Physical Activity Policy Implementation and Impact: A Multi-Sectoral Review

Jamie F. Chriqui, PhD, MHS

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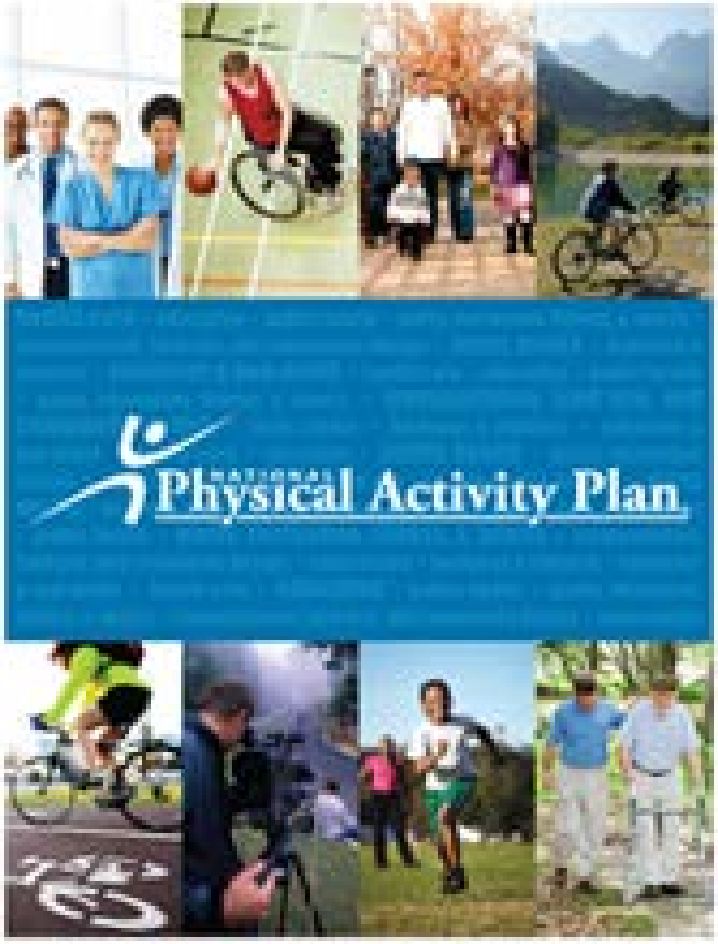
Studying Implementation and Impact of PA Policies: Key Sectors of Influence



- Public health
- Health care
- Education
- Transportation, Land Use, and Community Design
- Parks, Recreation, Fitness and Sports
- Business and Industry (Worksites)
- Voluntary and Non-Profit Organizations
- Mass Media

What this presentation is about

- A *rapid* review of the peer-reviewed scientific literature
  - Including key research syntheses and reviews from groups such as Active Living Research
  - NOT a systematic review
- Intended to provide an "overview" of some key findings relative to what we know about the implementation and/or impact of several "big P" PA-related policies at the state, local, or school district levels

The Punch Line

- There is some good news when it comes to PA policy….
- And, there is some challenging news
  - Thing to remember, policy making is mainly incremental
  - PA policies are often self-enforcing and little compliance monitoring and enforcement occurs

PA Policy in Health Care Settings

- Unable to identify studies of public policy related to PA involving the health care sector.
- Systematic review found that written Rx for exercise + Dr support for PA → increased patient PA (Müller-Riemenschneider et al., 2008)
  - Could be a possible strategy to consider in licensing standards for physicians (which are a state-level function)

"Doctor Consults with Patient" by Bill Branson [Public domain or Public domain], via Wikimedia Commons, commons.wikipedia.org; http://commons.wikimedia.org/wiki/File:Doctor_consults_with_patient_(7).jpg

PA Policy in the Education Sector: Focus on Physical Education

- Systematic review: On average, mandatory PE associated with 1-metabolic equivalent-hour-per-day increase in PA (Basset et al., 2013)
- State **PE time mandates (requirements) are associated with increased amounts of time spent in PE** in elementary and middle schools (Slater et al., 2012; Chriqui et al., 2013; Perna et al., 2013; Taber et al., 2013)

Strong PE laws matter—particularly for girls' participation in PE (Taber et al., 2013)

