

# **Physical Activity Promotion – What is the evidence?**

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**Physical Activity and Health Branch  
Division of Nutrition and Physical Activity**

# Is Physical Activity Important?

“Given what we know about the health benefits of physical activity, it should be mandatory to get a doctor’s permission not to exercise.”

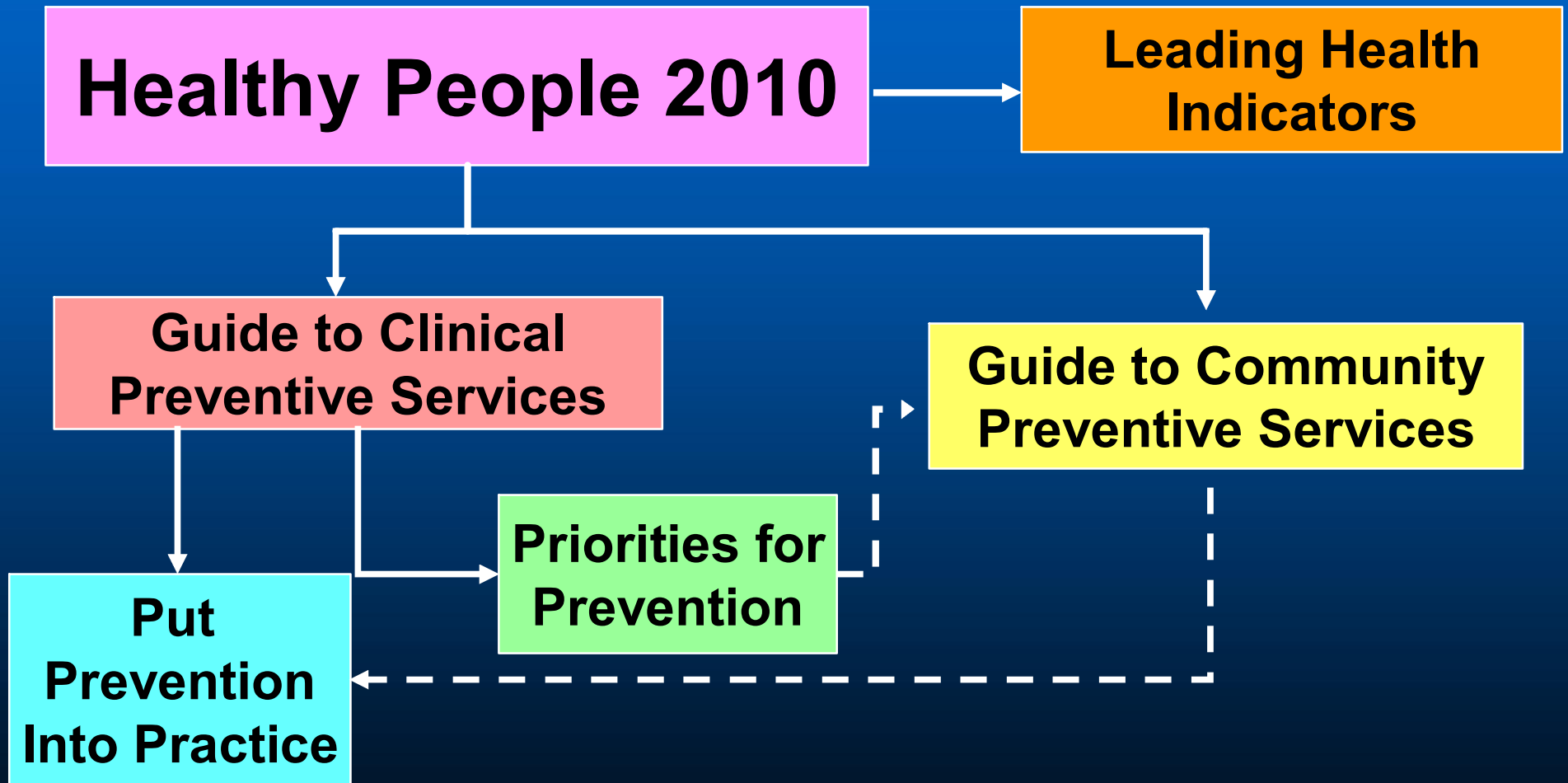
— Dr. P-O Astrand

“The American people may be the first to make a complete dissociation between living and leisure, regarding it as wrong to have to make any physical effort in order to live, but quite right to compensate by straining themselves in (*planned*) exercise.”

