The Pediatrician and Promotion of Physical Activity in Children

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Kids Benefit from High Levels of Physical Activity

Lower Body Fatness

- Youth with high PA have lower body fatness
- Gutin et al. *Am J Clin Nutr* 2002;75:818-26
  - 13-18 y olds, n=80
  - 8 month intervention: Lifestyle Education & Training vs. Lifestyle Education
  - Significantly greater decrease in %fat & visceral adipose tissue with Lifestyle Education & Training

Favorable Cardiovascular & Metabolic Disease Risk Profiles

- Children and youth who are physically active have healthier cardiovascular & metabolic risk profiles than children who are inactive
- Andersen et al. *Lancet* 2006;368:299-304
  - Tested metabolic syndrome cluster scores
  - Youth with more MVPA had better scores than inactive youth
  - ≥ 360 min/week of MVPA associated with good risk profile

Higher Cardiorespiratory Fitness

- Pre-adolescents & adolescents can increase their CRF by 5-15% with exercise training
- Baquet et al. *Sports Med* 2003;33:1127-43
  - Reviewed 22 controlled training studies
  - CRF was improved with:
    - Intensity > 80% HR Max
    - Frequency of 3 – 4 days/week
    - Duration of 30-60 min/session

Increased Muscular Strength

- Children and adolescents can increase their muscular strength with resistance training 2 or 3 times/week
- Malina RM. *Clin J Sport Med* 2006;16:478-87
  - Reviewed 22 experimental studies
  - Muscular strength improved with:
    - Intensity range 50% to 85%
    - Frequency of 2 – 3 days/week with rest
    - Duration of 8- or 12-week programs

Increased Bone Density

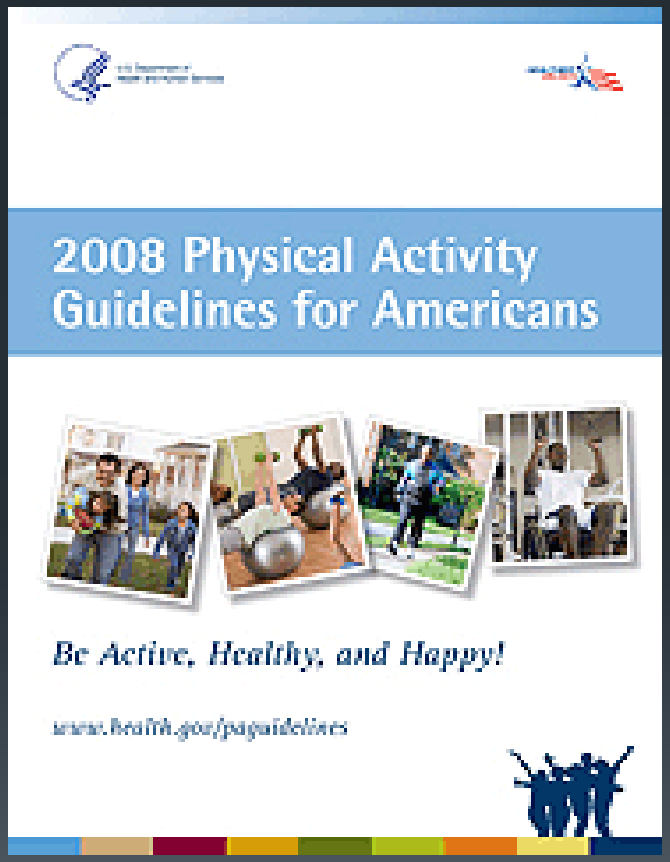
- Children and adolescents can increase their bone mineral content and density with weight-loading activities
- Arnett & Lutz. *Med Sci Sports Exerc* 2002;34:1913-9
  - Improved bone density in 14-15 y old girls with:
    - Type – high-intensity jumping rope
    - Intensity – ground reaction force=3.2 x BW
    - Duration – 4 months

Reduced Symptoms of Depression

- Children and adolescents can reduce their symptoms of depression & anxiety with PA
- Motl et al. *Psychosom Med* 2004;66:336-42
  - Prospective study of 7th graders followed for 2 y
  - Measured non-school related PA
  - Increases in PA reduced depressive symptoms

