history of diabetes, and current obesity in the family.
  - 1. Identify the parents' history of type 2 diabetes and co-morbid problems.
  - 2. Diagnose the parents with unknown type 2 diabetes, if indicated.

- B. Use standard Centers for Disease Control and Prevention (CDC) definitions of overweight and obesity for children older than two years of age, to identify children at risk for obesity or parents who are obese (in young children, the risk of obesity is directly related to the weight status of their parents [Whitaker et al., 1997]).
- Include BMI calculations in all health supervision visits for children from the ages of two to twenty years. Use growth charts from the CDC or the World Health Organization (WHO).
- C. Use the American Diabetes Association criteria to determine if overweight youth who have entered puberty (or who are older than ten years of age) are considered at risk of developing type 2 diabetes. A youth is at risk if he or she meets two of the following criteria:
- Family history of type 2 diabetes in a first- or second-degree relative, or a mother with gestational diabetes.
  - Race or ethnicity is American Indian, Alaska Native, African American, Hispanic, or Asian/Pacific Islander.
  - Presence of a condition associated with insulin resistance (e.g., impaired glucose tolerance (IGT), *acanthosis nigricans*, high blood pressure, dyslipidemia, polycystic ovarian syndrome, or born small for gestational age).
- D. Refer overweight youth to appropriate health care providers for: 1) diagnostic testing for diabetes, as indicated; 2) a medical evaluation for other complications associated with childhood overweight; 3) necessary treatment for high blood pressure and dyslipidemia; and 4) counseling on nutrition, weight control, and physical activity.
- E. Understand that communication about a child's weight status to parents should be conveyed carefully and with sensitivity. When counseling parents and children, avoid the use of the term "obese" and use the term "overweight."
- F. Develop a comprehensive program, like the Diabetes Prevention Program, including structured nutrition education, physical activity, medical screening and intervention, and psychological support targeted at youth at risk for diabetes or with impaired glucose tolerance (IGT).

#### **4. Treat youth with type 2 diabetes.**

##### ***Why?***

Clinical trials, such as the TODAY study (Treatment Options for Type 2 Diabetes in Adolescents and Youth), may provide insight into treating youth with type 2 diabetes. However, findings from adult studies, such as the UKPDS (United Kingdom Prospective

Diabetes Study), have been extrapolated to youth. For example, the UKPDS found that treating type 2 diabetes to achieve good blood glucose and blood pressure control was essential to preventing microvascular and macrovascular complications.

Microvascular complications include nerve damage (neuropathy), kidney disease (nephropathy), and vision disorders (for example, retinopathy, glaucoma, cataract, and corneal disease). Macrovascular complications include heart disease, stroke, and peripheral vascular disease. Peripheral vascular disease can lead to ulcers, gangrene, and amputation.

### ***How?***

- A. Review the American Academy of Pediatrics treatment recommendations for youth with type 2 diabetes (Gahagan et al., 2003). Available online at: <http://aappolicy.aappublications.org/cgi/reprint/pediatrics;112/2/424> or the American Academy of Family Practice Guidelines, Management of Type 2 Diabetes in Youth: An Update, online at: <http://www.aafp.org/afp/20070901/658.html>
- B. Establish a clinical diagnosis of type 2 diabetes:
  1. casual or random plasma glucose greater than or equal to 200 mg/dl plus symptoms (polyuria, polydypsia and/or polyphagia)
  2. fasting plasma glucose greater than or equal to 126 mg/dl, and
  3. two-hour glucose values greater than or equal to 200 mg/dl on a oral glucose tolerance test (OGTT). For individuals weighing more than 43 kg (94.6 pounds), use a maximum glucose dose of 75 grams for the OGTT. For individuals weighing less than or equal to 43 kg (i.e., 94.6 pounds), use a dose of glucose equal to 1.75 grams of glucose per kilogram of body weight.
  4. In the absence of marked hyperglycemia with decompensation, these criteria should be confirmed by repeat testing on a different day. The OGTT is not recommended for routine clinical use (Silverstein and Rosenbloom, 2000).
- C. Obtain a complete medical history and psychosocial assessment, including a focus on:
  1. emotional health
  2. eating disorders
  3. alcohol, tobacco, and drug use, and
  4. family support.
- D. Decrease cardiovascular risk factors by controlling high blood pressure and dyslipidemia, stabilizing weight through diet modification, increasing physical activity, decreasing sedentary behaviors such as viewing TV and other video stimuli, and discouraging use of tobacco products.