Henry Fairlie



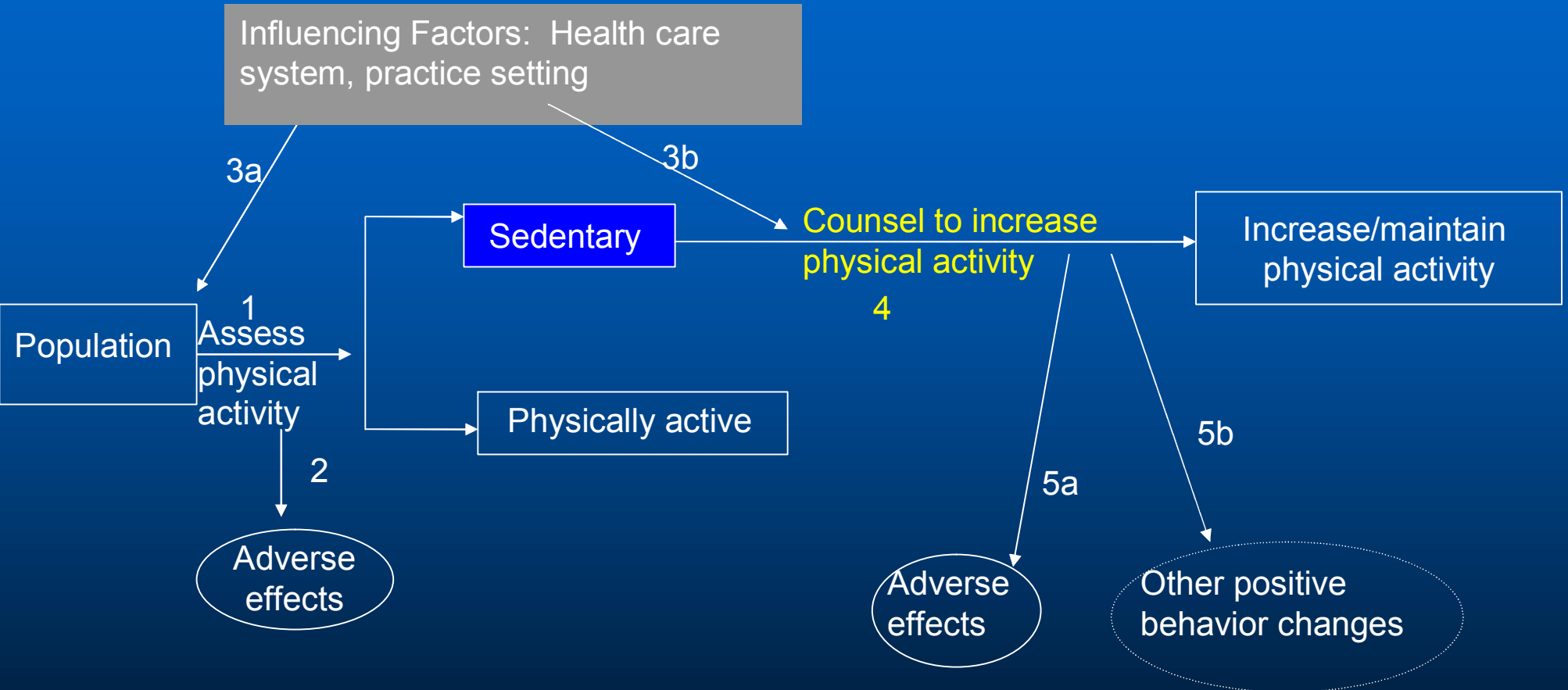
# Cross-Cutting Federal Initiatives in Prevention



## Challenges for Prevention

- Many potential services, limited clinical time
- Not everything that *might* work *does* work
- Some services have potential harms as well as benefits
- Widely recommended services should be supported by good evidence

# Counseling to Promote Physical Activity Analytic Framework



## **Best Evidence on Effectiveness**

### **The Activity Counseling Trial: A Randomized Controlled Trial**

JAMA, August 8, 2001 Vol. 286, No. 6

- More intense counseling programs were more effective with women than brief advice for increasing physical fitness.
- In men, the counseling programs were no more effective than brief advice for increasing fitness.

# Best Evidence on Harms

## The Activity Counseling Trial: A Randomized Controlled Trial

JAMA, August 8, 2001 Vol. 286, No. 6

**Table 4.** Possible Adverse Events Reported by Participants as Occurring During 24 Months of Intervention and Follow-up, by Randomized Group\*

	Advice Group (n = 292)	Assistance Group (n = 293)	Counseling Group (n = 289)
Musculoskeletal event during or following exercise†			
Any event	161 (55)	181 (62)	184 (64)
Event requiring a physician visit	89 (30)	109 (37)	103 (36)
Event requiring hospitalization	10 (3)	13 (5)	7 (2)
Potential cardiovascular event‡			
Any event	80 (27)	89 (30)	82 (28)
Event requiring a physician visit	55 (19)	53 (18)	57 (20)
Event requiring hospitalization	17 (6)	21 (7)	8 (3)

\*All values are expressed as No. (%).

†Includes leg or arm pain, swollen or sore joint, strained muscle, tendon, or ligament, and fractured bone.

‡Includes chest pain, difficulty breathing, and dizziness or loss of consciousness.



## **Current Recommendation by US Preventives Services Task Force**

- The evidence is insufficient (I) to recommend for or against behavioral counseling in primary care settings to promote physical activity.

## How Do I Find This Information?

- *Annals of Internal Medicine*, August 6, 2002:137:208-215
- Website
  - [www.ahrq.gov](http://www.ahrq.gov) for the full evidence report



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## Preventive Services

*Access to scientific evidence, recommendations on clinical preventive services, and information on how to implement recommended preventive services in clinical practice.*

### [U.S. Preventive Services Task Force \(USPSTF\)](#)

An independent panel of experts in primary care and prevention that systematically reviews the evidence of effectiveness and develops recommendations for clinical preventive services.

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### [Put Prevention Into Practice \(PPIP\)](#)

A program to increase the appropriate use of clinical preventive services, such as screening tests, immunizations, and counseling, which are based on USPSTF recommendations.

