



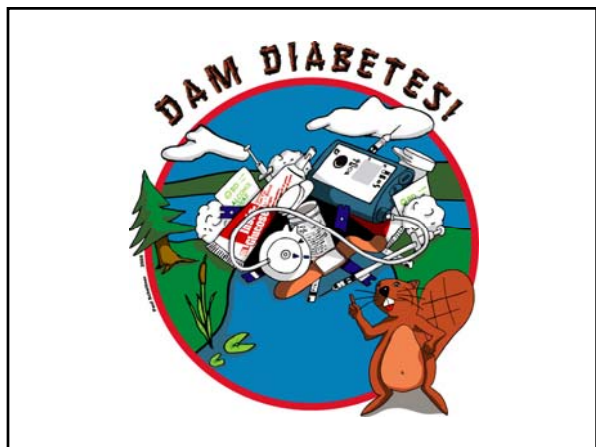
## Improving Adherence in Childhood Diabetes: Integration of Family Management Intervention into Routine Care

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Tonja R. Nansel, PhD  
Prevention Research Branch, NICHD

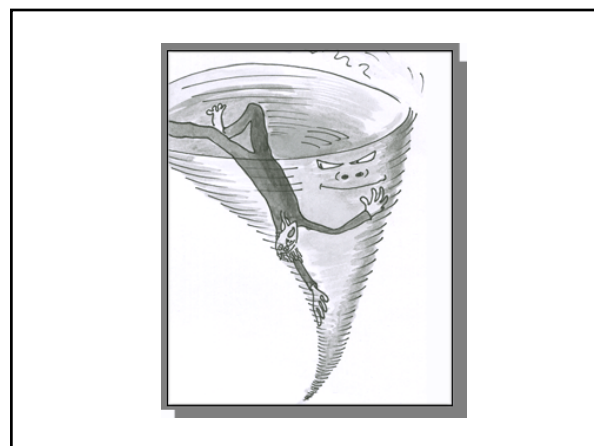



## Type 1 Diabetes Management

### Adolescent Development & Impact on Diabetes Management

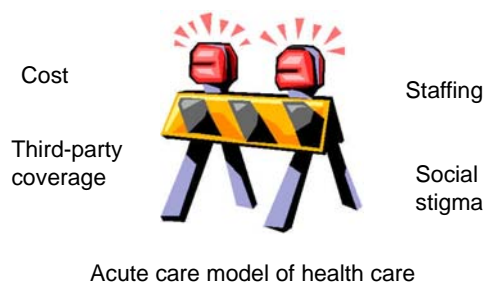
Physical development	→	Blood sugar control more difficult
Social & emotional development	→	Autonomy-striving Conflict
Shift in parenting role	→	From directive to consultative role



## Previous Behavioral Research

- Self-management training  
[Delamater et al., Diabetes Care 1990]
- Behavioral family systems therapy  
[Wysocki et al., Diabetes Care 2000]
- Coping skills training  
[Grey et al., Journal of Pediatrics 2000]
- Teamwork psych-educational approach  
[Anderson et al., Diabetes Care 1999]

## Barriers to Translation



## Goal – Translatable Approach



## Chronic Illness Model

- Integration of behavioral management principles into routine clinical care:
- Assessment and specification of target behaviors
  - Identification of barriers and motivators
  - Collaborative setting of goals
  - Facilitation of problem solving and coping skills
  - Provision of follow-up and support

[Glasgow et al., Diabetes Care 2001]

## Intervention Approach



## “Diabetes Personal Trainer” Study

- 81 child/parent dyads; 2 urban pediatric clinics
  - Age 11-16 years (mean=13.8); 54.6% female; 63% pump; 87.7% white, 11.1% black
  - Randomization stratified by age
- Intervention: 6 in-home sessions (over 2 months) with follow-up phone calls delivered by trained research assistants
  - Motivational interviewing
  - Applied behavior analysis
  - Goal setting & problem-solving

[Nansel et al, Diabetes Care 2007; 2009]

### Goals Selected by Participants

1 <sup>st</sup> Goal	2 <sup>nd</sup> Goal*
22% blood sugar monitoring	38% blood sugar monitoring
22% physical activity	25% dietary management
19% dietary management	19% insulin administration
19% record-keeping	13% physical activity
8% insulin administration	6% managing highs/lows
6% managing highs/lows	
3% parent-child communication	

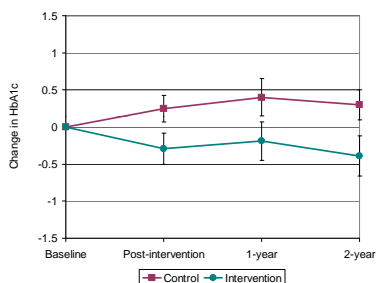
\*About half of participants selected a second goal.