U.S. Department of Health & Human Services www.hhs.gov

Physical Activity Guidelines for Americans

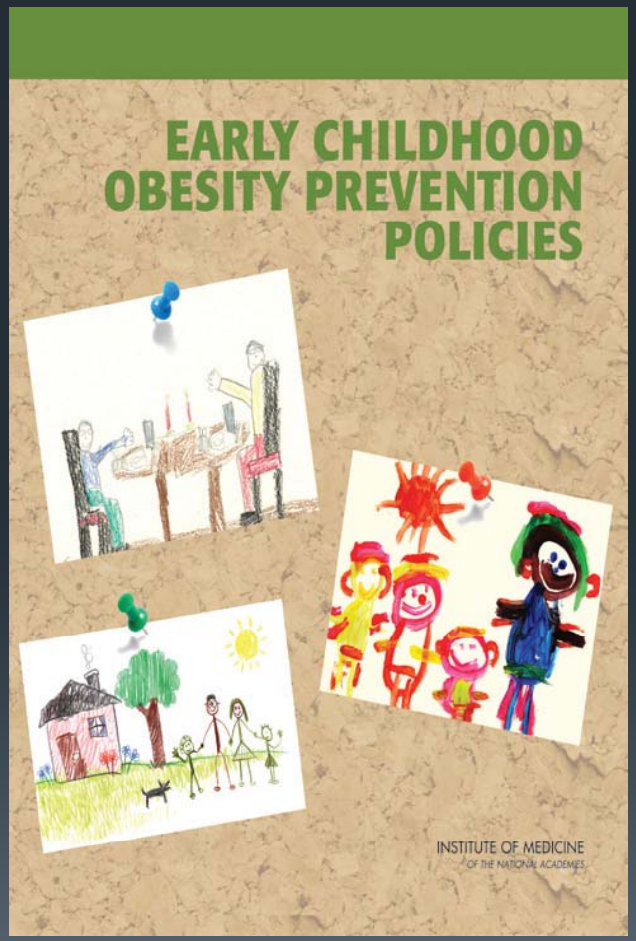


Current PA Guidelines for Children & Youth

- Children and adolescents should do 60 minutes or more of PA daily
  - **Aerobic:** moderate- or vigorous-intensity aerobic PA, including vigorous-intensity PA at least 3 days/week
  - **Muscle-strengthening**: at least 3 days/week
  - **Bone-strengthening**: at least 3 days/week

US DHHS 2008

IOM – Early Childhood Obesity Prevention Policies



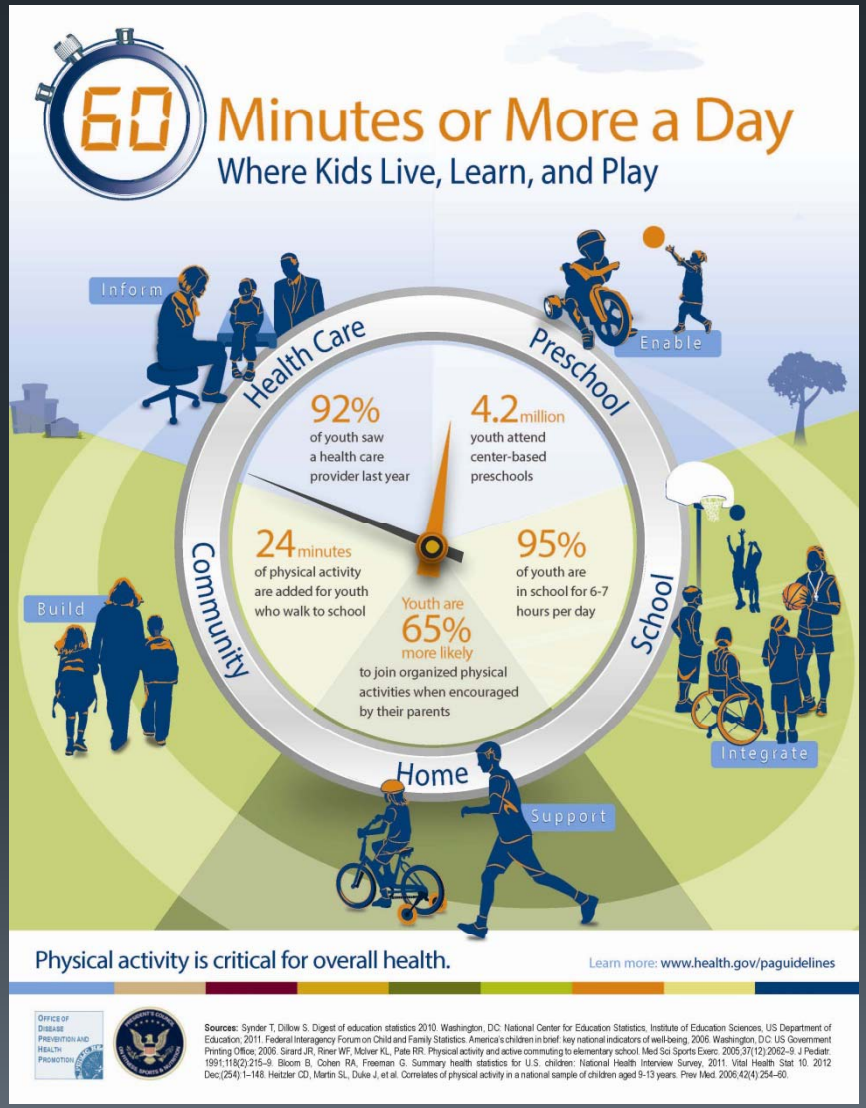
IOM Physical Activity Guidelines for Young Children

Toddlers and preschoolers should be provided with “opportunities for light, moderate, and vigorous physical activity for at least 15 minutes per hour while children are in care.” This is equal to 3 hours of physical activity over a period of 12 waking hours.

