

ENRICH: Duke Endowment Wellness Project
Final Report

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ENRICH: Duke Endowment Wellness Project
Progress Report
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I. Overview of Project (Review and Brief Updates)

Project Goal

To create and sustain children's home (CH) environments that support and promote healthful eating (fruits and vegetables) and physical activity among children.

Target Audience

The primary target for change is the CH environment as it relates to healthful dietary and physical activity behavior. The CH environment will be changed by the Wellness Team (WT) which has been trained to assess policies, practices, and the social and physical environment in the home. Based on this assessment, each WT will develop and carry out a plan to support and promote healthful eating and physical activity in children who live in the home.

Outcome Objectives for Project (2004-2008)

All objectives pertain to the CH environment to support and promote physical activity and healthful eating.

1. By Summer 2006, the homes of WTs trained in 2004-2005 (Intensive A) will show significant improvement in **organizational characteristics and the CH environment** compared to the WTs who will be trained in 2006-2007 (Intensive B; control group receives delayed intervention).
2. The positive changes in the CH environment to support and promote physical activity and healthful eating measured in 2006 among WTs trained in 2004-2005 (Intensive A) will be **maintained** through Summer 2008.
3. By Summer 2008, the homes of WTs trained in 2006-2007 (Intensive B) will show significant improvement in **organizational characteristics and the CH environment** compared to measures obtained in 2006.

2008 BRIEF UPDATE:

- The intervention had a significant impact on PA social environment in both early (2004-2006) and delayed (2006-2008) intervention groups.
 - Partial support for objectives 1 and 3
 - The intervention had a significant impact on Nutrition organizational support for both early (2004-2006) and delayed (2006-2008) intervention groups.
 - Partial support for objectives 1 and 3
 - This effect was maintained in the early intervention group (2006-2008).
 - Support for objective 3
 - There was a significant increase in Nutrition social environment in delayed intervention for 2004-2006 (not intervention-related and unanticipated) and also for 2006-2008.
 - Significant increase not directly attributable to the ENRICH intervention.
4. The percentage of children residing in the CHs who **meet physical activity and dietary guidelines** will increase between Summer 2004 and Summer 2006 in CHs actively participating in the training during 2004-2005 (Intensive A); similarly, the percentage of children residing in the CHs who meet physical activity and dietary guidelines will increase between Summer 2006 and Summer 2008 in CHs actively participating in the training in 2006-

2007 (Intensive B).

2008 BRIEF UPDATE:

- There was no change in self-reported physical activity among children in the early or delayed intervention groups.
 - No support for objective 4 related to physical activity.
- There was a significant increase in the number of fruits and vegetables eaten among children in both groups 2004 – 2006; this increase was maintained in both groups through 2008.
 - Increase not directly related to intervention; it was maintained over the 5-year study period.

Measurement Activities and Process Objectives with Brief Updates

Primary Measurement Activities

The USC Research Team will:

- Conduct baseline and yearly assessments of the CHs environments related to physical activity and nutrition (PADEA survey). (Objective 1)
- Conduct individual behavior measures (physical activity and nutrition) for children residing in CHs in 2004, 2006, and 2008. (Objective 2)
- Conduct observations of children’s home environments and interviews with appropriate personnel concerning home policies and practices related to physical activity and nutrition (process and outcome evaluation). (Objective 3)

Measurement Objective 1. By late summer 2004, 2005, 2006, 2007, and 2008, approximately 60 CHs in North and South Carolina will complete the PADEA survey to assess the home environment and organizational policies/practices that impact dietary and physical activity behavior of children.

BRIEF UPDATE:

Year	Number mailed out	Number returned	Response rate	Progress
2004	52	44	85%	Completed
2005	47	43	92%	Completed
2006	52	41	79%	Completed
2007	51	42	82.3%	Completed
2008	51	45	88.23%	Completed

Measurement Objective 2. Baseline assessments of physical activity and dietary behavior of residents of CHs will be conducted in fall 2004, 2006, and 2008.

BRIEF UPDATE:

Year	Number of children with height, weight and 3DPAR	Number of children with weekday dietary recall	Number of children with weekend dietary recall	Progress
2004	287 at 22 sites	256 at 22 sites	243 at 22 sites	Completed
2006	295 at 24 sites	249 at 24 sites	251 at 24 sites	Completed
2008	336 at 23 sites	250 at 23 sites	245 at 23 sites	Completed

Measurement Objective 3. Documentation and process measures of all project activities will be on-going throughout the project.

BRIEF UPDATE:

Year	Number of homes from which	Progress

	process measures were collected	
2004	27	Completed
2005	29	Completed
2006	28	Completed
2007	28	Completed
2008	28	Completed

Intervention Activities and Process Objectives with Brief Updates

Intensive A (Early Intervention) and B (Delayed Intervention) Children's Homes Groups

The USC Research Team will:

- Facilitate identifying and training a WT from each home to enable them to assess the physical activity and nutrition environment in the home. (Objectives 4 and 8)
- Develop assessment and planning materials, and a reporting format for the WT to use in plan development, implementation, monitoring, and reporting. (Objectives 5 and 9)
- Provide support and technical assistance for the WT as they develop and implement plans to enhance the home environment. (Objectives 6 and 10)
- Facilitate transition from active intervention status to sustainability. (Objectives 7 and 11)

Intervention Objective 4. WT Training. During summer/fall 2004 and 2005 WTs from 18 homes will participate in one day of training, designed to provide team members materials and skills for assessing the home environment and home policies/practices to facilitate the development of a one-year plan to support and promote healthful eating and physical activity.