- E. Achieve overall improvement in child's physical and emotional well-being.
- F. Conduct a complete physical exam including:
1. Plot patient's weight and height on a growth chart using BMI.
  2. Measure weight at each visit and height twice per year.
  3. Measure blood pressure at each visit. The goal for blood pressure is less than 90th percentile based on height and weight standards (Gahagan, et al., 2003).
  4. Evaluate children who have thickened and hyperpigmented skin, especially on the back of the neck, the underarms, and the groin, for acanthosis nigricans. Acanthosis nigricans often correlates with high BMI and insulin resistance. Insulin resistance may improve as weight decreases, and resolving acanthosis nigricans may be a useful marker for decreasing insulin resistance.
  5. Conduct a foot exam at each visit. Use 5.07 Semmes-Weinstein monofilament to assess protective sensation on an annual basis.
  6. Conduct a dilated eye exam at diagnosis and annually.
  7. Obtain laboratory work, including:
    - fasting plasma glucose each visit
    - A1c quarterly
    - proteinuria at diagnosis and annually; if protein is negative, obtain microalbuminuria
    - serum creatinine at diagnosis and calculate creatinine clearance as needed based on drug therapy. Conduct annually for patients with hypertension and negative microalbuminuria and for those taking ACE Inhibitors (ACE-I)
    - fasting lipid profile including total cholesterol, LDL, HDL, and triglycerides at diagnosis and annually with the goal to reduce LDL, and
    - before starting oral hypoglycemia agents, check liver function tests including aspartate transaminase (AST) and alanine transaminase (ALT).

G. Review the management plan to ensure a team-managed, comprehensive approach that includes:

1. self-monitoring of blood glucose (SMBG)
2. medical nutrition therapy (MNT)
3. diabetes education
4. physical activity education
5. preconception care
6. immunizations
7. dental examinations, and
  
8. behavioral and lifestyle modification through individualized therapy to achieve goals. Considerations should include the child's age, other illnesses, lifestyle, self-management skills, level of motivation, and readiness to change.

H. Address cardiovascular risk factors, including:

1. dyslipidemia
2. hypertension
3. physical inactivity
4. tobacco and alcohol use, and
5. microalbuminuria.

Refer to Gahagan and Silverstein, 2003, for further information on addressing cardiovascular risk factors.

## **Community Recommendations**

### **Establish programs to increase physical activity and improve diet early in life.**

#### ***Why?***

There is a lack of primary prevention studies in youth. Although the available evidence on primary prevention is for adults, it appears reasonable for youth. Evidence from several studies suggests that methods to increase physical activity and improve diet are essential elements of primary prevention. A multi-center, population-based prevention study, called the STOPP T2DM Study To Treat or Prevent Pediatric Type 2 Diabetes Mellitus, is currently underway and may provide useful information on the prevention of type 2 diabetes. (To learn more about the STOPP T2DM study, please visit the web site: <http://www.todaystudy.org/index.cgi>)

## ***How?***

A. Consider behavioral approaches:

- setting goals and self-monitoring of progress toward goals
- building social support for new behaviors
- behavioral reinforcement through self-reward and positive self-talk
- structured problem solving to maintain behavior change, and
- preventing relapses of sedentary behavior.

B. Conduct community-wide campaigns.

C. Consider environmental and policy changes, such as providing safe playgrounds, and working with schools and restaurants to offer appropriate portion sizes and healthier food choices.

D. Encourage school physical education curricula to include mandatory physical activity classes that are at least 30 minutes every day and provide developmentally appropriate activities allowing maximum participation and student activity time.

E. Include youth in program planning.

F. Acquire a dedicated youth program staff member who works directly with youth on a daily basis. For example, depending on the program's infrastructure, a successful and effective youth and type 2 diabetes program may be as simple as one adult, a bag of basketballs, and jump ropes for each student.

G. Encourage sports and community recreation programs that require more physical activity (e.g., substituting soccer for softball).

H. Provide social support in community settings to increase physical activity (e.g., buddy systems, contracts to complete specific levels of physical activity, and walking groups).

I. Eliminate sugary drinks and unhealthy food choices from school vending machines.

J. Obtain school support for maintaining healthy lifestyles. School health curricula should include nutrition fact label reading and making better choices, such as choosing low-calorie, high nutrition foods in appropriate portions for school meals and snacks.

## Organization Recommendations

### Institute broad-based system and programmatic changes.

#### *Why?*

Health care systems will need to adequately address the increasing prevalence and incidence of youth with type 2 diabetes and those at risk of developing the chronic disease. To do so, health care systems must continue broad-based, collaborative efforts to turn the tide of this public health crisis (IHS, 2007).