Gender	State law	3 + days per week			
		%	Average difference	95% CI	p-Value
Girls	None	52.1	–	–	
	Weak	63.2	11.1	−6.4, 28.6	0.21
	Strong	74.1	22.0	2.1, 42.0	0.03
Boys	None	57.6	–	–	
	Weak	66.6	9.1	−6.6, 24.8	0.26
	Strong	70.8	13.2	−5.6, 32.0	0.17

PA Policy in the Education Sector: Focus on Physical Education

- Challenges remain with implementation
  - PE time is consistently addressed in state law but the amount of time varies greatly
  - More importantly, **most states do not address the amount of time spent doing PA in PE**—particularly moderate-to-vigorous PA—and monitoring, implementation, and enforcement of such provisions is lacking (Carlson et al., 2013)

PA Policy in the Education Sector: Recess Policies

- Elementary schools more likely to offer 20+ minutes of recess daily (OR: 1.8, 95% CI: 1.2, 2.8) if state law encourages daily recess (Slater et al., 2012)
- Problem: **Policies often substitute recess for PE and vice versa** and, as a result, schools offer one or the other but often do not offer both at nationally-recommended levels (Slater et al., 2012)

Source: www.playworks.org

http://www.playworks.org/sites/default/files/styles/bento_main/public/bento/playworks_kids-playing-recess-games.jpg?itok=e0fMzYER

PA Policy in the Education Sector: PA Requirements

- Systematic review: State policies that require a **minimum number of PA minutes per student per day** → **Increased PA** and health, reduced obesity (Ward, 2011).
  - NC state policy requiring 30 minutes of MVPA/day for all elementary school children associated with increased PA, better focus in the classroom, improved student behavior, higher levels of enjoyment of PA and "awareness of healthy habits" (Evenson et al, 2009; Trost, 2009)
  - **Challenge:** Wording of state laws (and district policies) is often such that PA is defined broadly to include a laundry list of ways to meet the requirement including activity breaks, recess, and/or PA so students often get far less than nationally recommended standards for PE and recess

PA Policy in the Education Sector: After-School PA

- Beets et al. (2010) found that definitive policy **requirements for PA time in after-school programs are rarely followed**
  - Policies that encourage PA in after-school programming have higher compliance rates
- Systematic review (Beets, 2012): Many after school PA **policies lack clearly defined benchmarks and are difficult to measure making it difficult to measure compliance and impact.**
  - Significant differences in staffing and physical resources which should be considered when developing and refining policies and standards governing after school PA time (Beets, 2012)

Community and Education Sectors: Shared Use Policies

- Shared use policies are associated with modest increases in children's PA and may provide new opportunities for adult PA (Slater et al., 2014; Spengler, 2012)
  - Really may be best considered as awareness raising because many give priority to/focus on school-affiliated groups, do not allow evening/weekend/holiday access
- Shared use policies are lacking in low-income communities (Spengler, 2012)

Source: www.ci.snoqualmie.wa.us

http://www.ci.snoqualmie.wa.us/Portals/0/Parks/Park%20Pictures%202010/Community%20bball%20with%20players%202010.jpg

PA Policy and the Transportation Sector: Active Travel to School

- Safe Routes to School laws and related policies increase active transportation to school (Chriqui et al., 2012; Turner et al., 2013).
  - State laws specifically requiring infrastructure such as sidewalks, crossing guards, speed zones on school route are associated with increased active travel to school (Chriqui et al., 2012)

- Barriers to SRTS implementation in rural communities include limited resources, challenges demonstrating connection between social and economic policy and PA/health outcomes (Barnridge et al., 2013)

Transportation Policies: Light Rail Projects

- 5 studies currently funded by NIH examining the implementation and impact light rail natural experiments in 5 jurisdictions in the U.S.
- Results are emerging
  - Need to wait for completion of the studies and to understand each study's local context, methodological differencese, and confounders

Zoning and Land Use Policy: Association with Adult Biking (BRFSS, 2011)

Zoning Measure	BIKING		VIGOROUS BIKING	
	OR	95% CI	OR	95% CI
Code reform	1.34*	1.02 - 1.77	1.32*	1.01 - 1.72
Bike lanes	1.30	0.91 - 1.86	1.21	0.84 - 1.74
Bike parking/street furniture	1.85***	1.38 - 2.48	1.79***	1.31 - 2.44
Bike-ped trails/paths	1.59***	1.22 - 2.06	1.54***	1.20 - 1.97
Mixed use	1.57*	1.10 - 2.24	1.45*	1.01 - 2.06
Active rec.	1.43*	1.03 - 1.98	1.45*	1.05 - 2.01
Passive rec.	1.57*	1.10 - 2.26	1.54*	1.07 - 2.23

Results for zoning requirements for sidewalks, crosswalks, bike-ped connectivity, street connectivity. other walkability not presented for space reasons—for the most part they were not statistically associated with the outcomes

Source: Chriqui et al., under review

Data from largest 96 counties in the U.S.