Years 2004-2006

BRIEF UPDATE:

Year	Number of homes trained and receiving materials	Number of Wellness Teams	Number of plans turned in	Progress
2004/2005	13	18	18	Completed
2005/2006	12*	17*	17	Completed

* Youth Homes is no longer participating in the intervention

Intervention Objective 5. WT Plan Implementation. After training, the WT will carry out, monitor, and adjust the plan to promote physical activity and nutrition in the CH. Each plan will be reviewed and approved, and each WT will receive \$500 as "seed money" to carry out its plan.

BRIEF UPDATE:

Year	Number of plans reviewed, getting feedback	Number of stipends provided	Number of end-of-year visits	Progress
2004/2005	18	18	17	Completed
2005/2006	17*	17	17	Completed

* Youth Homes is no longer participating in the intervention

Intervention Objective 6. Support and Technical Assistance. WTs will receive on-going support and technical assistance as they implement plans to enhance CH environment to promote and support healthful eating and physical activity.

BRIEF UPDATE: Staff In-service Programs were provided at two Intensive A Homes in 2007.

Year	Number of staff assistance contacts
2004/2005	85

2005/2006	56
2006/2007	28
2007/2008	58

Intervention Objective 7. Transition and Sustainability. WT's trained in 2004/2005 will participate in a "Celebration Event" in fall 2006, and receive \$250 for continued planning and implementation during 2006.

BRIEF UPDATE: Materials provided during the event were emailed to the homes not in attendance.

Year	Number of homes present at celebration event	Number of homes submitting material to share at event	Number of homes submitting plans	Number of homes receiving feedback on plan and stipend
2006/2007	9 (of 17)	17	14	14

Intensive B Children's Homes (Delayed Intervention (Control) group) Years 2006-2008

Intervention Objective 8. WT Training. During Fall 2007 and 2008, the WT from 12 new homes will participate in 6-10 hours of training. This training will be very similar to the WT training provided for Intensive A homes.

BRIEF UPDATE:

Year	Number of homes trained and receiving materials	Number of Wellness Teams	Number of plans turned in	Progress
2006/2007	12	12	12	Completed
2007/2008	12	12	11	Completed

Intervention Objective 9. WT Plan Implementation. After training in Fall 2006 and 2007, the WT will carry out, monitor, and adjust the plan to promote physical activity and nutrition in the CH. Each plan will be reviewed and approved, and each WT will receive \$500 as "seed money" to carry out its plan. End-of-year (intervention year) visits will be conducted at each home to evaluate progress in plan implementation.

BRIEF UPDATE:

Year	Number of plans reviewed, getting feedback	Number of stipends provided	Number of end-of-year visits	Progress
2006/2007	12	12	12	Completed
2007/2008	11	11	7 (some were combined with in-service visits)	Completed

Intervention Objective 10. Support and Technical Assistance. WT's will receive on-going support and technical assistance as they implement plans to enhance CH environment to promote and support healthful eating and physical activity.

BRIEF UPDATE: Intensive B

Year	Number of staff assistance contacts
2006/2007	34
2007/2008	64

Intervention Objective 11. Transition and Sustainability. WT's trained in 2006/2007 will participate in a

“Celebration Event” in fall 2008, and receive \$250 for continued planning and implementation during 2008.

BRIEF UPDATE: Materials provided during the event were emailed to the homes not in attendance.

Year	Number of homes present at celebration event	Number of homes submitting plans	Number of homes receiving feedback on plan and stipend
2008/2009	7 (of 12)	7	7

Lessons Learned/Adjustments 2008

Context and Setting

What Worked Well

- It was important to respect the primary mission of the children’s homes (CHs): caring for children.
- Developing and maintaining positive working relationships with the staff in the CH was essential.
- Logic model and conceptual framework served as solid guides for evaluation and intervention.
- The “flexible, adaptive” approach which identified common goals but allowed each CH some flexibility in meeting those goals was successful.
- The Duke Endowment’s hosting of key meetings of CEOs was integral to project success.
- The ENRICH Advisory Committee provided essential oversight and assistance throughout the project.

Lessons (Re) Learned

- Buy-in from both administrators and key staff is essential.
- Group homes are complex organizations (in terms of size, structure, locations, services provided, and populations served) and they evolve over time.
- Consistent, clear, and on-going communication between ENRICH and contacts in the CHs and between the ENRICH CH contacts and staff who carry out the project is very important.

Intervention

What Worked Well

- Training was well received and motivated participants to implement ENRICH; teams were prepared to develop and implement ENRICH plans; teams benefited from hearing about other teams’ successes and challenges.
- Positive feedback, incentives (including recognition for efforts) and an atmosphere that combines work with fun contributed to ENRICH trainings being well-received and participant follow-through on ENRICH tasks.
- Onsite in-service training was added to meet expressed needs of CHs and enhanced implementation of ENRICH.
- Implementing and evaluating an “adaptable” intervention at the organizational level is feasible.
- Partnering with internal “change agents” (the Wellness Teams WTs) was a useful approach to change.

Lessons Learned

- Successful WTs have a variety of meeting and operational practices (e.g., formal meetings every week, month or quarter; informal meetings on an “as needed basis”).
- Assessing readiness of participating organizations and careful documentation of external and internal factors is essential; staff turnover at all levels requires ongoing visits and support.
- F/V consumption was “easier” to change than physical activity.
- In order to increase physical activity, it may be important to focus on scheduling “protected” physical activity time and increasing opportunities for PA throughout the day (not just after school).
- Engaging direct care staff is essential.
- CHs need assistance in developing relationships with local physical activity and nutrition organizations.
- CHs are interested in networking with other organizations implementing ENRICH—particularly those nearby.