#### *How?*

- A. Expand Medicaid and State Children's Health Insurance Program (SCHIP) eligibility periods for children with type 2 diabetes. Access to care is key.
- B. Conduct a community needs assessment to determine what resources are available for youth. Please refer to the following web site for information on how to conduct a community needs assessment:  
[http://ctb.ku.edu/tools/EN/sub\\_section\\_main\\_1019.htm](http://ctb.ku.edu/tools/EN/sub_section_main_1019.htm)
- C. Develop partnerships between the health care system and community programs/organizations.
- D. Conduct awareness campaigns and education programs to disseminate information about type 2 diabetes prevention in youth.
- E. Provide training and continuing education to health care providers and field health personnel.
- F. Increase efforts for early identification of youth at risk of developing type 2 diabetes.
- G. Identify youth and prevention of type 2 diabetes as a key priority in the health care organization's annual goals.
- H. Provide support (e.g., space, time, and money) for youth activities and interventions.
- I. Support policy and environmental changes in clinics, schools, teen centers, and Tribal centers. For example, ban sugar-sweetened beverages (for example, soda pop) and unhealthy food items in these environments.
- J. Pursue Tribal and grant funds to provide more resources and personnel for type 2 diabetes prevention programs. Recruit the private sector to help promote awareness of overweight and type 2 diabetes and implement simple changes across a large population (e.g., conduct community-wide campaigns sponsored through community resources).

## Evaluating a Youth and Type 2 Diabetes Program

Evaluation provides information that you can use to share your successes with patients, providers, Tribal leaders, administrators, the community, funders, and other stakeholders. Consider the following in your evaluation plan:

- What are the goals and the objectives of the program? (Use SMART objectives = Specific, Measurable, Attainable, Realistic, and Time-bound objectives.)
- Is the program following the “gold standard” for prevention and treatment? (See the American Academy of Pediatrics prevention and treatment recommendations for youth with type 2 diabetes (Gahagan et al., 2003). Available online at: <http://aappolicy.aappublications.org/cgi/reprint/pediatrics;112/2/424> or the American Academy of Family Practice Guidelines, Management of Type 2 Diabetes in Youth: an Update, online at: <http://www.aafp.org/afp/20070901/658.html>)
- Does the program have a data collection plan including a plan to capture baseline information?
- Does the program have a focused evaluation, and can it describe the purpose of the evaluation?
- What are the data resources available (e.g., health clinic, school, county, Behavioral Risk Factor Surveillance System [BRFSS] data)? If data are not readily available, is there a plan in place to collect, enter, analyze, and interpret data?
- What are the measures of success? For example:
  - 1) Do you have lower staff turnover?
  - 2) Do you have more paid staff?
  - 3) Are you working with community groups?
  - 4) Do you have the capability to track the program's activities?
  - 5) Is your program able to conduct interviews with parents to determine what behaviors the child and family have changed?
  - 6) Do your participants feel better about themselves as a result of the program?
  - 7) What are the markers that will be used to measure success (e.g., A1c and weight)?

- 8) Are youth involved in the physical activity program?
- 9) Are youth improving their food choices?
- 10) Are youth with type 2 diabetes taking their medications as prescribed and keeping appointments?
- 11) What is the child's attitude toward having type 2 diabetes?
- 12) Are trained personnel available to take and analyze measurements?
- 13) Does your program use teen letters, e-mails, newsletters, radio, and other media sources?

## **Sustaining a Youth and Type 2 Diabetes Program**

To reach program goals, programs must be in place for more than a few years. Here are some helpful suggestions for sustaining the program:

- **Resources:** Provide funding to continue diabetes prevention and treatment youth programs.
- **Environmental and policy factors:** These may include creating safe walking trails; health breaks during school; banning soda pop from schools; making walking a community norm for families; creating indoor and outdoor recreation areas; working with schools, Tribes, and clinics to make policy changes; establishing time for providers to do case-management and other youth type 2 diabetes activities.
- **Social and cultural factors:** These may include buying bottled water or sugar-free soda pop, serving water instead of Kool-Aid at Tribal feast days, and creating opportunities for program participants to continue participating through summer jobs or after school jobs.
- **Capacity building:** Train school staff to continue program efforts. For example, in the first year, your program implements activities. In the second year, the program implements activities with school teachers. In the third year, the teacher runs the program.