New PA Guidelines for Young Children

Organization, Date	Physical Activity Guidelines
Commonwealth of Australia, Dept. of Health and Aging, 2010	"toddlers and pre-schoolers should be physically active every day for at least 3 hours, spread throughout the day."
The 4 UK Chief Medical Officers, 2011	"children of pre-school age who are capable of walking unaided should be physically active daily for at least 180 minutes (3 hours), spread throughout the day."
Canadian Society for Exercise Physiology, 2012	"Toddlers (aged 1-2 years) and preschoolers (aged 3-4 years) should accumulate at least 180 min of PA at any intensity spread throughout the day"

PA Guidelines Mid-Course Report



US DHHS 2012

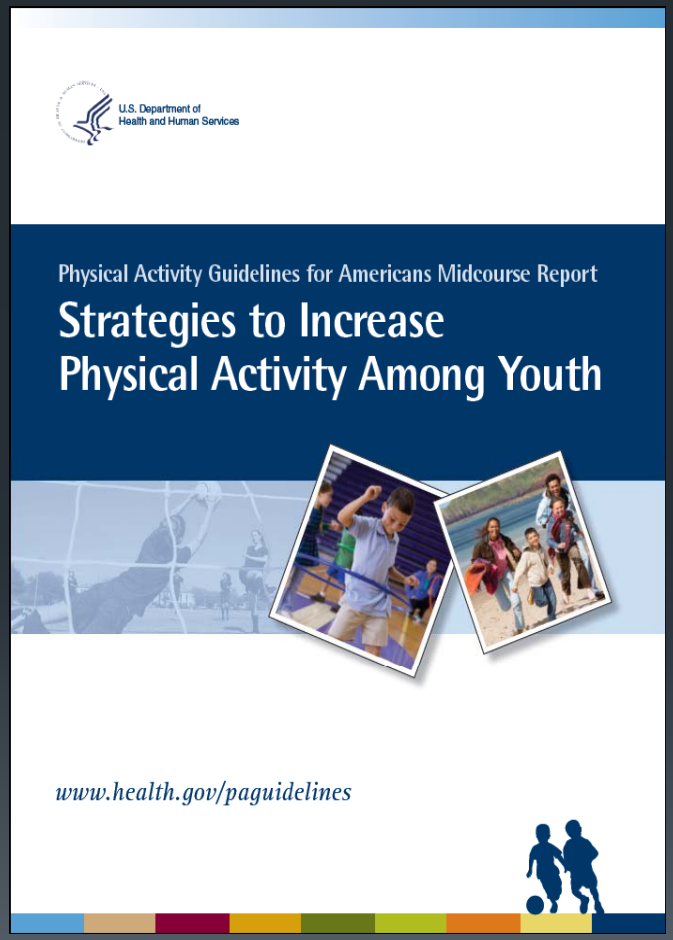
PA Guidelines Mid-Course Report

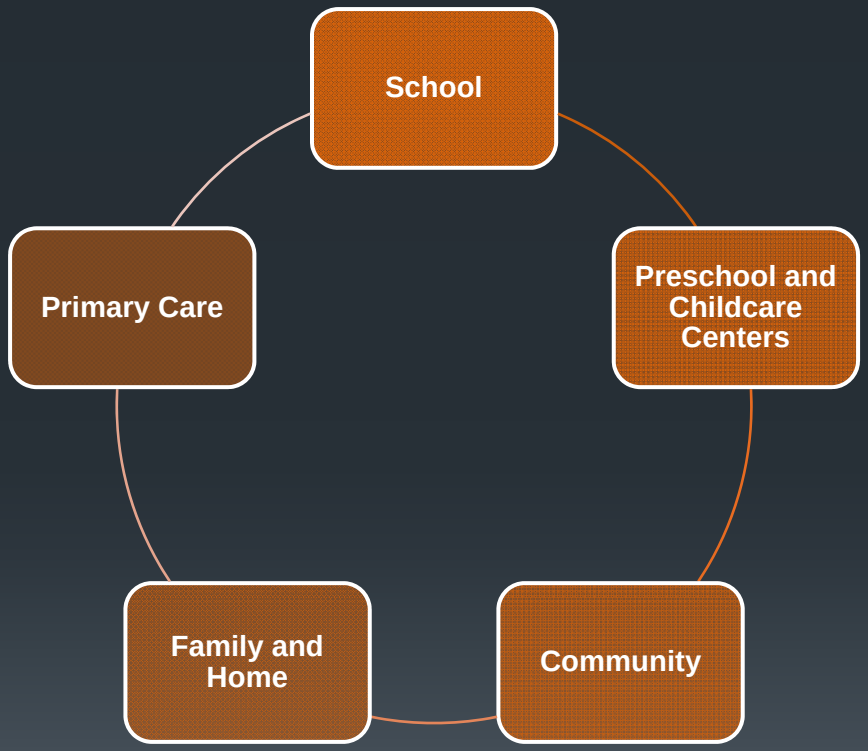
- Summarized evidence on effective strategies to increase PA in children ages 3-17 years from a review of reviews
- Summarized evidence as follows
  - Sufficient
  - Suggestive
  - Emerging
  - Insufficient

