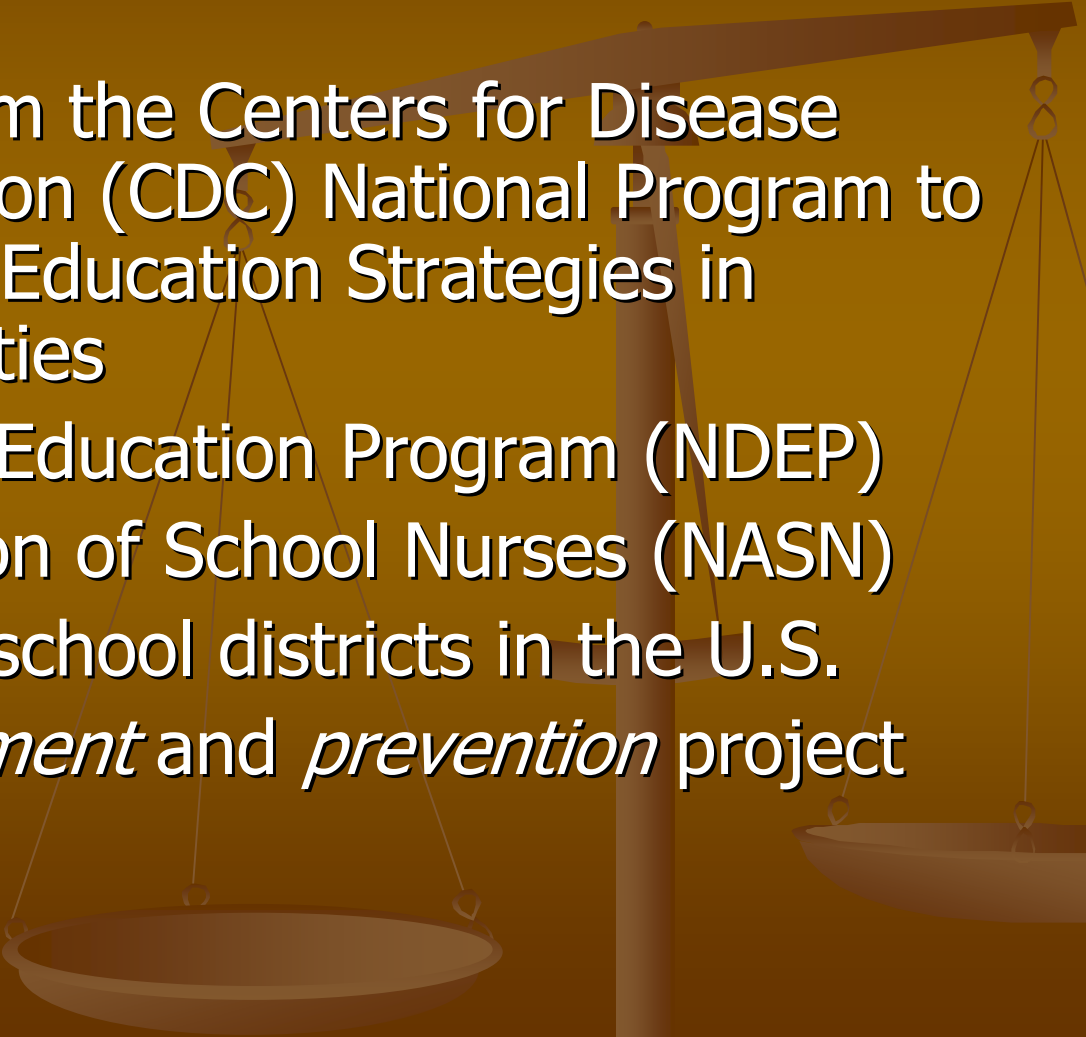


“Diabetes Prevention: Targeting Children at Risk”

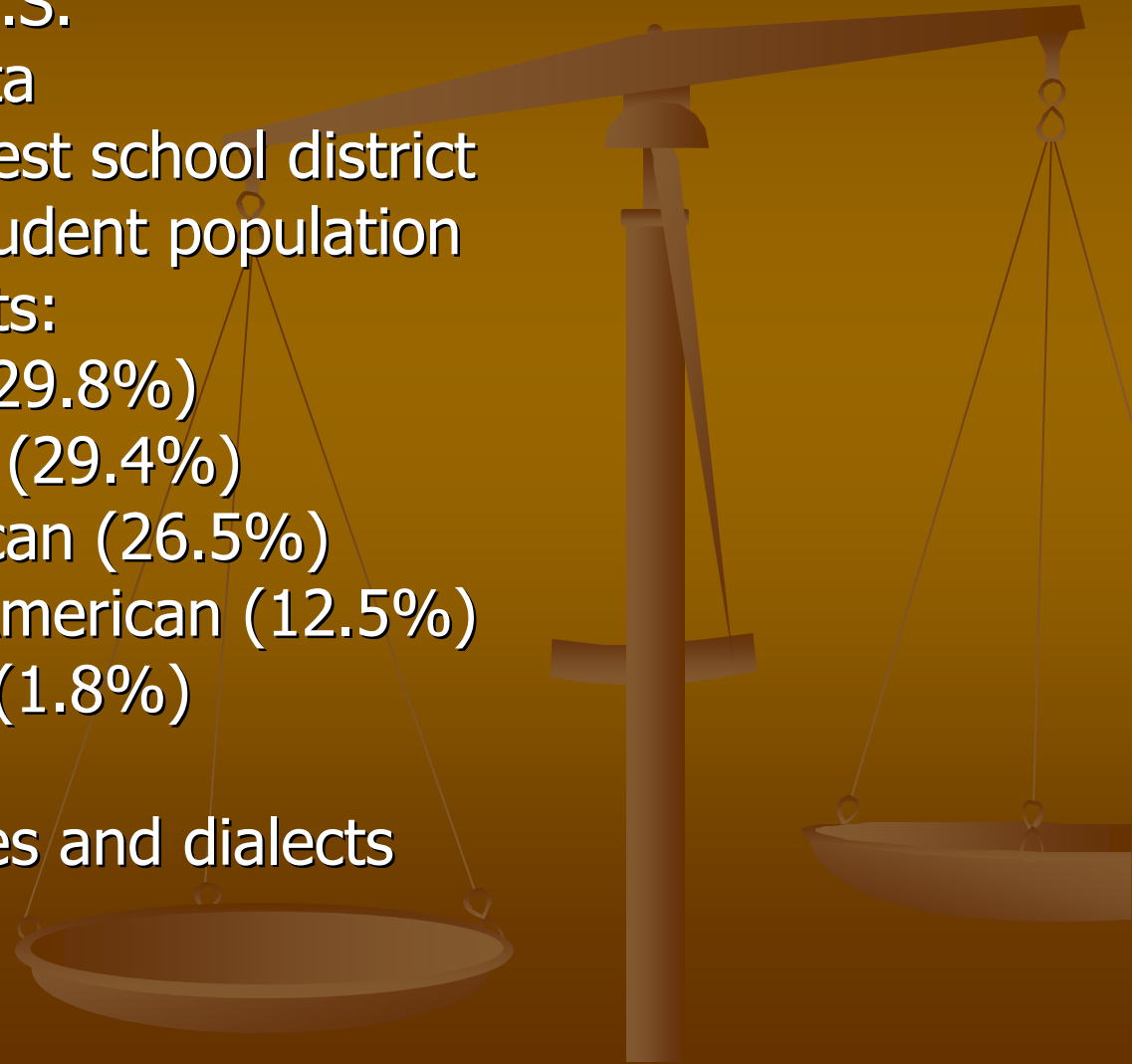
Stephanie Kimmes
RN, MSN, LSN, PHN, CPNP

Managing and Preventing Diabetes & Weight Gain (MAP)

- A 5-year grant from the Centers for Disease Control & Prevention (CDC) National Program to Promote Diabetes Education Strategies in Minority Communities
 - National Diabetes Education Program (NDEP)
 - National Association of School Nurses (NASN)
 - Four, large urban school districts in the U.S.
 - Diabetes *management* and *prevention* project arms
- 