Zoning and Land Use Policy: Association with Adult Walking and Jogging/Running (BRFSS, 2011)

Zoning Measure	WALKING		RUN/JOG	
	OR	95% CI	OR	95% CI
Code reform	1.04	0.93 - 1.16	0.98	0.90 - 1.07
Bike lanes	1.24***	1.09 - 1.40	1.23*	1.03 - 1.46
Bike parking/street furn.	1.19***	1.07 - 1.31	1.08+	0.99 - 1.18
Bike-ped trails/paths	1.06	0.93 - 1.20	1.02	0.92 - 1.14
Mixed use	1.16**	1.04 - 1.29	1.20***	1.09 - 1.33
Active rec.	1.14**	1.04 - 1.24	1.09+	1.00 - 1.19
Passive rec.	1.12*	1.02 - 1.23	1.10*	1.01 - 1.20

Results for zoning requirements for sidewalks, crosswalks, bike-ped connectivity, street connectivity. other walkability not presented for space reasons—for the most part they were not statistically associated with the outcomes

***p<.001 **p<.01 *p<.05 +p<.10

Source: Chriqui et al., under review

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Data from largest 96 counties in the U.S.

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Association between % county population exposed to active living-oriented zoning and % adults taking PUBLIC TRANSIT to work, ACS 2009-2013

(N=315 largest counties nationwide)

Zoning Measure	Zoning provision addressed		Any zoning required	
	Coeff	95% CI	Coeff	95% CI
Code reform	1.62+	-0.01, 3.25	--	--
Bike parking (street furniture)	**3.58****	**1.79, 5.46**	**3.81****	**1.82, 5.79**
Bike-ped trails/paths	0.83	-0.87, 2.53	0.52	-0.85, 1.89
Other walkability	**4.02****	**1.43, 6.60**	2.03+	-0.14, 4.19
Mixed use	**3.54****	**1.00, 6.08**	0.33	-2.48, 3.14
Zoning walkability scale	**0.52****	**0.19, 0.85**	**0.46****	**0.14. 0.79**

All models controlled for county-level variables

***p<.001 **p<.01 *p<.05 +p<.10

In one example, on average, public transit use for commuting at the county level was 4.58% across 315 counties studied. For a 1-point increase in the proportion of the county population exposed to zoning for mixed use, public transit use would increase by 3.54 percentage points from an average of 4.58% to over 8% of the county population.

Complete Streets Policies and Active Travel to Work

- Complete streets policies diffusing nationally but **studies of their impact are needed**
- New analyses found that the %age of commuters walking to work is 1.5% higher (95% CI: .52-2.57) and public transit use is 2.7% higher (95% CI: 1.11- 4.33) in jurisdictions with complete streets policies that are required (Chriqui et al., in development)

PA Policies regarding Parks and Open Space

- Literature exists on the relationship between park access, availability, safety, renovations, and maintenance and park utilization and PA
  - Reviews recommend policies that **invest** in maintenance, improvements to amenities and recreational programming in existing parks, and focus on safety (Babey, 2005; Global Policy Solutions, 2012).
    - A number of local-level natural experiments occurring (e.g,. Chicago park renovation initiative) that are facing implementation challenges and need to be studied

Worksite PA Policies

- Worksite promotion policies are associated with higher levels of PA and less sedentary behavior (Matson-Koffman et al., 2005; Dodson et al., 2008; Crespo et al., 2011)
- Worksite transit benefit programs associated with increased walking/active travel to work (Lachapelle and Frank, 2009)

Source: Auro University
Available:
http://commons.wikimedia.org/wiki/File:Fitness_Center.JPG

Summary

- A wide range of PA policies have been studied in terms of implementation and impact
  - Existing studies primarily limited to cross-sectional analyses—need longitudinal studies over time to truly understand impact

- Studies heavily focused on the education sector
  - More research needed in the health care, worksite, parks/open space, transportation, planning and land use sectors

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