



# Child Care Health Consultation: Effects on Health Policies, Practices, Nutrition, Physical Activity and Children's Access to Health Care

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# What is Child Care Health Consultation?

- Provided by a child health professional
- Initiated by client (child care facility)
- Initiated to
  - Resolve a health or safety concern
  - Improve the health and safety components of child care programs



# Who is a Child Care Health Consultant?

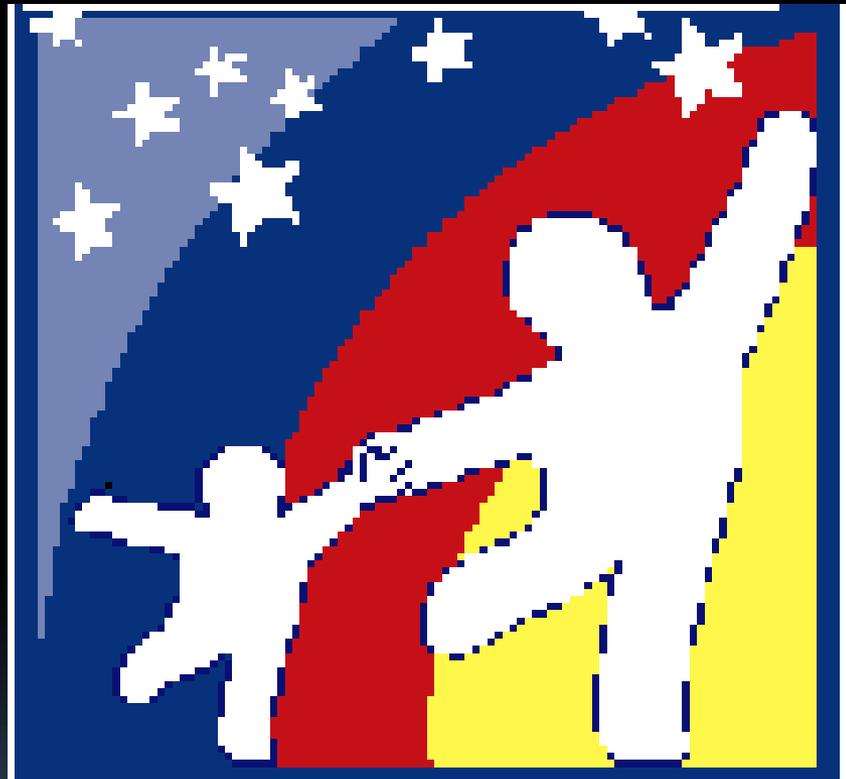
- A health professional who
    - has interest in and experience with children
    - has knowledge of resources and child care regulations
    - is comfortable linking child care settings with health resources and facilities that primarily provide education and social services<sup>1</sup>
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# What Does a Child Care Health Consultant Do?

- trains CC providers in health and safety
- observes and assesses health and safety practices
- evaluates training needs of parents/providers
- consults regarding communicable diseases
- provides resource and referral information
- reviews policies, procedures and health records
- provides knowledge in management of CSHN
- helps parents/providers obtain needed health services

*Source: USDHHS/HRSA/MCHB, unpublished.*

# The National Training Institute for Child Care Health Consultants



[www.nti.unc.edu](http://www.nti.unc.edu)

# NTI is

- A cooperative agreement funded by grant #U46-MC00003 from the Maternal and Child Health Bureau, USDHHS, to improve the health and safety of children in out-of-home child care
- A train-the-trainer approach to develop a nationwide system of child care health consultants, based on *Caring for our Children: National Health and Safety Performance Standards; Guidelines for Early Child Education Programs* <http://nrckids.org/CFOC3/index.html>

# NTI Accomplishments

- 40 trainings since 1999
- 462 Trainers graduated
- All 50 States, the District of Columbia, Puerto Rico, US Virgin Islands, the Bahamas and US Army (including Germany)
- 4,809 CCHCs trained