Evaluation

What Worked Well

- Conducting an extensive process and outcome evaluation of an “adaptable” intervention at the organizational level is feasible.
- CHs were very willing to participate in all measurement activities.
- Data collection instruments were relatively easy to use and data were collected as scheduled.
- Multiple measures of important variables, as well as quantitative and qualitative measures, are needed.
- Monitoring in early and delayed intervention (control) CHs was essential due to the high level of “readiness” at the beginning of the project, resulting in early implementation in delayed intervention (control) homes.

Lessons Learned

- Client consents were difficult and time consuming for CH staff to obtain; need to develop alternative approaches to reduce staff burden and increase client participation.
- Much of what the Wellness Teams do is not reflected in either their plans or notebooks; consider alternative methods for capturing activity.
- Continue to work with organizations to define the concepts of “policy” and “organizational practice” and how they translate into day-to-day activities of the organization.
- Additional contextual and organizational assessments are needed (e.g., capacity assessment).

II. Progress Report: Advisory Committee

The Advisory Committee will: (1) provide input into project decisions and policies; (2) assist staff with issues that are unique to children’s group homes; and (3) be kept informed of project activities throughout the course of the funded project period. Feedback from members of the AC, during AC meetings as well as contacts between meetings, has been very valuable.

Year	Meetings Scheduled	Number of meetings held
2004	March 17, June 17, September 23, and December 9	4
2005	March 3, July 21, and November 17	3
2006	March 27 and November 16	2
2007	July 26	1
2008	August 14	1
2009	Meeting Canceled due to budget constraints	0

III. Progress Report: Framework, Study Design, and Internal Review Board

Organizational Profile Update

In the spring of 2004, we collected organizational information from the CHs that we needed for the selection, matching, and randomization process. Each spring, the ENRICH staff asks each home for an Organizational Profile Update. We sent each home the information we currently had on record and asked for corrections and changes.

BRIEF UPDATE:

Year	Number of Homes sent Organ. Profiles	Number of Organ. Profiles returned	Response rate	Progress
2004	68	53	78%	Complete
2005	54	41	76%	Complete
2006	52	39	75%	Complete
2007	52	35	67%	Complete
2008	51	40	78%	Complete

- 7 Homes reported receiving additional funding to support wellness activities in their organizations. Funds awarded ranged from \$250 - \$240,000. Twenty-three homes reported receipt of physical activity equipment.
- 8 Homes Report Leadership Changes
- 6 Homes Report Significant Funding Changes
- 2 Homes Report Changes in Organizational Mission
- 22 Homes Reported Significant Staff Turnover
- 9 Homes Report other changes including :
 - One group home closed due to funding
 - Closure of Level III group home
 - Reduction in number of children served
 - Loss of adoptions contract due to funding
 - Closure of on-site school
 - Expansion to include transitional living (2 reported), independent living, and foster care programs
 - Expansion to include placement of children 12 and under
 - Application to become Level II provider

Internal Review Board

The Internal Review Board at the University of South Carolina reviewed and approved data collection for this project. Materials used by the Individual Behavior Measurement Coordinator in corresponding with the home liaison and recruiting children were revised in the spring of 2006. No additional changes occurred in 2007 or 2008.

Framework, Logic Model, and Study Design (No changes in 2007 or 2008)

The Framework was developed in 2004. In 2005, we made one clarification to it to emphasize the importance of establishing working relationships with the children's homes. An overview of the logic model and how it relates to measurement is provided in Appendix 1

The study design is a 2004 pre- and 2006 post-test comparison of early intervention (Intensive A) and delayed intervention/control homes on key organizational and environmental measures. Individual behavior measures of children's physical activity and nutrition were taken in 2004 and 2006 and scheduled to be repeated in 2008 in the Intensive CHs. Because of the turnover in the residential population, it is not feasible to examine children's behavior over time. Therefore, for the individual measures the design is a group randomized, cross-sectional design. See Appendix 2 for a detailed depiction of the study design.

IV. Progress Report: Intervention

Progress Report

We completed the Year three, a transition year for the Intensive B homes. During the transition year, we asked the WTs to submit plans and document their progress; they were provided a reduced (\$250) stipend. Seven of the 12 homes submitted plans and were provided with stipends.

The intervention components consist of the following: Initial visit; WT training; technical assistance; consultation, and other support; resources; end-of-year intervention site visit, and staff in-services. Staff provided resources, technical assistance, and staff in-service programs to Intensive B Homes.

Seven staff in-services were provided to 4 Intensive B Homes in 2008 and 2009. In addition, 4 in-services were provided to 4 Intensive A Homes and one in-service was provided for a PADEA only home, Nazareth Home for Children. See Appendix 3 for Intervention details.

Foster Care Pilot

In addition to scheduling presentations on nutrition and physical activity at the 2009 annual conferences for both the NC and SC Foster Parent Associations, nutrition education sessions were provided for numerous county affiliates of the SC Foster Parent Association.

