Overview of the Baltimore Experience Corps® Trial

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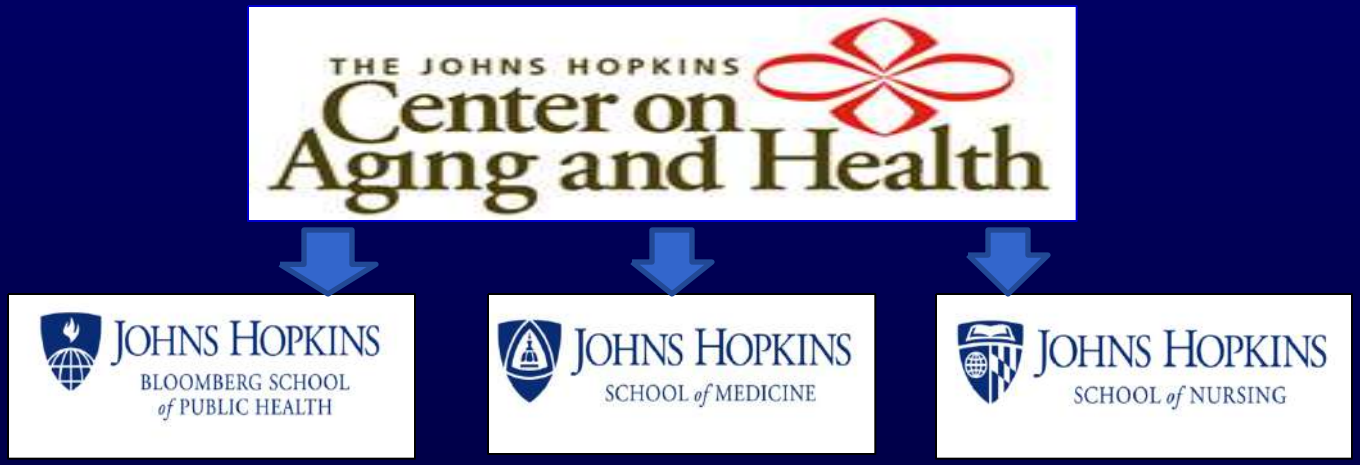
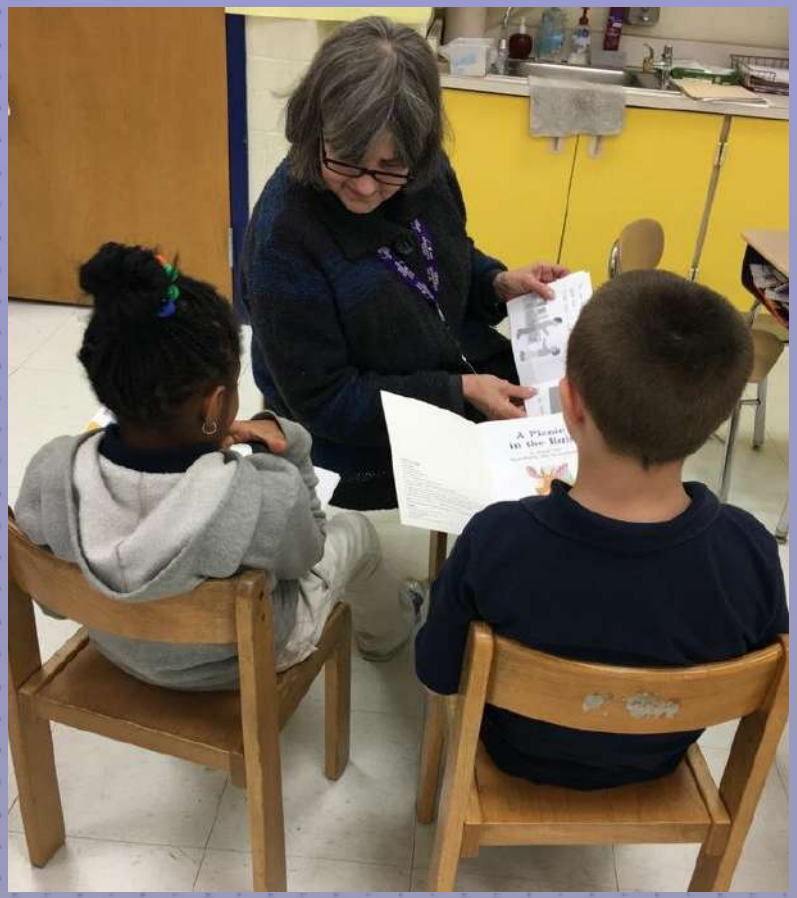