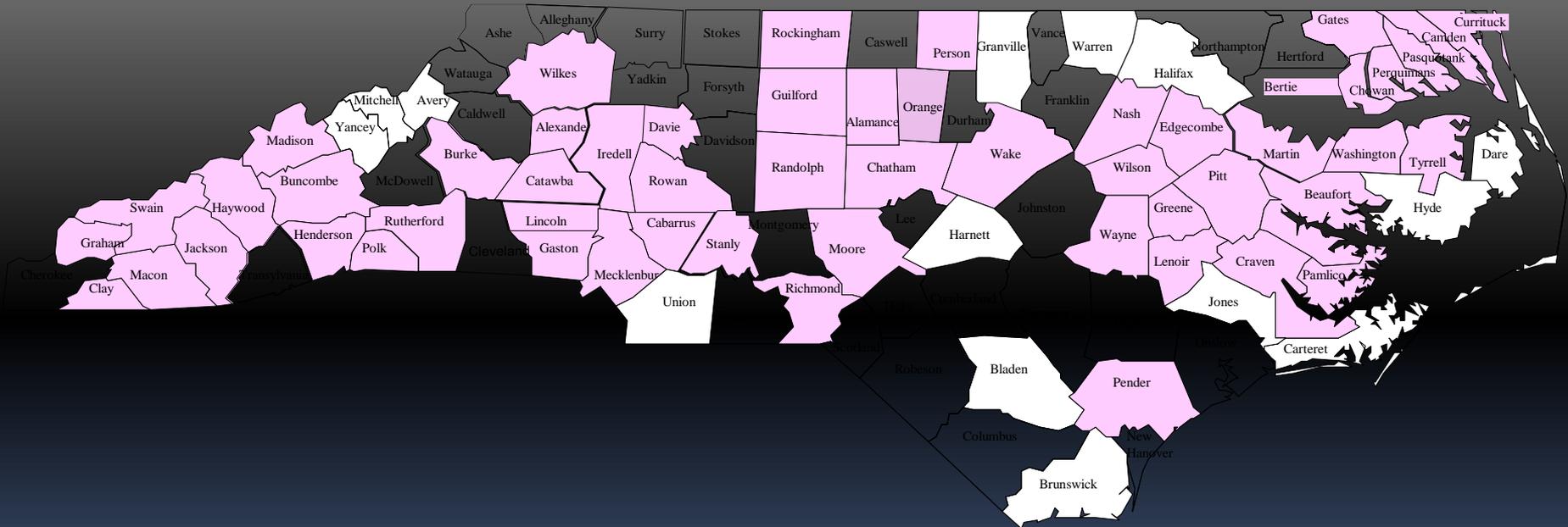


**Healthy  
Child Care  
North Carolina**

# NC Child Care Health and Safety Resource Center

- Supported by NC DCDEE and NC DPH
- Trains CCHCs in North Carolina
- Maintains a website  
<http://www.healthychildcarenc.org>
- Publishes a quarterly North Carolina Child Care Health and Safety Bulletin
- Fall 2011 Edition entitled *Childhood Obesity - Make a Difference*

# Counties with Active CCHCs February 2012





# State of the art

- In 2011 53 counties had a child care health consultant
- In 2001 that number was 76

# Ways around the cuts

- Hiring Associate Degree RNs instead of BSNs (Guilford)
- Hiring health educators instead of nurses (Davie and Orange).
- Decreasing hours of CCHC services (Pamlico, Rowan)
- Splitting a CCHC's time –work as CCHCs PT and work in other programs as well.
- Contracting CCHC services directly from the local partnerships or other agencies were the HD not interested in offering CCHC services (Buncombe County)
- Reducing the # of CCHCs (Cabarrus, Catawba)
- Using a combination of RNs and health educators (Mecklenburg)

# The Quality Enhancement Project for Infants and Toddlers



# Acknowledgements

Quality Enhancement Project for Infants and Toddlers funded by the Division of Child Development and Early Education, NC DHHS

- Staff:
  - Lisa Faison, Jill Kerr, Emily Lu, Abby Pinnix, Trish Isbell
- MPH candidates in MCH:
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- FPG Child Development Institute Data Management and Analysis Center:
  - Steve Hege, Weejoy Neebe, Marty Skinner, Nathan Vandergrift, Eric Savage, Elizabeth Gunn



# The Quality Enhancement Project (*QEP*)

- A community-based system of child care health consultation to
  - disseminate training in diaper-changing, hand hygiene, food preparation, sanitation, transportation safety, medication administration and emergency preparedness, and
  - evaluate the impact of child care health consultation

# The *QEP* Evaluation

- 15 child care health consultant projects
- 23 counties in North Carolina
- 264 facilities
  - 141 centers
  - 113 homes
  - 10 faith-based centers
- 24 months of data collection beginning in July 2000, baseline and 4 semi-annual follow-ups



# Research question

Does health consultation and training provided by child care health consultants improve health practices, health policies, and children's access to health services?