## Tools and Resources

### Web-based Resources

**Healthy Kids; Healthy Weight.** This new publication represents a collaboration between the Michigan Department of Community Health and the Michigan Department of Education in a joint effort to help families understand the importance of health weight in children. <http://www.emc.cmich.edu/healthyweight/default.htm>

Division of Diabetes Treatment and Prevention [Internet]. **An on-line training course on effective program planning and evaluation.** [Developed 2009 July] Creating Strong Diabetes Programs: Plan a Trip to Success. <http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=trainingBasicsCreating>

Division of Diabetes Treatment and Prevention [Internet]. **A workbook (with on-line training course) on effective program planning and evaluation.** [Developed 2006, July] Creating Strong Diabetes Programs: Plan a Trip to Success. <http://www.ihs.gov/MedicalPrograms/Diabetes/HomeDocs/Training/WebBased/Basics/Creating/Workbook.pdf>

**ABCs of Teaching Nutrition to Your Kids** This site provides nutrition tips for parents of young children. <http://www.askdrsears.com/html/4/T040200.asp>

**American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD)** The American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD) is the largest organization of professionals supporting and assisting those involved in physical education, leisure, fitness, dance, health promotion, and education and all specialties related to achieving a healthy lifestyle. <http://www.aahperd.org/>

**American Association of Diabetes Educators** This site provides diabetes related resources for health care professionals as well as the general public. <http://www.diabeteseducator.org/About>

**American Diabetes Association** This site offers information on diabetes for educators and the general public. <http://www.diabetes.org/>

**Captive Kids: A Report on Commercial Pressures on Kids at School** <http://www.consumersunion.org/other/captivekids/index.htm>

**Centers for Disease Control and Prevention: VERB Campaign** The VERB Campaign is designed to encourage physical activity for American Indians and Alaska Natives. <http://www.cdc.gov/youthcampaign/>

**Fruits and Veggies: More Matters** The goal of this program is to educate adults and youth about creative ways to increase consumption of fruits and vegetables.

<http://www.fruitsandveggiesmorematters.org/>

**IHS Division of Diabetes Treatment and Prevention** This web site provides useful information on diabetes and diabetes programs for American Indians and Alaska Natives, including information on how to obtain copies of the Eagle Books by Georgia Perez. <http://www.ihs.gov/MedicalPrograms/Diabetes/>

IHS Division of Diabetes Treatment and Prevention (DDTP) **Youth Being Healthy: A Type 2 Diabetes Curriculum for Teens.** *This curriculum is currently under development and should be available on the Division's web site in the winter or spring of 2009 (Keep an eye on the 'What's New' section). At DDTP's site, use the search box in upper right corner to check whether it has been posted yet.*

<http://www.ihs.gov/MedicalPrograms/Diabetes/>

IHS Division of Diabetes Treatment and Prevention **Promoting a Healthy Weight in Children and Youth** This report outlines clinical strategies on five childhood obesity prevention and treatment recommendations for health care professionals in IHS, Tribal, and urban settings.

[http://www.ihs.gov/MedicalPrograms/Diabetes/HomeDocs/Tools/ClinicalGuidelines/Promoting\\_Healthy\\_Weight\\_1208.pdf](http://www.ihs.gov/MedicalPrograms/Diabetes/HomeDocs/Tools/ClinicalGuidelines/Promoting_Healthy_Weight_1208.pdf)

**IHS National Nutrition and Dietetics Training Program** The IHS National Nutrition and Dietetics Training Program provides a wide range of nutrition training tailored to IHS, Tribal, and urban Indian health program professionals and paraprofessionals.

<http://www.ihs.gov/medicalprograms/nutrition/>

### **National Diabetes Education Program**

<http://www.ndep.nih.gov>

<http://www.cdc.gov/diabetes/ndep>

<http://www.diabetesatwork.org>

<http://www.betterdiabetescare.nih.gov>

<http://www.YourDiabetesInfo.org>

The National Diabetes Education Program brings together public and private partners to improve treatment and outcomes for people with diabetes, promotes early diagnosis, and prevents the onset of type 2 diabetes. It promotes awareness and education activities and quality care. The Web site provides tools for educating health care providers and patients.