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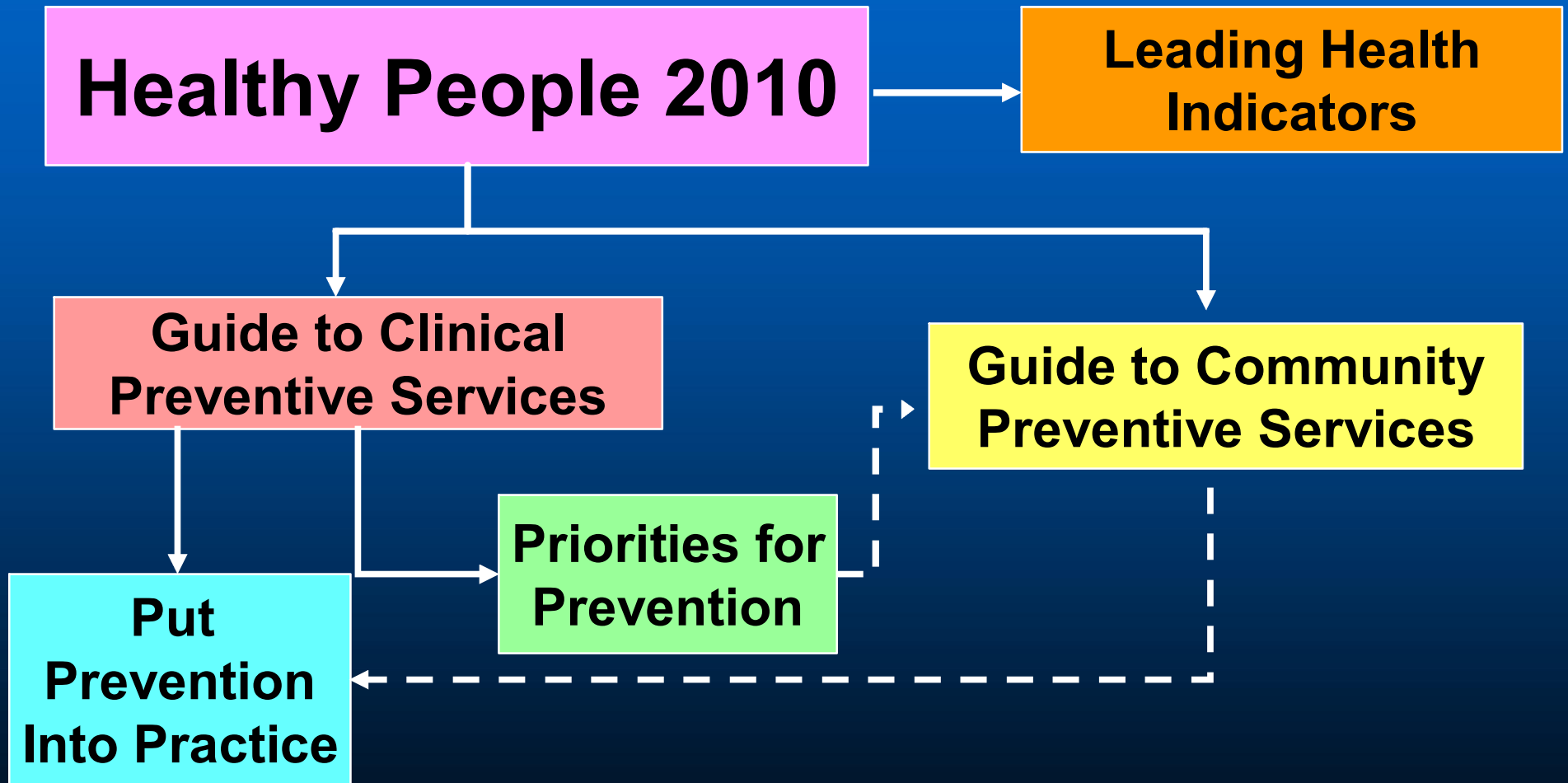
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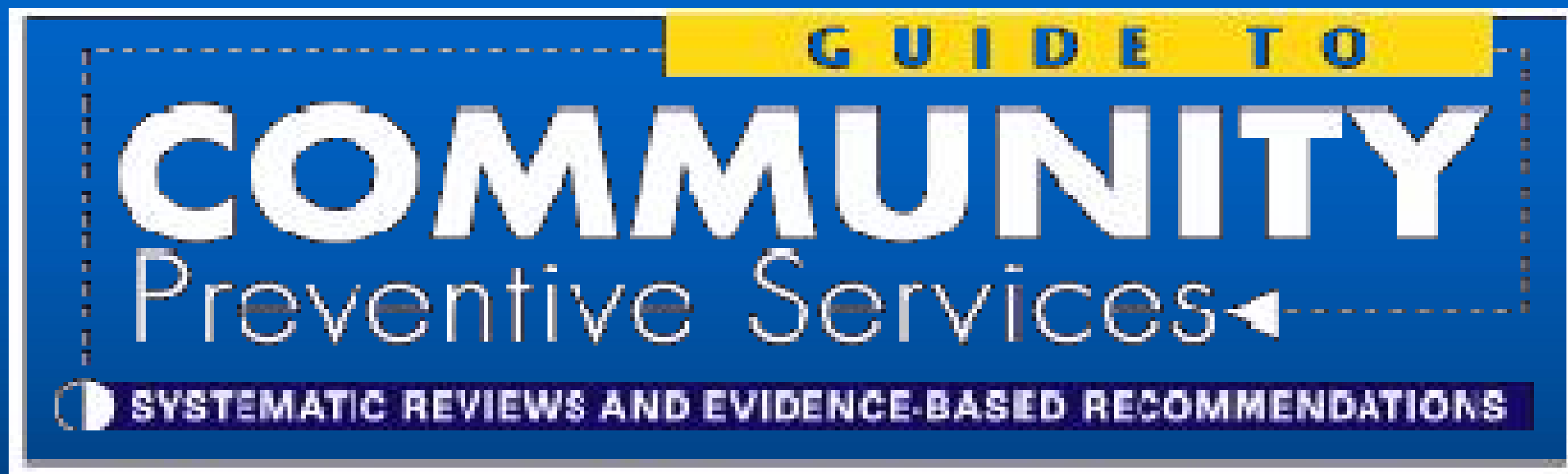
New recommendations from the  
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# Cross-Cutting Federal Initiatives in Prevention