# Predictors

- Consultation (total on-site health consultation episodes provided)
- Training (total on-site training episodes provided)



# Co-variates

- whether the facility had 25 or fewer children
  - the NC star-rated licensing level
  - the proportion of infants and toddlers (0-35 months) enrolled
  - whether the health consultant had a college degree or higher
  - whether the health consultant had less than a completed college education, and
  - visit number
- 

# Outcomes

## ■ Health policies

- Cleaning and Sanitation Policy
- Care of Mildly Ill Children Policy
- Emergency Preparedness Policy
- Exclusion of Ill Children Policy
- Hand Hygiene Policy
- Inclusion of Children with Special Needs Policy
- Administration of Medications Policy
- Staff Health Policy
- Transportation Safety Policy



# Outcomes

- Health practices
  - Emergency Preparedness
  - Nutrition
  - Sanitation
  - Safe Play



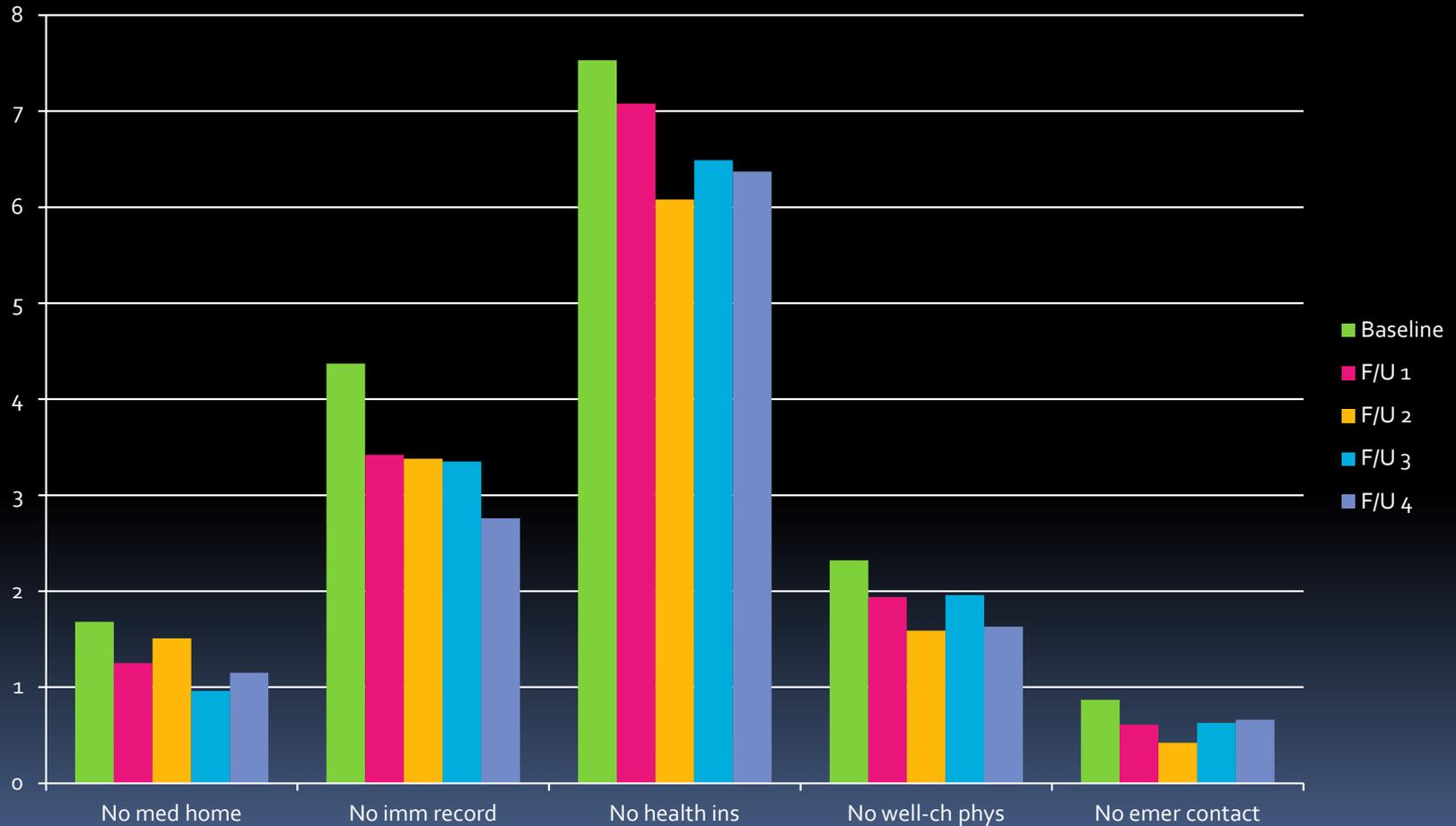
# Outcomes

- Access to health care
  - medical home not on file
  - immunization record not up to date
  - health insurance not on file
  - children with no well child physical on file
  - children with no well child physical last year on file
  - children with no complete emergency contact on file