US DHHS 2012

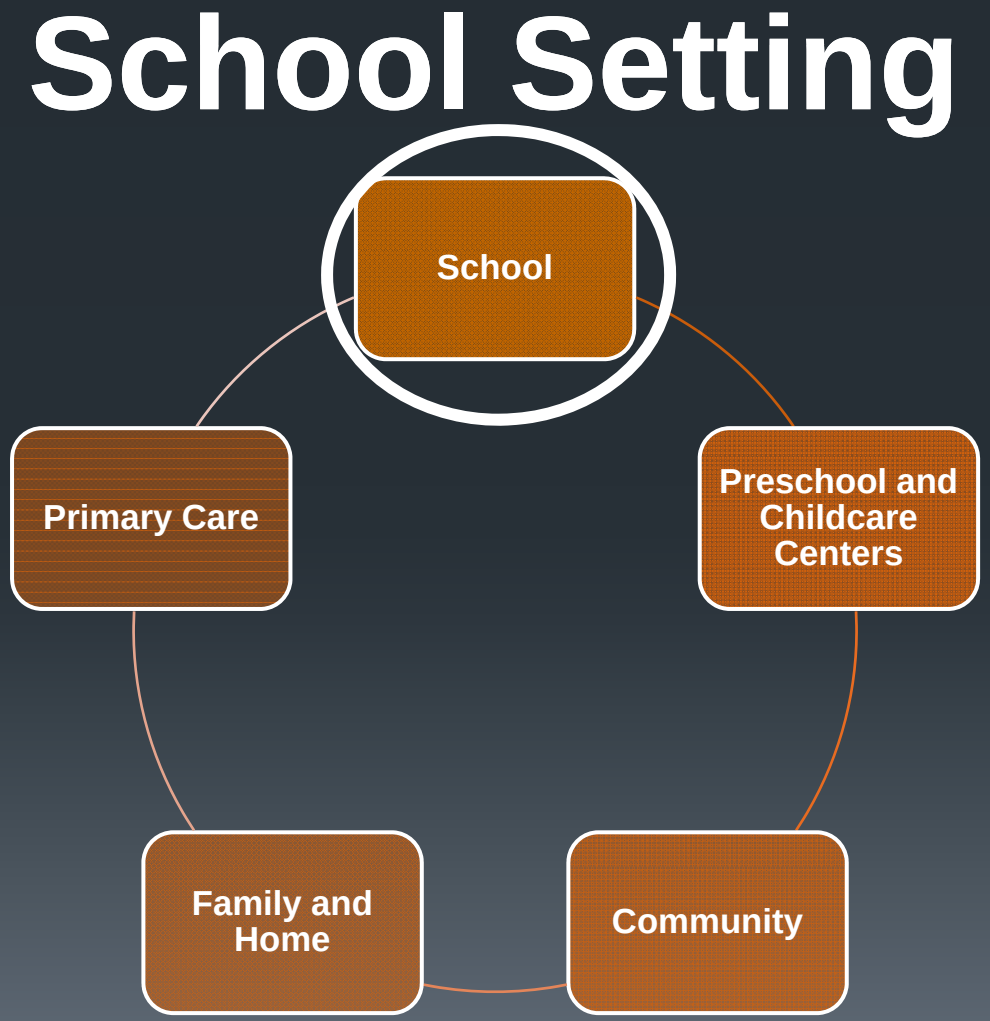
Socio-Ecological Model

Interventions to Increase Physical Activity in Children





Strategies to Increase Physical Activity



Multi-component

Evidence: Sufficient

Multi-component:
Strategies to Increase Physical Activity

- Provide enhanced physical education (PE) that increases lesson time, is delivered by well-trained specialists, and emphasizes instructional practices that provide substantial moderate-to-vigorous physical activity

- Provide classroom activity breaks

Multi-component
Strategies to Increase Physical Activity

- Develop activity sessions before and/or after school, including active transportation
- Build behavioral skills
- Provide after-school activity space and equipment