The Experience Corps (EC) Program

- A model of senior service and health promotion that simultaneously creates generative roles for older adults while meeting unmet needs of public elementary schools.
- Designed in 1994-1995 and evaluated in 2000-2002 (Fried et al., 2004; Rebok et al., 2004; Frick et al., 2004; Glass et al., 2004; Tan et al., 2006)
- 1995-8: National demonstrations, 5 cities; sponsored by Corporation for National Service (CNS)
- Results of 4-7 month pilot trial & imaging study showed EC-related improvements among older adults in:
  - Mobility and Physical Function (Fried et al., 2004; Tan et al., 2009)
  - Executive Function among highest risk (Carlson et al., 2008)
  - Improved Brain Function (Carlson et al., 2009)

AARP Experience Corps

- 2011: *AARP*
- 2015: *AARP Foundation*
  - Social Innovation Grant
  - Evaluation of small group intervention model
- 2016
  - 21 local Programs
  - 4 "Branches"
  - 2063 Volunteer Tutors
  - 30,162 Students



AARP Foundation®

Experience Corps Model

- Volunteers 60 and older
- Serve in public elementary schools: Kindergarten-3
- Meaningful roles
- High intensity: ≥15 hours per wk
- Reimbursement for expenses (lunch, transit)
- Sustained dose: full school year
- Critical mass, teams to shift outcomes for schools
- Healthy behaviors: physical, social & cognitive activity
- Leadership opportunities
- Infrastructure to support program
- Program evaluation

Meaningful Roles for Older Volunteers

- Academic support:
  - Literacy support
  - Opening/maintaining school libraries
  - Math support

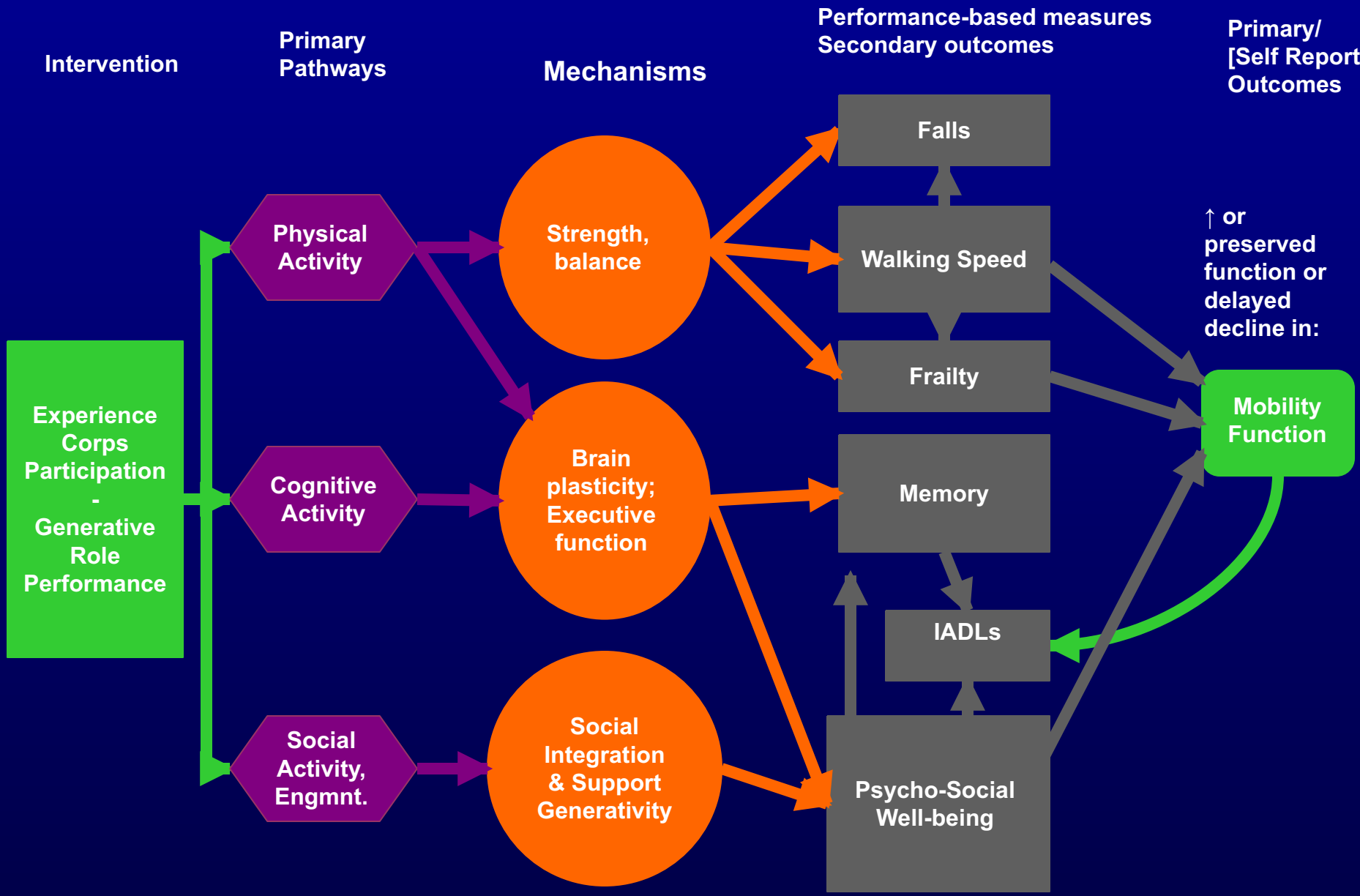
- Behavioral support:
  - conflict resolution, positive attention
- School attendance
- Parental outreach
- Public Health: Asthma club