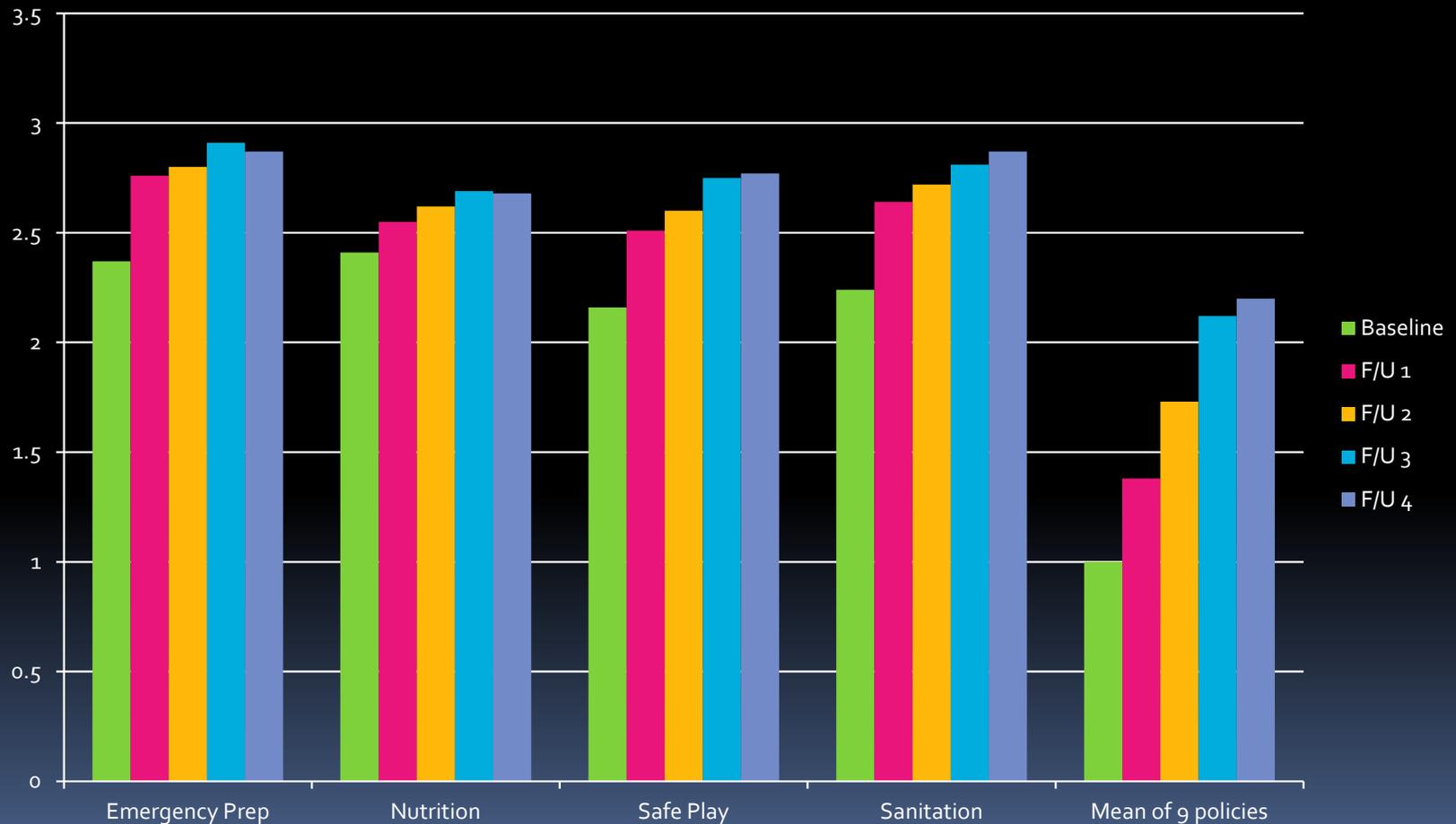
# Results

Number of Children					
	Baseline	F/U 1	F/U 2	F/U 3	F/U 4
Centers	6024	4408	4069	3417	3488
Homes	783	635	597	465	495
Religious	389	308	287	259	202
Total	7196	5351	4953	4141	4185

# Changes in Access to Care



# Changes in Policies and Practices



# Significance of CCHC Services on Policies and Practices

	Mean Health Policies		Sanitation		Nutrition		Safe Play		Emergency Prep	
	RC	95% CI	RC	95% CI	RC	95% CI	RC	95% CI	RC	95% CI
Consultation	.015*	>.004	.017***	>.01	.009	>-.0001	.015**	>.007	.022***	>.015
Training	.056*	>.004	.062**	>.028	.048*	>.003	.028	>-.005	.060**	>.023

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

# Significance of CCHC Services on Access to Care

	Medical Home		Immunization		Health Insurance		Well Child Physical		Emergency Contact	
	RC	95% CI	RC	95% CI	RC	95% CI	RC	95% CI	RC	95% CI
Consultation	-.015*	<-.004	.002	<.007	-.01***	<-.006	-.014**	<-.007	-.014*	<-.00002
Training	-.023	<.009	.002	<.016	-.002	<.011	-.034*	<-.007	-.031	<.005

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$



# Limitations

- Not randomly selected
- No control group
- No blinded data collectors

# Child Care Wellness Study

- Funded by grant #R40MCo8727 from USDHHS/HRSA/Maternal and Child Health Bureau .
- Co-Investigators
  - Abbey Alkon, Angela Crowley
- Consultant
  - Sara Benjamin Neelon
- Staff
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- FPG Child Development Institute:
  - Eric Savage, Pan Yi



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# Study Aim