Physical Education

Evidence: Sufficient

Physical Education
Strategies to Increase Physical Activity

- Develop and implement a well-designed PE curriculum
- Enhance instructional practices to provide substantial moderate-to-vigorous physical activity
- Provide teachers with appropriate training

Active Transportation

Evidence: Suggestive

Activity Breaks

Evidence: Emerging

School Physical Environment

Evidence: Insufficient

Not applicable

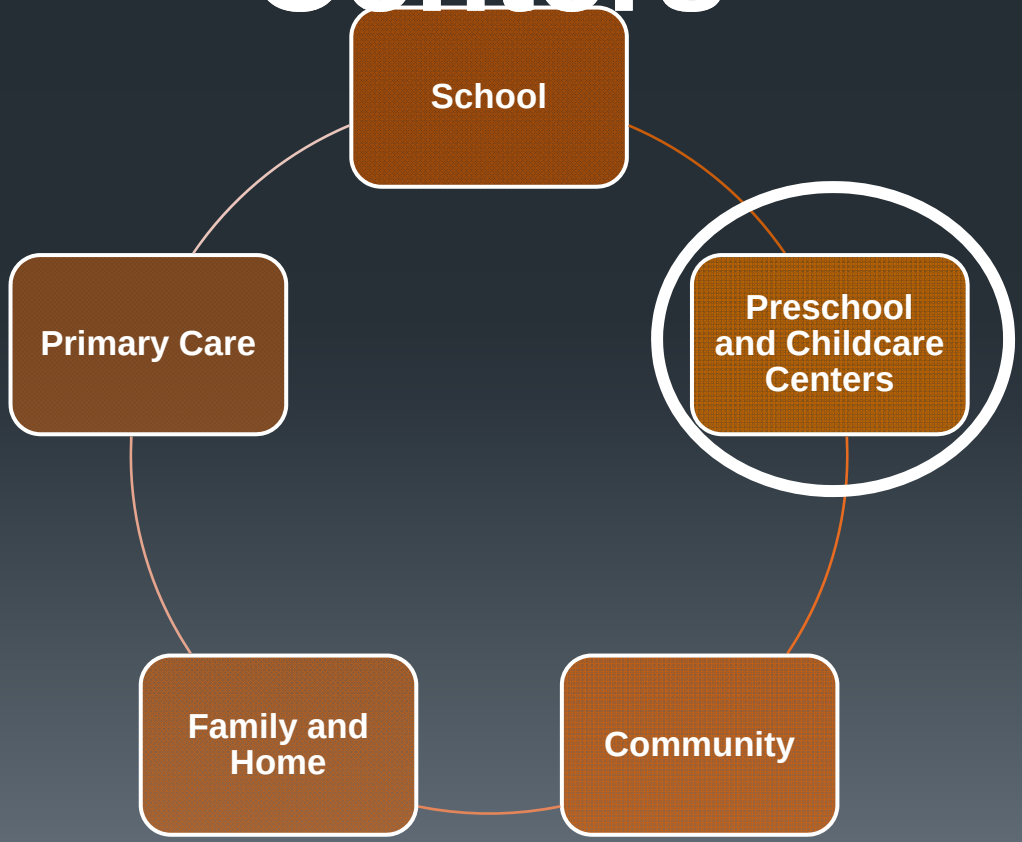
Afterschool

Evidence: Insufficient

Not applicable

Strategies to Increase Physical Activity

Preschool & Childcare Centers

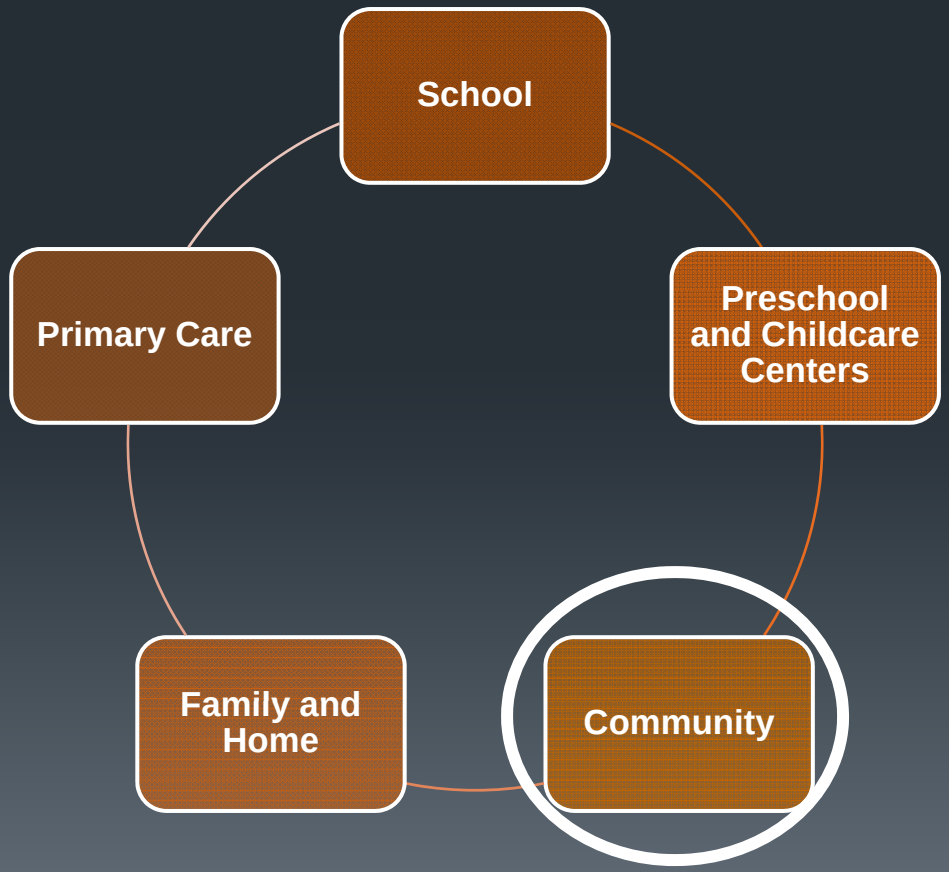


Preschool and Childcare Setting

Evidence: Suggestive

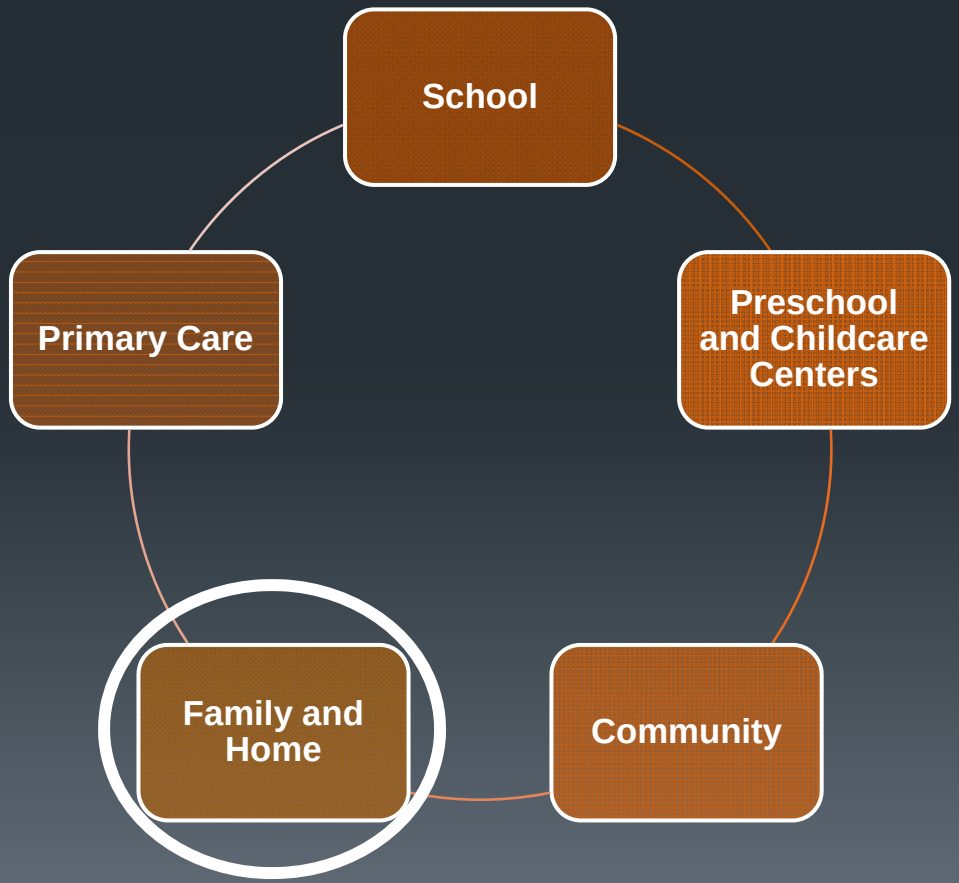
Strategies to Increase Physical Activity