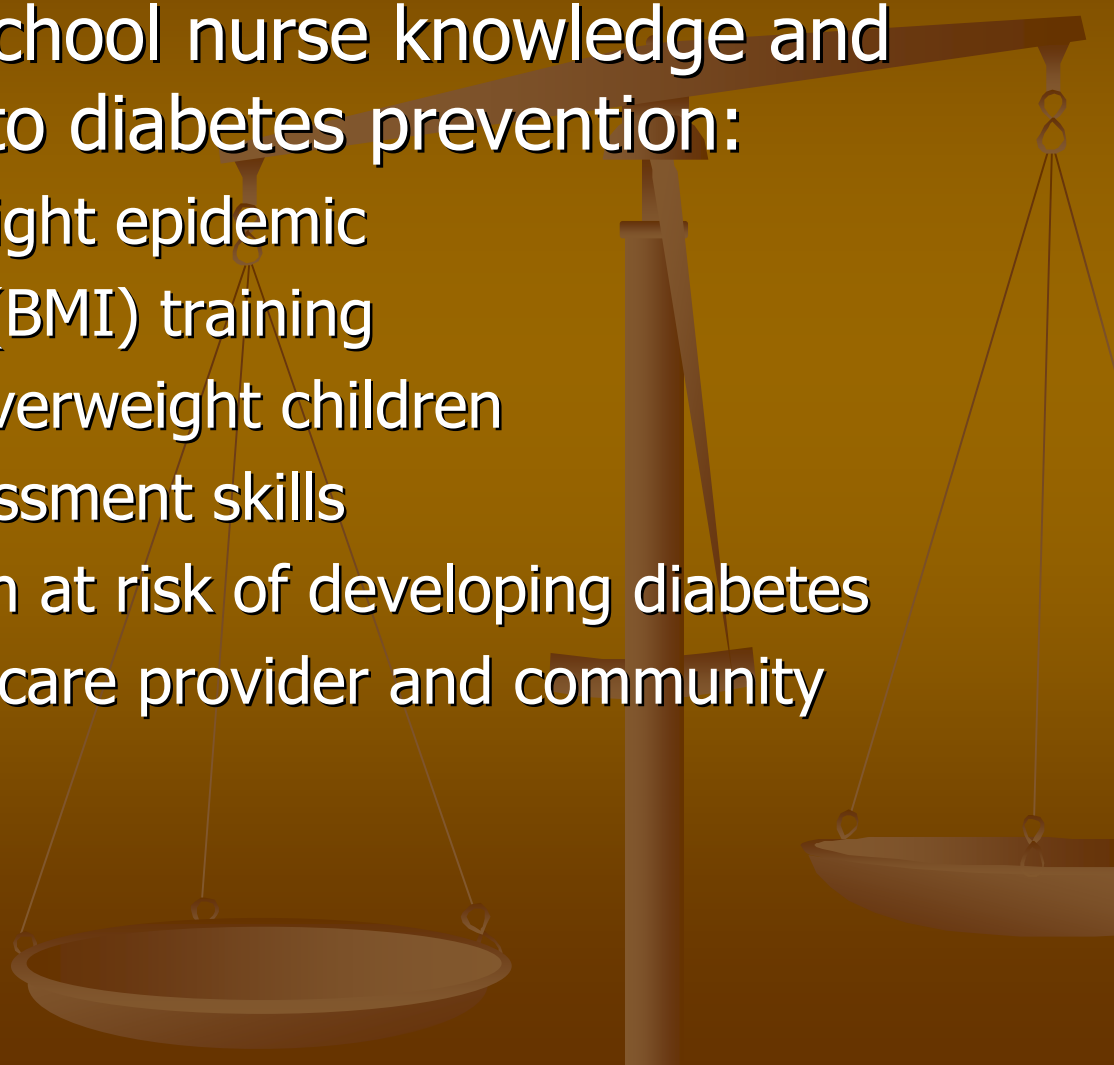
Saint Paul Public Schools (SPPS)

- 1st pilot site in the U.S.
- Saint Paul, Minnesota
- Minnesota's 2nd largest school district
- Culturally-diverse student population
- Over 42,000 students:
 - Asian American (29.8%)
 - African American (29.4%)
 - Caucasian American (26.5%)
 - Latino/Hispanic American (12.5%)
 - American Indian (1.8%)
- Over 70 languages and dialects

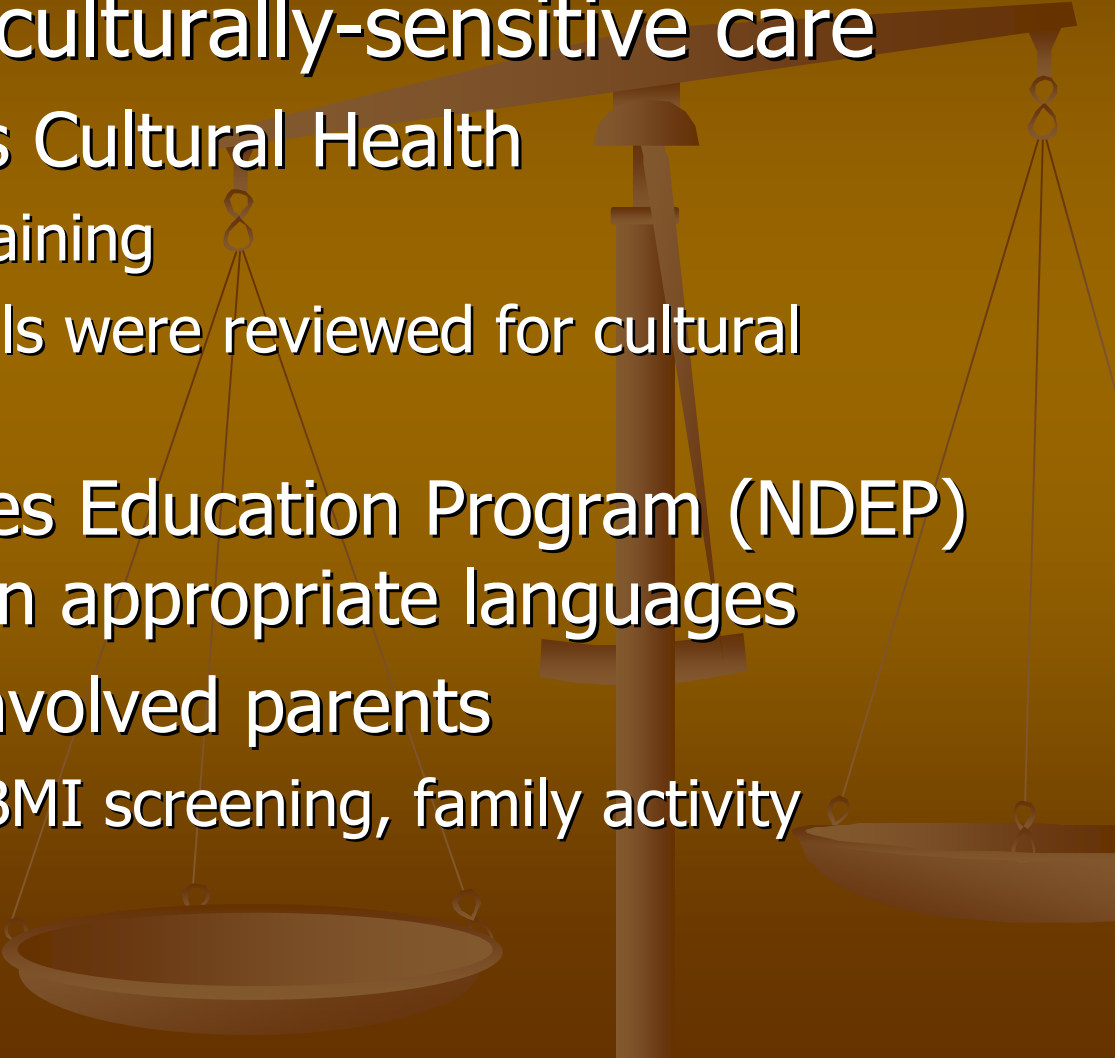


Diabetes Prevention Goals

- Goal to increase school nurse knowledge and skills with regard to diabetes prevention:
 - Childhood overweight epidemic
 - Body mass index (BMI) training
 - Identification of overweight children
 - School nurse assessment skills
 - Determine children at risk of developing diabetes
 - Referral to health care provider and community resources



Diabetes Prevention Goals

- Goal to provide culturally-sensitive care
 - Center for Cross Cultural Health
 - School nurse training
 - Written materials were reviewed for cultural sensitivity
 - National Diabetes Education Program (NDEP) materials used in appropriate languages
 - Informed and involved parents
 - Notification of BMI screening, family activity
- 

BMI Training



- CDC's on-line training module
 - Emphasized accurate height/weight using appropriate equipment and technique
- Overweight = BMI $>$ or $=$ 95th percentile for age/sex
 - "Overweight" changing to "obese"
- At risk of overweight = BMI from 85th to 94th percentiles for age/sex
 - "At risk" changing to "overweight"
- CDC's on-line BMI for Child & Teen calculator