Training Provided for Local Affiliates of South Carolina Foster Parent Association	Date	Number of Attendees
York County	1/5/09	10
Chester County	1/8/09	6
Dorchester County	1/8/09	20
Horry County	1/13/09	42
Georgetown	1/22/09	9
Jasper County	1/22/09	11
Cherokee County	1/27/09	20
Richland County	1/27/09	17
Allendale, Bamberg, Barnwell	2/2/09	22
Kershaw	2/2/09	21
Abbeville	2/9/09	4
Edgefield, Saluda, & McCormick	2/9/09	Cancelled
Lancaster	2/10/09	4
Union	2/19/09	7
Beaufort	2/23/09	12
Greenwood	2/23/09	13
Chesterfield	3/5/09	19
Fairfield	3/10/09	6
Colleton	3/12/09	13
Berkeley	3/14/09	27
Charleston	3/14/09	24
Florence	3/19/09	28
Dillon	3/23/09	14
Newberry	3/24/09	7
Williamsburg	3/26/09	12
Marion	4/2/09	17
Aiken	4/9/09	Cancelled
Orangeburg	4/14/09	
Sumter	4/14/09	
Lexington	4/16/09	
Laurens	4/20/09	
SCFPA Conference	4/23-4/24	
Edgefield & Saluda	5/2/09	
Darlington	5/19/09	
Lee	5/21/09	
Total: As of 4/2/09		385

V. Progress Report: Outcome Measurement

The Physical Activity and Dietary Environmental Assessment (PADEA), a 70-item instrument sent to the assistant administrator (or one who holds equivalent duties) in each CH, is based on the ENRICH framework and assesses CH policy and practice related to providing and promoting fruits and vegetables at meals and snacks and physical activity opportunities for children. This instrument is administered annually to all CHs who are participating in the study; we are interested in change in these assessments over time.

Other outcomes assessments include the nutrition and physical activity surveys (children's perceptions of the environment), nutrition and physical activity staff interviews, and observations of the environment in the CHs (see Appendix 4 for a detailed summary of outcome tools).

Overview of Outcome Objectives

Organizational outcome objectives pertain to the CH environment to support and promote physical activity and healthful eating.

1. By Summer 2006, the homes of WTs trained in 2004-2005 (Intensive A) will show significant improvement in **organizational characteristics and the CH environment** compared to the WTs who will be trained in 2006-2007 (Intensive B; control group receives delayed intervention).
2. The percentage of children residing in the CHs who **meet physical activity and dietary guidelines** will increase between Summer 2004 and Summer 2006 in CHs actively participating in the training during 2004-2005 (Intensive A) compared to those participating in delayed training.

Organizational and Individual Outcomes for Intensive B

3. By Summer 2008, the homes of WTs trained in 2006-2007 (Intensive B) will show significant improvement in **organizational characteristics and the CH environment** compared to measures obtained in 2006.
4. The percentage of children residing in the CHs who meet physical activity and dietary guidelines will increase between Summer 2006 and Summer 2008 in CHs actively participating in the training in 2006-2007 (Intensive B).

Sustainability Objective

5. The positive changes in the CH environment to support and promote physical activity and healthful eating measured in 2006 among WTs trained in 2004-2005 (Intensive A) will be **maintained** through Summer 2008.

Results for Objectives 1 and 3: Organizational Change (above)

Organizational outcome objectives pertain to the CH environment to support and promote physical activity and healthful eating.

1. By Summer 2006, the homes of WTs trained in 2004-2005 (Intensive A) will show significant improvement in **organizational characteristics and the CH environment** compared to the WTs who will be trained in 2006-2007 (Intensive B; control group receives delayed intervention).

Target for Change. An environment that supports and promotes physical activity and healthful (fruits

and vegetables) eating was defined based on the Structural Ecologic Model. The elements of the healthful environment are described below:

- (1) Having opportunities to be physically active at the home after school and having fruits and vegetables available for meals and snacks;
- (2) Ensuring that the physical activity opportunities and the fruits and vegetables served are appealing to the children;
- (3) Creating an encouraging environment for being active and eating fruits and vegetables by strengthening social support for these behaviors from adults, adults’ modeling these behaviors, and increasing positive media messages about physical activity and eating fruits and vegetables; and
- (4) Developing, strengthening, and/or enforcing policies that ensure children have access to fun opportunities for physical activity and tasty, easy-to-eat fruits and vegetables, and to create a supportive social environment for healthful behavior in the home,

In addition, ENRICH added a fifth element that stressed the importance of enhancing, creating, and maintaining organizational structures to support these changes:

- (5) Having an active committee to assess and improve the home environment as needed (the Wellness Team), and organizational support for these activities.

Measures. There were two primary measures used to assess organizational outcomes related to physical activity and nutrition, the PADEA (Assistant CEO or designee) and Staff Interviews (administered to nutrition and recreation staff in the home). Most items on each instrument were rated 0 (“Does not exist” for a policy, “never” for an activity) to 3 (“Fully in place” for a policy, “All of the time” for an activity). Sample items from the PADEA are provided in Table 1 below.

Table 1. Sample items from the PADEA used to measure aspects of the healthful environment.

Environmental Variable	Sample Items for Physical Activity	No. of items	Sample Items for Fruits and Vegetables	No. of items
Opportunities	There are structured PA opportunities at home after school 5 days per week.	1	At least 3 fruits and vegetables are served at dinner each day	5
Characteristics	The PA time available in the home are things children enjoy.	3		
Structures	Children have free time to play and be active at home after school 5 days per week	4		
Social environment	Staff working with mental, physical health of children regularly encourage PA in children.	7	Children have regular chances to pick fruits and vegetables served at meals	11
Wellness for staff	There is an active wellness program or club for staff	1		
Organizational support	There is a committee that meets regularly to discuss/plan events, policies/practices in the CH related to PA	3	There is a committee that meets regularly to discuss/plan nutrition events, policies or practices.	4
Policies	CH has a policy/practice providing money for uniforms & equipment for PA teams and activities outside CH	2	There is a CH policy that says at least one fruit is served at breakfast	4
Collaboration	The home works with or uses services of at least one community	1	The home works with or uses services of at least one	1

	agency or group who provide support or services for physical activity		community agency or group who support or provide services for nutrition	
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Evaluation Design and Analysis. ENRICH used a two group (**Intensive A** or early intervention and **Intensive B** or delayed intervention/control) with pre- (2004, prior to the intervention for Intensive A) and post-test (2006, after the Intensive A intervention and before the Intensive B delayed intervention) assessments of the environmental variables in the home. To assess attainment of Objective 1 above, we compared Intensive A and Intensive B in 2006, controlling for the baseline (2004) levels of the variables (see Tables 2 and 3 for nutrition and Tables 4 and 5 for physical activity below).