Bringing Generations Together to Thrive: Intergenerational Win-Win

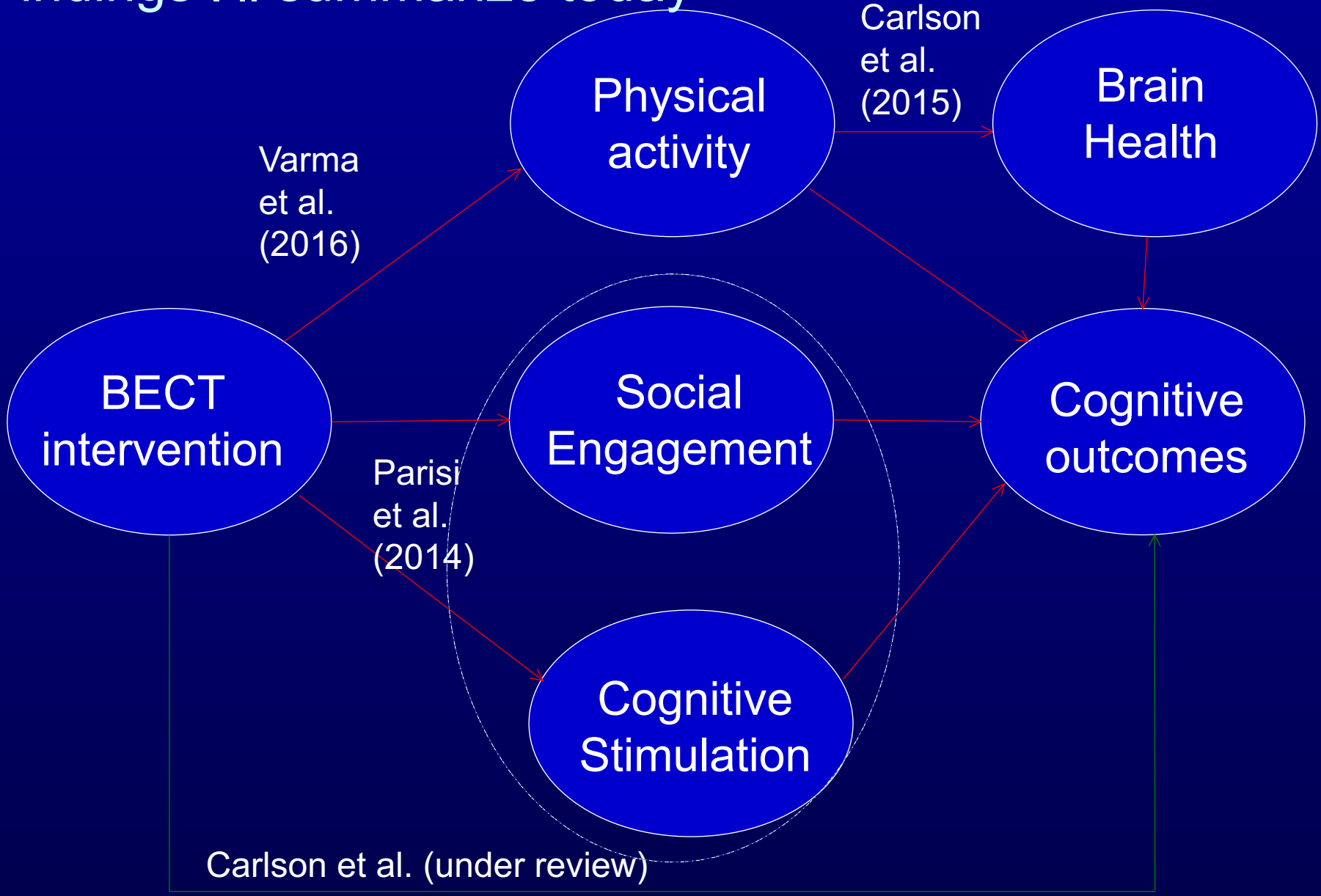
- Win: Children and schools
  - Improved academic and behavioral outcomes
  - Improved school climate
  - Improved teacher retention