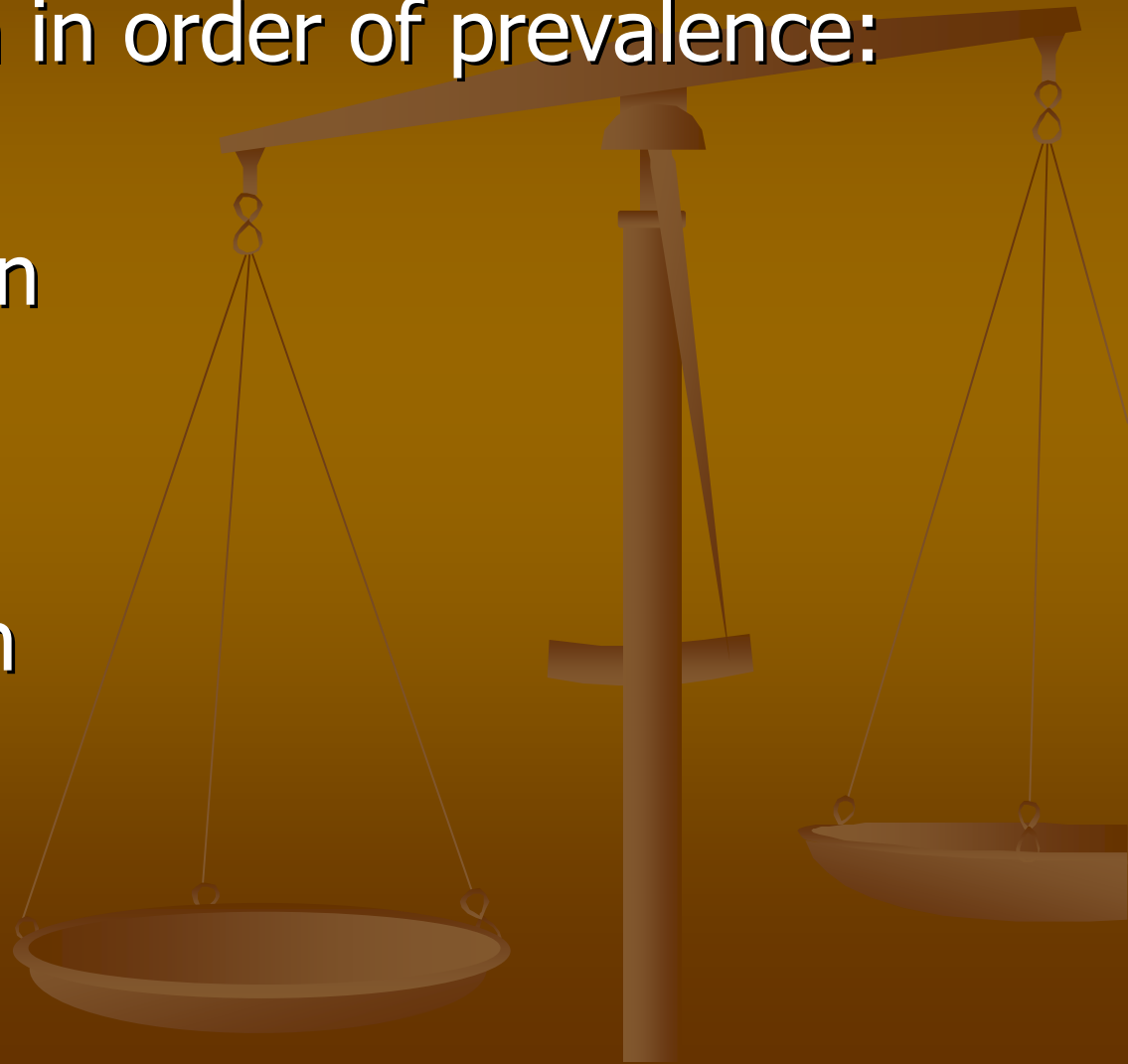
2006/2007 BMI Screening Results

- 345 4th grade students were screened in 8 elementary schools
- 87 students are *overweight* (25.2%)
- 64 students are *at risk of overweight* (18.6%)
- Total of 151 students are *overweight or at risk of overweight* (43.8%)
- 2005/2006 BMI screening results = 44%

BMI Screening Results

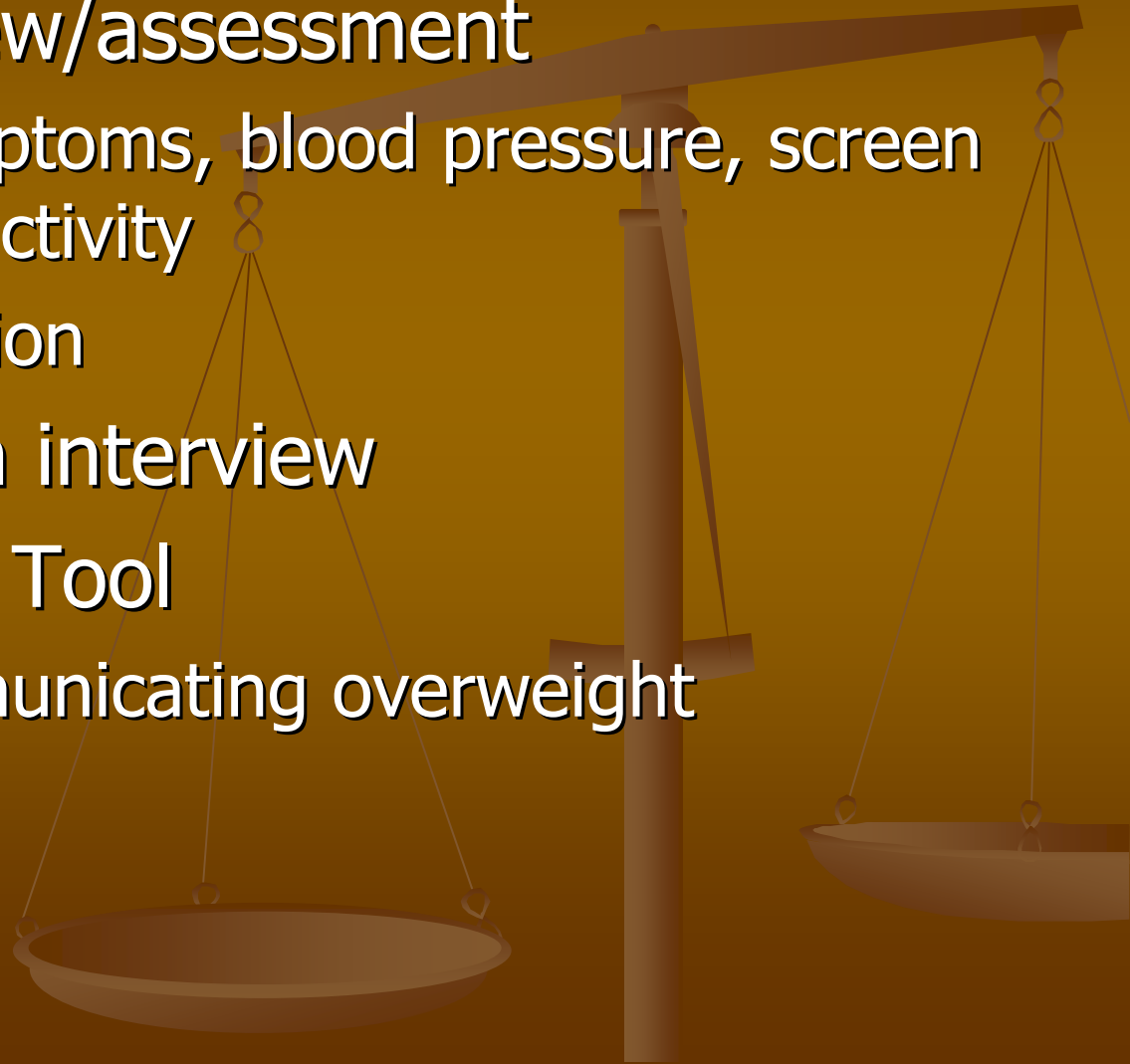
Ethnic breakdown in order of prevalence:

- Asian American
- African American
- Hispanic/Latino
- Caucasian
- Native American