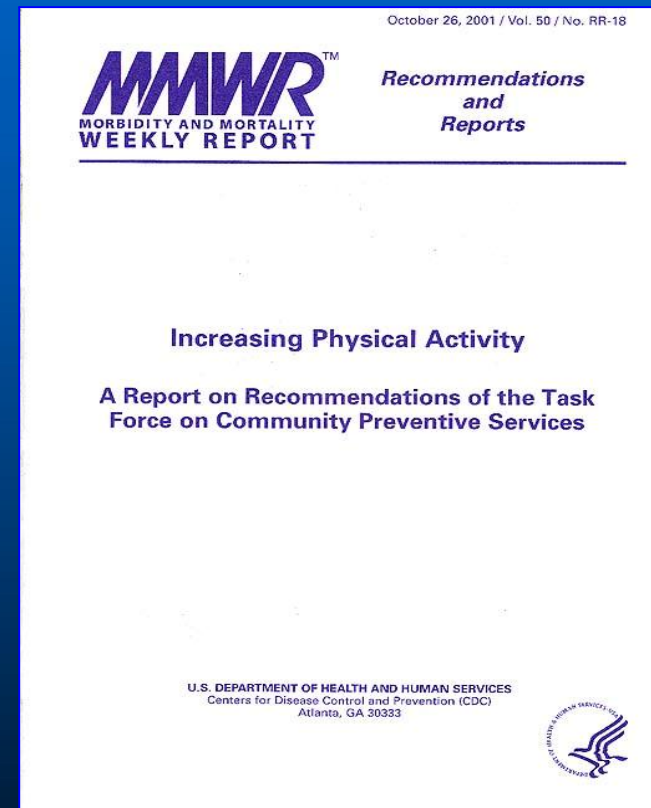
## Physical Activity

# ***The Guide to Community Preventive Services (Community Guide)***

- Independent Non-federal Task Force
- A Process
  - Systematic reviews of the literature
  - Assessments of study quality
  - Summary of outcomes
- *Community Guide* – gold standard for reviews of population based interventions
- A Product
  - Evidence-based recommendations
  - Book
  - Website ([www.thecommunityguide.org](http://www.thecommunityguide.org))

# *Evidence-based Interventions to Promote Physical Activity*

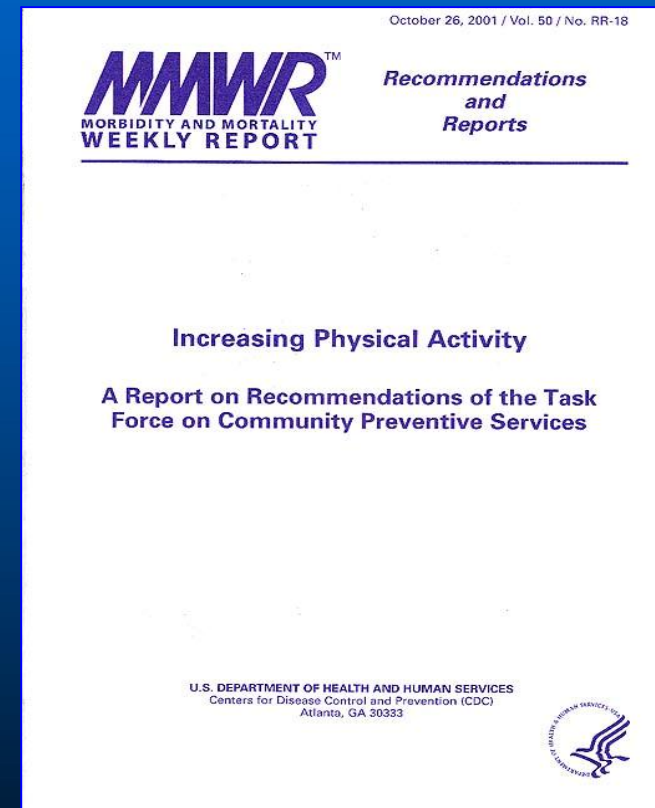
- Informational
  - Community-wide campaigns
  - Point-of-decision prompts
- Behavioral and social
  - School-based PE
  - Social support in community settings
  - Individually adapted behavior change
- Environmental and policy
  - Enhanced access with outreach
  - Community-scale urban design
  - Street-scale urban design/land use





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## Importance

- Environmental/policy interventions are the “New Frontier”
- Encompass many constructs of Ecological Models
  - especially the physical environment for promoting physical activity
  - provide the ‘framework’ for other intervention strategies
- We need better guidance on what works and how to intervene