- Win: Our aging population
  - Opportunity to “give back”
  - Decrease adverse health outcomes
  - Demonstrate benefits of an aging society

Hypothesized Causal Pathways of Benefit



Findings I'll summarize today



Baltimore Experience Corps Trial

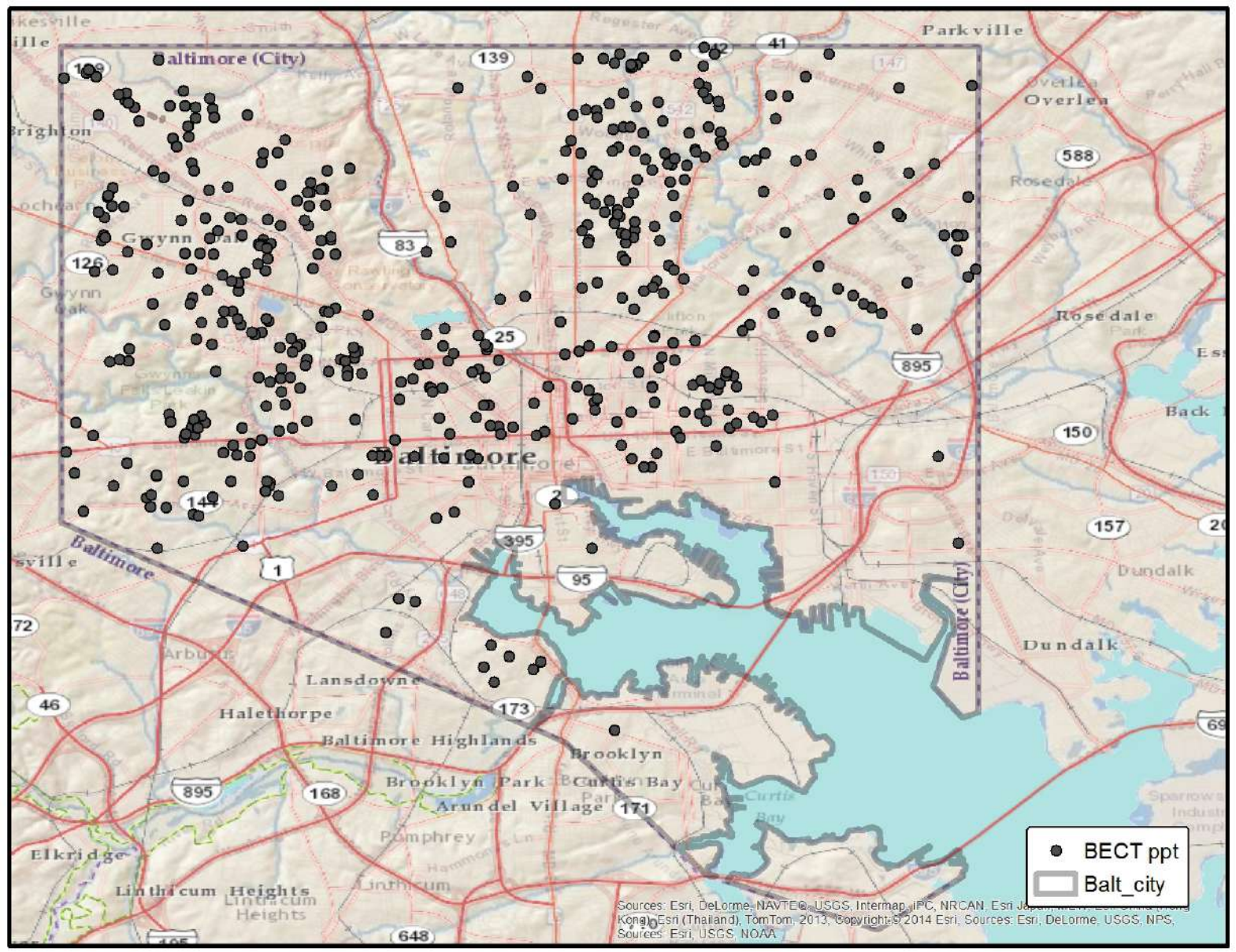
Randomized: 702 older adults to EC or low-activity control over 4 years (waves)