To evaluate the Nutrition And Physical Activity Self-Assessment for Child Care (NAPSACC) intervention conducted by nurse child care health consultants in child care centers in California (CA), Connecticut (CT), and North Carolina (NC)

# Method

- 18 licensed child care centers (6 in each state)
  - served 3-5 year olds
  - received federal subsidy or participated in food program for low-income children
  - providers spoke English
- Matched on size and proportion of children on subsidy
- Randomly assigned to NAPSACC intervention or control

# Intervention

- CC director self-assessment
- NAPSACC workshops for child care providers
  - Childhood obesity
  - Healthy eating for young children,
  - Physical activity for young children,
  - Personal health and wellness
  - Working with families to promote healthy behaviors
- NAPSACC workshop for parents
  - Nutrition and physical activities
- Child care health consultation over 6-7 months
  - Mean time spent during consultation on-site = 78 minutes
  - Mean time spent for off-site (phone, email) consultation = 27 minutes
  - Mean # of consults per site = 15 (12 on-site and 3 off-site)



# Outcomes

- Changes in:
  - child care teacher knowledge and attitudes
  - parents' knowledge
  - child care center written policies
  - children's dietary intake
  - children's physical activity, and
  - children's BMIs

# Frequencies

	CA		CT		NC		Sub-totals		Total
	T	C	T	C	T	C	T	C	
<b>Centers</b>	3	3	3	2	3	3	9	8	17
<b>Classrooms</b>	9	6	8	9	11	8	28	23	51
<b>Families</b>	91	105	99	98	69	89	259	292	551