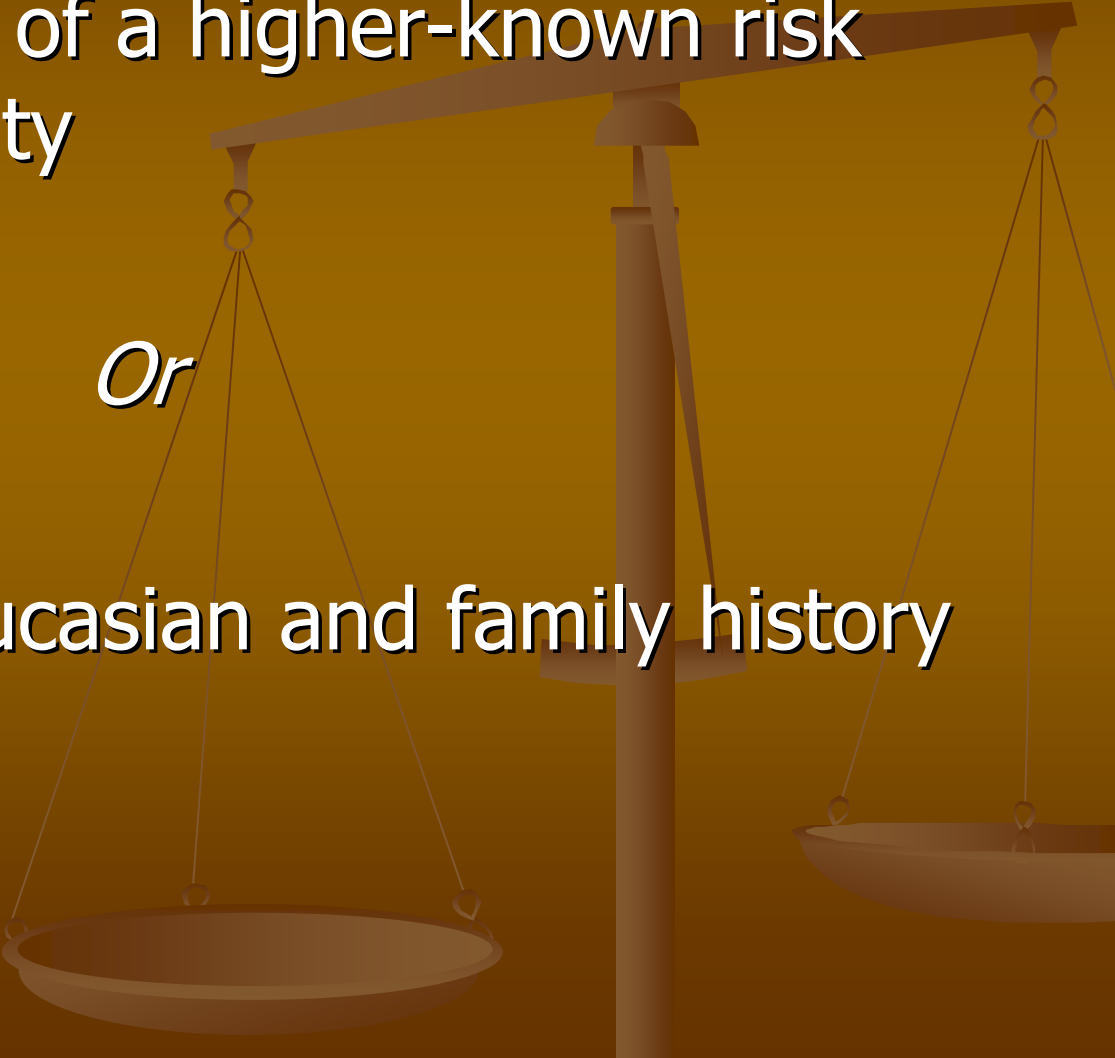


Diabetes Risk Assessment

- Student interview/assessment
 - Presenting symptoms, blood pressure, screen time, physical activity
 - Student education
- Parent/guardian interview
- Communication Tool
 - Script for communicating overweight



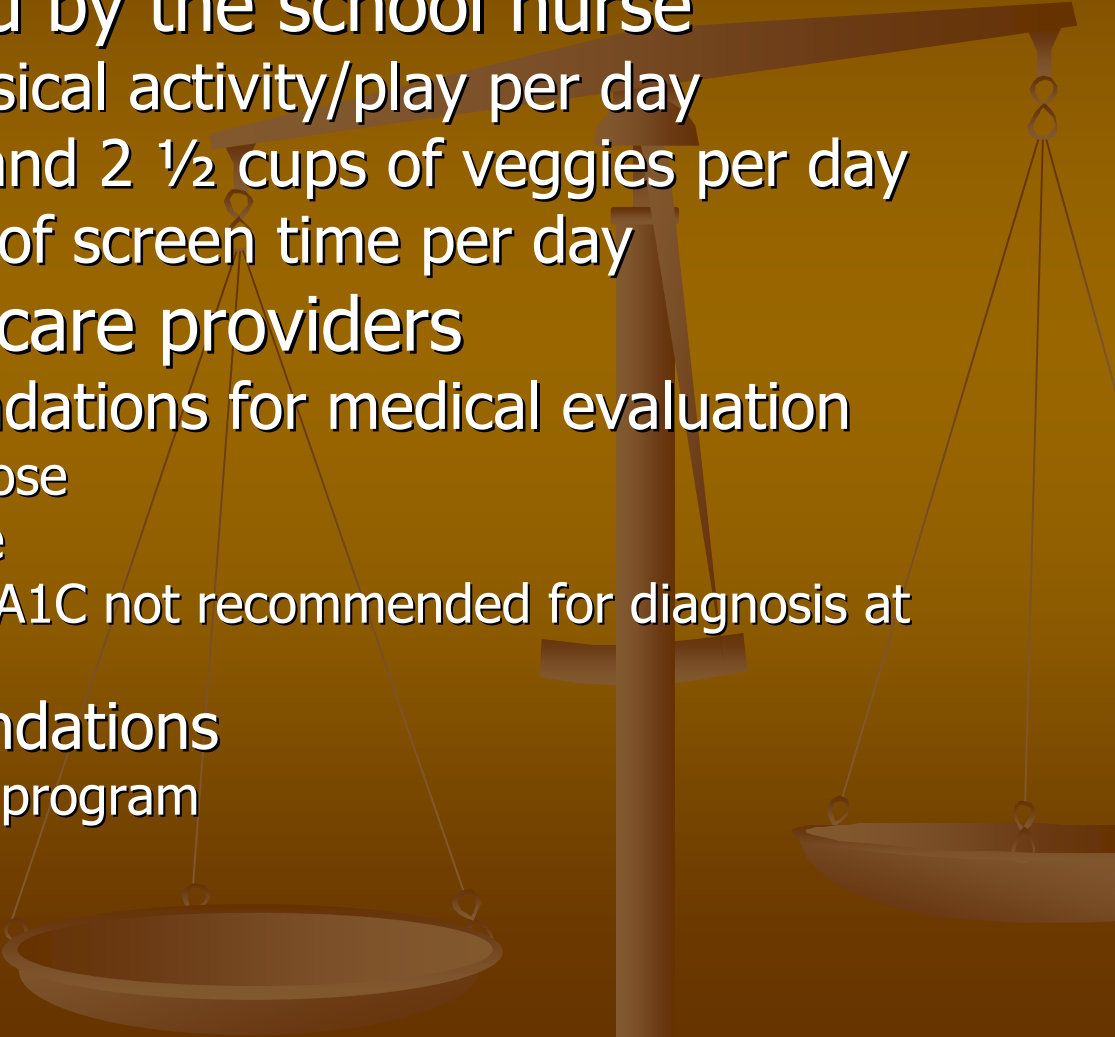
Diabetes Risk Criteria

- Overweight and of a higher-known risk group by ethnicity
- Or*
- Overweight, Caucasian and family history of diabetes
- 