### Adjusted Mean HbA1C by Tx Group

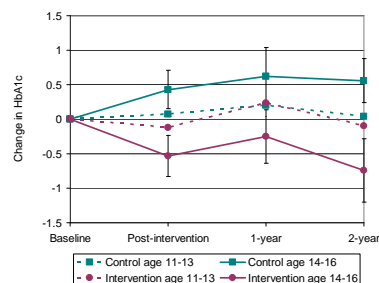
	1-year			2-year		
	C	I	p	C	I	p
Tx on HbA <sub>1c</sub>	9.08	8.65	.06	8.93	8.43	.01
Tx x Age			.04			<.01
Age 11-13	8.48	8.56	.82	8.32	8.41	.80
Age 14-16	9.74	8.79	.06	9.61	8.46	.01

ANCOVA; age and baseline HbA<sub>1c</sub> as covariates; tx group means adjusted for age and baseline HbA<sub>1c</sub>; intent-to-treat analysis

### Intervention Effect on Metabolic Control



### Intervention Effect by Age Subgroups

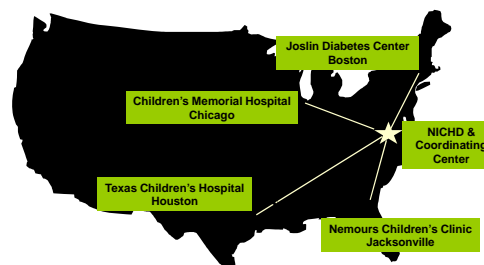


### Lessons Learned

- Problem-solving approach
  - Clinically-meaningful impact
  - Relevant and useful
  - Approach well-received by both children and parents
- Translation to clinical care
  - Home visits impractical for routine care
  - Systematically involve parents



### Family Management of Diabetes Multi-site Study



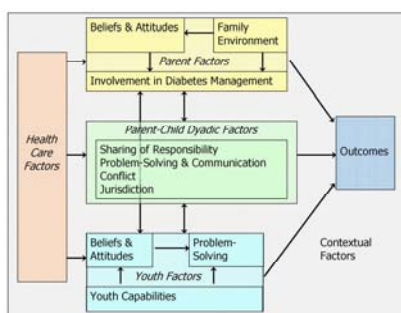
### Intervention Development Criteria

- Minimally disruptive of clinical routines
- Target common behavioral obstacles
- Delivered across key developmental period
- Facilitate role transition
- Promote healthy teamwork
- Tailored to family's needs

### Challenges in Developing an Integrated Approach

- Issues of clinic flow
- Staffing
- Differences among clinical practices
- Developmental differences
- Cultural and SES differences
- Need for flexibility based on family's needs and issues

### Conceptualization



### Intervention Structure

- Problem-solving process
  - Applied to issue of family's choice
  - Relevant psycho-educational content integrated into problem-solving process
- Delivered to parent(s)/child together during the clinic visit
- Supplemented with telephone contact before/after clinic visit
- Conducted by research assistants
- Low intensity delivered over time

### Intervention Delivery

- Preparation
  - Telephone, 1 week before visit
  - Prepare for visit, consider issues to discuss
- Action
  - During clinic visit
  - Problem-solving process applied to issues identified and selected by family
- Follow-up
  - Telephone, 2 & 6 weeks after visit
  - Review progress, revise plan

### WE\*CAN Problem Solving Structure

- W Working together  
 E Exploring barriers  
 C Choosing solutions  
 A Acting on your plan  
 N Noting the results



## Trials

- Pilot
  - Test feasibility; abbreviated intervention
  - 122 families
  - Children age 9-14 years
  - Duration of 3 clinic visits (average 7 months)
- Main trial (ongoing)
  - Test efficacy; effect on diabetes management and control
  - Larger and of longer duration (390 families; duration of 18 months)

## Findings – Implementation

- High fidelity of intervention implementation
- High satisfaction by both children and parents
- Families did not confuse role of interventionist with that of health care providers
- No interference with clinic flow
- No conflicts with clinic staff

[Nansel et al., Pediatric Diabetes 2009]

## Lessons Learned

- Intervention Delivery
  - Decrease educational/didactic portion of initial session
  - No need to start with “easier” issue
  - Incorporating a preventive focus
- Training
  - Issues in facilitating problem solving
  - Choosing and integrating educational materials

[Nansel et al., Pediatric Diabetes 2009]

## Issues in Future Translation

- Staffing; integration with existing roles
- Training
  - Mechanism
  - Potential negative transfer
  - Ongoing support
- Reimbursement
- Timing and duration of delivery

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**Thank You**