Summary of Outcome Evaluation Methods and Results

- Groups: Early Intervention (n=17) and Delayed intervention n=12)
- Outcome Measure: Physical Activity and Dietary Environmental Assessment (PADEA)
- Data collection: Annual mailed survey to Assistant CEO
- Data analysis: 2-way (Condition by Time) repeated measures ANOVA
- Data from 2004, 2006, and 2008

Table 2. Summary of Nutrition Results

Variable	Sample Item (number of items)	Result
Availability & characteristics	At least 3 fruits and vegetables are served at lunch each day (5 items)	No change
Nutrition social environment	Children have regular chances to pick fruits and vegetables served at meals (11 items)	Significant changes (not intervention related)
FV policies	There is a CH policy that says at least one fruit is served at breakfast (4 items)	No change
Organization	There is a committee that meets regularly to discuss/plan events (4 items)	Significant changes
Collaboration	The home works with or uses services of at least one community agency or group who support or provide services for nutrition (1 item)	No change

Table 3. Estimate (SE) of Fruit and Vegetable PADEA variables at 3 time points.

Variable	INTERVENTION EFFECT (Group x time)						TIME EFFECT			p-value
	Delayed			Early			1	2	3	
	1	2	3	1	2	3	1	2	3	
Org Nutrition	1.5 (0.2)	1.4 (0.2)	2.2 (0.2) b,c	1.4 (0.2)	2.3 (0.2)	2.2 (0.2) a,b	1.5 (0.2)	1.8 (0.2)	2.2 (0.2) f	Time=.00 Int=.02
Fruit and Vegetable	2.4 (0.1)	2.5 (0.1)	2.8 (0.1)	2.3 (0.1)	2.6 (0.1)	2.7 (0.1)	2.4 (0.1)	2.6 (0.1)	2.7 (0.1)	Time=.003 Int=.44

available										
Collaboration	2.2 (0.3)	1.6 (0.3)	1.7 (0.3)	1.9 (0.3)	2.3 (0.3)	2.1 (0.3)	2.0 (0.2)	2.0 (0.2)	1.9 (0.2)	Time=.96 Int=.29
Fruit and vegetable social	1.6(0.1)	2.1 (0.1)	2.5 (0.1) a,b,c	1.9 (0.1)	2.4 (0.1)	2.3 (0.1) a,b	1.8 (0.1)	2.2 (0.1)	2.4 (0.1) e,f	Time<.001 Int=.03
Fruit and vegetable policy	2.3 (0.2)	2.3 (0.2)	2.7 (0.2)	2.1 (0.2)	2.5 (0.2)	2.6 (0.2)	2.2 (0.2)	2.4 (0.2)	2.6 (0.2)	Time=.06 Int=.44
Total	1.9 (0.1)	2.1 (0.1)	2.5 (0.1) b,c	1.9 (0.1)	2.4 (0.1)	2.4 (0.1) a,b	1.9 (0.1)	2.3 (0.1)	2.5 (0.1) e,f	Time<.001 Int=.07

Note Int= interaction between condition and time a=1 and 2 differ ; b=1 and 3 differ ; c=2 and 3 differ (p<.05)
d=all time points differ; e=1 and 2 differ (p<.05); f=1 and 3 differ

Table 4. Summary of Physical Activity Results

Variable	Sample Item (number of items)	Result
Opportunities	There are structured PA opportunities at home after school 5 days per week (1 item)	No change
Structures	Children can get to and use many kinds of equipment (e.g., bicycles, basketballs) (4 items)	No change
Characteristics	The physical activities available in the home are things children enjoy (3 items)	No change
Social environment	Staff regularly encourage PA in the children (7 items)	Significant changes
Off-site Policies	CH has a policy for providing transportation to off-site PA opportunities	No change
Wellness for staff	There is a committee that meets regularly to discuss/plan events, policies/practices in the CH related to PA (1 item)	No change
Organization	There is a committee that meets regularly to discuss/plan events, policies/practices in the CH related to PA (3 items)	No change
Collaboration	The home works with or uses services of at least one community agency or group who provide support or services for physical activity (1 item)	No change

Table 5. Estimate (SE) of Physical activity PADEA variables at 3 time points.

Variable	INTERVENTION EFFECT (Group x time)						TIME EFFECT			p-value
	Delayed			Early			1	2	3	
	1	2	3	1	2	3	1	2	3	
Orgsup	1.8 (0.2)	2.3 (0.2)	2.6 (0.2)	2.2 (0.2)	2.4 (0.2)	2.5 (0.2)	2.0 (0.2)	2.4 (0.1)	2.6 (0.1)	Time=.02 Int=.50
Policy	1.3 (0.3)	1.6 (0.3)	1.8 (0.3)	0.9 (0.3)	1.8 (0.3)	1.3 (0.3)	1.1 (0.2)	1.7 (0.2)	1.3 (0.2)	Time=.07 Int=.29
PA available	2.1 (0.2)	2.3 (0.3)	2.7 (0.2)	2.2 (0.2)	2.5 (0.2)	2.4 (0.2)	2.2 (0.2)	2.4 (0.2)	2.6 (0.2)	Time=.08 Int=.43
Char PA	2.3 (0.1)	2.6 (0.1)	2.7 (0.1)	2.5 (0.1)	2.7 (0.1)	2.6 (0.1)	2.4 (0.1)	2.7 (0.1)	2.6 (0.1)	Time=.02 Int=.16
Structure	2.7 (0.1)	2.9 (0.1)	2.8 (0.1)	2.8 (0.1)	2.9 (0.1)	2.8 (0.1)	2.7 (0.1)	2.9 (0.1)	2.8 (0.1)	Time=.08 Int=.88
Well	1.3 (0.3)	1.6 (0.3)	1.8 (0.3)	0.9 (0.3)	1.8 (0.3)	1.3 (0.3)	1.1 (0.2)	1.7 (0.2)	1.5 (0.2)	Time=.07 Int=.29
Social	2.2 (0.1)	2.2 (0.1)	2.7 (0.1) b,c	2.2 (0.1)	2.5 (0.1)	2.5 (0.1) a	2.2 (0.1)	2.4 (0.1)	2.6 (0.1) f	Time=.003 Int=.03
Collaborate	2.7 (0.3)	2.3 (0.3)	2.8 (0.3)	2.4 (0.2)	2.3 (0.2)	2.4 (0.2)	2.5 (0.2)	2.3 (0.2)	2.6 (0.2)	Time=.42 Int=.58