# Changes in provider knowledge

Workshop Topic	Pre-Workshop Mean (S.D.)	Post-Workshop Mean (S.D.)	Model results (t-test)
Childhood Obesity	2.4 (.6)	2.9 (.8)	4.18**
Healthy Eating	2.1 (1)	3.5 (.8)	7.1***
Physical Activity	2.9 (.8)	3.0 (.6)	n.s.
Personal Health	2.5 (.9)	3.2 (.8)	3.2*
Working with Families	3.5 (.7)	3.8 (.5)	3.86**

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

# Change in parents' knowledge [Mean (SD)]

Workshop Topic	Pre-Workshop	Post-Workshop	Model Results (t-test)
Raising Healthy Kids	2.2 (.9)	3.4 (.9)	4.85**
<i>**p&lt;.01</i>			

# Changes in Parent and Teacher Attitudes

		Change score Estimate (S.E.)	Model Results (t-test)	95% C.I.
<b>Awareness and Concern</b>	Teachers	2.55 (1.06)	2.41*	0.44, 4.66
	Parents	-0.78 (0.79)	-0.99	-2.32, 0.77
* $p < .05$				

# Change in Nutrition and P.A. Policies

Policy	Pre-Intervention		Post-Intervention		Model Results (t-test)
	Control	Treated	Control	Treated	
	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)
<b>Nutrition</b>	1.63(1.85)	0.89(1.36)	1.63(1.85)	6.33(4.87)	6.08(4.48)***
<b>Physical Activity</b>	0.13(0.35)	0(0)	0.13(0.35)	3.44(3.32)	3.94(3.32)**

\*\* $p < .01$ , \*\*\* $p < .001$

# Dietary changes

- The treatment was associated with an increase of 83% in pct of low fat meats and beans offered at meal times (ns)
- The treatment was associated with a decrease of 24% in proportion of SSCS offerings out of all observations per child at snack (ns)

# Change in “good foods”<sup>1</sup>

Type of meal	Est.	S.E	t-test	95% C.I
Snack	0.53	0.22	2.38*	(0.03, 1.04)

\* $p < .05$

<sup>1</sup>whole grains, low fat meats and beans, dark green/orange vegs, fruits, 100% fruit juice, low/non-fat milk

# Sedentary activity changes

Effect	Estimate	S.E.	t-test	95% CI
Treatment	-14.20	6.81	-2.08*	(-27.83, -0.56)

\* $p < .05$

# BMI changes at the center level

	Effect	Estimate	S.E.	T-test	95% CI
Mean BMI	treatment	-0.33	0.17	-1.87+	(-0.72, 0.07)
BMI Z-scores	treatment	-0.22	0.10	-2.16+	(-0.44, 0.01)

+  $p < .1$

# Change in center average BMI Z scores

Effect	Estimate	S.E.	T-test	95% CI
Treatment	-0.27	0.1	-1.67*	(-0.51, -0.04)