# Community-scale urban design and land use policies and practices

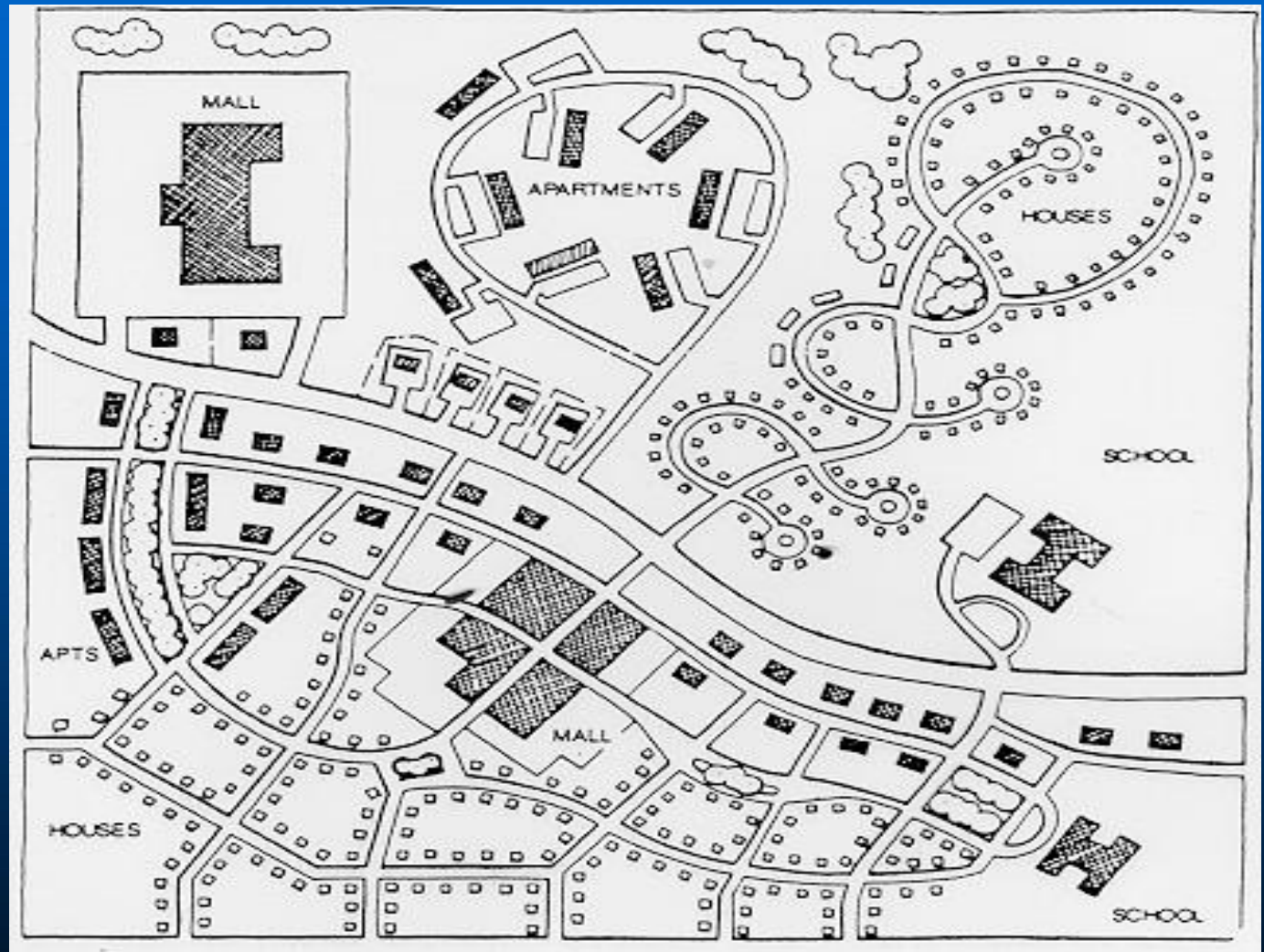
- Defined as: Urban design and land use policies and practices that support physical activity in geographic areas, generally several square kilometers in area or more.
- Examples of interventions include
  - Infrastructure projects to improve **continuity** and **connectivity** of streets, sidewalks, and bike lanes
  - Local zoning regulations and roadway design standards that promote **destination walking** and co-location of residential, commercial, and school properties

# Community Developments

Suburban  
development,  
many cul-de-  
sacs



Well-connected  
urban  
development with  
mixed land uses



## ***Community Guide Recommendation: Community-scale urban design and land use policies***

- The Task Force *recommends* community-scale urban design and land use policies and practices to promote physical activity based on sufficient evidence of effectiveness.
- Evidence was considered sufficient based on:
  - Sufficient effect size
  - Consistency of results: ↑ levels of PA associated with improved continuity and connectivity of streets and sidewalks; ↑ levels of PA associated with local mixed-use zoning and roadway design that promotes destination walking
- Other supporting evidence
  - Dose-response across levels of exposure
  - Face validity
  - Other potential benefits include ↑: air quality, social capital, consumer choice, and green space

# Street-scale urban design and land use policies and practices

- Defined as: Urban design and land use policies that support physical activity in small geographic areas, generally limited to a few blocks.
- Intervention Characteristics: policy instruments and practices such as:
  - Implementation of improved street lighting
  - Infrastructure projects to:
    - Increase ease and safety of street crossing
    - Ensure sidewalk continuity
    - Introduce or enhance traffic calming
    - Enhance aesthetics of the streetscape

# ***Community Guide* recommendation:** **Street-scale urban design**

- The Task Force *recommends* use of street-scale urban design to increase physical activity based on sufficient evidence of effectiveness.
- Evidence was considered sufficient to make a recommendation based on sufficient effect size and consistency of results.
- Other supporting evidence
  - Face validity
  - Other potential benefits such as: ↑ social capital, ↓ stress, ↑ green space, and ↓ crime

## Interventions Typically Occur in Combination

- Difficult to separate out individual components
  - low-density, single land use, cul-de-sac street design, few or no sidewalks, long distances to destinations
  - High density, mixed housing, continuity of streets, presence and continuity of sidewalks, short distances to destinations.