Note Int= interaction between condition and time a=1 and 2 differ ; b=1 and 3 differ ; c=2 and 3 differ (p<.05)
d=all time points differ; e=1 and 2 differ (p<.05); f=1 and 3 differ

See Appendix 5 for detailed tables of unadjusted means.

Results for Objectives 2 and 4: Individual Behavior Outcomes

2. The percentage of children residing in the CHs who **meet physical activity and dietary guidelines** will increase between Summer 2004 and Summer 2006 in CHs actively participating in the training during 2004-2005 (Intensive A) compared to those participating in delayed training.

We used the 3DPAR (3-Day Physical Activity Recall) to assess physical activity among and the 24-dietary recall to assess nutritional habits. We are also assessing the children's perceptions of the physical activity and nutrition environment in the children's homes, based on the ENRICH framework. See below for an overview of Individual Behavior measures. See Tables 6 and 7 for individual behavior results.

Individual Measures				
Variable	Data source	Data collection method	Data collection tools	Data collection time frame
Dietary behavior/meets does not meet recommendation	Children	Trained and certified data collectors interview children via telephone	24-hour dietary recall	Fall 2004, 2006, and 2008
MVPA/meets does not meet recommendation (approximate)	Children	Trained and certified data collectors administer tool in groups of up to 20 children	3DPAR	Fall 2004, 2006, and 2008
Perceptions of the children's home environment	Children	Trained and certified data collectors administer tool in groups of up to 20 children	Physical Activity Survey Nutrition Survey	Fall 2004, 2006, and 2008

Nutrition: Eating fruits and vegetables

Table 6. Summary of individual behavior nutrition results.

Variable	Measure	Result
Servings of Fruits and Vegetables Eaten by RCH Residents	24-hour Dietary Recall	Significant increase 2004-2006 (not related to condition)
Servings of Fruits and Vegetables Eaten by RCH Residents	24-hour Dietary Recall	No change between 2006-2008 (increase is maintained; not related to condition)

Summary of individual behavior physical activity results.

Variable	Measure	Result
Moderate-to-Vigorous Physical Activity (MVPA)	3 Day Physical Activity Recall (3DPAR)	No change 2004 - 2006
Moderate-to-Vigorous Physical Activity (MVPA)	3 Day Physical Activity Recall (3DPAR)	No change 2006 - 2008

Table 7. LS MEANS (SE) Fruit & Vegetable eating at 3 time points (intervention effect) n=777

Variable	INTERVENTION EFFECT (Group x time)						TIME EFFECT			p-value
	Delayed			Early			1	2	3	
	1	2	3	1	2	3				

Total fruit & vegetable servings	2.7 (0.3)	4.3 (0.3)	4.1 (0.3)	3.0 (0.3)	4.2 (0.3)	3.7 (0.3)	2.9 (0.2)	4.2 (0.2)	3.9 (0.2)	Time<.001 Int=.41
Fruit & Vegetable serving- No French fries	2.4 (0.3)	3.9 (0.3)	3.7 (0.3)	2.6 (0.3)	3.7 (0.3)	3.4 (0.3)	2.5 (0.2)	3.8 (0.2)	3.6 (0.2)	Time<.001 Int=.57

Note: Year 2 and 3 do not differ; controlling for age, sex, BMI, years in home, race, home nested in group

Physical activity

LS MEANS (SE) of Physical activity at 3 time points by Condition by Time, Condition and Time (n=777)

Variable	INTERVENTION EFFECT (Group x time)						TIME EFFECT			p-value
	Delayed			Early			1	2	3	
	1	2	3	1	2	3				
# Blks MVPA	3.5 (0.4)	4.1 (0.4)	3.7 (0.4)	3.4 (0.4)	3.2 (0.4)	3.4 (0.4)	3.5 (0.3)	3.7 (0.3)	3.5 (0.3)	Time=.81 Int=.41
2+ Blks ofMVPA Percent	63.7 (5.3)	72.0 (5.2)	70.7 (5.5)	64.1 (5.2)	61.5 (5.3)	70.1 (4.9)	63.9 (3.8)	66.8 (3.7)	70.4 (3.7)	Time=.34 Int=.35

Controlling for age, sex, BMI, race, with home nested in group

Results for Objective 5: Sustainability in Intensive A

Sustainability of ENRICH-related changes was assessed through an interview with the Wellness Team Contact in 14 Intensive A homes. An overview of key results is presented below.