**National Diabetes Information Clearinghouse** <http://diabetes.niddk.nih.gov>

800-860-8747

**U.S. Department of Agriculture: Food Guide Pyramid for Kids** The MyPyramid for Kids site provides tips for parents, classroom activities and handouts for kids about healthy eating. <http://www.mypyramid.gov/kids/index.html>

**Food Guide Pyramid** This site provides information for kids, parents and teens about the Food Guide Pyramid. <http://kidshealth.org/kid/>

**Nutrition for Kids** This web site provides information, activities, newsletters, stickers, handouts, and links—all geared to teaching nutrition to kids. <http://nutritionforkids.com/kidactivities.htm>

**PAK for AI/AN communities training.**

This training is intended for practitioners and facilitators of health promotion in American Indian and Alaska Native communities to learn how to implement, evaluate, and disseminate the evidence-based physical activity interventions in PAK for American Indian and Alaska Native communities. The training explains and demonstrates several physical activity programs developed by the University of New Mexico Prevention Research Center, such as Pathways (Prevention of Obesity in American Indian School Children), which includes modified American Indian games, exercise breaks, mountain pathways challenge, and a race, Healthy Body Awareness, and Native American Dance Overview. The programs cover strength-building, flexibility, and aerobics and are geared for all ages across the lifespan (such as, Head Start youth, elementary through high school youth, young adults, adults, older adults, and families).

<http://www.cdc.gov/prc/training/practitioners/physical-activity-kit-facilitator-training.htm>

**PE4Life** PE4life inspires active, healthy living by advancing the development of quality, daily physical education programs for all children. <http://www.pe4life.org/>

**PE Central** PE Central provides health and physical education to teachers, parents, and students. Their goal is to provide the latest information about developmentally appropriate physical education programs for children and youth. To combat the high obesity rate among youth, they offer programs to help students log their physical activity and pedometer steps. <http://www.pecentral.org/>

**IT'S MY LIFE** – It's My Life, funded by the Corporation for Public Broadcasting, is a site for kids and teens that includes a "Food Smarts" section.

<http://pbskids.org/itsmylife/body/foodsmarts/index.html>

**Smart-Mouth.org** This web site uses games to teach middle-school-aged children how the food environment (e.g., advertising, portion sizes, and school vending choices) influences their food choices. Kids can see how their favorite restaurant foods stack up, play "true or false" with a food industry spokesman, and "bite back" by asking food companies and government officials to support healthy eating.

<http://www.cspinet.org/smartmouth/index1.html>

**Sports, Play and Active Recreation for Kids (SPARK)** SPARK is physical activity curricula for early childhood, elementary, middle school and high school age youth. Adults must receive training on how to provide the curricula in their community.

<http://www.sparkpe.org/about.jsp>

**The Texas Pediatric Society Obesity Committee** This updated version of the Obesity Toolkit was released in 2008. The Texas Pediatric Society Obesity Committee develops and disseminates practical guidelines to aid pediatric practitioners in the prevention, early recognition, and clinical care of children and adolescents who are overweight or obese, with or without comorbid conditions. [http://www.txpeds.org/Obesity\\_Toolkit/](http://www.txpeds.org/Obesity_Toolkit/)

**World Health Organization: BMI Charts** This web site provides BMI charts for children from birth to five years.

[http://www.who.int/childgrowth/standards/bmi\\_for\\_age/en/index.html](http://www.who.int/childgrowth/standards/bmi_for_age/en/index.html)

## Examples of Current Best Practice Programs

### **Mashantucket Pequot Health Department**

Lewis Head, Health Educator

(860) 312-8000

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The Snack Shack Project is an after school health education initiative that offers healthy snack choices and hands-on health education activities for youth.

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One of Penobscot Nation Health Department's goals is to help motivate youth to become excited about physical activity and nutrition with hopes that this will help them to grow into healthy, physically active adults. Moreover, many of the activities have an educational component, not only allowing children an opportunity to engage in an activity, but also to learn about why exercise and nutrition are important for health. Last year activities included a nutrition and cooking club, a series of fun runs, a morning walking program, a snowshoe club, a Gym club, and a running/walking club.

## Additional Contacts

Persons or programs that sites might contact for further ideas and assistance.

**Area Diabetes Consultants.** Contact information for Area Diabetes Consultants can be viewed at:

<http://www.ihd.gov/MedicalPrograms/diabetes/index.cfm?module=peopleADCDirectory>

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## **Appendix A**

### **Improving Youth and Type 2 Diabetes Programs in the Indian Health System**

#### **1. What are you trying to do by implementing this best practice?**

- We plan to identify and treat children and teens that are at risk of developing type 2 diabetes or living with type 2 diabetes.

#### **2. How will you know if what you do makes things better?**

- We will know if what we do makes things better if youth at risk of developing diabetes remain diabetes free, and youth living with type 2 diabetes maintain acceptable glycemic control.

#### **3. What can you do to make things better?**

- We can make things better by developing and putting in place written program and clinical guidelines for the early identification, initial assessment, and treatment of children and teens with diabetes.