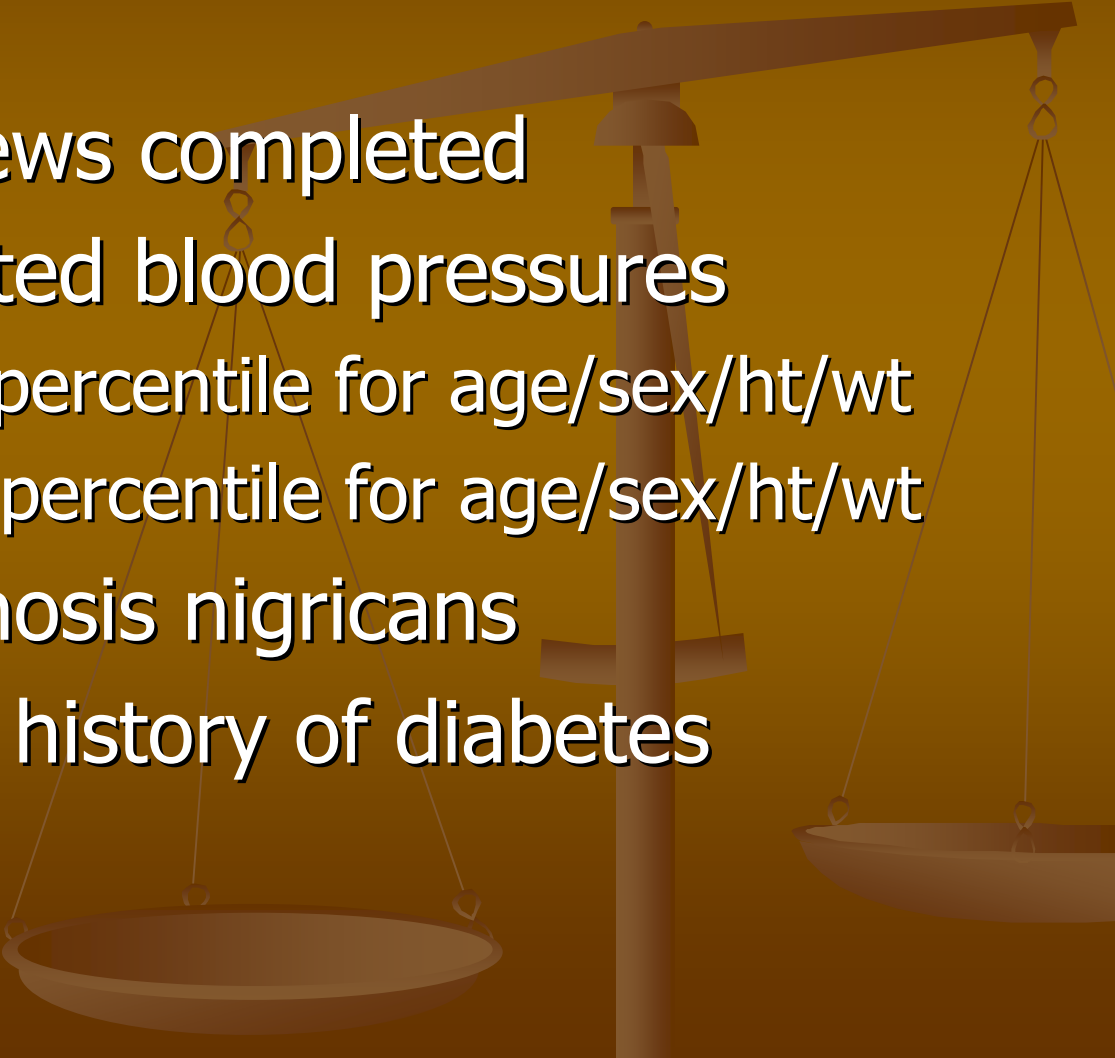
Diabetes Prevention Request to Provider (DPMR)

- One-page health care provider referral form
- Available in English, Spanish, Hmong and Somali
- Components:
 - Ht/wt/BMI, BP, BP percentile
 - Presenting symptoms
 - Increased thirst and/or urination, blurred vision, acanthosis nigricans, fatigue, blurred vision, snoring, etc.
 - Family history
 - 1st or 2nd-degree relatives, maternal gestational diabetes
 - Ethnicity
 - Higher-known risk groups and Caucasian
 - Physical activity level and screen time use

Diabetes Prevention Request to Provider (DPMR)

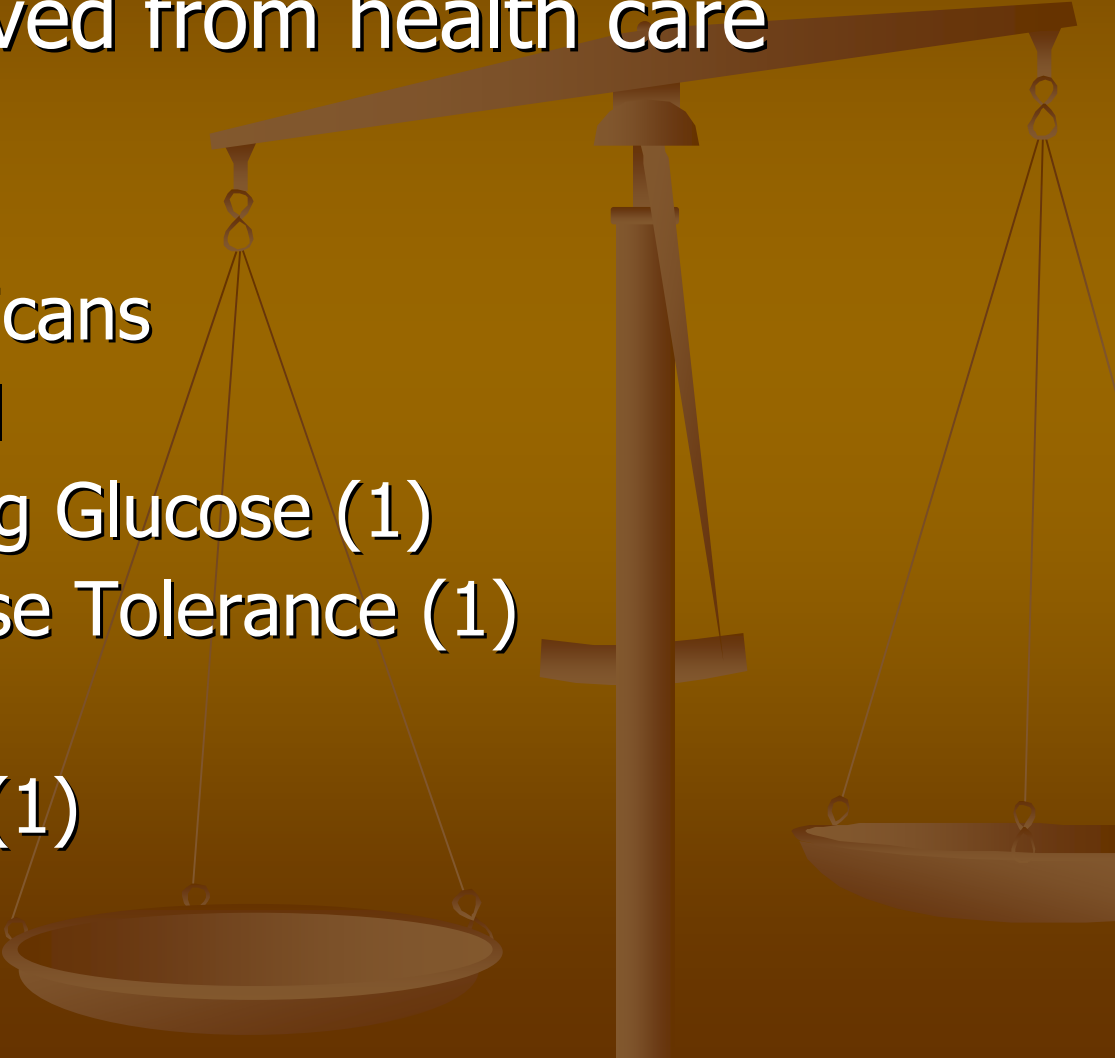
- Education provided by the school nurse
 - 60 minutes of physical activity/play per day
 - 1 ½ cups of fruit and 2 ½ cups of veggies per day
 - Less than 2 hours of screen time per day
 - Prompt for health care providers
 - Current recommendations for medical evaluation
 - Fasting blood glucose
 - Fasting lipid profile
 - Statement that HgA1C not recommended for diagnosis at this time
 - Referral recommendations
 - Dietician, exercise program
- 

Results of Student Interviews/Assessments

- 70 of 87 interviews completed
 - 47 % had elevated blood pressures
 - 33% BP > 95th percentile for age/sex/ht/wt
 - 14% BP at 90th percentile for age/sex/ht/wt
 - 19% had acanthosis nigricans
 - 30% had family history of diabetes
- 

DPMR Results

- Diagnoses received from health care providers:
 - Overweight
 - Acanthosis Nigricans
 - High cholesterol
 - Impaired Fasting Glucose (1)
 - Impaired Glucose Tolerance (1)