- Demographics:
  - x age= 67.4 yrs -- 85% female -- 95% African American – 56% > HS
  - 33% diabetes -- 70% hypertensive
  - Women at greater baseline risk than men (MMSE, education, income, & BMI)
- Exposure: up to 2 years of high-intensity service in 1 of 25 public elementary schools

- Brain Health Substudy (N=115)
  - MRI: Cortical & Hippocampal volumes
  - Objective Physical Activity

Fried, Carlson, McGill, Seeman, Xue …Rebok, 2013

Distribution of BECT participants across Baltimore City



Did EC Increase Lifestyle & Cognitive Activity? Yes.

EC volunteers report half a day/month increase in overall activity level, especially in intellectual (e.g., playing games) and physical activities (e.g., gardening) 12-months post-baseline.

There were no significant interactions by sex.

	12-month		24-month	
	ITT	CACE	ITT	CACE
	B (SE)	B (SE)	B (SE)	B (SE)
Overall Activity	0.43 (0.19) *	0.59 (0.29) *	0.22 (0.19)	0.55 (0.31) †
Activity Domain				
Intellectual	0.66 (0.31) *	0.92 (0.42) *	0.59 (0.30) †	1.07 (0.48) *
Social	0.10 (0.14)	0.43 (0.17) *	-0.26 (0.16)	-0.16 (0.39)
Physical	0.43 (0.21) *	0.95 (0.19) *	0.26 (0.22)	0.15 (0.17)
Creative	0.32 (0.32)	0.50 (0.44)	0.39 (0.33)	0.54 (0.43)
Passive	0.61 (0.51)	1.42 (0.83) †	0.83 (0.51)	1.94 (0.95) *

Note. *All models adjusted for age, sex, education, major morbidities, depressive symptoms, cohort, baseline LAQ