Physical Activity Sustainability

N	Question	Mean	SD
14	Future: How likely is it that the organization will want to continue making PA changes in the organization over the next year?	2.64	.49
14	Institutionalization: Were PA duties / information included in new staff orientation this past year? Did your organization provide ongoing staff development for PA this past year? Is there an individual in the home whose job it is to improve the environment related to PA? To what extent are there clear organizational procedures and / or processes for ensuring that children are getting 60 min MVPA every day?	1.86	.81
14	Staff characteristics: How would you rate staff motivation to carry out “ENRICH related PA changes in your home”? How prepared were the staff who were involved with ENRICH (knowledge and skills) to carry out “ENRICH related PA changes in your home”?	2.18	.42
14	Champion: Over the past year was there a “program champion” (a staff person in your CH) who strongly advocated ENRICH related PA changes?	2.49	1.15
13	Resources: To what extent did your organization have adequate funding to provide PA this past year? To what extent did you work with an outside organization or person other than ENRICH to obtain PA resources (e.g., funds, donations this past year)?	2.42	.49

12	Diffusion: To what extent have ENRICH-related PA changes spread to other areas of your organization? (for example from one program within the group home to another or even further to other more remote parts of your organization)	2.00	1.13
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Nutrition Sustainability

N	Question	Mean	SD
13	Future: How likely is it that the organization will want to continue making nutrition changes in the organization over the next year?	2.46	0.66
13	Institutionalization: Were nutrition duties / information included in new staff orientation this past year? Did your organization provide ongoing staff development for nutrition this past year? Is there an individual in the home whose job it is to improve the environment related to nutrition? To what extent are there clear organizational procedures and / or processes for ensuring that children are served fruits and vegetables every day?	2.25	.74
13	Staff characteristics: How would you rate staff motivation to carry out “ENRICH related nutrition changes in your home”? How prepared were the staff who were involved with ENRICH (knowledge and skills) to carry out “ENRICH related nutrition changes in your home”?	2.19	.48
13	Champion: Over the past year was there a “program champion” (a staff person in your CH) who strongly advocated ENRICH related nutrition changes?	2.08	1.04
13	Resources: To what extent did your organization have adequate funding to provide FV this past year? To what extent did you work with an outside organization or person other than ENRICH to obtain nutrition resources (e.g., funds, donations this past year)?	2.19	.52
9	Diffusion: To what extent have ENRICH-related nutrition changes spread to other areas of your organization? (for example from one program within the group home to another or even further to other more remote parts of your organization)	2.00	1.12
N	General	Mean	SD
14	Transitions: Were there changes in your organization this year (such as change in administration, staff turnover, change in service offered, etc.) that impacted your ability to be involved in the ENRICH project this past year?	1.00	1.11

0=Not in place, Rarely or Never, Resistant, etc. 3=Fully in place, Almost Always, Highly Motivated, etc.

Overall, responses indicate that though homes may not have an active wellness team, most are maintaining ENRICH-related changes. Many are including nutrition and physical activity information in new staff orientation and providing ongoing staff development in these areas, more frequently for nutrition. Approximately 30% have expanded the emphasis on nutrition and physical activity to other programs within the organization and almost all expect to continue at least some effort in continuing to make changes (see summary table on next page).

Selected Items		Homes with positive responses	Homes with moderate responses	Homes with negative or no response
Permanency of Changes (for up to 3 changes listed by respondent)	Nutrition	10 (71%)	3 (21%)	1 (7%)
	Physical Activity	12 (86%)	1 (7%)	1 (7%)
How would you rate the benefits of ENRICH-related changes for the residents in your home?	Nutrition	9 (64%)	4 (29%)	1 (7%)
	Physical Activity	10 (71%)	4 (29%)	0
How would you rate the benefits of ENRICH-related changes for the staffs in your home?	Nutrition	6 (43%)	7 (50%)	1 (7%)
	Physical Activity	2 (14%)	9 (64%)	3 (21%)
What effects have the ENRICH related nutrition changes had on the children’s eating fruits and vegetables in the home?	Nutrition	5 (36%)	8 (57%)	1 (7%)
	Physical Activity	9 (64%)	5 (36%)	0
Were nutrition/physical activity duties and/or information included in new staff orientation this past year	Nutrition	8 (57%)	2 (14%)	4 (29%)
	Physical Activity	7 (50%)	3 (21%)	4 (29%)
Did your organization provide ongoing staff development for nutrition this past year?	Nutrition	5 (36%)	7 (50%)	2 (14%)
	Physical Activity	5 (36%)	1 (7%)	8 (57%)
Did you have a wellness team that addressed nutrition/physical activity this past year?	Nutrition	2 (14%)	6 (43%)	6 (43%)
	Physical Activity	2 (14%)	7 (50%)	5 (36%)
Is there an individual in the home whose job it is to improve the environment related to nutrition/physical activity?	Nutrition	4 (29%)	4 (29%)	6 (43%)
	Physical Activity	3 (21%)	7 (50%)	4 (29%)
To what extent are there clear organizational procedures and / or processes for ensuring that children are served fruits and vegetables /get physical activity?	Nutrition	11 (79%)	2 (14%)	1 (7%)
	Physical Activity	7 (50%)	6 (43%)	1 (7%)
To what extent have ENRICH-related PA changes spread to other areas of your organization?	Nutrition	4 (29%)	2 (14%)	8 (57%)
	Physical Activity	5 (36%)	4 (29%)	5 (36%)
Over the past year was there a “program champion” for nutrition/physical activity?	Nutrition	6 (43%)	3 (21%)	5 (36%)
	Physical Activity	10 (71%)	1 (7%)	3 (21%)
Over the past year, to what extent has the organization (admin) supported ENRICH-related Nutrition/PA changes?	Nutrition	7 (50%)	6 (43%)	1 (7%)
	Physical Activity	10 (71%)	3 (21%)	1 (7%)
How likely is it that the organization will want to continue making Nutrition/PA changes in the organization over the next year?	Nutrition	7 (50%)	5 (35%)	2 (14%)