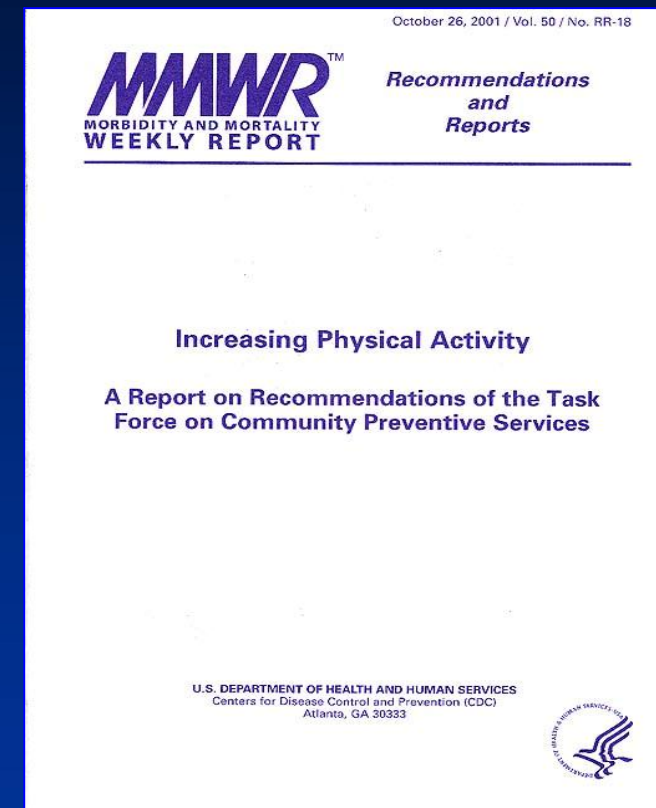


# Create/Enhance Access to Places for Physical Activity Plus Informational Outreach

- Creating/enhancing walking/biking trails or exercise facilities
- Increasing access to existing facilities by reducing barriers (e.g., safety, affordability)
- Training & social support
- “Combined package”

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# Community-wide Campaigns

- Large-scale, high intensity, high visibility
- Multi-media (e.g., TV, radio, newspapers, movie theaters, billboards, mailings)
- Multi-component (e.g., support groups, risk factor screening, community events, environmental changes)
- “Combined package”

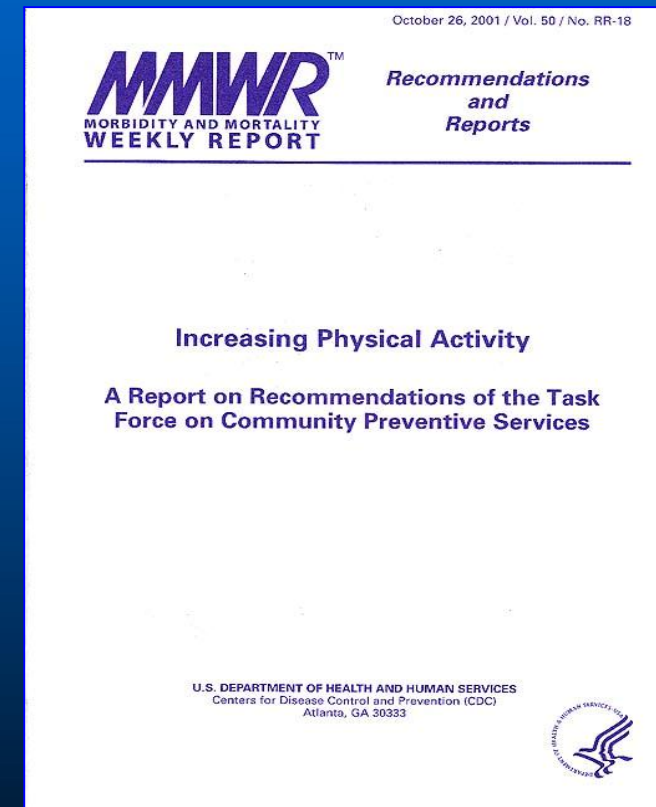


# Wheeling Walks – Community-wide Campaign

- Intervention was conducted April 17 2001 to June 9 2001 in Wheeling West VA (8 weeks)
- Directed to sedentary and irregularly active adults aged 50-65 years
- **Message Development:** pre-testing efforts
- **Intervention:** paid advertising, special public relations events designed to generate additional media coverage, public health educational activities at work sites, churches and local organizations
- **Outcome Measure:** pre-and post-intervention, brisk walking and moderate and vigorous intensity exercise behavior was assessed (total number of minutes per week)
  - walking (5 or more days and 150 min)
  - moderate (5 or more days and 150 min)
  - vigorous (3 or more days and 60 min)
- sedentary (do not meet any of the above CDC/ACSM recommendations)

# *Evidence-based Interventions to Promote Physical Activity*

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# “Point-of-Decision” Prompts

- Motivational signs placed by elevators and escalators
- Encourage stair use for health/weight control
- Single component

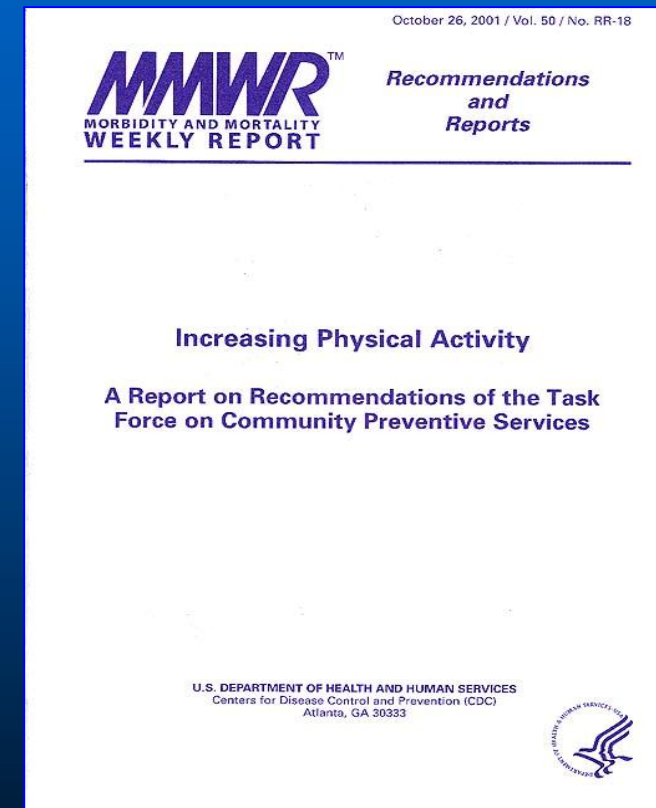
There are 1440 minutes in every day... schedule 30 of them for physical activity.