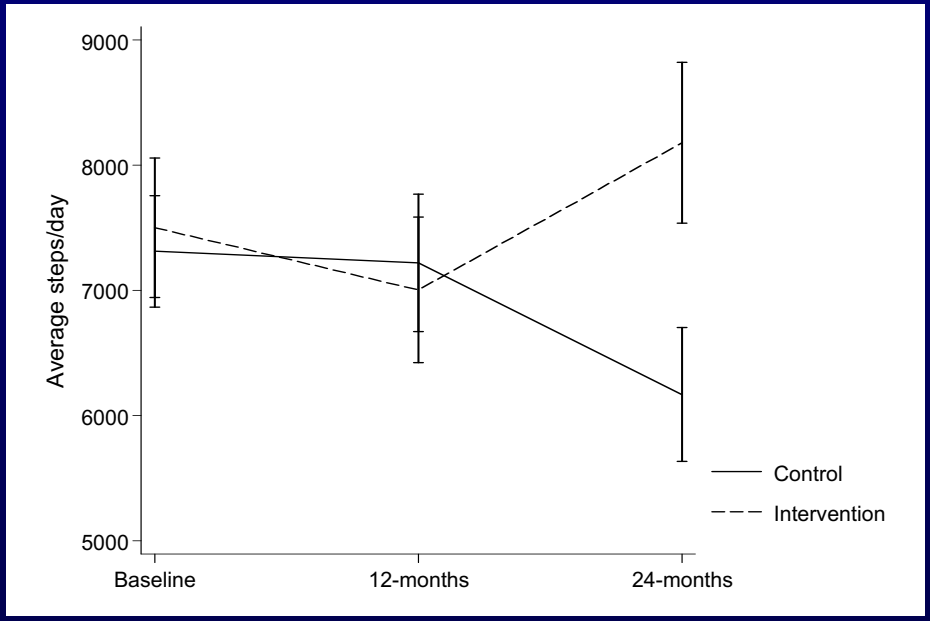
Parisi, Kuo, Rebok, Xue, Fried, Gruenewald, Huang, Seeman, Roth, Tanner, & Carlson, 2015

Did EC Increase Daily Physical Activity Following Program Participation? Step Activity (BHS N=115):

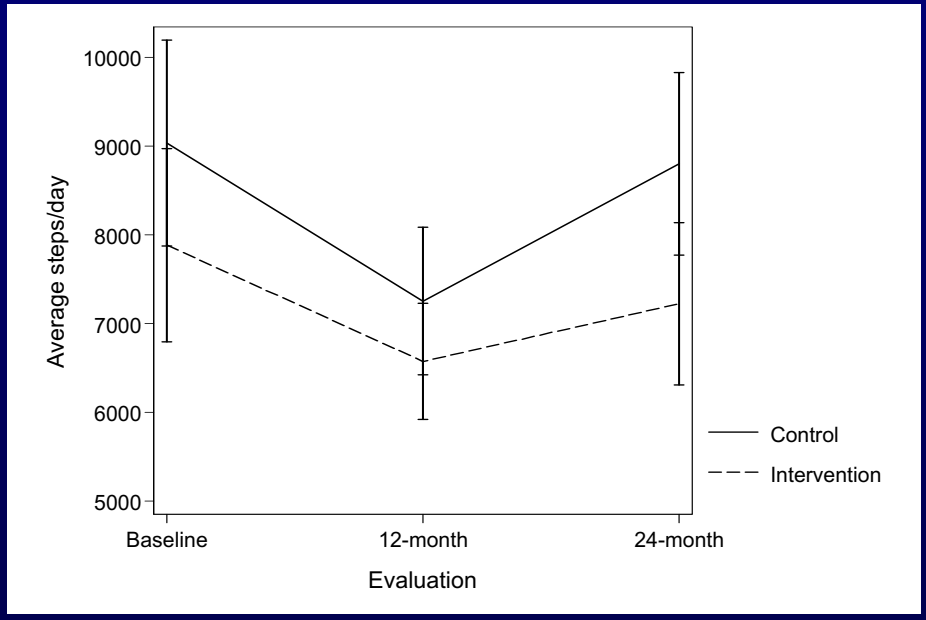
Women in Experience Corps maintained average steps/day over 24 months *post-Intervention* while Controls declined.

Men had significantly higher baseline levels of daily physical activity than women and maintained these levels.