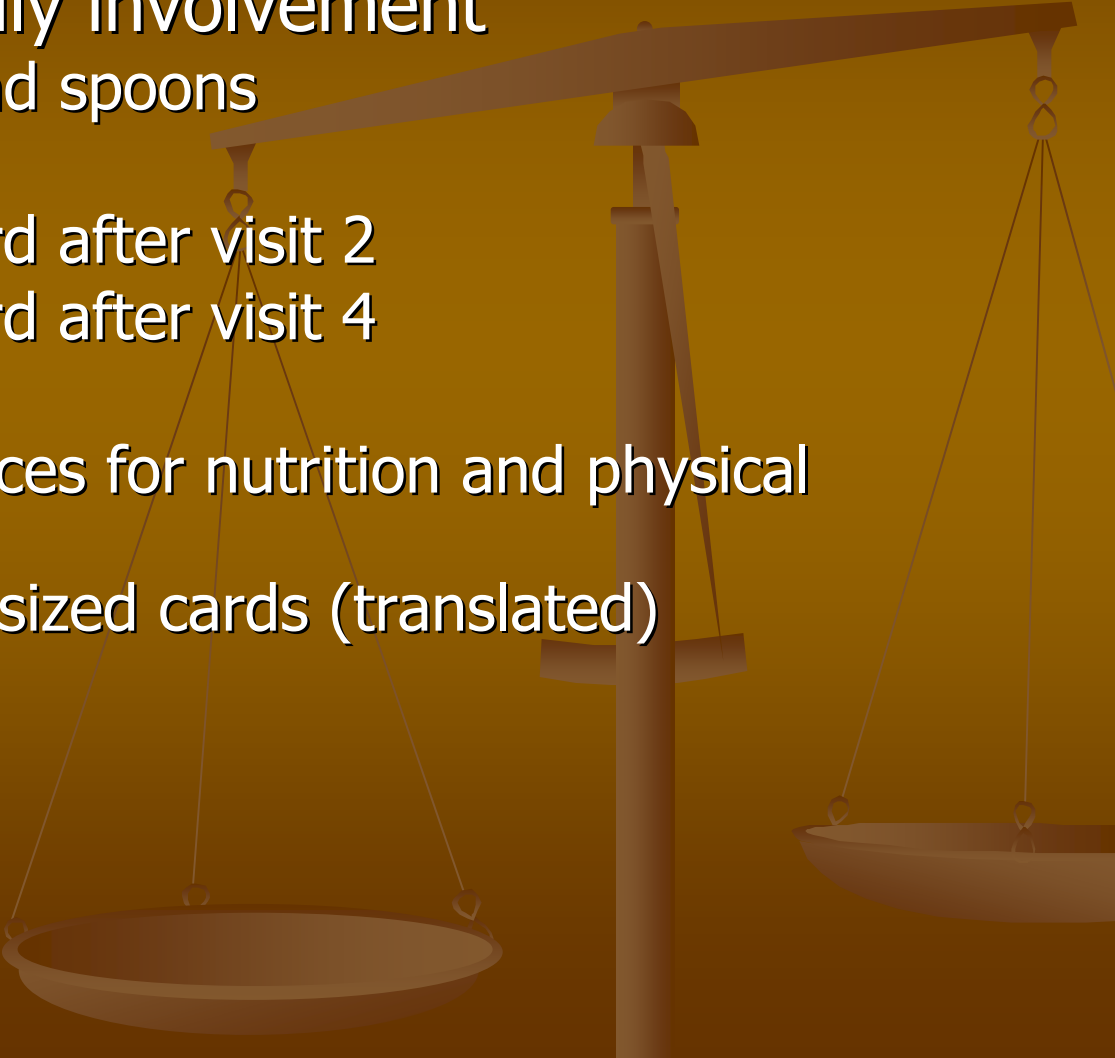
 - Metformin trial (1)
- 

Healthy Lifestyles for All



- Medica Foundation grant
- SPPS partnered with Pediatric Home Service
- In-home weight maintenance program offered by the school nurse to all overweight students
 - 4 visits, 4-6 weeks apart
 - Child/family sets 2 nutrition goals and 2 physical activity goals
 - Interpreter support
 - Hmong, Spanish, Karen
 - Principal caregiver and student plus any other family members
 - Visits around family's schedule

Healthy Lifestyles for All

- Incentives for family involvement
 - Measuring cups and spoons
 - Pedometer
 - \$10 Target gift card after visit 2
 - \$15 Target gift card after visit 4
 - Recipes
 - Community resources for nutrition and physical activity
 - Laminated, wallet-sized cards (translated)
 - Reducing sugar
 - Reducing fat
 - Serving sizes
- 

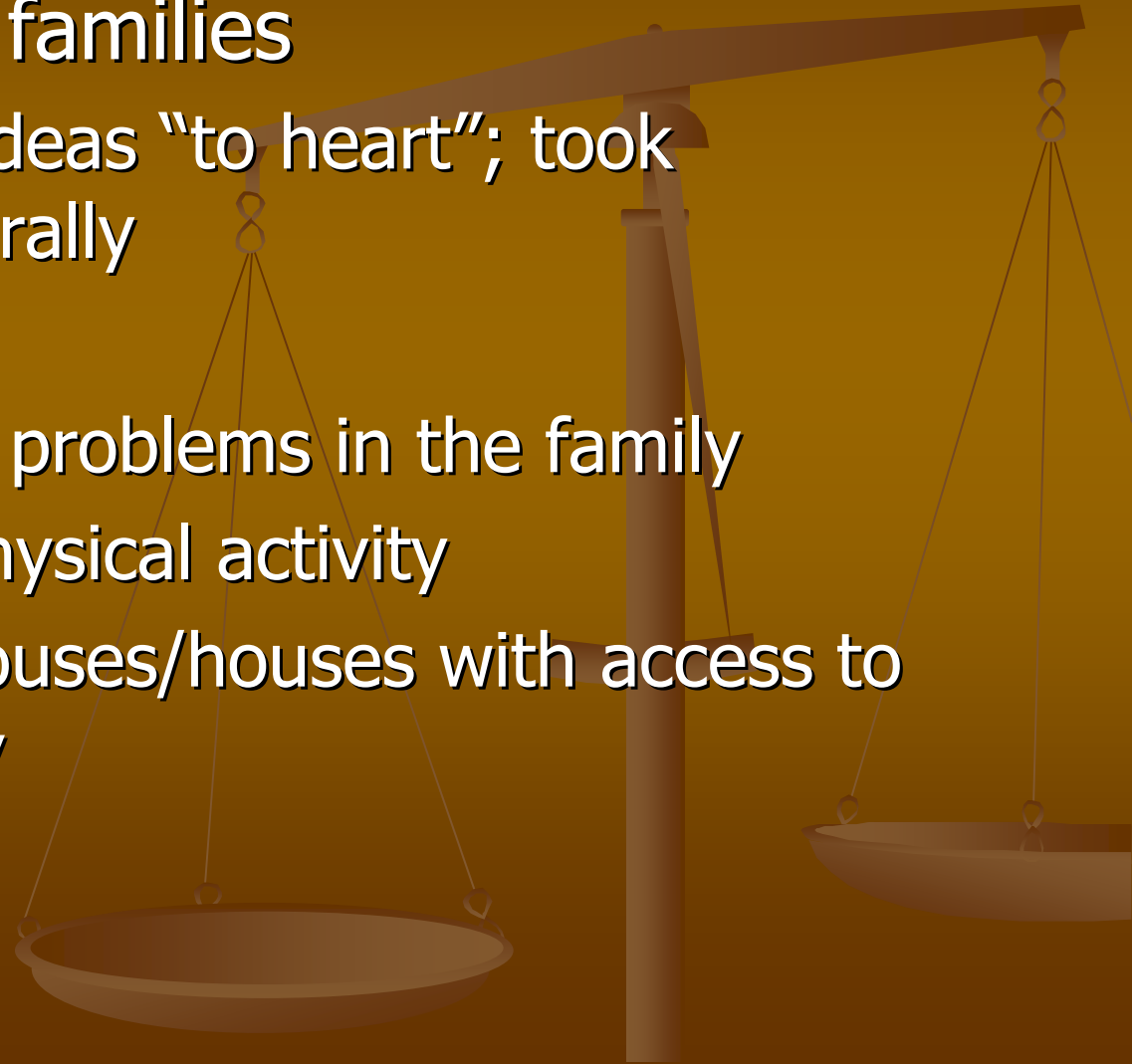
Cultural Learning



- Asian American (Hmong) families
 - Two-parent, working families
 - Father is decision maker
 - Live in upper-level apartments with limited access for physical activity
 - Shorter visits-said “yes” to everything, brief answers, difficult to obtain information
 - Buy items in bulk, no opportunity for label reading
 - Large portions, carbs
 - Typically eat 2 meals a day (no breakfast), except for school days