Community Setting



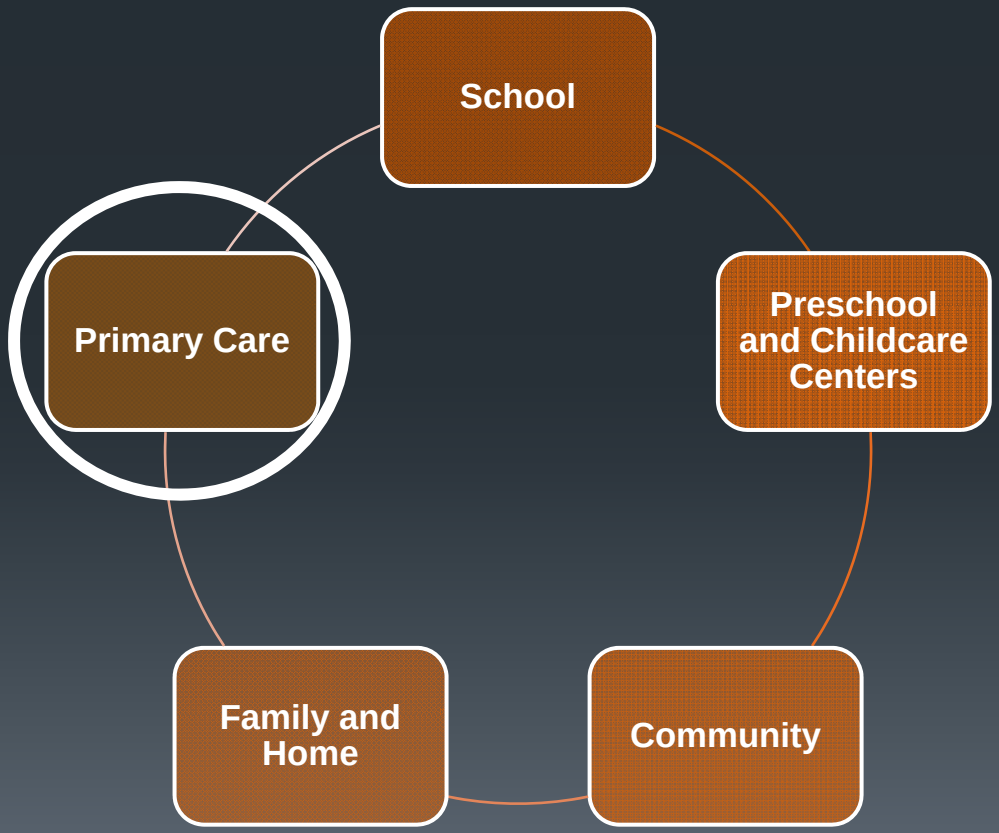
Strategies to Increase Physical Activity

Family & Home



Strategies to Increase Physical Activity

Primary Care



Primary Care Setting

Evidence: Insufficient

Not applicable

Primary Care Setting:
Next Steps for Research

- Conduct randomized, controlled studies of the effectiveness of primary care counseling on physical activity behavior.

- Identify the optimal intensity and delivery mode of primary care physical activity interventions.

Primary Care Setting:
Next Steps for Research

- Consider the utility of interventions that combine primary care counseling with referral and integration into community youth-focused programs.
- Identify the optimal age range for effective interventions in primary care settings, as well as intervention effects in normal weight as well as overweight or obese youth.

Primary Care Setting:
Next Steps for Research

- Examine strategies to promote physical activity in different primary care settings, including integrated health care, fee-for-service, and community clinics.
- Conduct cost-effectiveness research after effective interventions have been identified.
- Compare intervention effects across race, ethnicity, and socioeconomic groups.

Exercise is Medicine: A Global Health Initiative

Your Prescription for Health

ExeRxcise is Medicine®

Exercise is Medicine® is a global initiative to establish physical activity as a standard in healthcare.