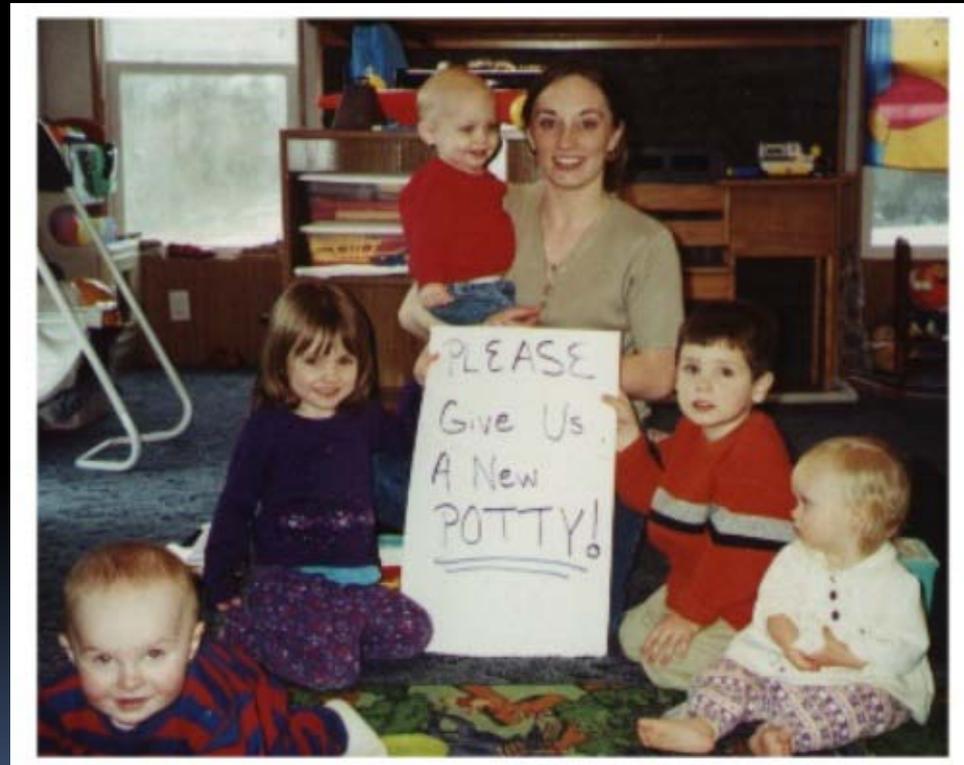
*\*p<.05*

# BMI changes at the child-level

BMI for Participants Who Had Both Data Points

BMI	Pre- NAP SACC N=215	Post- NAP SACC N=215
<b>≤Normal:</b>	(n, %)	(n, %)
Intervention	67(62%)	68(63%)
Control	67(62%)	70(65%)
<b>Overweight</b>		
Intervention	15(14%)	19(18%)
Control	22(21%)	16(15%)
<b>Obese</b>		
Intervention	26(24%)	21(19%)
Control	18(17%)	21(20%)

# Thank you!



# References

1. AAP, APHA & NRCHSCC. Caring for our children. National health and safety performance standards. Guidelines for out-of-home child care programs (3rd Ed). Elk Grove Village, IL; Washington, DC; Denver, CO: Authors, 2011.
2. Crowley AA. Child care health consultation: an ecological model. *J Soc Pediatr Nurs*. 2001;6(4):170-181.
3. Alkon A, Farrer J, Bernzweig J. Child care health consultants' roles and responsibilities: focus group findings. *Ped Nurs*. 2004;30(4):315-321.
4. Gaines SK, Wold JL, Bean MR, Brannon CG, Leary JM. Partnership to build sustainable public health nurse child care health support. *Fam Comm Health*. 2004;27(4):346-354.

# References, cont'd.

5. Alkon A, Boyce JC. Health assessment in child care centers: parent and staff perceptions. *Pediatr Nurs*. 1999;25(4):439-442.
6. Crowley A. Child care health consultation: The Connecticut experience. *Maternal Child Health J*. 2000;4(1):67-75.
7. Gaines SK, Wold JL, Spencer L, Leary JM. Assessing the need for child-care health consultants. *Pub Health Nurs*. 2005;22(1):8-16.
8. Lie L. Health consultation services to family day care homes in Minneapolis, Minnesota. *J Sch Health*. 1992;62(1):29-31.
9. Hanna H, Mathews R, Southward L, Cross G, Kotch J, Cosby A, et al. Use of paid child care health consultants in early care and education settings: results of a national study comparing provision of health screening services among Head Start and non-Head Start centers. *J Pediatr Health Care*. *In press*. doi:10.1016/j.pedhc.2011.05.008

# References, cont'd.

10. Aronson SS, Aiken LS. Compliance of child care programs with health and safety standards: impact of program evaluation and advocate training. *Pediatrics*. 1980;65(2):318-325.
11. Niffenegger JP. Proper handwashing promotes wellness in child care. *J Pediatr Health Care*. 1997;11:26-31.
12. Ulione MS. Health promotion and injury prevention in a child development center. *J Pediatr Nurs*. 1997;12(3):148-54.
13. Alkon A, Ramler M, MacLennan K. Evaluation of mental health consultation in child care centers. *Early Child Educ J*. 2003;31(2):91-99.
14. Alkon A, Bernzweig J, To K, Wolff M, Mackie JF. Child care health consultation improves health and safety policies and practices. *Academic Pediatrics* 2009;9:366-70.