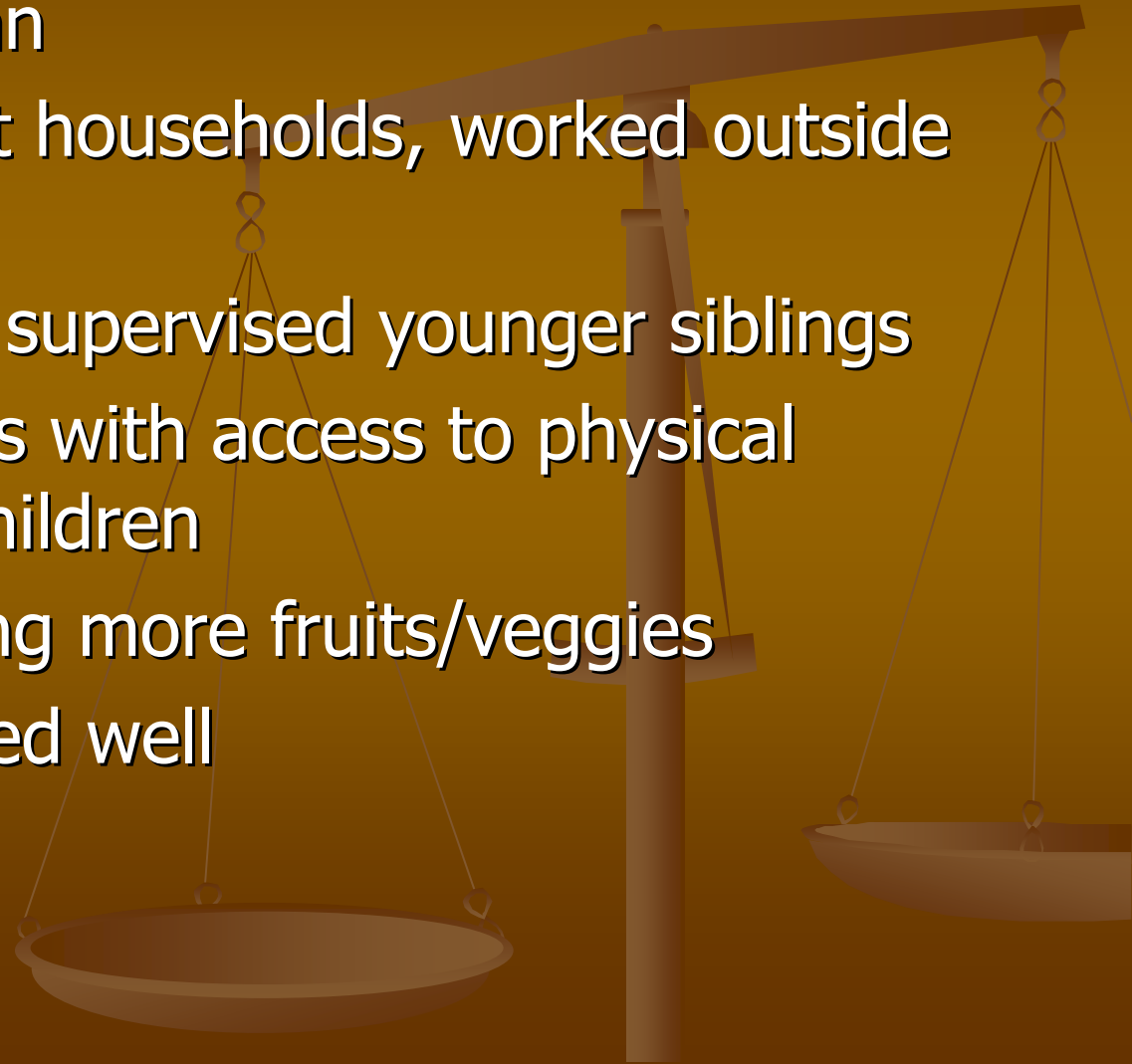
Cultural Learning

- Hispanic/Latino families
 - Took learning/ideas “to heart”; took suggestions literally
 - Most invested
 - Known medical problems in the family
 - Interested in physical activity
 - Lived in townhouses/houses with access to physical activity



Cultural Learning

- African American
 - Single-parent households, worked outside the home
 - Older sibling supervised younger siblings
 - Live in homes with access to physical activity for children
 - Started buying more fruits/veggies
 - Communicated well