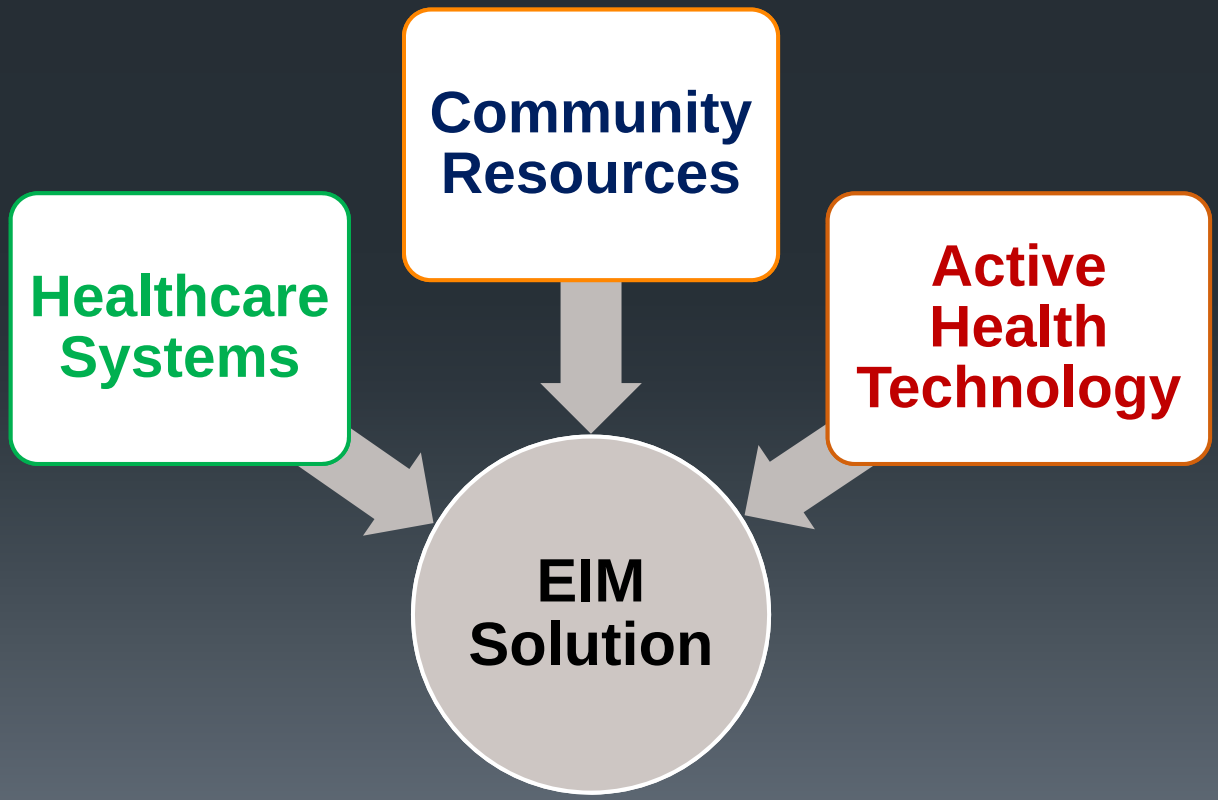
EIM's Goal is <u>Transformational Change</u>

- To <u>institutionalize</u> physical activity *assessment* & *prescription* into Global Healthcare Systems

Exercise is Medicine (EIM) Global Health Initiative Presence

The Exercise is Medicine® Solution

Three basic modules are necessary to establish physical activity as a standard in healthcare



Health Care Providers adopt the EIM Solution by integrating and implementing the clinician module (steps 1-3)

Healthcare Systems

Community Resources

Active Health Technology

EIM Solution

Healthcare Systems

Use the clinician module (steps 1-3) to promote physical activity to patients

1. Physical Activity Assessment

Clinicians and their healthcare team assess physical activity levels during every patient visits.

2. Physical Activity Prescription

Utilization of simple, fast, and effective tools for prescribing physical activity in the right “dose” for the prevention, treatment and management of chronic medical conditions.

3. Referral to a Physical Activity Network

Providing a list of programs, places, and professionals that offer the patient a selection of options that meet their individual needs and personal preferences to fill their physical activity prescription.

Healthcare Systems

1. Physical Activity Assessment

Healthcare professionals initiate a conversation about physical activity by assessing their current activity levels

- Physical activity can be quickly and efficiently assessed in the clinic setting through the use of the Physical Activity Vital Sign (PAVS).
- The PAVS is a simple 2 item questionnaire that can determine weekly minutes of moderate intensity physical activity.
- Healthcare teams can then assess whether patients are meeting national physical activity recommendations and adjust their treatment accordingly.
- The PAVS is most effective when embedded as a “vital sign” in the electronic medical record (EMR).

Healthcare Systems

2. Physical Activity Prescription

Healthcare professionals provide their patients with a prescription as a first step in promoting physical activity to their patient

- Using the results from the PAVS, healthcare providers can provide the patient with an appropriate physical activity prescription.
- Physical activity prescriptions are based on both identified health risks and American College of Sports Medicine (ACSM) evidence-based guidelines.
- Prescriptions can be provided to each patient through the use of EIM prescription pads or web-based tools.
- Prescriptions can then be filled through referral to existing community resources.

Healthcare Systems

3. Physical Activity Referral

Healthcare teams refer their patients to existing resources to support their efforts to become more active.

- Healthcare providers help their patients fill their exercise prescription by referring them to existing community resources.
- This may include directing patients to self-managed physical activity programs that can be performed independently.
- Other patients may need more structured programs that meet their individual health risks, abilities, and environmental needs.
- Existing community resources, such as certified **programs**, conducted at recognized **places**, hosted by credentialed **professionals**, may better engage patients in lifestyle modification strategies.

Clinic - END GOAL

No patient should leave a physician's practice without:

An assessment of their current physical activity levels

- and -

A physical activity prescription and referral to qualified resources for further counseling.

Your Prescription for Health

ExeRxcise is Medicine®

Existing **Community Resources** are utilized to support patients in increasing their physical activity levels (step 4).

Active Health Outcomes uses the power of technology for tracking participation, conducting assessments and reporting (step 5)

Community Resources

Healthcare Systems

Active Health Technology

EIM Solution