How Could Adherence to the PA Guidelines Be Made Easier?

• Embed PA into school/work
• Make PA a necessary part of utilitarian activity (e.g. active transport)
• Make leisure PA opportunities ubiquitous, appealing and convenient (just like fast food)

• WHY DON’T WE DO THIS?
Barriers

• **Work/School**
  – Failure to appreciate the harms associated with physical inactivity;
  – No demand to mitigate prolonged sedentary behavior

• **Utilitarian PA**
  – Urban design/convenience of cars

• **Leisure PA**
  – Electronic media and spectator events are more exciting;
  – Limited science and systematic evaluations that support investment in PA opportunities

December 2012
How Do We Overcome Barriers?

Reframing the Research Questions are key:

- Adherence to PA guidelines (neither loss nor gain)
- Increase population PA to improve health
- Reduce physical inactivity to avoid harm (loss avoidance)
Focus on Physical Inactivity

• A measurable risk factor for multiple health outcomes
• Bias to mitigate risk factors
• Lends itself to research questions with policy level solutions
• Reframes the problem to target contextual factors
Community Settings

• Parks
• Supervised/Organized Activities
• Disparities by Neighborhood SES
Park-Based Physical Activity

• Among most common settings for leisure PA
• National infrastructure for parks;
  – Most people live within 2-5 miles of a public park
  – Scalable setting for leisure PA
• Designed to accommodate MVPA
• Huge appetite for green space and a naïve belief in “Build it and they will come”
Communities are Barriers to PA

- Many policies/rules restrict PA in public parks
- Pay to play: Permit process to use facilities
- Locked green space
- Limited hours; budget, staff cuts
- Park stakeholders have interest in limiting access
Parks and PA

• No nationally representative data to date (huge differences across localities)
• No historical data on trends in park use, staffing and programming
• Little science available to guide park policies/investments/staffing/programming/design/management to optimize healthy outcomes for local population
Measuring Park Use

• Systematic observation (SOPARC)
• Map parks by activity target areas
• Systematically visit and count people in each area several times per day, several days per week
  – Every hour for 14 hours/day; 3-4x/day
• Count by gender, age group, race/ethnicity, activity level
• Found that 12-16 observations/week were as acceptable as 98/week
Reliability of Observation Schedules*  

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<th># Times per day</th>
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* All alphas improved when one day was a weekend; Sunday better than Saturday

December 2012
Neighborhood Parks Uniquely Suited for Moderate to Vigorous Activity

• Our data suggest parks contribute up to 50% of all vigorous activity (population in 1/2 mile radius)
  – However, very few people engage in vigorous activity
    – average is < 4 min/day for boys; 2 min/day men; < 2 min/day girls; <1 min/day women)

• Parks contribute ≈ 12% moderate activity

• Variability of park MVPA is high: 4-41% of local MVPA (based on 10 parks)

December 2012
Many Like to Visit Parks
Data from SOPARC (5 cities)

% visiting park > 1x/week
(Residents living within ½ mile from park)

Average park visit duration
(Park Users)

December 2012
Percent of Residents Within ½ Mile of a Park That Never Visit

December 2012
Parks are Often Play Deserts

% Areas Empty by State & Season
(Play areas, Multi-purpose Fields, Picnic Areas, and Outdoor Basketball Courts)

December 2012
Followed 268 high school girls wearing GPS and accelerometers for 2 weeks (1 wk/year)

- 13-16% went to a park 1x/week
- 6-9% went > 2 times/week
- Nearest park averaged 0.3 miles from home, but visited parks were, on average, 6-8 miles away
- Engaged in 6-7 MVPA min. per park visit
- On park visit days got 5-9 more MVPA minutes

K Evenson, et al Park Use and Corresponding Physical Activity Among Adolescent Girls
2012
Park Visits Among Adult Park Users (NC, PA, NM, OH, CA)

- 238 adults wore GPS and accelerometers for 3 weeks; majority recruited from parks in 5 ci
- Closest park 0.4 miles from house; parks most often visited were 2.6 miles from home
- Visited parks 3.1x/week going to 2.5 different parks over 3 weeks;
- Stayed 50 minutes/visit; spent 6.2 minutes in MVPA
- Engaged in MVPA additional 3.7 minutes going to and from the park (within 30 minutes before and after park visit)

K Evenson: Assessing the Contribution of Parks to Physical Activity using Objective Measures

December 2012
Disparities in Park Use by SES
(50 Los Angeles Parks)

- Parks used less in low income neighborhoods
- 35% lower, controlling for park size and other factors,
- Low income area park users are more likely to walk there.
- Programming accounts for large proportion of park use disparities.

**Park Interventions:**

*Mostly Case Study-Type Data Available*

- **3 Pocket parks:** Used as well or better than playground areas of larger parks, more park users walk there.
- **12 Fitness Zones:** Used throughout the day. But how well they are used depends on placement. Modest increase in observed MVPA.
- **Renovation of 5 parks, esp. new gym:** No increased use (decreased hours and accessibility)
- **7 Skate parks:** Overall increase in park use
- **1 Bike paths:** More bike use
- **2 complete park/playground renovation**—substantial increase in use and MVPA

* Used direct observation

December 2012
Can Parks Attract More Users and Increase On-site Physical Activity?

• Randomized 50 parks to 3 conditions:
  – Outreach/programs selected in collaboration with Park Advisory Board (+$4000 and training)
  – Outreach/programs selected by Park Director (+$4000 and training)
  – Comparison group-No money or training provided

• Measured park use and physical activity before and after

December 2012
Park Interventions

• Signage
• Promotional incentives
• Classes/activities
Observed Average Daily Usage

<table>
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<tr>
<th># users</th>
<th>Control</th>
<th>PAB</th>
<th>PD</th>
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<tr>
<td>Baseline</td>
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<td>Followup</td>
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December 2012
Measured Changes

• Doing nothing leads to fewer users:
  – Control parks lost 146 users/park per week (6-10%);
  – 355 fewer METS expended;
  – Relatively, intervention parks gained 7-12%

• Doing something can increase users
  – Difference was 173 more users/week/park;
  – 571 more METS expended/week/park:
    – equivalent to 429 more people walking briskly for 20 minutes every week.

• If the effect lasted at least 20 weeks, the cost per MET gained is 36 cents;

• Investment in signage appeared most closely associated with changes in MVPA.

December 2012
Facilities Without Programs and Outreach May Not Attract Users

• Park use highly correlated with the number of supervised/organized activities

• Jane Jacobs called this “demand goods”
Events

The Gates 2005 quadrupled walking visits in Central Park to 4 million people in two winter weeks
How Important Are Parks for Physical Activity?

- Jane Jacobs suggested that the streets were more interesting and useful than park playgrounds.
- Streets can be parks for a day; Ciclovia concept.
- On “parking day” parking spots are converted into mini-parks.

December 2012
What research information would reduce physical inactivity?

• Work/school setting
  – Show impact of mitigating sedentary behavior

• Community setting
  – Marketing research
  – Large demonstration projects with outcomes that go beyond health, and include community economic benefits and crime reduction
    • (lots of potential community partners)
Cost-Effectiveness of PA Interventions

• CE usually uses $/QALYs
• Recommend $/MET-hours or $/min of MVPA generated—important metric used in the physical activity guidelines
• Number of people reached (scalability)
• Benchmark cost per MET-hour
  – Benchmark was 2.5-5% of health care costs due to physical inactivity = 0.50-$1.00/MET-hour

December 2012
Importance of Objective Measures

• Greater CE for studies with self-reported PA vs. objectively measured.

• Poor correlation between self-report and measured PA makes studies that rely on self-report suspect.