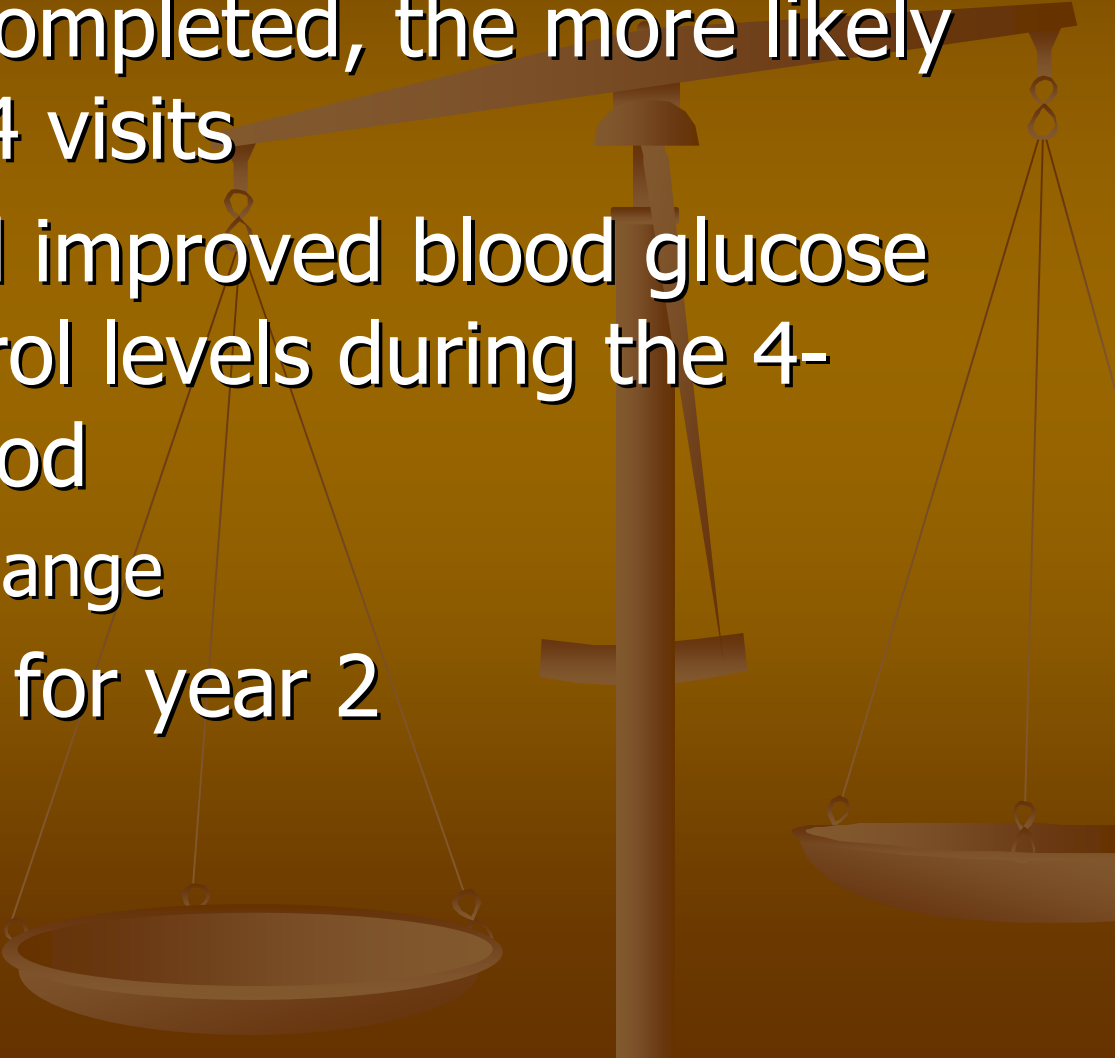


Healthy Lifestyles for All Outcomes



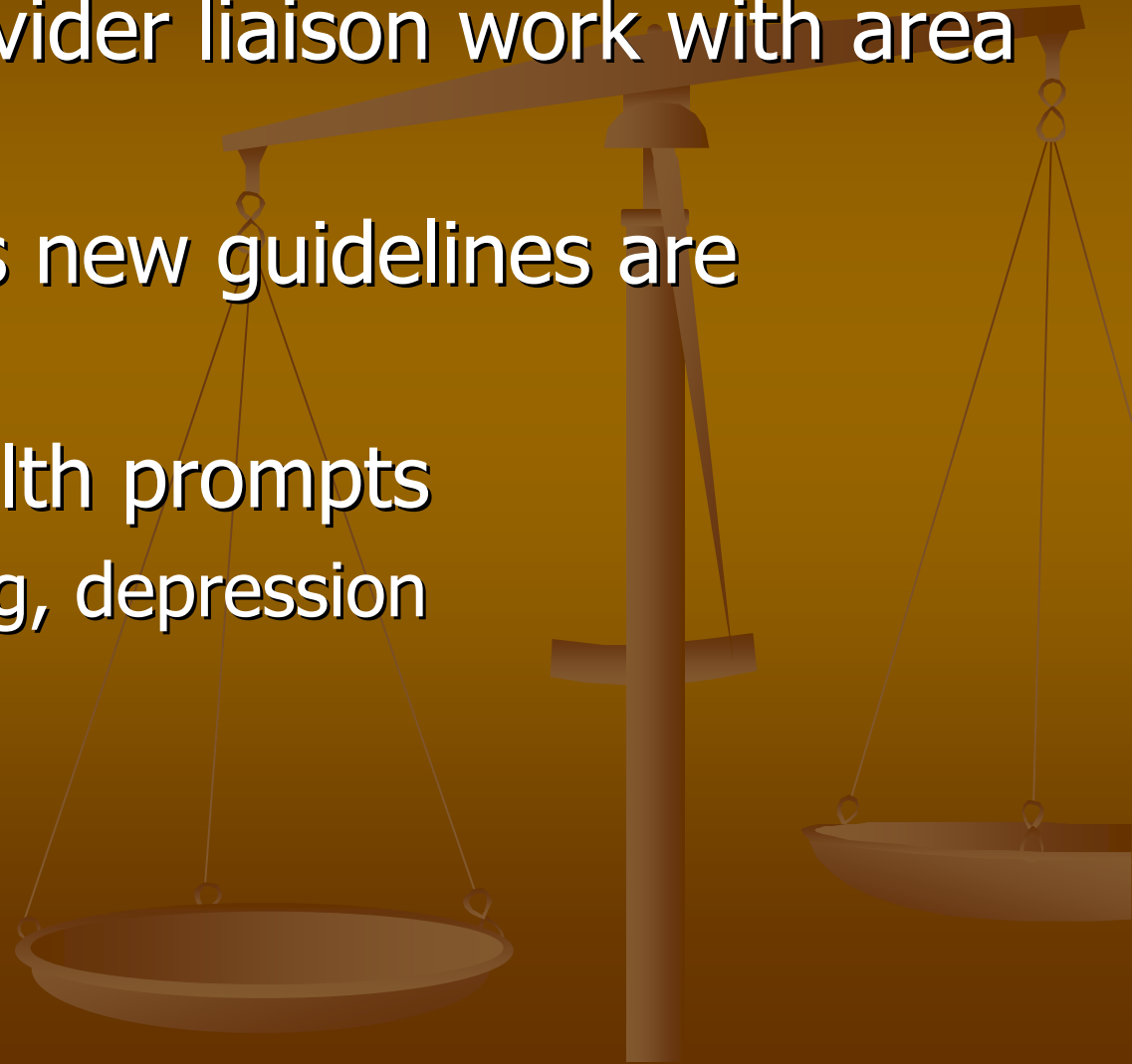
- 1st year results:
 - 14 children/families completed all 4 visits
 - BMI outcomes over 4 months
 - BMIs decreased in 5 students (-.09 to -5.48)
 - BMI remained the same in 1 student
 - BMI increased in 8 students (+0.10 to +1.87)
 - 112 additional people attended the home visits
 - Fathers, grandmothers, aunts, uncles, older siblings, and friends of the principal caregiver

Success Stories

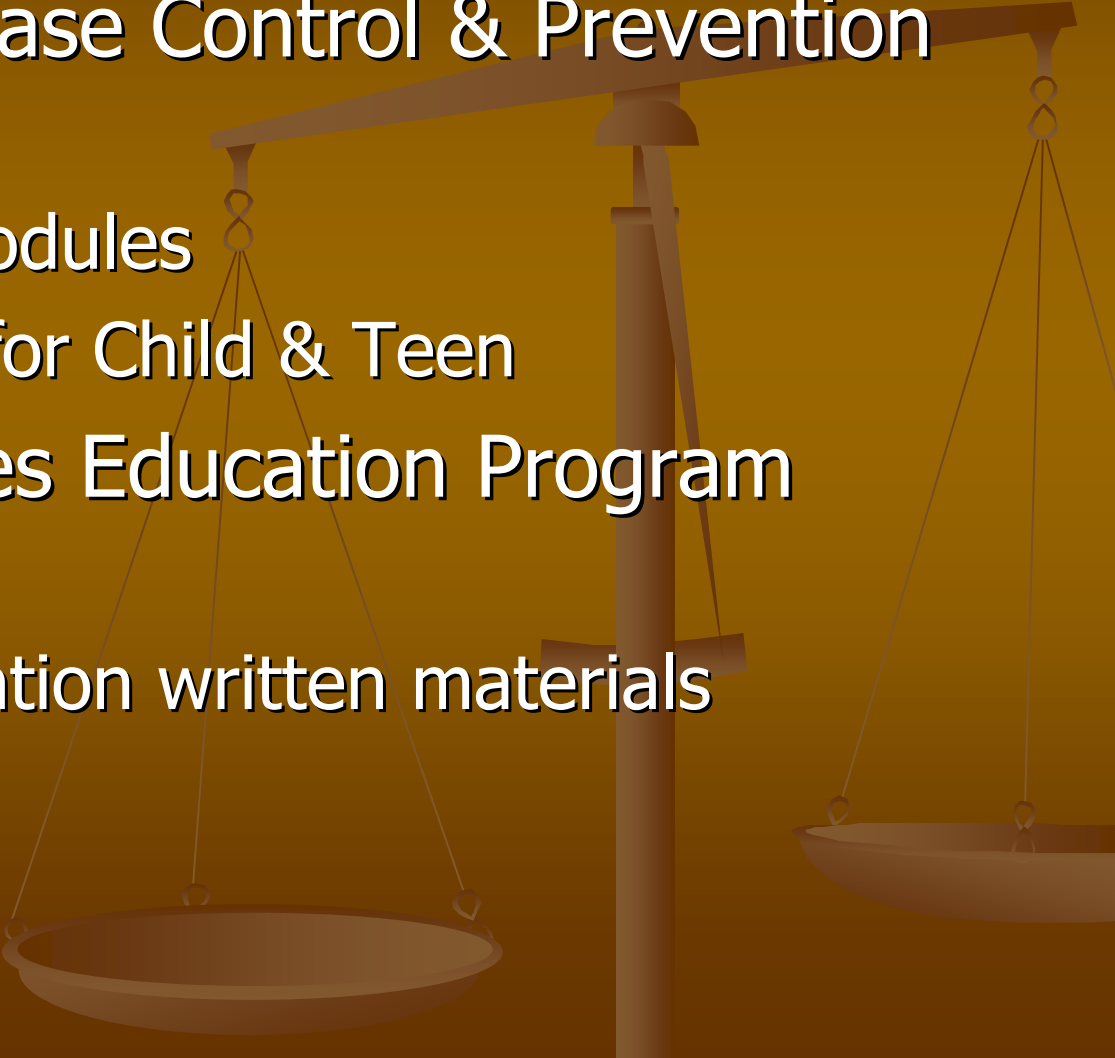
- Once visit one completed, the more likely to complete all 4 visits
 - Two fathers had improved blood glucose and/or cholesterol levels during the 4-month time period
 - Whole family change
 - Grant extension for year 2
- 

Future Directions

- Health care provider liaison work with area clinics
- Revise DPMR as new guidelines are published
- Add mental health prompts
 - Bullying, teasing, depression



References

- Centers for Disease Control & Prevention (CDC)
 - BMI Training Modules
 - BMI Calculator for Child & Teen
 - National Diabetes Education Program (NDEP)
 - Diabetes Prevention written materials
- 

References

- American Diabetes Association
 - Standards of Medical Care (2007)
 - American Heart Association
 - Scientific Report (2005)
 - National Heart Blood & Lung Institute (NHBLI)
 - Fourth Report on Blood Pressure in Children
- 