Women



Men

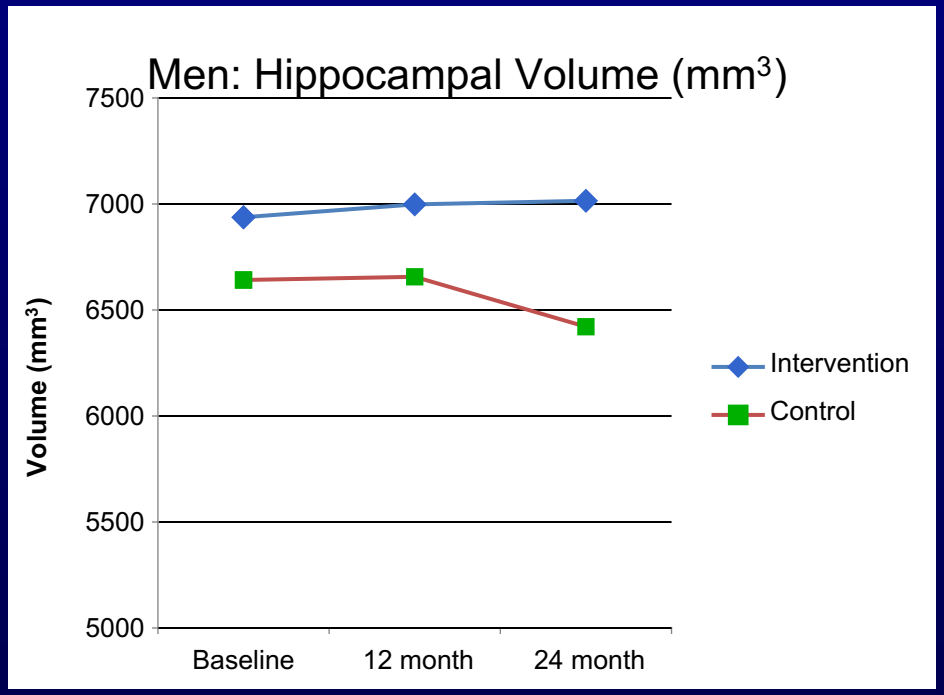


Varma, Tan, Gross, Harris, Romani, Fried, Rebok, Carlson, 2015 AJPM

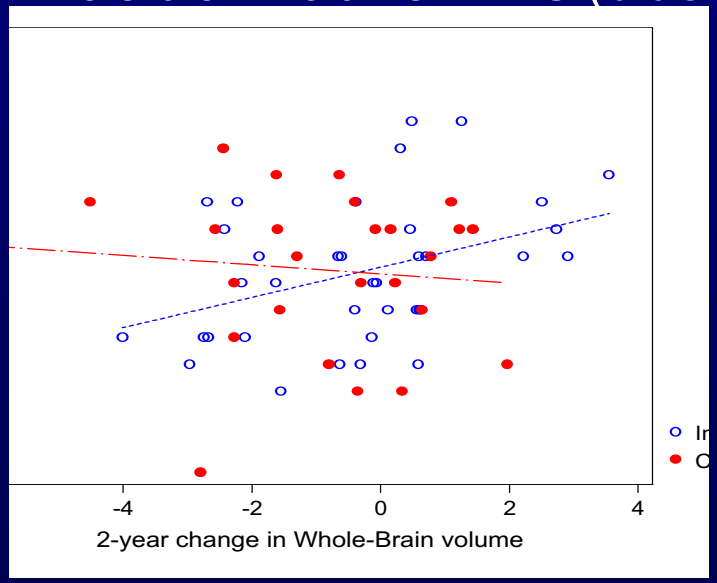
Does Experience Corps Lead to Changes in Brain Health? Hippocampal & Cortical Volumes

- Men in the Experience Corps arm showed a 0.8-1.6% **increase** in total cortical and hippocampal brain volumes v. declines in controls.

- Women in Experience Corps also tended to exhibited modest gains of 0.3-0.54% by 24 months of exposure.



- 2-year improvement in memory related to 2-year increase in whole brain volume in EC (blue.



Carlson, Kuo, Chuang, Varma, et al., 2015 Alz & Dementia

Conclusions: A Qualified Win-Win

- 1st known evidence that a community-based, intergenerational volunteer program:
  - Increases lifestyle and objective physical activity outside of the program
  - simultaneously impacts in men executive function and memory
  - brain regions important to memory and risk for Alzheimer's disease
- Effects greater in men than in women
  - Baseline differences (chronic disease burden, physical activity, and physical function)
  - Intervention differences (different roles within the schools) (see Varma et al. *Gerontologist*. 2014)
- Duration-dependent: trends emerged as significant by the 2nd year

Exploring Further Why Women in EC May Show increases in Activity but not Cognition

- Difficulties in reaching PA targets for older adults; particularly those of with poor health and low socioeconomic status (SES)
- Here, looking beyond environment to purpose may be key to moving

Sources: HHS: Health People 2020; Tudor-Locke & Basset, 2004; PAG Report, 2008; Marshall, et al. 2007; Parra-Medina, 2010

It Takes a Village: Research Team and Collaborators

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