## The CDC Stairwell Project

- Sequential environmental changes – new painting/carpet; artwork; motivational signs; music
- Proximity sensors – counters
- Results: Motivational signs/music – 8.9% increase for both, independently assessed

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# Enhanced Physical Education

- Modified curricula and policies
- Designed to make PE classes longer or have students be more active during class
- Changed activities taught or modified game rules

# SPARK

- The focus of **SPARK** is the development of healthy lifestyles, motor skills and movement knowledge, and social and personal skills.
- **It is expected that SPARK Physical Education/Physical Activity students will:**
  - Enjoy and seek out physical activity.
  - Develop and maintain acceptable levels of physical fitness.
  - Develop a variety of basic movement and manipulative skills so they will experience success and feel comfortable during present and future physical activity pursuits.
  - Develop the ability to get along with others in movement environments (e.g., share space and equipment, employ the "golden rule" of competition-be a good sport, and demonstrate cooperative behavior).
- <http://www.sparkpe.org/index.jsp>

# CATCH

- **CATCH Physical Education will:**
  - Provide meaningful movement experiences which target individual fitness and skill levels of all learners.
  - Increase moderate-to-vigorous physical activity in physical education class.
  - Promote adequate amounts of physical activity now and throughout life.
  - Maximize time on task and learning opportunities.
  - Engage students in fun and motivating activities.
- <http://www.sph.uth.tmc.edu/chppr/catch/>

# Social Support in Community Settings

- Build, strengthen, and maintain social networks that support behavior change
- Settings include communities, work- sites, universities
- ‘Buddy’ systems
- Contracting
- Walking groups

# Woman's Walk Program

- The goal of the intervention program was for each woman to achieve and maintain a minimum walking distance of 11.2 km/wk (7 miles/wk).
- The women could walk on their own or with one of the walking groups that was organized by the study and conducted by one of the study's exercise leaders (A.M.K.).
- At the end of the trial, women in the walking group had significantly ( $P$  range, .006 to .03) higher levels of physical activity on subjective and objective measures of physical activity.
- Kriska AM, et al. Med Sci Sports Exerc 1986;18(5):557–62.

# Individually-Adapted Health Behavior Change

- Goal setting and self-monitoring
- Building social support
- Behavioral reinforcement
- Structured problem solving
- Relapse prevention
- Delivered in group settings or by mail, phone, or directed media

# Project WALK

- Project WALK is a home-based mail and telephone study designed to promote walking among sedentary women of color.
- Behavioral (Intervention) Group – For 8 weeks, women received four different materials through the mail: two pamphlets published by the American Heart Association (AHA), “Exercise and Your Heart” and “Silent Epidemic: The Truth About Women and Heart Disease”; The Stanford Walking Kit; and one-page tip sheets on how to overcome specific barriers presumed to be salient to ethnic minority women (e.g., child care, safety, time constraints).
- Chen AH, Sallis JF, Castro CM, et al. **1998**. A home-based behavioral intervention to promote walking in sedentary ethnic minority women: Project WALK. *Journal of Women’s Health: Research on Gender, Behavior, and Policy*, 4(1): 19-39.

# Making Sense of What Works

## *Community Guide:*

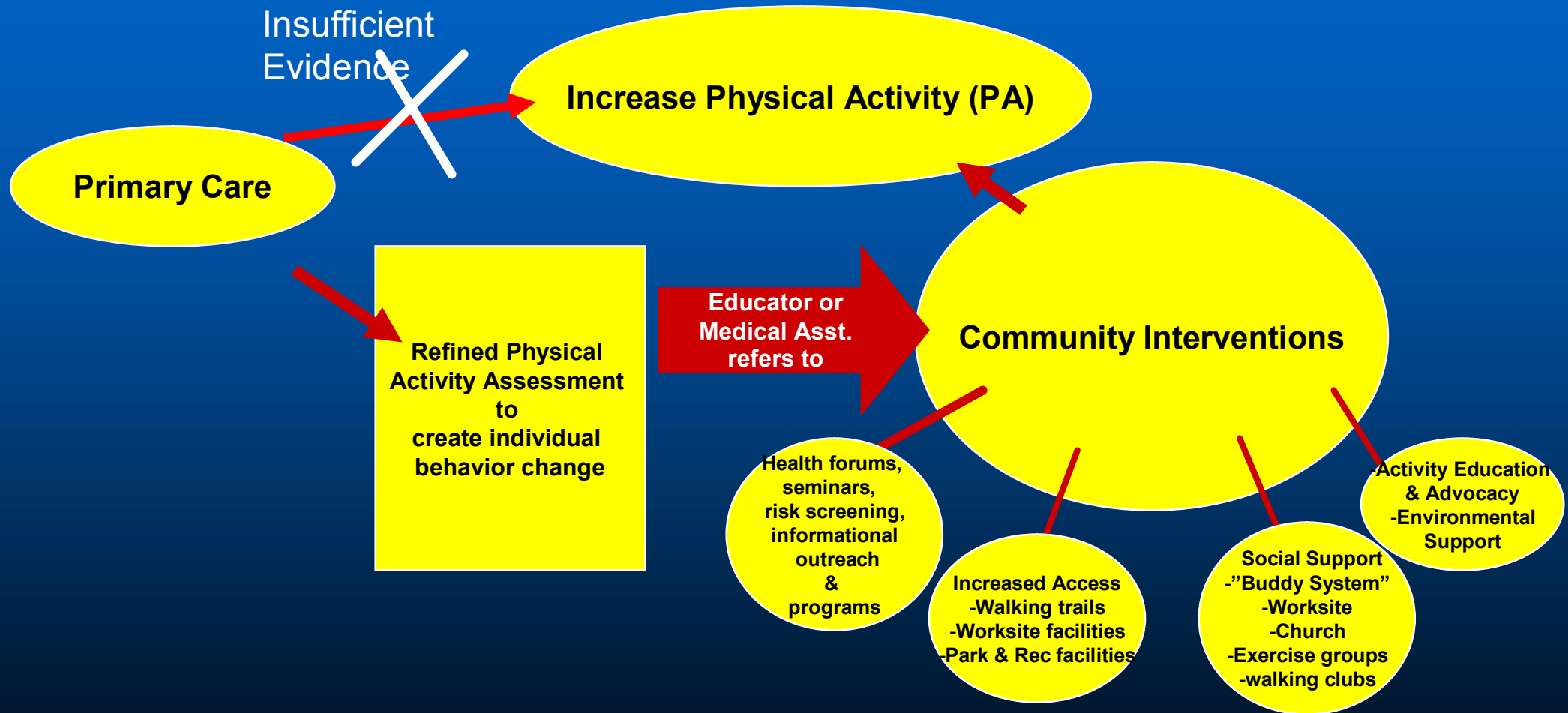
- Should *not* be viewed as the sole source for informed decision-making
- Are not conceptualized to address the needs of the community, cultural appropriateness, and political considerations
- Will be most useful when used in conjunction with local community needs assessment and planning