VI. Progress Report: Process Evaluation and Implementation Monitoring

ENRICH 2004 – 2008 process evaluation data collection and analyses are complete. The process evaluation was designed to answer the following questions:

1. Were all elements of the ENRICH intervention delivered by ENRICH staff (dose delivered)?
2. To what extent did the WTs form and function effectively as a team to assess and enhance the CH environment to support physical activity and eating fruits and vegetables within the CH (dose received)?
3. To what extent did the WTs carry out plans to create CH environments that support physical activity and eating fruits and vegetables (fidelity and completeness)?
4. How many WTs from the Intensive group CHs were involved throughout the project (reach)?

We have documented that ENRICH staff delivered all elements of the intervention as planned. Table 8 summarizes the process tools used in ENRICH. For additional summary data, see Appendix 6.

Table 8. ENRICH Process Evaluation Tools

Process	What	Who	When	2004-2008
Descriptive Information/Contextual Factors				
Organizational Assessment/Update	Provides information about the ongoing organizational changes occurring in the CH	CEO of CH or designee	Late Spring	✓
Dose Delivered				
ENRICH Ongoing Tech Support	Document to assess any support requested by CH Wellness Teams (visits, in-services, etc.)	ENRICH staff	After each staff encounter with CH	✓
ENRICH End of Year Support Summary	Summarizes the support requested and/or offered over the course of the year to Wellness Teams and CHs (cookbooks, visits, newsletters, etc.)	ENRICH staff	End of project year	2004: NA 2005-2008: ✓
Dose Received/Fidelity/Reach				
Post-Plan Interview	Assesses the planning process from the Wellness Team coordinator's perspective. Assesses objectives used in planning, barriers and achievements in planning and team dynamics.	Wellness Team Coordinator	One month after turning in wellness team plan	✓ (B homes 2008 had a poor response)
Wellness Team End of Year Survey	Assesses the overall picture of wellness team planning, implementation, functioning, and dose delivered.	Wellness Team Coordinator	End of the project year	✓
Wellness Team Notebook Checklist	Assessment of wellness team notebook from a process perspective	Analyzed by data collector in meeting with wellness team member in charge of notebook	Annually, Fall (after baseline)	2004: NA 2005-2008: ✓
Post-visit Assessment	Documents evaluator impressions on key elements of the home environment related to ENRICH	Process Evaluator	After each visit	✓
End of Intervention Interview	Documents interventionist impressions on home and WT progress toward achieving	Interventionist	At end of 2-year	✓

	ENRICH objectives to enhance home environment		intervention	
Dose Received				
Participant Training Survey	Provides participants a way to assess whether training objectives were achieved and offer qualitative information and suggestions.	Training Participants	After each training	✓

The ENRICH study employed a comprehensive selection and matching process to ensure the reasonably homogeneous organizations were randomly assigned to treatment condition: early intervention (Intensive A) or delayed intervention (Intensive B, serving as control). A scientifically sound design, group randomized, was used in the study. However, we also recognized that all of these organizations are in the “real world”, are influenced by the media and other events, and have the children’s health and well-being as their primary mission. All homes would be subject to the media coverage of obesity in children, and would need to take the best course of action available to address these needs among their children.

Therefore, we monitored home activities in both group related to physical activity and nutrition, as well as to monitor organizational transitions, such as staff turnover and changes in accreditation status.

Implementation in both Intensive A and B homes was assessed by creating summary scores of physical activity, fruit and vegetables, and global implementation variables from multiple data sources. The data sources include the following instruments: 1) End-of-Year Survey, 2) Sustainability Survey, 3) End-of-Intervention Interview, 4) Media Observations, 5) Staff Feedback Survey, 6) Evaluator Post-visit Survey, and 7) Dinner Observations. Homes in each category are then ranked from high to low by summary score separately for PA, Nutrition, and Global Implementation. The preliminary organizational transition and implementation results are presented in Table 9.

Table 9. Transitions and implementation for Intensive A (shaded home codes) and B homes 2008. Homes ranked in the top half of implementation for A or B are indicated by a check.

Home code	Transitions	PA impl	FV impl	Global impl
3.1		✓	✓	✓
3.2	✓	✓	✓	✓
3.3	✓	✓		
3.4	✓			
3.5	✓			
3.6	✓			✓
5	✓			
7	✓	✓	✓	✓
9	✓			
13	✓	✓	✓	✓
27	✓		✓	
36	✓		✓	
43	✓	✓		✓
46	✓	✓	✓	✓
49	✓			
63		✓	✓	✓
65	✓	✓	✓	✓
2	✓			✓
4				
12	✓	✓	✓	✓
15	✓	✓	✓	✓

17	√	√	√	√
20	√	√	√	
34	√			
38				√
42		√	√	
56			√	
61				
64		√		√

VII. Personnel

The current personnel for the project are listed below:

Ruth P. Saunders, Principal Investigator

Alexandra Evans, Co-Principal Investigator

Marsha Dowda, Biostatistician

Kelli Kenison, Intervention Coordinator

Leslie Wingard, Individual Behavior Measurement Coordinator

Jackie Buck, Process and Outcome Measurement Coordinator

Tina Devlin, Communications Coordinator

Gregory Dominick, Research Assistant

Stephanie Wildrick, Data Manager

VIII. ENRICH Organizational Chart

ENRICH: Duke Endowment Wellness Project
Organizational Chart (updated 2007)