## How Do I Find It?

- Publications
  - MMWR Reports & Recommendations (R&R) series
  - American Journal of Preventive Medicine – special supplements
- Websites
  - [www.thecommunityguide.org](http://www.thecommunityguide.org)
  - [www.cdc.gov/nccdphp/dnpa/physical/index.htm](http://www.cdc.gov/nccdphp/dnpa/physical/index.htm)

# Combined Intervention Model



# Sample Current Assessment Tools

- PACE (Patient-centered Assessment & Counseling for Exercise and Nutrition)

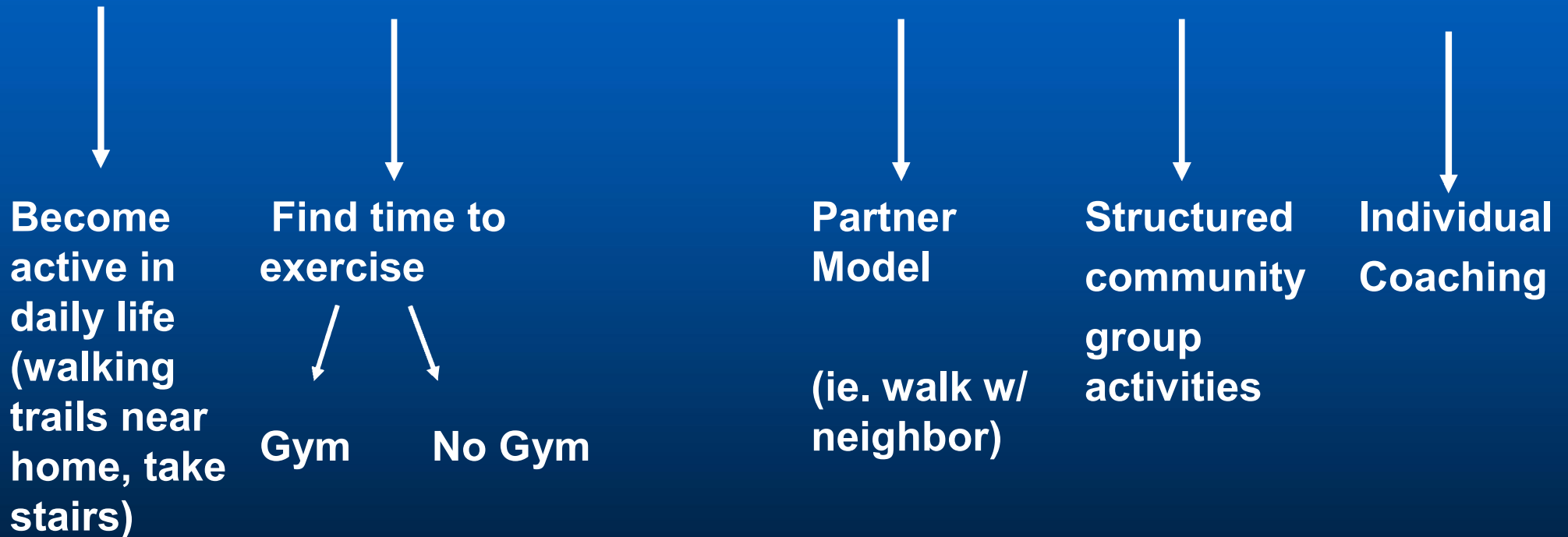
PACE Project, San Diego State University

- PAR-Q (Physical Activity Readiness Questionnaire)

# Refined Assessment Tool

- Physical activity level and readiness to change
- Tailored activity plan
- Matched to community interventions
- Use of centralized health educator or promoter

# Health educator assessment process



# Conclusions

- Evidence is inconclusive that counseling in the primary care setting alone increases activity.
- A number of interventions in the community have been shown to be effective in promoting physical activity.
- Future research is needed that combine clinical and community interventions.